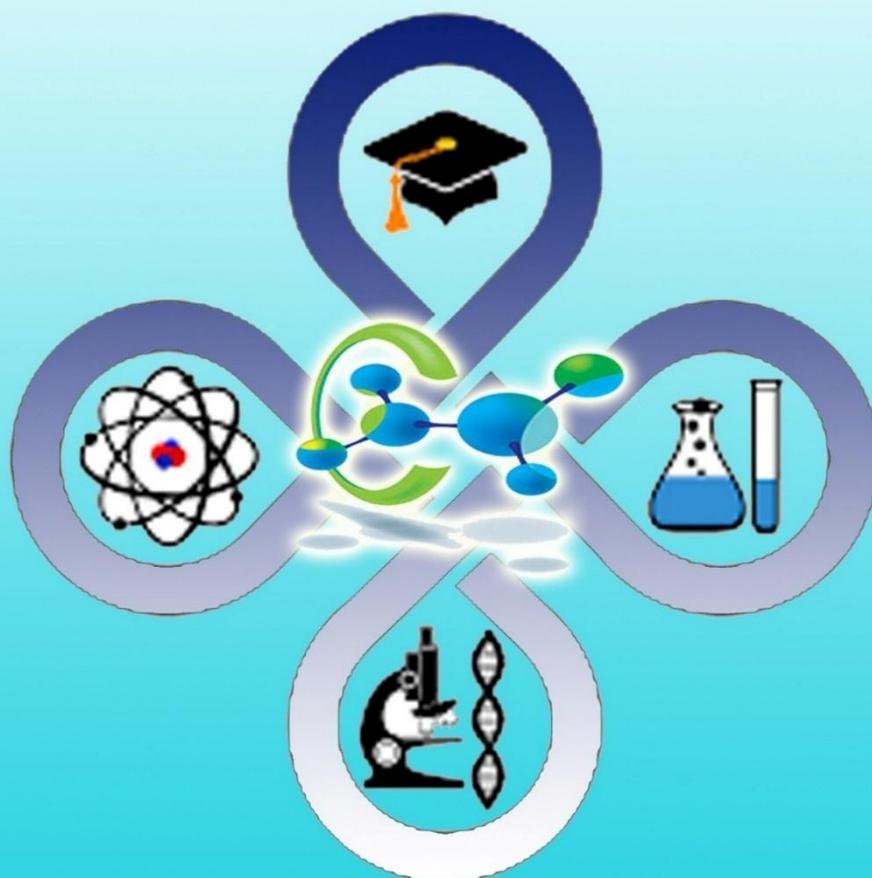


**MINTAQADA ZAMONAVIY FAN, TA'LIM VA TARBIYANING  
DOLZARB MUAMMOLARI**

**ACTUAL PROBLEMS OF MODERN SCIENCE, EDUCATION  
AND TRAINING IN THE REGION**

**АКТУАЛЬНЫЕ ВОПРОСЫ СОВРЕМЕННОЙ НАУКИ,  
ОБРАЗОВАНИЯ И ВОСПИТАНИЯ В РЕГИОНЕ**



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## INTEGRATION OF THE TODA-TYPE CHAIN WITH SELF-CONSISTENT SOURCE VIA INVERSE SCATTERING METHOD

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**Abstract.** In this paper, it is shown that the solutions of the Toda-type chain with self-consistent source can be found by the inverse scattering method for the discrete Sturm-Liouville operator.

**Annotatsiya.** Mazkur ishda sochilish nazariyasining teskari masalasi usuli moslangan manbali Toda zanjiri turidagi tenglamani integrallashga tadbiiq etilgan.

**Аннотация.** В этой работе метод обратной задачи теории рассеяния применяется к интегрированию уравнения типа цепочки Тоды с самосогласованным источником.

**Keywords.** Toda chain, self-consistent source, inverse scattering method, discrete Sturm-Liouville operator, one-soliton solution.

**Kalit soʻzlar.** Toda zanjiri, diskret Sturm-Liuvill operatori, moslangan manba, sochilish nazariyasining teskari masalasi, solitonsimon yechim lar.

**Ключевые слова.** Цепочка Тоды, дискретный оператор Штурма-Лиувилля, самосогласованный источник, солитонное решение.

### 1. Introduction

The Toda lattice [1-2] is a simple model for a nonlinear one-dimensional crystal that describes the motion of a chain of particles with exponential interactions of the nearest neighbors. The equation of motion for such a system is given by

$$\frac{d^2 u_n}{dt^2} = \exp(u_{n-1} - u_n) - \exp(u_n - u_{n+1}), \quad n \in Z,$$

where  $u_n(t)$  the co-ordinate of the  $n$  th atom in a lattice. Using Flaschka's variables [3]

$$a_n = \frac{1}{2} \exp\left(\frac{u_n - u_{n+1}}{2}\right), \quad b_n = \frac{1}{2} \dot{a}_n,$$

the Toda equation can be rewritten in the form

$$\begin{cases} \dot{a}_n = a_n (b_n - b_{n+1}), \\ \dot{b}_n = 2(a_{n-1}^2 - a_n^2), \end{cases} \quad n \in Z. \quad \text{Soliton solutions of the Toda lattice are obtained in the works [4-5].}$$

Soliton equations with self-consistent sources have received much attention in the recent research literature. They have important applications in plasma physics, hydrodynamics, solid state physics, etc. [6-12]. For example, the KdV equation, which is included an integral type self-consistent source, was considered in [9]. By this type equation the interaction of long and short capillary-gravity

waves can be described [10]. Other important soliton equations with self-consistent source are the nonlinear Schrodinger equation with self-consistent sources which describes the nonlinear interaction of an ion acoustic wave in the two component homogeneous plasma with the electrostatic high frequency wave [11]. Different techniques have been used to construct their solutions, such as inverse scattering [7, 8, 13, 14, 15], Darboux transformation [16–19] or Hirota bi-linear methods [20–22].

In the work [23] it is shown that Toda lattice with self-consistent source can be integrated by Inverse Scattering Method for the discrete Sturm-Liouville operator.

In this work, we explore the Toda-type chain with self-consistent source. The purpose of this paper is to derive representations for the solutions of the Toda-type chain with self-consistent source in the framework of the inverse scattering method for the discrete Sturm-Liouville operator. An effective method of integration of the Toda-type chain with self-consistent source is presented.

The considering system, similarly to [24, 25], can be used in some models of special types of electric transmission line.

The paper is organized as follows. In section 2, we present the formulation of the problem which is being considered. We give some basic information about the scattering theory for the discrete Sturm–Liouville operator in section 3. Sections 4–5 are devoted to deducing the evolution of the scattering data corresponding to the problem in question. In section 6, we illustrate the usage of the main result for the exact initial condition.

## 2. Formulation of the problem

In this section, we present the formulation of the problem which is being considered. In the present paper, we consider the system of equations

$$\begin{cases} \dot{a}_n = a_n(a_{n+1}^2 - a_{n-1}^2) + a_n(b_{n+1}^2 - b_n^2) + a_n \sum_{i=1}^N ((g_n^i)^2 - (g_{n+1}^i)^2), \\ \dot{b}_n = 2a_n^2(b_{n+1} + b_n) - 2a_{n-1}^2(b_n + b_{n-1}) - 2 \sum_{i=1}^N g_n^i (a_n g_{n+1}^i - a_{n-1} g_{n-1}^i), \\ a_{n-1} g_{n-1}^k + b_n g_n^k + a_n g_{n+1}^k = \lambda_k g_n^k, \quad k = 1, 2, \dots, N, \quad n \in \mathbb{Z}, \end{cases} \quad (1)$$

Here, the functions sequences  $\{a_n(t)\}_{-\infty}^{\infty}$ ,  $\{b_n(t)\}_{-\infty}^{\infty}$ ,  $\{g_n^1(t)\}_{-\infty}^{\infty}$ ,  $\{g_n^2(t)\}_{-\infty}^{\infty}$ , ...,  $\{g_n^N(t)\}_{-\infty}^{\infty}$  are unknown vector-functions, besides  $\{g_n^k(t)\}_{-\infty}^{\infty}$  is the eigenfunction of the linear operator

$$(L(t)y)_n \equiv a_{n-1}y_{n-1} + b_n y_n + a_n y_{n+1},$$

corresponding to the eigenvalue  $\lambda_k = \frac{z_k + z_k^{-1}}{2}$ ,  $k = 1, 2, \dots, N$ .

We assume that eigenvectors  $\{g_n^k(t)\}_{-\infty}^{\infty}$  are normalized by conditions

$$\sum_{n=-\infty}^{\infty} (g_n^k(t))^2 = A_k(t), \quad (2)$$

where  $A_k : [0, \infty) \rightarrow (0, \infty)$  are arbitrary continuous functions for all  $k \in \{1, 2, \dots, N\}$ .

The problem (1) is considered under initial conditions

$$a_n(0) = a_{n0}, \quad b_n(0) = b_{n0}, \quad n \in \mathbb{Z}, \quad (3)$$

where  $\{a_{n0}\}_{-\infty}^{\infty}, \{b_{n0}\}_{-\infty}^{\infty}$  satisfy the following properties:

$$1. \quad a_{n0} > 0, \quad \text{Im} b_{n0} = 0, \quad n \in \mathbb{Z},$$

$$2. \quad \sum_{n=-\infty}^{\infty} |n| \left( \left| a_{n0} - \frac{1}{2} \right| + |b_{n0}| \right) < \infty,$$

3. The operator  $L(0)$  has exactly  $N$  eigenvalues  $\lambda_1(0), \lambda_2(0), \dots, \lambda_N(0)$  which are out of the interval  $[-1; 1]$ .

The main aim of this work is to derive representations for the solutions  $\{a_n(t)\}_{-\infty}^{\infty}, \{b_n(t)\}_{-\infty}^{\infty}, \{g_n^1(t)\}_{-\infty}^{\infty}, \{g_n^2(t)\}_{-\infty}^{\infty}, \dots, \{g_n^N(t)\}_{-\infty}^{\infty}$  of the problem (1)-(3) with the use of the inverse scattering method for the operator  $L(t)$ .

### 3. Basic facts about the scattering problem

In this section, we momentarily omit the dependence of the functions  $\{a_n(t)\}_{-\infty}^{\infty}, \{b_n(t)\}_{-\infty}^{\infty}$  on variable  $t$ .

We start with the following discrete Sturm–Liouville equation

$$(Ly)_n \equiv a_{n-1}y_{n-1} + b_n y_n + a_n y_{n+1} = \lambda y_n, \quad n \in \mathbb{Z}, \quad (4)$$

with spectral parameter  $\lambda = \frac{z + z^{-1}}{2}$  where  $\{y_n\}_{-\infty}^{\infty}$  is unknown vector. We suppose that the sequences  $\{a_n\}_{-\infty}^{\infty}, \{b_n\}_{-\infty}^{\infty}$  satisfy the conditions

$$a_n > 0, \quad \text{Im} b_n = 0, \quad n \in \mathbb{Z}, \quad \sum_{n=-\infty}^{\infty} |n| \left( \left| a_n - \frac{1}{2} \right| + |b_n| \right) < \infty. \quad (5)$$

In this section we give basic information about the theory of direct and inverse scattering problem for the operator  $L$ . This theory was developed in the work [26].

**If condition (5) is valid, then equation (4) has Jost solutions with the asymptotics:**

$$\begin{aligned} \varphi_n(z) &= z^n + o(1) \quad \text{as } n \rightarrow \infty, \quad |z| = 1, \\ \psi_n(z) &= z^{-n} + o(1) \quad \text{as } n \rightarrow -\infty, \quad |z| = 1. \end{aligned} \quad (6)$$

Under the condition (5) it is known that such solutions exist, moreover they are identified by asymptotics (6) unique and analytically extended into the circle  $|z| < 1$ .

The function  $\varphi_n(z)$  admits the following representation

$$\varphi_n(z) = \sum_{n'=n}^{\infty} K(n, n') z^{n'}, \quad (7)$$

where the coefficients  $K(n, n')$  is independent on  $z$ , and is related to  $a_n$  and  $b_n$  by formulas

$$a_n = \frac{1}{2} \frac{K(n+1, n+1)}{K(n, n)}, \quad b_n = \frac{1}{2} \left( \frac{K(n, n+1)}{K(n, n)} - \frac{K(n-1, n)}{K(n-1, n-1)} \right). \quad (8)$$

For  $|z|=1$  the pairs  $\{\varphi_n(z), \varphi_n(z^{-1})\}$  and  $\{\psi_n(z), \psi_n(z^{-1})\}$  are the pairs of linearly independent solutions of (4), therefore

$$\psi_n(z) = \alpha(z) \varphi_n(z^{-1}) + \beta(z) \varphi_n(z), \quad (9)$$

where

$$\alpha(z) = \frac{2}{z - z^{-1}} W\{\psi_n(z), \varphi_n(z)\}, \quad (10)$$

and  $W\{\psi_n(z), \varphi_n(z)\} \equiv a_n (\psi_n(z) \varphi_{n+1}(z) - \psi_{n+1}(z) \varphi_n(z))$ .

The scattering function is given by the formula  $R(z) = \frac{\beta(z)}{\alpha(z)}$ .

The function  $\alpha(z)$  can be analytically continued into the circle  $|z| < 1$  and there it has finitely many zeros  $z_1, z_2, \dots, z_N$ . The points  $\lambda_k = \frac{z_k + z_k^{-1}}{2}$ ,  $k = 1, 2, \dots, N$  correspond to eigenvalues of the operator  $L$ .

From (10) it follows that

$$\psi_n^k = \beta_k \varphi_n^k, \quad k = 1, 2, \dots, N, \quad (11)$$

where  $\psi_n^k \equiv \psi_n(z_k)$ .

Let  $\{\xi_n^k\}_{n=-\infty}^{\infty}$  be the eigenvector corresponding to eigenvalues  $\lambda_k = \frac{z_k + z_k^{-1}}{2}$

that is normalized by following condition

$$\sum_{n=-\infty}^{\infty} (\xi_n^k)^2 = 1.$$

It is obvious that  $\xi_n^k = C_k \varphi_n^k$ ,  $k = 1, 2, \dots, N$ .

From known equality

$$\dot{\alpha}(z_k) = -\frac{1}{z_k} \sum_{j=-\infty}^{\infty} \varphi_j(z_k) \psi_j(z_k),$$

we get

$$C_k^2 = -\frac{\beta_k}{z_k \dot{\alpha}(z_k)}, \quad k = 1, 2, \dots, N. \quad (12)$$

The set of quantities  $\{R(z), z_1, z_2, \dots, z_N, C_1, C_2, \dots, C_N\}$  is called the scattering data for equations (4).

The coefficients  $K(n, n')$  given in representation (7) satisfy the equation of Gelfand-Levitan-Marchenko type

$$\chi(n,m) + F(n+m) + \sum_{n'=n+1}^{\infty} \chi(n,n')F(n'+m) = 0, \quad m > n,$$

$$(K(n,n))^{-2} = 1 + F(2n) + \sum_{n'=n+1}^{\infty} \chi(n,n')F(n'+n),$$

where

$$F(n) = \frac{1}{2\pi i} \oint_{|z|=1} R(z)z^{n-1} dz + \sum_{k=1}^N C_k^2 z_k^n, \quad \chi(n,m) = \frac{K(n,m)}{K(n,n)}.$$

Now  $\{a_n\}_{-\infty}^{\infty}$  and  $\{b_n\}_{-\infty}^{\infty}$  can be expressed via the scattering data by the formulas (8).

It is worthy to remark that the vectors

$$h_n^k = \frac{d}{dz} (\psi_n(z) - \beta_k \varphi_n(z)) \Big|_{z=z_k},$$

are solutions of the equations  $Ly = \lambda_k y$ ,  $k = 1, 2, \dots, N$ .

From the equation (10), as  $|z| < 1$  we deduce that

$$\varphi_n(z) \rightarrow \alpha(z) z^n \text{ as } n \rightarrow -\infty,$$

therefore

$$h_n^k \rightarrow -\beta_k \dot{\alpha}(z_k) z_k^n \text{ as } n \rightarrow -\infty, \quad k = 1, 2, \dots, N, \quad (13)$$

where  $\dot{\alpha}(z_k) = \frac{d\alpha(z)}{dz} \Big|_{z=z_k}$ . From asymptotes (6) and (13) we get

$$W\{h_n^k, \psi_n^k\} = \frac{\beta_k \dot{\alpha}(z_k)(z_k - z_k^{-1})}{2}.$$

**It is easy to see that the following statement is true.**

**Lemma 1.** If  $\{x_n(\lambda)\}_{-\infty}^{\infty}$  and  $\{y_n(\mu)\}_{-\infty}^{\infty}$  are solutions of equations  $Lx = \lambda x$  and  $Ly = \mu y$ . Then the identity

$$(\mu - \lambda)x_n(\lambda)y_n(\mu) = W\{x_n(\lambda), y_n(\mu)\} - W\{x_{n-1}(\lambda), y_{n-1}(\mu)\}, \quad n \in \mathbb{Z},$$

holds.

The lemma is proved by direct verification.

#### 4. Constructing Lax pairs

In this section, we construct Lax pair for the Toda-type chain with self-consistent source.

We seek a Lax pair for equation (1) in the form (dependence on  $t$  is omitted)

$$a_{n-1}\psi_{n-1}(z) + b_n\psi_n(z) + a_n\psi_{n+1}(z) = \lambda\psi_n(z), \quad (14)$$

$$\frac{d\psi_n(z)}{dt} = a_n a_{n+1} \psi_{n+2} + a_n (b_{n+1} + b_n) \psi_{n+1} - a_{n-1} (b_n + b_{n-1}) \psi_{n-1} - a_{n-1} a_{n-2} \psi_{n-2} + F_n. \quad (15)$$

By differentiating the equation (14) on  $t$  and using (1) and (15) we obtain

$$\begin{aligned} a_{n-1}F_{n-1} + b_n F_n + a_n F_{n+1} - \lambda F_n &= a_{n-1} \sum_{i=1}^N ((g_n^i)^2 - (g_{n-1}^i)^2) \psi_{n-1} + \\ &+ 2 \sum_{i=1}^N g_n^i (a_n g_{n+1}^i - a_{n-1} g_{n-1}^i) \psi_n + a_n \sum_{i=1}^N ((g_{n+1}^i)^2 - (g_n^i)^2) \psi_{n+1}. \end{aligned} \quad (16)$$

Searching the solution (16) in the form

$$F_n = \alpha_n \psi_n(z) + \beta_n \varphi_n(z). \quad (17)$$

We note that, according to (15)

$$F_n \rightarrow \frac{z^2 - z^{-2}}{4} z^{-n} \text{ as } n \rightarrow -\infty,$$

therefore, from (17)

$$\alpha_n \rightarrow \frac{z^2 - z^{-2}}{4}, \quad \beta_n \rightarrow 0 \text{ as } n \rightarrow -\infty. \quad (18)$$

Putting (17) into (16) and using (14) we obtain

$$\begin{aligned} & a_n(\alpha_{n+1} - \alpha_n)\psi_{n+1} + a_n(\beta_{n+1} - \beta_n)\varphi_{n+1} - a_{n-1}(\alpha_n - \alpha_{n-1})\psi_{n-1} - a_{n-1}(\beta_n - \beta_{n-1})\varphi_{n-1} = \\ & = a_{n-1} \sum_{i=1}^N ((g_n^i)^2 - (g_{n-1}^i)^2) \psi_{n-1} + 2 \sum_{i=1}^N g_n^i (a_n g_{n+1}^i - a_{n-1} g_{n-1}^i) \psi_n + \\ & + a_n \sum_{i=1}^N ((g_{n+1}^i)^2 - (g_n^i)^2) \psi_{n+1}. \end{aligned} \quad (19)$$

The following statement is true.

**Lemma 2.** The solutions of equation (19) satisfy the following expressions:

$$\begin{aligned} \alpha_{n+1} - \alpha_n &= \frac{1}{W\{\varphi_n, \psi_n\}} \sum_{i=1}^N ((\psi_n g_n^i + \psi_{n+1} g_{n+1}^i) W\{\varphi_n, g_n^i\} + (\varphi_n g_n^i + \varphi_{n+1} g_{n+1}^i) W\{\psi_n, g_n^i\}) \\ \beta_{n+1} - \beta_n &= -\frac{2}{W\{\varphi_n, \psi_n\}} \sum_{i=1}^N (\psi_n g_n^i + \psi_{n+1} g_{n+1}^i) W\{\psi_n, g_n^i\}. \end{aligned}$$

*This lemma is proved by direct computation.*

By using (10) and (18), from lemma 2 we get

$$\begin{aligned} \alpha_n &= -\frac{2}{(z + z^{-1})\alpha(z)} \cdot \left[ \sum_{j=-\infty}^{n-1} \sum_{i=1}^N (\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\varphi_j, g_j^i\} + \right. \\ & \left. + \sum_{j=-\infty}^{n-1} \sum_{i=1}^N (\varphi_j g_j^i + \varphi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\} \right] + \frac{z^2 - z^{-2}}{4}, \end{aligned}$$

$$\beta_n = \frac{4}{(z + z^{-1})\alpha(z)} \cdot \left[ \sum_{j=-\infty}^{n-1} \sum_{i=1}^N (\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\} \right].$$

In this way according to (17), the equation (15) can be rewritten as follows

$$\frac{d\psi_n(z)}{dt} = a_n a_{n+1} \psi_{n+2} + a_n (b_{n+1} + b_n) \psi_{n+1} - a_{n-1} (b_n + b_{n-1}) \psi_{n-1} - a_{n-1} a_{n-2} \psi_{n-2} +$$

$$\begin{aligned}
& + \frac{(z^2 - z^{-2})}{4} \psi_n - \frac{2}{(z + z^{-1})\alpha(z)} \times \\
& \times \sum_{j=-\infty}^{n-1} \sum_{i=1}^N [(\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\varphi_j, g_j^i\} + (\varphi_j g_j^i + \varphi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\}] \psi_n + \\
& + \frac{4}{(z + z^{-1})\alpha(z)} \cdot \sum_{j=-\infty}^{n-1} \sum_{i=1}^N (\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\} \varphi_n. \quad (20)
\end{aligned}$$

### 5. Evolution of the scattering data

Firstly, we prove the following statement.

**Lemma 3.** The following equalities hold:

$$\begin{aligned}
& \sum_{j=-\infty}^{\infty} [(\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\varphi_j, g_j^i\} + (\varphi_j g_j^i + \varphi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\}] = 0, \\
& \sum_{j=-\infty}^{\infty} (\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W\{\psi_j, g_j^i\} = 0, \quad i = 1, 2, \dots, N.
\end{aligned}$$

**Proof.** For convenience let us put  $W_j = W\{\psi_j, g_j^i\}$ ,  $V_j = W\{\varphi_j, g_j^i\}$  ( $i$  is fixed).

According to lemma 1, we deduce the following equalities

$$\begin{aligned}
& \sum_{j=-\infty}^{\infty} [(\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) V_j + (\varphi_j g_j^i + \varphi_{j+1} g_{j+1}^i) W_j] = \\
& = \sum_{j=-\infty}^{\infty} [(\psi_j g_j^i (V_j + V_{j-1}) + \varphi_j g_j^i (W_j + W_{j-1}))] = \\
& = \frac{1}{\lambda_i - \lambda} \sum_{j=-\infty}^{\infty} [(W_j - W_{j-1})(V_j + V_{j-1}) + (V_j - V_{j-1})(W_j + W_{j-1})] = \\
& = \frac{2}{\lambda_i - \lambda} \sum_{j=-\infty}^{\infty} [W_j V_j - W_{j-1} V_{j-1}] = 0.
\end{aligned}$$

Similarly

$$\sum_{j=-\infty}^{\infty} (\psi_j g_j^i + \psi_{j+1} g_{j+1}^i) W_j = \frac{1}{\lambda_i - \lambda} \sum_{j=-\infty}^{\infty} (W_j^2 - W_{j-1}^2) = 0.$$

*Lemma is proved.*

By using (9) and lemma 3 and passing to the limit  $n \rightarrow \infty$  in the equation (20), we arise to the equality above

$$\frac{d\alpha}{dt} \cdot z^{-n} + \frac{d\beta}{dt} \cdot z^n = \frac{1}{4} (\alpha z^{-n-2} + \beta z^{n+2}) - \frac{1}{4} (\alpha z^{-n+2} + \beta z^{n-2}) + \frac{(z^2 - z^{-2})}{4} (\alpha z^{-n} + \beta z^n).$$

By matching the coefficients of  $z^{-n}$  and  $z^n$ , we get

$$\frac{d\alpha(z, t)}{dt} = 0, \quad \frac{d\beta(z, t)}{dt} = \frac{(z^2 - z^{-2})}{2} \beta(z, t). \quad (21)$$

The first equation of (21) implies that the eigenvalues of the operator  $L(t)$  is independent from  $t$ , i.e.  $\frac{dz_k}{dt} = 0$ ,  $k = 1, 2, \dots, N$ . Moreover from (21) we deduced

that evolution from  $t$  of the scattering function follows the expression

$$\frac{dR(z, t)}{dt} = \frac{(z^2 - z^{-2})}{2} R(z, t), \quad |z| = 1.$$

Finally, we deduce the expression of the normalized constants.

Similar to the continuous case, for the discrete spectrum we can deduce that the second equation of Lax pair has the form:

$$\begin{aligned} \frac{d\psi_n^k}{dt} &= a_n a_{n+1} \psi_{n+2}^k + a_n (b_{n+1} + b_n) \psi_{n+1}^k - a_{n-1} (b_n + b_{n-1}) \psi_{n-1}^k - a_{n-1} a_{n-2} \psi_{n-2}^k + \\ &+ \frac{(z_k^2 - z_k^{-2})}{4} \psi_n^k + \frac{1}{W\{h_n^k, \psi_n^k\}} \times \\ &\quad \times \sum_{j=-\infty}^{n-1} \sum_{i=1}^N [(\psi_j^k g_j^i + \psi_{j+1}^k g_{j+1}^i) W\{h_j^k, g_j^i\} + (h_j^k g_j^i + h_{j+1}^k g_{j+1}^i) W\{\psi_j^k, g_j^i\}] \psi_n^k - \\ &- \frac{2}{W\{h_n^k, \psi_n^k\}} \cdot \sum_{j=-\infty}^{n-1} \sum_{i=1}^N (\psi_j^k g_j^i + \psi_{j+1}^k g_{j+1}^i) W\{\psi_j^k, g_j^i\} h_n^k, \quad k = 1, 2, \dots, N. \end{aligned} \quad (22)$$

As in the lemma 3 we can show that

$$\begin{aligned} \sum_{j=-\infty}^{\infty} [(\psi_j^k g_j^i + \psi_{j+1}^k g_{j+1}^i) W\{h_j^k, g_j^i\} + (h_j^k g_j^i + h_{j+1}^k g_{j+1}^i) W\{\psi_j^k, g_j^i\}] &= 0, \quad k \neq i, \\ \sum_{j=-\infty}^{\infty} (\psi_j^k g_j^i + \psi_{j+1}^k g_{j+1}^i) W\{\psi_j^k, g_j^i\} &= 0, \quad k \neq i. \end{aligned} \quad (23)$$

Note that  $W\{\psi_j^k, g_j^k\} = 0$ , therefore

$$\sum_{j=-\infty}^{\infty} (\psi_j^k g_j^i + \psi_{j+1}^k g_{j+1}^i) W\{\psi_j^k, g_j^i\} = 0 \quad \text{as } k = i. \quad (24)$$

Moreover from equation  $g_j^k = b \cdot \psi_j^k$  we get

$$\begin{aligned} \sum_{j=-\infty}^{\infty} [(\psi_j^k g_j^k + \psi_{j+1}^k g_{j+1}^k) W\{h_j^k, g_j^k\} + (h_j^k g_j^k + h_{j+1}^k g_{j+1}^k) W\{\psi_j^k, g_j^k\}] &= \\ = 2W\{h_n^k, \psi_n^k\} \sum_{j=-\infty}^{\infty} (g_j^k)^2. \end{aligned} \quad (25)$$

By using (11), we pass to the limit as  $n \rightarrow \infty$  in (22). Then using (2), (23), (24) and (25) we obtain

$$\frac{d\beta_k}{dt} = \left( \frac{z_k^2 - z_k^{-2}}{2} + 2A_k(t) \right) \beta_k, \quad k = 1, 2, \dots, N. \quad (26)$$

From (12) and (26) we conclude

$$\frac{dC_k^2}{dt} = \left( \frac{z_k^2 - z_k^{-2}}{2} + 2A_k(t) \right) C_k^2, \quad k = 1, 2, \dots, N.$$

We have thereby proved the following assertion.

**Theorem.** If the functions  $a_n(t)$ ,  $b_n(t)$ ,  $g_n^k(t)$ ,  $k=1,2,\dots,N$ ,  $n \in Z$  are solutions of the problem (1)-(3), then the scattering data of the operator

$$(L(t)y)_n \equiv a_{n-1}(t)y_{n-1} + b_n(t)y_n + a_n(t)y_{n+1},$$

depend on  $t$  as

$$\frac{dR(z,t)}{dt} = \frac{(z^2 - z^{-2})}{2} R(z,t), \quad |z|=1,$$

$$z_k(t) = z_k(0), \quad C_k^2(t) = C_k^2(0) \exp\left\{\frac{z_k^2 - z_k^{-2}}{2} t + 2 \int_0^t A_k(\tau) d\tau\right\}, \quad k=1,2,\dots,N.$$

**The above relations determine the complete evolution of scattering data for the operator  $L(t)$ , which allows to use the inverse scattering method to find the solutions of Cauchy problem (1)-(3).**

6. Example

**Let**

$$a_{n0} = \frac{1}{2} \frac{\sqrt{2^{2n+2} + 5 \cdot 2^n + 1}}{1 + 2^{n+1}}, \quad b_{n0} = \frac{2^n}{\sqrt{2(2^{2n+1} + 3 \cdot 2^n + 1)}}, \quad n \in Z.$$

In this case,

$$R(z,0) = 0, \quad z_1(0) = \frac{\sqrt{2}}{2}, \quad C_1^2(0) = \frac{1}{2}.$$

Therefore according to theorem

$$R(z,t) = 0, \quad z_1(t) = \frac{\sqrt{2}}{2}, \quad C_1^2(t) = \frac{1}{2} \exp\{\gamma(t)\},$$

$$\text{where } \gamma(t) = -\frac{3}{4} t + 2 \int_0^t A_1(\tau) d\tau.$$

By using inverse scattering method and equation (2) we get

$$a_n(t) = \frac{1}{2} \frac{\sqrt{2^{2n+2} + 5 \cdot 2^n \exp\{\gamma(t)\} + \exp\{2\gamma(t)\}}}{2^{n+1} + \exp\{\gamma(t)\}},$$

$$b_n(t) = \frac{2^n \exp\{\gamma(t)\}}{2\sqrt{2(2^{2n+1} + 3 \cdot \exp\{\gamma(t)\} \cdot 2^n + \exp\{2\gamma(t)\})}},$$

$$g_n^1(t) = \frac{2^{\frac{n}{2}} \sqrt{A_1(t)}}{\sqrt{2^{2n+1} + 3 \exp\{\gamma(t)\} \cdot 2^n + \exp\{2\gamma(t)\}}} \times$$

$$\times \left\{ \sum_{j=-\infty}^{\infty} \frac{2^j}{2^{2j+1} + 3\exp\{\gamma(t)\} \cdot 2^j + \exp\{2\gamma(t)\}} \right\}^{\frac{1}{2}}, \quad n \in \mathbb{Z}.$$

Applying the equality

$$\begin{aligned} & \sum_{j=-\infty}^{\infty} \frac{2^j}{2^{2j+1} + 3\exp\{\gamma(t)\} \cdot 2^j + \exp\{2\gamma(t)\}} = \\ & = \lim_{K \rightarrow \infty} \sum_{j=-K}^K \left( \frac{1}{2^j + \exp\{\gamma(t)\}} - \frac{1}{2^{j+1} + \exp\{\gamma(t)\}} \right) = \frac{1}{\exp\{\gamma(t)\}}, \end{aligned}$$

we obtain

$$g_n^1(t) = \frac{2^{\frac{n}{2}} \sqrt{A_1(t)} \exp\left\{\frac{\gamma(t)}{2}\right\}}{\sqrt{2^{2n+1} + 3\exp\{\gamma(t)\} \cdot 2^n + \exp\{2\gamma(t)\}}}, \quad n \in \mathbb{Z}.$$

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## STUDYING “POLYMER-METAL” COMPLEXES BASED ON FIBROIN

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**Abstract:** The article describes the procedure for hydrolysis of fibroin from natural lye and the production of complexes from powdery "polymer-metal" lye. In the preparation of complexes, heavy metals are mainly used. Methods for the preparation of polymer complexes have been studied.

**Key words:** click, fibroin, metal, hydrolysis, coordination compound, mechanochemical synthesis, IR spectroscopy.

**Аннотация:** В статье приводится методика гидролиза фиброина из натурального щелка и получения из порошкообразного щелка «полимер - металл» комплексов. При получении комплексов использованы в основном тяжелые металлы. Изучены методы получения полимерных комплексов.

**Ключевые слова:** шелк, фиброин, металл, гидролиз, координационное соединение, механохимический синтез, ИК-спектроскопия.

**Annotatsiya:** Maqolada tabiiy ipakni gidroliz qilish natijasida fibroinni olish metodikasi va kukunsimon ipakdan “polimer-metall” kompleksini olish usuli keltirilgan. Komplekslarni olishda asosan og`ir metallardan foydalanildi. Shuningdek polimer komplekslarini olish metodi o`rganildi.

**Kalit so`zlar:** ipak, fibroin, metal, gidroliz, koordinatsion birikma, mehanokimyoviy sintez, IK-spektroskopiya

In the textile industry, when receiving a snap thread, 10-16% of the total clavicle does not respond to standard thread requirements and goes to waste. But these chemical waste products do not differ from textile lye and can be used as sorbents. Shchelkovye waste, as well as a natural click, possess high sorption ability. It is known that the filament thread consists of two parts - a soluble part in the water-serum (25-30% of the total mass) and an unreducible part - fibroin (70-75% of the total mass).

By boiling alkaline fiber waste alkaline solutions, sericin is washed. Fibrous fibroin does not dissolve here. During hydrolysis in a solution of HCl (hydrolyzing reagent) as a result of chemical destruction, a rupture of fibroin fiber occurs in the main amorphous parts of the macromolecule.

The sequence of amino acid groups in the crystalline fragments of the fibroin macromolecule consists of:



The hydrolysis process continues until the fiber passes into a powdered state. The particles obtained in the 4% HCl solution differ slightly from the particle size obtained in the more concentrated solutions. On the basis of the experiments, optimal conditions for the hydrolysis process were found (Table 1). This method was designated conditionally - the traditional method.

Table 1.

Optimal conditions for the hydrolysis process

Hydrolyzing reagent HCl (%)	3%	4%	5%
Time of hydrolysis. t (min)	100 min	90 min	75 min
Средний размер частиц (mkm)	138,4	112,9	110

The following hydrolysis process was carried out in an unconventional way. Hydrolysis is carried out under the influence of high-frequency radiation. The hydrolysis process was carried out on microwave ovens ( $\nu = 2450\text{MG}$ ) and optimal conditions were selected for this process. A powdered product of fibroin is obtained. The resulting powder is filtered off and thoroughly washed with distilled water until neutral. In this case, the destruction of the macromolecule will end 4-4.5 times faster than the usual hydrolysis method (Fig.1).

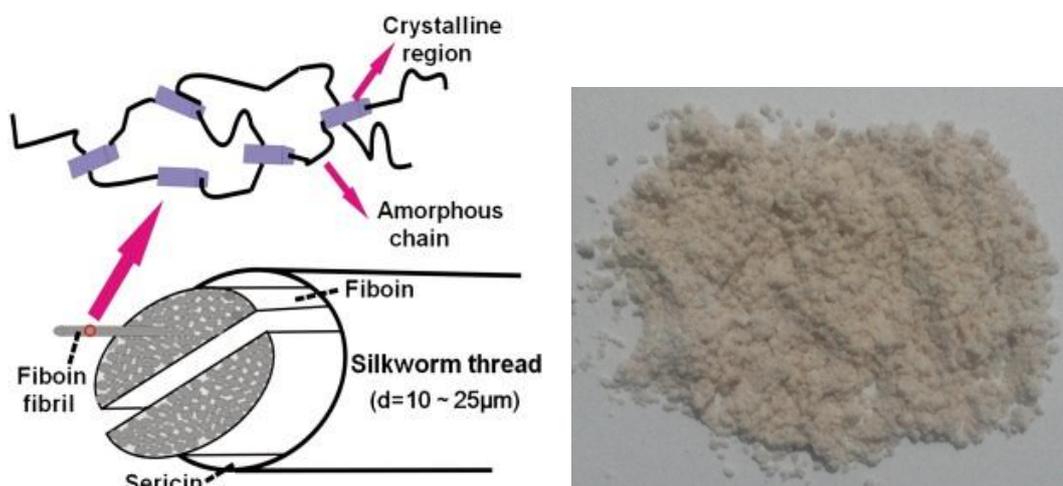


Fig.1 Powdered fibroin.

Thus, optimal conditions for hydrolysis under the influence of extra high frequency radiation are chosen. During hydrolysis, the fibrous fibers are transferred to a particulate microparticle.

The transition from fibrous to powdery form leads to an increase in the active surface of the volume, which leads to an increase in the sorption property of the polymer (Fig. 2).

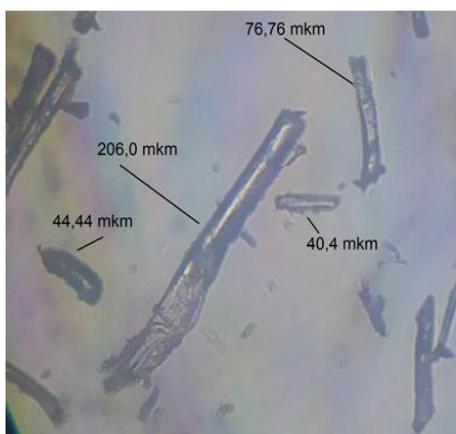


Fig.2. The surface of powdered fibroin.

In addition, in the fibroin composition, the presence of amino groups and carboxyl groups provides an ampholytic property in the active sites. When the fibers of the silkworm fibroin are destroyed, the number of active sites in the molecules increases as much as possible. At the same time, a very high sorption process is observed in active centers. This allows the use of powdered particles of fibroin in different systems as sorbents.

The sorption properties of the obtained powdery particles of fibroin can be used to absorb many toxic heavy metal ions in various surrounding systems and to obtain nanostructures.

We carried out the following experiments for the transition of copper ions to a nanoscale state on the polymer surface.

To determine the sorption kinetics, solutions containing metal ions  $\text{Fe}^{3+}$  and  $\text{Cu}^{2+}$  at a temperature of  $20^\circ\text{C}$  were chosen. To a concentrated solution of salts of these metals, a certain amount of microparticles of fibroin were added. After 1 hour, the solution concentration was measured. The concentration of solutions was determined by the photometric method. The concentration of  $\text{Fe}^{3+}$  ions at  $20^\circ\text{C}$  was  $23\text{ mg/g}$ . The degree of sorption of  $\text{Fe}^{3+}$  ions did not change after 24 hours.

In the same way, the rate of absorption of  $\text{Cu}^{2+}$  ions by hydrolysed samples was studied, the absorption rate was determined, it reaches  $760\text{ mg/g}$  after 1 hour. From the results studied above, it can be seen that the powdered microparticles of fibroin have different sorption abilities depending on the type of metal ions. This process was controlled by changing the color of the solution. As a result, the system's color changed to red. Micelles are formed in the solution (from polymer and metal ions) [1].

The degree of sorption of copper (II) in other types of sorbents has been studied. In the modified cellulose module with polyvinylpyrrolidone, the sorption degree of  $\text{Cu}^{2+}$  ions is  $92\text{ mg/g}$ , in carboxymethylcellulose -  $7.877\text{ mg/g}$ , in activated carbon silicates and silver particles sorbed -  $0.083\text{ mg/g}$  and in microcrystalline cellulose the sorption degree is  $34.95\text{ mg/g}$ . Apparently, the sorption of  $\text{Cu}^{2+}$  ions in fibroin microparticles is 8.26 times higher than that of modified cellulose with polyvinylpyrrolidone; 96.5 times higher than carboxymethylcellulose; and 21.76 times higher than microcrystalline cellulose.

Thus, the traditional and non-traditional process of hydrolysis of fibrous silk waste was investigated, and optimal conditions were chosen. Sorption properties of powdery fibroin of copper ions, silver and glands were studied. A method for transferring metal ions to nano-states based on the "polymer-metal" complex is developed.

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**UDC: 620.194.4**

**PHYSICAL AND MECHANICAL PERFORMANCE OF THE  
TRANSDUCER / MODIFICATOR OF THE RIVER ON PHOSPHATE  
BASIS**

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**Абстракт.** Целью данного исследования является создание состава преобразователя модификатора ржавчины с улучшенными физико-механическими и технологическими показателями, высокими адгезионными и антикоррозионными свойствами, большей устойчивостью фосфатных слоев для металлоконструкций.

**Abstract.** The purpose of this study is to create a rust modifier transducer composition with improved physical-mechanical and technological indicators, high adhesion and anticorrosion properties, greater stability of phosphate layers for metal structures.

**Tayanch iboralar:** модификатор; нитролигнин; гексаметиленetetрамин; фурфур спирити; кислотали коррозия; кимёвий қаршилиқ; фосфатли қатлама.

**Ключевые слова:** модификатор; нитролигнин; гексаметилентетрамин; фурфуриловый спирт; кислотная коррозия; химическая устойчивость; фосфатный слой.

**Keywords:** modifier; nitrolignin; hexamethylenetetramine; furfuryl alcohol; acidic corrosion; chemical stability; phosphates layer.

At present, the need of the Republic of Uzbekistan for anticorrosive materials and rust converters / modifiers is mainly provided by imports.

The creation of a technological basis for chemical waste processing with the aim of obtaining import substitution products for the needs of the Republic of Uzbekistan is a vital issue and contributes to the economy of the country's raw materials, gold and currency resources.

The purpose of this work is to create the physico-chemical and technological basis for the preparation of a rust converter / modifier and anticorrosive coatings for metal structures.

Hexamethylenetetramine has been selected as one of the components of rust anticorrosive coatings and modifiers.

Hexamethylenetetramine is a colorless crystalline substance that is highly soluble in water.

With acids, it interacts as a base, forms various salts. Has an antiseptic property.

It is used for neutralizing acids, preparing buffer solutions, and also as a corrosion inhibitor [1].

Therefore, in the composition of anticorrosive coatings based on phosphoric acid, hexamethylenetetramine can serve as an inhibitor of acid corrosion, preventing dissolution of the sample.

Besides, due to the use of orthophosphoric acid and the products of its interaction with hexamethylenetetramine and furfuryl alcohol, a phosphate layer is formed on the metal surface, which does not require passivation. It allows to carry out the process of processing in one stage and in one bath.

Based on the results of the conducted studies, it has been found that the optimum composition for rust removal and the formation of an anticorrosive protective phosphate coating is a composition consisting of a 22% aqueous solution of orthophosphoric acid with the addition of hexamethyl-tapetramine and furfuryl alcohol at the following mass ratios of components, mass%:

- 22% phosphoric acid 91.50-99.745;

- furfuryl alcohol 0.250-6.000;

- hexamethylenetetramine 0.005-2.500. It is established that when the metal surface is treated with the proposed composition, the value of the polarization resistance increases, and a positive shift of the stationary potential of the metal [2,3].

By repeated tests with the purpose of simultaneous realization of processes of degreasing, rust dissolution and obtaining of corrosion-resistant phosphate coatings on the surface of steel wires and products during interoperational storage, the suitability of the developed composition as an anticorrosion coating has been proved.

The proposed composition and its components contribute to enhancing the anticorrosive properties of the resulting phosphate coating.

Due to the formation in the acidic medium of furfuryl alcohol and polycondensed adhesive-like product precipitated directly on the surface of the phosphate film, the adhesion of the phosphate layer to the metal base is enhanced and the entire surface, including the defective parts of the coatings, is covered. As a result, it becomes non-porous. This leads to an improvement in the anticorrosive quality of the coatings [4-5].

Raw materials given in the table 1 was selected as the starting material.

## The raw material for obtaining the modifier.

*Table 1.*

Name of raw materials, materials and semi-products	State or industry standard, technical conditions, regulations or methods for preparing raw materials	Indicators that are mandatory for testing	Regulated indicators with allowable deviations
Extraction Phosphoric Acid (ESP)	GOST 6552-80	1. Concentration acids 2. Concentration sulfuric acid	22,0-28,0  Not more - 1,0%
furfuryl alcohol	GOST 10930-74	1. Density at 20 ° C, g / cm <sup>3</sup> 2. Mass fraction of furfuryl alcohol,%, not less than	1,010÷1,025  99,3 0,4
Nitrorolignin	TU 64-11-13-90	Mass nitrolignin,%, not less than	46,061÷75 1,0 0,5
Urotropin	GOST 1381-73	Mass fraction	99,0

The process of preparation of the rust converter / modifier is carried out in two stages:

- preparation of raw materials;
- preparation of the rust converter / modifier;

Preparation of raw materials upon the receipt of chemical raw materials is subject to input control.

When confirming the positive results of the incoming inspection, the incoming raw materials are transferred for further processing and use.

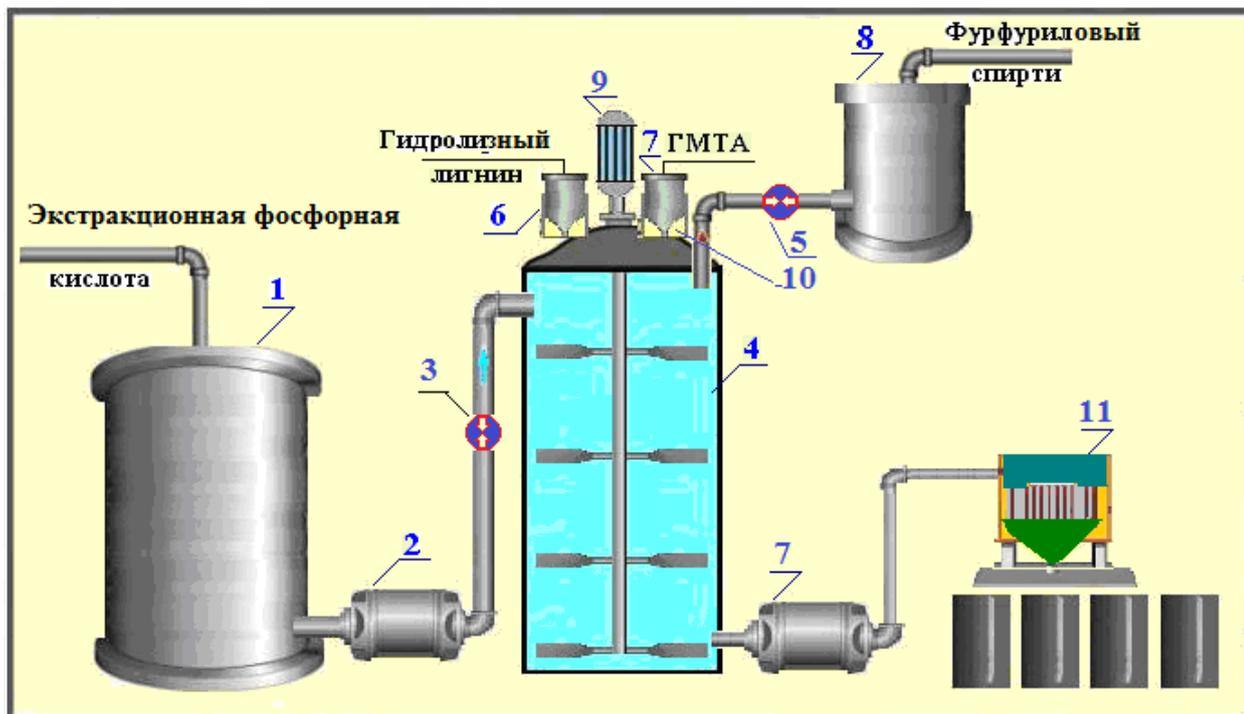
Preparation of the rust converter/ modifier on the basis of the obtained research results, a basic technological scheme for obtaining an effective rust converter /modifier based on phosphoric acid, furfuryl alcohol, nitroglignin and hexamethylenetetramine has been developed (Fig. 1).

Phosphoric acid from the storage tank (1) is fed through the flowmeter (3) to the reactor (4) by means of a centrifugal pump (2), where it is mixed with hydrolyzed lignin coming from the hopper (6) in an amount calculated from the total weight 4.0-5.0% .

Extraction phosphoric acid is carried out by intensive mixing of the mixture with a mechanical stirrer, which is equipped with an agitator, operating with an electric

motor (9). Furfuryl alcohol is fed to the obtained solution from the storage tank (8) through the flow meter (5).

The amount of furfuryl alcohol is 2.5-3.5% of the total weight of the obtained product.



**Fig.1. The basic technological scheme of reception of converter / rust modifier**

1- capacity for extraction phosphoric acid; 2,7-centrifugal pumps;3,5-flowmeters; 4-reactor synthesis of the modifier; bunker for nitroglignine; 7-bunker for hexamethylenetetramine; 8-capacity for furfural alcohol; 9- electric motor with a stirrer; 10-dispenser; 11- packing machine

The reactor dissolves the components with vigorous stirring for 25-30 minutes at 25 ° C. After formation of a homogeneous solution of phosphoric acid with furfural alcohol and nitroglignin in the reactor (4), hexamethylene tetramine is fed from the hopper (7) through the dosers, the amount of which is in the range 0.1-0.2% of the total mass.

Dissolution of hexamethylenetetramine with the formation of homogeneous solutions of the components ends within 40-60 minutes. The temperature in the reactor should be kept within 25-40C. The prepared rust-converter / rust modifier is fed to an intermediate tank (11) by means of a centrifugal pump (7), then it is packed into polymeric vessels with a capacity of 25 and 50 dm<sup>3</sup> and sent to a storage facility.

The physical and mechanical properties of the rust converter / modifier obtained in the model installations showed that the following indicators were reduced to the table 2.

**Physical and mechanical characteristics of the converter / rust modifier.**

**Table 2**

<b>The name of indicators</b>	<b>Norm of Indicators</b>
1. Appearance	Homogeneous liquid
2. Colour	From light green until light brown
3. Smell	Absent
4. Strength of adhesion with metal (adhesion), MPa, not less than	4,0
5. Impact strength, n. m, not less than	1,9
6. Bending, mm, not more than	7,0
7. Stability under atmospheric conditions	Resistant
8. Concentration index of the hydrogen ions (pH)	2,6-2,8
9. °C Crystallization temperature, °C	minus 19 – 19,5
10. Density, kg / m <sup>3</sup>	1125,03 – 1130,42
11. Spreading capacity, g/m <sup>2</sup> , not more than	80,0
12. Protective efficiency, %, not less than - from general corrosion - from sulfide stress corrosion under cracking	95,0 80,0
13. Drying time, h, not more than	12
18. Time of complete formation of the protective layer, day, not more than	3
19. Expected duration of protection, days, not less than	1000,0

Based on the results above, the following assumptions can be made about the mechanism of corrosion protection of the metallic surface.

Characteristic of the coatings offered is not only a barrier type of protection, but depending on the components being added, various types of chemical compounds can be formed that contribute to the process of inhibiting corrosion.

Examining the results of physical and mechanical properties, it can be asserted that the coatings obtained according to the main parameters correspond to the requirements for anticorrosion coatings.

So, for example, fast drying time, impact strength, elasticity when bending, excellent adhesion, as well as the possibility of applying any paint material on these coatings. Change of rust color from red-brown to light gray. Probably there is a modification of rust, i.e. sparingly soluble compounds are formed.

Due to this, any paint material can be applied over a rusted surface pre-treated with such coatings.

This is one of the main positive properties of rust modifiers in comparison with other protective coatings.

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### COMPOSITION MODIFICATOR OF RUST ON THE BASIS OF LOCAL RAW MATERIAL AND TECHNOGENIC RESOURCES

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**Abstract.** The aim of this research is creation of the composition of the converter of the rust modifier with improved physical-mechanical and technical indicators, with high adhesion and anticorrosion properties, with more stability of phosphate layers. The objective is solved with that in the composition of the coveter of rust modifier, including 22% aqueous solution of orthophosphoric acid, furfuryl alcohol and addition of amine group, differing with that in addition includes nitro lignin and as addition of amine group-hexamethylenetetramine.

**Keywords.** modifier; nitrolignin; hexamethylenetetramine; furfuryl alcohol; acidic corrosion; chemical stability; phosphates layer.

**Аннотация.** Целью данного исследования является создание состава преобразователя модификатора ржавчины с улучшенными физико-механическими и техническими показателями с высокими адгезионными и антикоррозионными свойствами с большей стабильностью фосфатных слоев. Задача решается тем, что в составе коветера модификатора ржавчины,

включая 22% -ный водный раствор ортофосфорной кислоты, фурфурилового спирта и добавление аминогруппы, отличающийся тем, что дополнительно включает нитролигнин и в качестве добавления аминогруппы-гексаметилентетрамина.

**Ключевые слова:** модификатор; нитролигнин; гексаметилентетрамин; фурфуроловый спирт; кислотная коррозия; химическая стабильность; фосфатов.

**Резюме:** Ushbu tadqiqot maqsadi mahalliy hom ashyo va texnogen resurslar asosida fizik - mexanik xossalari kuchaytirilgan zang modifikatorlari olish. Muammo ortofosfor kislotaning 22% li eritmasi, nitrolignin furfuril spiriti asosida tayyorlanadi.

**Kalit so'zlar:** modifikator; nitrolignin; heksametilentetramin; furfuril spirt; kislota korroziyasi; kimyoviy muvozanat; fosfatlar.

At present, the Republic's demand for anticorrosive materials and rust converters / modifiers is mainly provided by imports. This study relates to the metalworking industry, for chemical cleaning and protection against various types of corrosion products and deposits on the surface of corroded metals. As a result, rust is transformed and modified on the surface of the metal, resulting in an anticorrosion coating that is resistant to long-term exposure to hydrogen sulfide, acidic, alkaline, water-salt and other types of corrosive media. We took the study of the equipment and design of OJSC "Maxam-Chirchik". At the production department of caprolactam, various by-product salt products are formed, as well as at high temperatures, sulfuric acid vapor (acidic effects), which will prove to be significant losses of metals as a result of their corrosive destruction. In this regard, our research is aimed at finding new types of rust modifiers based on local raw materials. Rust was removed from the metalware and equipment of Caprolactam production of OJSC "Maxam-Chirchik" sustained during the entire production period and the products of its interaction with the converter were selected after exposure for one month. A study of the phase composition of rust was carried out using a DRON-2.0 X-ray diffractometer with a copper tube anode. Figure 1 shows the diffractogram of the rusty surface (I) and after the modification of rust (II).

The observed lines are identical and correspond to the  $\alpha$ -,  $\beta$ -,  $\gamma$ -modifications of FeOH and Fe<sub>3</sub>O<sub>4</sub> or, respectively, goethite, akaganeite, lepidocrocite and magnetite. It is known that the composition of rust or the ratio of such modifications varies depending on the composition of the corrosive medium [1].

The composition of the rust treated with the modifier (II) and rust can be represented in the following sequence: M > p > y > a, which is characteristic for multi-salt and acid aggressiveness of production conditions.

When comparing the data obtained with the diffraction pattern of rust + coating, it can be seen that some lines disappear in the treated sample: 6.52; 2.98; 2.62 Å, corresponding to various modifications of FeOH. Individual lines were saved: 7.40; 6.27; 4.21; 4.18; 3.33; 2.69; 2.44; 2.29; 1.90; 1.68; 1.50 Å, belonging

to  $\alpha$ -,  $\beta$ -,  $\gamma$ -modifications of FeOH and M-Fe<sub>3</sub>O<sub>4</sub>. In both samples, unidentified lines are also stored: 8.48; 10.59; 11.59 Å. There are new lines: 4.85; 4.75; 2.86; 2.38; 2.04; 1.70 Å, not characteristic for rust. It is assumed that such new lines on the diffractogram treated with a modifier belong to the compounds of iron with phosphoric acids present in the modifier.

It can be assumed that the processing of the rusty surface by coating the converter with a rust modifier, stops corrosion and rust is modified into hardly soluble compounds.

This conclusion is confirmed by the results of IR spectroscopic studies. In the IR spectrum of rust (Fig. 1) bands of valence and deformation vibrations of hydroxyl groups are observed at 3000 -3100 cm<sup>-1</sup> and 1010 cm<sup>-1</sup>. The absorption band of about 450 cm<sup>-1</sup> can be attributed to the Fe-O bond vibrations.

In the IR spectrum of the sample treated with a modifier, the above absorption bands are present. Along with this, new bands with frequencies appear: 2900-2820; 1690; 1500; 1380 cm<sup>-1</sup>. The high-frequency band against the background of a broad band (□) reacts to the vibrations of the C-H bonds of the hydrocarbon radicals that make up the modifier.

By external signs, there was no peeling and swelling of the coating. There was only a change in color to gr Thus, the obtained data of X-ray and IR spectroscopic methods of analysis confirm the results of other physico-chemical studies and indicate that the treatment of the rusty surface with the proposed converter promotes the modification of corrosion products into hardly soluble stable compounds that significantly inhibit the process of metal destruction, The protective layer is firmly adhered to the metal surface. The composition proposed by us fully possesses the properties of rust modifiers.ay with partial clarification of individual areas, which indicates the passage of the chemical process.

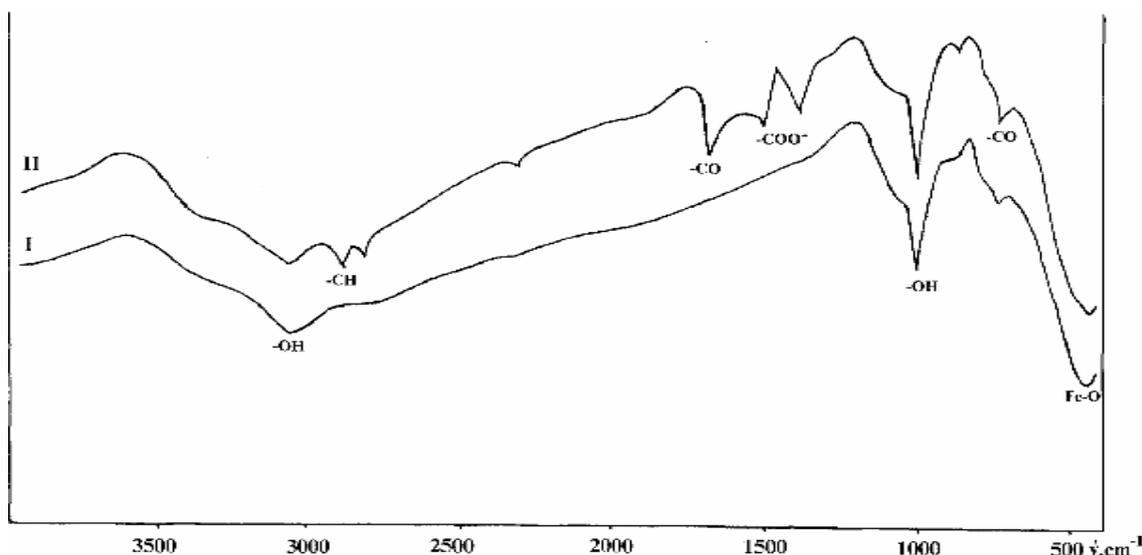


Fig. 1. IR spectra of rust

However, currently used rust modifiers and corrosion inhibitors do not fully meet all the necessary requirements: their range is insufficient, their cost is quite high, many of them are produced in small quantities, which is not satisfied with the

growing demand of consumers. Release of anticorrosive materials in necessary quantities is also restrained by the lack of the necessary raw materials base and the use of expensive imported materials.

The problem is solved by the fact that, in the rust modifier, comprising a 22% aqueous solution of orthophosphoric acid, furfuryl alcohol and an amine group additive, characterized by a content, additionally nitroglignin and as an additive amine group - hexamethylenetetramine, with the following component ratio, %:

22% orthophosphoric acid - 91.40 - 93.30

Furfuryl alcohol -2,50 - 3,50

Hexamethylenetetramine 0.10-0.20

Nitroglignin - 4,00 - 5,00

The choice of 22% orthophosphoric acid is due to its presence in the production of EFC (extraction phosphoric acid) from natural phosphorites by the sulfuric acid method. However, to obtain phosphate films, solutions are suitable in which the concentration of phosphoric acid should be low. With a high content of phosphoric acid, rust and scale as well as metal dissolve.

The use of technical hydrolytic lignin and its modifications as a basis for the rust converter is due to the fact that it contains phenolic, hydroxyl and carboxyl groups interacting with corrosion products and binding iron ions to complex chelate compounds [2].

In the process of drying and film formation, when using the rust modifier, compounds are formed whose composition corresponds not only to the simple mixing of the elements, namely the necessary structural chemical stable bonding of the elements:  $(\text{CH}_2)_6\text{N}_4 \cdot \text{H}_3\text{PO}_4 \cdot 4\text{H}_2\text{O}$ ,  $(\text{CH}_2)_6\text{N}_4 \cdot \text{H}_3\text{PO}_4 \cdot 2\text{H}_2\text{O}$ ,  $(\text{CH}_2)_6\text{N}_4 \cdot \text{H}_3\text{PO}_4$ ,  $(\text{CH}_2)_6\text{N}_4 \cdot 6\text{C}_5\text{H}_6\text{O}_2$  .. The proposed composition and its components contribute to the enhancement of anticorrosive properties and increase the stability, durability and strength of the resulting phosphate coating for a long time. Due to the formation in the acidic medium of furfuryl alcohol a polycondensed adhesive-like product precipitated directly on the surface of the phosphate film, the adhesion of the phosphate layer to the metal base is enhanced, and the entire surface, including the defective parts of the metal, is covered, thereby becoming nonporous. This leads to an improvement in the anticorrosive properties of the coatings [3]. The participation of hexamethylenetetramine in the proposed composition of phosphoric acid-based anticorrosive coatings can serve as an inhibitor of acid corrosion preventing dissolution of the sample.

By repeated tests with the purpose of simultaneous realization of processes of degreasing, rust dissolution and obtaining of corrosion-resistant phosphate coatings on the surface of steel pipelines and products during interoperational storage, the suitability of the developed composition as an anticorrosive coating has been proved. The proposed composition and its components contribute to enhancing the anticorrosive properties of the resulting phosphate coating.

In addition, due to the use of orthophosphoric acid and the products of its interaction with hexamethylenetetramine, furfuryl alcohol and nitroglignin on the

surface of metals, a phosphate layer is formed which does not require passivation. This allows to carry out the process of processing in one stage and in one bath.

The table provides a comparative analysis of the physical and mechanical properties of the test of the proposed converter of the rust modifier based on phosphoric acid.

Table Physical and mechanical properties of the developed converter of the rust modifier

№	Composition, wt. %				Speed Dissolving the sample, G / m <sup>2</sup> · h	The weight of the phosphat e layer, G / m <sup>2</sup>	Visual observation of the appearance of rust	Effectiven ess of protection From corrosion, %
	22% EFC	C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	(CH <sub>2</sub> ) 6N <sub>4</sub>	Nitro lignin				
1	91,4	3,5	0,1	5	0,0014	1,09	Rust not detected	97,90
2	91,87	3,25	0,13	4,75	0,0012	1,16	Rust not detected	98,10
3	92,35	3	0,15	4,5	0,0009	1,36	Rust not detected	98,80
4	92,83	2,75	0,17	4,25	0,0008	1,41	Rust not detected	99,10
5	93,3	2,5	0,2	4	0,0034	0,85	Rust not detected	99,05

The proposed composition provides almost 100% conversion of rust to the surface of metals. It has both degreasing and detergent properties. During interoperational storage for 6 months or more on the treated parts, corrosion marks are not detected.

Thus, the developed composition can also be widely used for chemical cleaning from various types of corrosion products and deposits. In this case, the cleaned metal surfaces remain clean without rust during storage, due to the formation of a stable phosphate anticorrosive coating.

The mechanism of action of the proposed modifiers is mainly due to the transition of the surface of the protected metal to a stable surface film state involving particles of finely dispersed additives. However, the action of inhibitors in this case is more complicated than simple film formation and is related to the nature of the adsorption of the surfactant anions themselves.

Based on the above results, the following assumptions can be made about the mechanism of corrosion protection of the metallic surface. Characteristic of the

coatings offered is not only a barrier type of protection, but depending on the components being added, various types of chemical compounds can be formed that contribute to the process of inhibiting corrosion.

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### SOME ISSUES RELATING TO THE COLLAPSE OF THE PRIMITIVE COMMUNITY IN CENTRAL ASIA AND THE HISTORY OF THE FIRST STATEHOOD

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**Annotation:** The reasons of the collapse of the primitive community in Central Asia and the history of the first statehood were examined in the article.

**Аннотация:** Мақолада Ўрта Осиёда ибтидоий жамоа тузумининг емирилиш сабаблари ва илк давлатчилик тарихи кўриб чиқилган.

**Аннотация:** В статье рассмотрены причины краха первобытного сообщества в Средней Азии и истории первой государственности.

**Key words:** Central Asia, V.M. Masson, I.N. Khlopin, V.I. Sarianidi, S.P. Tolstov, B.I. Vaynberg, M.A. Itina, M.M. Dyakonov.

**Калит сўзлар:** Ўрта Осиё, В.М. Массон, И.Н.Хлопин, В.И. Сарияниди, С.П. Толстов, Б.И. Вайнберг, М.А. Итина, М.М. Дьяконов.

**Ключевые слова:** Средняя Азия, В.М. Массон, И.Н.Хлопин, В.И. Сарияниди, С.П. Толстов, Б.И. Вайнберг, М.А. Итина, М.М. Дьяконов.

#### Introduction

In the historical and geographical regions of Central Asia statehood basics, natural-economic resources and the level of development of socio-economical relations and their stages depend on the location of the productive forces. In the former Soviet historiography a formative approach to the study of the history of statehood, i.e. the gradual transformation of socio-economic formats and production methods was taken as the basis. An explanation was given on the formation of the first statehood, the interests of the society in contradiction, the aggravation of the class struggle among them. According to the findings of the researchers, the first state is a product of the class society and its classic essence is the main indicator.

#### Main part

In the 30-40s of the 20<sup>th</sup> century archeological researches S.P. Tolstov, A.P. Okladnikov, B.A. Shishkin carried out archeological investigations in Zarafshan's Bukhara, Khorezm and Surkhan oasis on peoples' housing belonging to the history of the primitive society in Central Asia<sup>1</sup>.

From the 40s of the 20th century archaeological expeditions were widely carried out by Kuftin, M.E. Masson, Y.G. Gulamov, A.N. Bernshtam, V.M. Masson, Zadneprovsky<sup>2</sup>, in the 60-70s by A. Askarov, A. Muhammadjonov, U.

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Islamov, V.I. Sarianidi, O.K. Berdiyev, A.V. Vinogradov, M.A. Itina, E.V. Rtveldze, R.H. Sulaymonov in the settlements in the Central Asia and the results of the researches were summarized<sup>1</sup>.

In the Soviet era history, the approach to statehood was developed within the framework of a dominant ideology in the society. The state affairs were theoretically realized within the framework of existing ideas in the publications of the researchers. According to archaeological findings, the big changes in socio-economic and cultural development of the society of the Neolithic, Eneolithic and Bronze ages were written in the of S.P. Tolstov, Y.G. Gulamov, V.M. Masson, A.A. Askarov, U.I. Islamov, V.I. Sarianidi<sup>2</sup>.

In the III–II millennium BC in Central Asia artificial irrigation-based agriculture, the active development of craftsmanship and the invention of culture in society contributed to the further development of socio-economic relations.

It is well-known that the centralization of population did not go on likely in the cultural-economic centers which were formed in the historical-geographical regions of Central Asia. In the Bronze Age, tribes engaged in farming and livestock breeders were sharply separated from socio-economic and cultural backgrounds. As a result of archaeological investigations, large-scale patriarchal family houses were found in remote villages in the southern regions of the continent<sup>3</sup>, in which there were investigated and found large hill-shaped huts in the Lower Zarafshan (Zamonbobo)<sup>4</sup> oasis and half-basements in Khorezm<sup>5</sup>.

The entrance of bronze metallurgy to the society and the development of the extensive craftsmanship created the basis of statehood along with the strengthening of social stratification.

In Soviet history, the first states in Central Asia were commented as “class society,” “slavery states”<sup>6</sup>. According to the researcher S.P. Tolstov’s conclusion, one of the main reasons for the formation of the first states was the establishment

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ТуркмССР. – 1954. – № 1. – С. 22-29; Массон М.Е. Краткий очерк истории изучения Средней Азии в археологическом отношении. До первой послевоенной пятилетки // Тр. САГУ. – 1956. – Вып. 81. – С. 5-40; Окладников А.П. Древнейшее прошлое Туркменистана // Тр. Института истории археологии и этнографии АН ТуркмССР. – 1956. Т. 1. – С. 181-221; Фуломов Я.Ф. Хоразмнинг суғорилиши тарихи. – Тошкент: УзССР ФА, 1959. – 324 б.; Толстов С.П. Қадимги Хоразм маданиятини излаб. (Searching for Ancient Khorezm Culture) – Тошкент: Фан, 1964. – 441 р.

<sup>1</sup> История таджикского народа. – М., 1963. Т. 1. – 596 с.; Джуракулов М.Д., Аванесова Н.А. Историография эпохи бронзы Средней Азии. – Самарканд: СамГУ, 1983. – 70 с.; Древнейшие государства Кавказа и Средней Азии. Археология СССР. – М.: Наука, 1985. – С. 178-202.

<sup>2</sup> Толстов С.П. Древний Хорезм. – М.: МГУ, 1948 – 352 с.; Ўша муаллиф. По следам древнехорезмийской цивилизации. – М. – Л.: АН СССР, 1948. – 328 с.; Виноградов А.В. Неолитические памятники Хорезма // МХАЭЭ. – М.: Наука, 1962. Вып. 8. – 180 с.; Гулямов Я.Г., Исламов У., Аскарлов А. Первобытная культура и возникновение орошаемого земледелия в низовьях Зарафшана. – Т.: Фан, 1966. – 266 с.; Исламов У.И. Пещера Мачай. – Т.: Фан, 1975. – 136 с.; Средняя Азия в эпоху камня и бронзы. – М. – Л.: Наука, 1969; Кабилов Ж., Сагдуллаев А. Ўрта Осиё археологияси. (Archeology of Central Asia) – Т.: Ўқитувчи, 1990. – 160 р.

<sup>3</sup> Масимов И.С. Изучение памятников эпохи бронзы в низовьях Мургаба // Советская археология. – 1979. – № 1. – С. 111-131.

<sup>4</sup> Гулямов Я.Г., Исламов У., Аскарлов А. Первобытная культура и возникновение орошаемого земледелия в низовьях Зарафшана. – Т.: Фан, 1966.

<sup>5</sup> Итина М.А. История степных племен Южного Приаралья. – М.: Наука, 1977. – 238 с.

<sup>6</sup> Дьяконов М.М. Дьяконов М.М. Сложение классового общества в Северной Бактрии // Советская археология. – 1954. – Т. XIX. – С. 120.

of a large irrigation system and slavery labour was used in irrigation affairs<sup>1</sup>. In A. Sagdullaev's research, the idea of the first statehood was put forward on the example of ancient canals of 3-5 km in the mountain ranges of southern Uzbekistan<sup>2</sup>.

In the ancient East, life implied the use of complex irrigation facilities for artificial irrigation based farming. S.P. Tolstov and M. Dyakonov said that slaves were involved in the construction of irrigation canals in Central Asia that allowed irrigated farming. It should be noted that it was mentioned as the main factor in the formation of artificial irrigation branches<sup>3</sup>.

From the 60s of the 20<sup>th</sup> century, researchers began to debate their ancient history as "the first class society", "slavery system," "slavery states". In the old Soviet historiography, the disintegration of the population and its classification reflected the picture of a society with a political unity that had the ability to control the society. We are convinced that the state in which the governance is governed can lead to controversy in the idea of a class society, based on conflicts and struggles. The question of about the role of slaves and members of free teams of Central Asia's first-ever governance system hasn't been solved in historiography. At the same time, the date of the emergence of the first states in Central Asia, the task of periods in them led to a sharp controversy in the field of historiography. Some scholars pointed out that the great states did not develop in Central Asia until the Conquest of Ahamanides<sup>4</sup> and that the statehood in the region was formed during the time of Ahamanides<sup>5</sup>. The second group of scientists said that the statehood in Central Asia was before the Ahamanides. It is known that the main arguments arose in the question of political association "Aryoshayana" "Katta Khorezm" and the ancient Bactrian countries mentioned in "Avesto".

Western researchers (F. Altheim, V.B. Hennen, I. Gershovitch) described the Greater Khorezm state as "the first homeland" of the Khorasmians by placing them in the foothills of Coptic Mountain, near Marv and Herat<sup>6</sup>. I.V. Pyankov widened the territory of "Greater Khorezm" in the south of Central Asia and said that it included Iran's Mashhad and Nishopur oasis<sup>7</sup>. According to M.G. Vorobyova's conclusion, the people of Khorezm did not move to the Lower Amudarya from southern Turkmenistan, the borders of the Khorezm state were quite broad, ranging from the Middle Amu Darya to the Aral Sea<sup>8</sup>. It is possible to support the

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<sup>1</sup> Толстов С.П. По древним дельтам Окса и Яксарта. – М.: Изд. вост. лит., 1962. – С. 75.

<sup>2</sup> Сагдуллаев А.С. Оседлые области юга Средней Азии в эпоху раннего железа (генезис культуры и социально-экономическая динамика): Автореф. дисс. ... докт. истор. наук. – М., 1989. – С. 27.

<sup>3</sup> Дьяконов М.М. Сложение классового общества в Северной Бактрии // Советская археология. – 1954. – Т. XIX. – С. 121.

<sup>4</sup> Дандамаев М.А. Политическая история Ахеменидской державы... – С. 50.

<sup>5</sup> Хлопин И.Н. Юго-западная Туркмения в эпоху поздней бронзы. – Л.: Наука, 1983. – 242 с.; Зеймаль Е.В. К периодизации древней истории Средней Азии // Новые памятники письменности и искусства. – М., 1986. – С. 154.

<sup>6</sup> Altheim F. Awestische Textgeschichte. – Halle (Saale), 1949; Henning W.B. Zoroaster: politician or witch – doctor? – Oxford, 1951; Gershevitch I. The Avestan hymn to Mithra. – Cambridge, 1959.

<sup>7</sup> Пьянков И.В. Хорасмии Гекатея Милетского // Вестник древней истории. – 1972. – № 2. – С. 17.

<sup>8</sup> Воробьева М.Г. Проблема "Большого Хорезма" и археология // Этнография и археология Средней Азии. – М.: Наука, 1979. – С. 38-42.

scientist's idea; the local people – amirabads managed to operate in the center of the Khorezm oasis and later they were called “Khorasmians”.

There are various opinions about the period of “Greater Khorezm” state. Specifically, M.A. Itina came to the conclusion that this state appeared at the beginning of the 6<sup>th</sup> century. The issue of Bactrian state is also discussable among researchers. New information was discovered by the historians who had been to northern Bactrian region at the result of archeological investigations carried out in housings, fortresses and belonging to the first Iron Age<sup>1</sup>.

During the 20th century, historic data on the history of the first statehood were mostly studied by connecting them to the southern and eastern provinces of Central Asia – territories of Khorezm. It should be noted that in the 70-80s of the 20<sup>th</sup> century, extensive archeological researches in Kashkadarya, Zarafshan and Fergana regions received new sources of coverage of the statehood.

### **Conclusion**

The facts cited above provide the following conclusions:

- The classical essence of the first statehood was the main indicator of class theory in the history of the ancient Soviet era;
- The terms like “first class society”, “slavery system”, “slavery states” which belong to the ancient history of Central Asia were widely used; it was also emphasized that the features of ancient social relations in the region was relative to the social system of the ancient East and Greece;
- Though there are many scientific works were published at the result of comparing written and archeological information, the scientific solution of problems such as the identification of the historical dates of the emergence of the first political associations and states in Central Asia and the determination of their territorial boundaries has not been solved;
- Factors and characteristics of transition from the primitive socio-political governance to the political power in Central Asia have not been adequately analyzed and have not become a subject of special generalizations;
- Soviet-era historians were the dominant force in the society to study the historical processes in Central Asia. At the result of archaeological research carried out by ancient scholars in the Central Asian region, towns and cities were the first form of government in the Bronze Age.

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3. История таджикского народа. – М., 1963. Т. 1. – 596 с

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<sup>1</sup> Сагдуллаев А.С. Оседлые области юга Средней Азии в эпоху раннего железа (генезис культуры и социально-экономическая динамика).: Автореф. дисс. ... докт. истор. наук. – М., 1989. – С. 32.

4. Толстов С.П. Древний Хорезм. – М.: МГУ, 1948 – 352 с.;
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8. Дьяконов М.М. Дьяконов М.М. Сложение классового общества в Северной Бактрии // Советская археология. – 1954. – Т. XIX. – С. 120.
9. Сагдуллаев А.С. Оседлые области юга Средней Азии в эпоху раннего железа (генезис культуры и социально-экономическая динамика).: Автореф. дисс. докт. истор. наук. – М., 1989. – С. 27.
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14. Воробьева М.Г. Проблема “Большого Хорезма” и археология Этнография и археология Средней Азии. – М.: Наука, 1979. – С. 38-42.

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**HISTORY OF INVESTIGATIONS OF WOMEN’S ISSUES IN  
UZBEKISTAN THROUGHOUT THE YEARS OF INDEPENDENCE  
Rakhmanova Y. (UrSU)**

**Annotation.** In the given article is said about features of researches made by Uzbek scientists on women livelihood in the framework of various spheres in the independence years. There was analyzed the history of women problems, socio-political activity, women's status.

**Аннотация.** Мазкур мақолада мустақиллик йилларида ўзбек олимлари томонидан турли фан соҳалари кесимида хотин-қизлар ҳаёти ўрганилган тадқиқотлар хусусида сўз юритилади. Ўрта Осиёда аёллар масаласи, уларнинг ижтимоий-сиёсий ҳаётга тортилиши, аёллар мақомининг ошиб бориши тарихшунослиги таҳлил қилинган.

**Аннотация.** В данной статье говорится об особенностях исследований, проведённых узбекскими учёными по изучению жизнедеятельности женщин в рамках различных сфер в годы независимости.

Проанализировано историоведение по проблемам женщин, их социально-политической деятельности, статуса женщин.

**Key words:** History on women's problems, topic on Islam and women, women's situation, philosophical, sociological researches, Karakalpak women.

**Калит сўзлар:** Аёллар масаласи тарихшунослиги, ислом ва аёл мавзуси, аёл мавқеи, фалсафий, социологик тадқиқотлар, қорақалпоқ аёллари.

**Ключевые слова:** История по проблемам женщин, тема ислама и женщин, положение женщин, философские, социологические исследования, каракалпакские женщины.

It is important to study the history and historiography of women in Uzbekistan, along with the legal basis for studying the peculiarities of women's issues and ways to solve them.

Throughout the years of independence, a number of scientific studies have been conducted in the field of historical science in the study of women's issues.

Prof. D. Alimova, who is studying the problem of women's issues and the modern problems in Central Asia. Alimova made a great contribution. Her scientific novelty based on the scientific research that plays an important role in clarifying the history of women's issues. It is of utmost importance as the findings include research on the issues of liberation of women in Central Asia, women's labor, involving them into cultural and socio-political processes, women's labor under a totalitarian regime, changing the social status of women in the light of the ideology of national independence from the point of view of historiography<sup>1</sup>.

Basing on the findings of the French scholars on the life of Central Asian women G. Ergashhodjaeva's research analyzed the main trends, concepts of women's emancipation in Central Asia, methods of revealing the nature and essence of women's legal and economic liberties in the 50-80's.<sup>2</sup>

Q. Nishonova's research revealed that the issue of liberation of women in Uzbekistan in the context of the administrative and command system in the context of socio-political, economic, ideological policy in the society and the Bolshevik-communist monopoly between 20 and 30<sup>th</sup> of the 20th century. M. Sultonmuradova's life and activity was studied in the research<sup>3</sup>. D. Rajabova's research the concept and perspectives of the Turkiston Jadis on youth and women's

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<sup>1</sup> Алимova Д. Женский вопрос в Средней Азии. История изучения и современные проблемы. – Т., Фан, 1991. 133 С; Раскрепощение женщин Средней Азии и Казахстана в освещении периодики 20-х годов // Братское сотрудничество, взаимопомощь народов СССР / Историография, источники. Целиноград; Ал-Фароби, 1992. Alimova D. Historian`s vision of “Khudjum” // Central Asia Survey; 1998. №10 (17), 3.147-155; Woman`s position in Uzbekistan before and after independence // Denjer and indentiti construction women of Sentral Asia the Kankasus and Turkey/ Brill London – Boston – Koln, 2000/ P/ 293-304.

<sup>2</sup> Эргашхўжаева Г. 20-йиллар Ўрта Осиё хотин-қизлар эмансипацияси масалалари француз тарихшунослиги талқинида (50-80 йиллар адабиётлари асосида). – Т. 1996. Тарих фанлари номз. ... дисс. – Тошкент, 1996. – 135 варак.

<sup>3</sup> Нишонова Қ. Ўзбекистонда хотин-қизлар масаласини ҳал этишининг маданий жиҳатлари (20-30 йиллар). Тажриба ва оқибатлар. Тарих фанлари номз. ... дисс. – Тошкент, 1998. – 182 варак.

issues have been covered<sup>1</sup>. The thesis of Z. Rupova, D. Sobirova, V. Muhamedjanova, N. Jurayeva, the role of women in the agrarian life of the country, the essence of the policy of the totalitarian regime on women, and historical publications of 1925-1932, the essence of the socio-political movement of the attack, the problems of involving women in the social and political life of the Soviet period on the basis of the ideology of independence. However, materials of these researches are very rare in the materials covering the life of Khorezm oasis women<sup>2</sup>.

According to Y. Abdullaeva and Z. Kallibekova's research, the socio-political status of women in Karakalpakstan was compacted on the basis of archival documents, summarizing the three political periods - the period of the colonization of the Russian Empire, the Soviet regime and the independence of Uzbekistan. The issues of socio-legal protection of women in Karakalpakstan and their role in society have been analyzed<sup>3</sup>.

Some aspects of the life of women in Uzbekistan are widely covered in the research of historian ethnologists. In particular, doctor of historical sciences, prof. In the works of A. Ashirov it is important to study the role of women in the pre-Islamic traditions of the Central Asian peoples and women's socio-political life.<sup>4</sup> Z. Rasulova, G. Zunnunova's research has highlighted some aspects of women's life, particularly in the ethnographic aspect of women's status in family-to-marriage relationships.<sup>5</sup> From historian scientists to professors G. Agzamova and Ziyaeva's research shows the contribution of Central Asian women to social

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<sup>1</sup> Ражабова Д. Туркистон жадидларининг қарашларида ёшлар ва хотин-қизлар масалалари (XIX асрнинг охири XX аср бошлари). Тарих фанлари номз. ... дисс. – Тошкент, 2003. – 148 варақ.

<sup>2</sup> Раупова З. Участие женщин Узбекистана в развитии сельско-хозяйственного производства в 30-е годы: Дис. ... канд. истор. наук. – Ташкент, 1993; Собирова Д. Ўзбекистонда совет тоталитар тузумининг аёллар масаласидаги сиёсати ва унинг оқибатлари (XX асрнинг 40-80 йиллари). Тарих фанлари номз. ... дисс. – Тошкент, 2009; Мухамеджанова В. Периодическая печать 20-30х годов о раскрепощении женщин Узбекистане. : Дис. ... канд. истор. наук. – Ташкент, 1994; Жўраева Н. Ўзбекистон ижтимоий-иқтисодий ва маданий ҳаётида хотин-қизларнинг ўрни (XX асрнинг 20-30 йиллари). Тарих фанлари номз. ... дисс. – Тошкент, 2009. – 172 варақ.

<sup>3</sup> Абдуллаева Я. XIX асрнинг охири XX асрда Қорақалпоғистонда хотин-қизлар масаласи (ижтимоий-сиёсий аспект). Тарих фанларидокт. ... дисс. – Тошкент, 2005. – 377 варақ; Каллибекова З. Место и роль женщин в современном развитии Каракалпкстана (1991-2004 гг.): Дис. ... канд. истор. наук. – Нукус, 2006.

<sup>4</sup> Аширов А. Ўзбек халқининг қадимий эътиқод ва маросимлари. –Т.; Алишер Навоий номидаги Ўзбекистон Миллий кутубхонаси, 2007. 275 б.; Анъанавий никоҳ тўйи маросимларининг генезисига доир баъзи мулоҳазалар (Фарғона водийси никоҳ тўйи мисолида) // O`zbekiston tarixi / 2003. №2. –Б. 38-45; Ўрта Осиё халқларининг исломгача бўлган анъаналари ва ижтимоий-сиёсий ҳаётида аёл мавқеи // Ўзбекистон хотин-қизлари: кеча ва бугун (илмий-амалий конференция маърузалари). – Тошкент, 2005. –Б. 24-29.

<sup>5</sup> Расулова З. Тошкент шаҳри ўзбекларининг оила-никоҳ муносабатлари (XX аср охири XXI аср бошлари). Тарих фанлари номз. ... дисс. – Тошкент, 2009. – 172 варақ; Ўзбекларнинг никоҳ тўйигача бўлган маросимлари (қалин бериш мисолида). – Т. 2009. 140 б.; Зуннунова Г. Стратегии выбора брачного партнера (на материалах махалля г. Ташкента) // Общественное мнение. Права человека. 2009. № 2. С.119-126; Отражение гендерных взаимоотношений в жилом пространстве узбеков // Общественное мнение. Права человека. 2009. №3. С.141-146.

development during the khanate, the role of women in socio-political life in the history of Uzbekistan<sup>1</sup>.

The works by D. Kenjaev, S. Shadmanova reflect the views of Turkistan women and the ideas of the Jadid intellectuals about women's education. <sup>2</sup>With a comprehensive study of women's issues and practices in the period of independence in close contact with historical development, G.Ganieva's research has important scientific and practical significance<sup>3</sup>

Women's issue has also been studied in legal, philosophical, sociological, pedagogical, psychological and economic sciences. In particular, S. Safaeva, O. Nishonova, M. It has been studied in various aspects by Karimova, F.Abdurahimova, T.Egamberdieva, O.Shamieva, N.Salayeva, G.Yadgarova and other researchers<sup>4</sup>.

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<sup>1</sup> Агзамова Г. Ўрта Осиё хонликлари: аёллар ва жамият тараққиёти. / Ўзбекистон хотин-қизлари: кеча ва бугун... –Б. 30-36.; Зияева Д. Ўзбекистон тарихида аёлларнинг ижтимоий – сиёсий ҳаётида туганган ўрни / Ўзбекистон хотин-қизлари: кеча ва бугун... –Б. 9-15.

<sup>2</sup> Кенжаев Д. Образование Туркестанских женщин в воззрениях джадидов. // Бюллетень Совр.Образований. 2007. В-30.42-44стр. Shadmanova S. Turkistan Women's Role in Society // Society and Governance. 2006. No.2. p.91-93

<sup>3</sup> Ганиева Г. Ўзбекистонда хотин-қизлар масаласи: янгича ёндошув, муаммо ва ечимлар (мустақиллик даври 1991-2005 йй.). Тарих фанлари номз. ... дисс. – Тошкент, 2006. – 162 варақ; Гендерные исследование в Центральной Азии // Шарқшунослик. 2013.№16.- С. 131-136; Ganieva G. Post soviet transformation of Uzbekistan: Gender perspectives // Journal of Himalayan and Central Asian studies. New Delhi, India 2015. P.223-238.

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The above-mentioned studies have examined the life of women in Uzbekistan in terms of specific areas. One of the most important scientific problems is to show the role and place of women in the traditional historical lifestyle transformation in the historical period, the role of women in family and community ceremonies. Ethnological study of daily life of Uzbek women allows to cover the portrait of our nation's women fully.

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## **THE DESCRIPTION OF THE HISTORY OF THE POPULATION OF LOWER AMU-DARYO RIVER ON THE FORMER WRITTEN SOURCES**

**H. Matyoqubov (UrSU)**

**Annotation.** It is looked into to reveal the history of the people around The lower reaches of the Amu Darya in written resources in this article.

**Аннотация.** Мақолада Қуйи Амударё халқларининг ёзма манбалардаги қисқача тарихи кўриб чиқилган.

**Аннотация.** В статьях рассмотрены краткая история народов Низовьев Амударьи на письменных источниках.

**Key words:** Central Asia, Lower Amudarya, “Avesto”, Gerodot, Ahaman.

**Калит сўзлар.** Марказий Осиё, Қуйи Амударё, “Авесто”, Геродот, Аҳомон.

**Ключевые слова.** Центральная Азия, Низовья Амударьи, «Авесто», Геродот, Ахаман.

According to the results of geological investigations, during geological period, in Central Asia, especially, Uzboy, Sariqamish and Kuyi-Amudaryo ponds formed.<sup>1</sup> In row of historical, cultural regions of Central Asia written information regarding the history of Khorezm was reflected in “Avesto”, historical Persian sources and Egypt historian’s works. Although there is very little information about the first written sources, they are being used to learn about the cultural, economic, social and political affairs concerning the history of Khorezm. Culmination necessity what about building real history relying on primary information appeared, using written sources with purpose, comparing them and becoming public played an important role in independence years. It is known to be reflected in ‘Avesto’ primary information concerning ancient history in the row of above sources.

The macrotoponym “Khorezm” was firstly written in “Avesto”, “Yasht”, in X chapter (Mixz-Yasht) in the form of Khvarizam.<sup>2</sup> Khorezm was spoken with rows of Porutalstaka, XarayvaMouru, GavaSug’dda religions. The translation of the source relating to this theme is the following: “The brave leaders of that

<sup>1</sup> Кесь А.С Антропогенное воздействие на формирование аллювиально – дельтовых равнин Амударьи/Культура и искусство древнего Хорезма.М,”Наука”1981с73

<sup>2</sup> Хрестоматия по истории Древнего Востока. Яшты. Глава X / Перевод С.П.Виноградовой. – М.: Высшая школа, 1980. Ч.II. – С. 66; Авеста. Избранные гимны / Перевод с авестийского И.М. Стеблин – Каменского – Душанбе: Адиб, 1990. – С. 57.

country did a lot of military moving, the cattle was supplied quit tent and food on its mountains which have wide summer pasture and much water, deep lakes wave and wide river flow strive floating toward Iskatain in Poruta, Mouruin in Xarayva, Gava in Sugt and Xvarizam”<sup>1</sup>, likewise, another translation of “Mixz-Yasht” must be paid attention.

Brave kings to scolding, rapid  
Those areas being lined up  
High mountains-stones  
In quiet, great pasture  
The fat cattles weeding  
The wavesjampedhight  
Saw deep blue arms  
Its flow quiet water  
Toward Parutgilkata  
Toward Marv and Xarayva  
Toward Gaba in Sugd  
Saw delivering quick  
And toward Xvarazmi.<sup>2</sup>

Khorezm wasn't written in the list of the countries which were counted in “Avesto” in the first chapter of the book “Videvdot”. “AryonamVayjo”(in the oldest parts of “Avesto”- Areyoshayana, AryonamVaychax), namely oriy's shallow lands,was said as the first country in the book ‘Videvdat’.<sup>3</sup> The countries said in the first chapter of Videvdat differ from the list of “Yasht”religionsalot:Aryonam Bayjo, Gava, Mouru, Baxdi, Niyayo, Aryo, Vaekereta, Urva, Xnanta, Araxosiya, Xaetumant, Raga, Chaxro, Varna unnamed 7 Indian religions and the countries in ahead of Ranha river was written.<sup>4</sup>

In the list of “Avesto” counties mentioned above, the state of not having been told about Khorezm, the problem of having been written AreyonomBayjo before Gava(Sugd), Mouru(Marg'iyona), Baxdi(Baqtriya) in central Asia turned into discussion in history of XX century. According to the book “Vendidat”, Zardushtiy's great and wise God Axuramazda appeared to Zardushtra- Zardusht, reported the following: “O SpitamaZaratushtra, I've presented the peace to living lands although there is little happiness in these areas....

Firstly, I established to AryonamVayjo in VanxviDatyo, in the best countries to live people. Winter lasts for 10 years there, summer-2 months, the water of those winter months is cold, in that area, in steam of winter; large flood water appear at the end of winter”. In the first chapter of “Videvdot” Aryonam was announced to be situated in VayjoVanxviDatyo (Datiya) ,however, accurate data weren't indicated about the geographic boundaries of this country. “AVESTO” describes the society situated in wide areas and stores imaginations, myths and poems which belong to the period without scripts. Therefore, it is very difficult problem to bind

<sup>1</sup> Сагдуллаев А. Қадимги Ўзбекистон илк ёзма манбаларда. – Тошкент: Ўқитувчи, 1996. – Б. 21.

<sup>2</sup> Авесто. Яшт китоби / М.Исҳоқов таржимаси. – Тошкент: Шарқ, 2001. – Б. 49-50.

<sup>3</sup> Сагдуллаев А. Қадимги Ўзбекистон илк ёзма манбаларда... – Б. 20-21.

<sup>4</sup> Хрестоматия по истории Древнего Востока. Вендидад. Глава I / Пер. С.П.Виноградовой... С. 71-72

with the define area of Aryonam Bayjani's modern geographic map. On the one hand, the geographic names indicated in 'Avesto' bind with the mythologic events, other hand, they count on real basis. It brings to indefinite results to bind available ancient toponyms with geographic maps using only information of 'Avesto'. One of the three holy fires devised by God Akhura Mazda was brought to the sacrificial place on Khvarreumand mountain in Khorezm in the reign of fabulous Yima (Jamshid in ``Shohnoma``). In reign of Vishtasp this holy fire was taken to mountain Rushan near Kobul fom Khorezm.<sup>1</sup> It is important to concentrate that in some historical books the concept "Khvarreumand" begins the word "Khvar" as "Kharizam"(Mir Yasht). For B.C. 549-548 the ancient Persians with the leading of Cyrus II conquered Parfia and Girkania.<sup>2</sup> According to the information of Gerodot, the people of Bobil, Baqtria, Sak and Rome conflicted Cyrus II's invader activities. Cyrus II intended to fight against these people himself.<sup>3</sup> For BC. 545-540 CyrusII conquered Margiyona, Baqtria and Sugd.<sup>4</sup> We have no information about the fighting of ancient Persians against Khorezm in Kuyi Amudarya. Because the huge Persian kingdom was founded by the kings of Ahamoni, the history of the people of Central Asia was written by Persian writers. According to information of researchers, Gekatei (BC. the end of VI and the beginning of V) in Milet of Small Asia was the first to make list of armistical and administratical regions of ancient Persians. Gerodot (from the town Galikarnas) and Ktesiy (from the town Knid) used his information. Gekatei (his works did not reach us) also used another writer Skilak's information. For Bc.519-512 according to Doro I's order Skilak (from the town Kariandi of Small Asia) reached Rome sailing through the rivers Hind, Arabiston and Red.<sup>5</sup> Skilak's travelling was indicated in "History" by Gerodot as following: "The large part of Asia was discovered in the reign of Doro. He intended to be aware of the part of the place where the river flows into the sea (this river is not only Nile, but also the only river which was rich in crocodiles). In this purpose Doro sent his people whom he relied on. There was Skilak among them too. They began to sail to the town Kaspitara in Paktia through the river to the sea".<sup>6</sup> According to the information of Gekatei, Skilak arrived in the Kasbi gate from Midia and Khorezm through Parfia. The definition of this way which was following: "through the areas of Parfia and Khorezm as far as Baktria" was indicated even in the work "Alexander anabasisi" of Arrian (AC. 90/95-175 years).<sup>7</sup> Gekatei relying on Skilak's information wrote about the location of Khorezm as between Parfia and Baqtria, in the east from the first region, in the west from the second one and said: "The people of Khorezm lived in the east of Parfia". Gekatei informed us about the nature and the people of Khorezm. These

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<sup>1</sup> Хромов А.Л. Хорезм в древнеиранских... С. 28-29.

<sup>2</sup> Дандамаев М.А. Политическая история Ахеменидской державы. – М.: Наука, 1985. – С. 19.

<sup>3</sup> Геродот. История. В девяти книгах / Перевод и примеч. Г.А.Стратановского – Л.: Наука, 1972. – Кн. I, 131.

<sup>4</sup> Дандамаев М.А. Политическая история... С. 28.

<sup>5</sup> Пьянков И.В. Хорезм в античной письменной традиции // Хорезм и Мухаммад ал-Хорезми. – Душанбе: Дониш, 1983. – С. 38.

<sup>6</sup> Геродот. IX.I. 44.

<sup>7</sup> Пьянков И.В. Хорезм в античной письменной традиции... С. 38.

problems were indicated in the article of I.V.Piankov in detail.<sup>1</sup> According to available information, the people of Khorezm lived in plain and mountain “in those mountains thorny kinara, wild trees grow”. According to this information the copse in the river regions of Khorezm made up forests. Gerodot wrote about the people of Khorezm adding the information of Gekatei, as following: “In winter God give them rain like other people, in summer they grow corn and others like it. Consequently, they needed water” and they used the water of the river Akes.<sup>2</sup> Gerodot wrote that the people of Khorezm lived in mountainous places.

For the ancient information and facts indicated above we can say the following conclusion. According to the ancient information, to learn the social, economical, cultural events the people of Khorezm underwent in past we should know both the material facts and the written facts. The information written in «Avesto» is important to learn the level of development of the people`s culture which developed people`s different fields in the period of bronze and initial iron in Khorezm. And also we can gain information about the historical and cultural regions of Khorezm by the scripts of the historian of Greek and Ahamoni.

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**A PART OF THE DAILY LIFE OF UZBEK WOMEN IN KHIVA  
KHANATE (Late 19th and early 20th century)**

**Rakhmanova Y. (UrSU)**

**Annotatsion.** This article deals with the daily women life in Khiva Khanate in the late 19th and early 20th centuries, as well as the traditions of home and field work, craftsmanship, bride, women's customs, and the role of women in the socio-economic life of the country.

**Аннотация.** Мазкур мақолада XIX аср охири XX аср бошида Хива хонлигида яшаган аёлларнинг кундалик турмуши, уй ва дала ишлари, хунармандчилик, келин тушириш, воҳа аёлларининг мамлакат ижтимоий-иқтисодий ҳаётида тутган ўрни хусусида сўз юритилади.

**Аннотация.** В данной статье говорится о повседневной жизни, домашних и полевых работ, в ремесле женщин, проживавших в Хивинском ханстве в конце XIX и в начале XX века, об отдельных обычаях, связанных с женитьбой, особенностях роли женщин оазиса в социально-экономической жизни страны.

**Key Words:** Women, everyday life, household, field work, marriage, money, habit, family finances.

**Калит сўзлар:** Аёллар, кундалик ҳаёт, уй-рўзғор, дала ишлари, никоҳ ёши, қалин пули, тўққизта тўққиз, оила маблағи.

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<sup>1</sup> Пьянков И.В. Хорасмии Гекатея Милетского // ВДИ. – М., 1972. № 2. – С. 3-21.

<sup>2</sup> Геродот. IX.III. 117.

**Ключевые слова:** Женщины, повседневная жизнь, домашняя работа, полевые работы, возраст для вступления в брак, калым, обычай, семейный доход.

This article deals with the daily women life in Khiva Khanate in the late 19th and early 20th centuries, as well as the traditions of home and field work, craftsmanship, bride, women's customs, and the role of women in the socio-economic life of the country.

In the late 19th and early 20th centuries, women living in the Khiva khanate took an active part in the socio-cultural and cultural life of the country. At the same time, issues such as the daily life of the local women, family, marriage, child rearing, women's rights and responsibilities in society are reflected in local sources, archives, foreign ambassadors', tourists' and warriors' daily memoirs and reports of prisoners. Russian soldiers who participated in military exercises, some of whom lived in prison for a while, studied the customs and traditions of the people, and presented their observations on the differences in the life of European and other nationalities.

The life of the Turkestan women was partly reflected in the drawings and engravings by the artists such as N.N. Karazin and K.Veyerman during the Turkistan invasion period. Life in Central Asia has been exposed through the exposition of the Turkestan section at a series of exhibitions in the Russian Empire. The manikins showcase the markets of Central Asia and the appearance of local people. Among them there were plaques from the daily life of Turkistan women, a woman wearing a 'parandji'(face cover), a woman wandering on the camel, an image of a mother at the cradle.

One of the authors who was involved in Russian Empire's invasion of Khiva Khanate wrote "Only young women and girls cover their faces in Khiva. Exceptionally, in some cases, there are young women who do not hide their faces on the streets ... Persian beautiful girls and women live in Khiva." There were 30,000 Persian refugees in the Khiva khanate, including some Persian women. In 1847, a list of captive women prisoners was listed on the list of Persian captives during the crusades to Marv in 1847.

According to Matmurod Devonbegi, in Khiva, there was a slave market in front of Abdol-Baba's temple, where young women and girls were sold around 300 gold pieces as slaves.

The information about the rights of women in the Khiva khanate was presented in documents belonging to the end of the 19th and early 20th centuries. "In the country, wealthy men do not allow their wife to go out. The Poor men's wives are free, but they hold the cover on their faces." According to Islamic law, the women are guaranteed the right to inherit. According to the rules of the Sharia after the death of the parents, the daughter is given one-third of the inheritance, one-third of the inheritance for the unmarried daughter was separated, and the rest is distributed among the sons.

Uzbek women living in the Khiva khanate had done almost all housework and field work and in some families digging the ground even. For household use,

they were busy with collecting wood or others to replace the fuel, spinning, and knitting, preparing attires and clothes for family members, sewing winter coats, painting, and other crafts. Women had been helping family men in fields such as field work and land plowing, making furrows and bringing wheat gourds to the harvest yard.

The women in Khiva khanate usually worked with cotton and silk handles. After the cotton was thoroughly cleaned, it was yarned and the cloth was woven. These activities were considered to be the daily house works of women. Each family used it for their daily needs and sold the extra amount of it. New Urgench and Khiva residents were engaged in this business and their products are exported to Russia. Apparently, women's labor had played an important role in the country's economic development.

In the Khiva khanate, palace ladies had to adhere to the traditional customs that had long been preserved. The Khiva's khans used clothes, carpets and other items, all of which were partially or completely made by their wives.

Family finances are often controlled by men (women in some households). Separate funds for housing are given to women in some families. Household women spent their money on cotton yarn and sewage, to fill up the household stock and buy new clothes for their children on holidays. In wealthy families, some of the men's clothes were sewn down to the children.

The findings indicate that the role of women in the relationship of Uzbek siblings was crucial. Some Uzbek tribes had maintained their power over others, following the rules of marriage, engagement, and in-law relationships with each other. These tribes accepted the daughter of a lower family as a bride, but did not give their daughters to poor families. Hungarian scholar A. Vambéry wrote that in engaging Uzbek girls as in Europe, it was important that the bridegrooms family should be wealthy and well-known, and usually the girls didn't choose the bridegroom, as it was not so important whom they were getting married (as bridegroom for the daughter was chosen by parents).

The main marriage age in Khiva khanate was 15-20. The poor people preferred to marry a girl who would be able to do housework. The payment for bride, wedding purchase, garments, and comforts for the bride did not always have a major place in marriage engagement. In some cases, close friends or the poor didn't receive a lot of money before getting married. The friends and old chaps agreed on making their children couples when they were born, and they were considered grooms and brides. These children were grown up together, and in this case those who have been marrying were not paid the payment for the bride. Traditionally the bridegroom had the right to refuse the marriage if he didn't want to get married to that girl.

Having received the consent of the girl's father and her relatives, head family members of two sides gathered at home of the girl's family for making consensus (this event was called 'maslahat oshi', loan translation 'consensus pilaf') and they consulted in the absence of the bride and groom. The tip was about setting a bride price, the engagement festive, or the "bread breaking ceremony" and

a wedding. The wedding day was determined depending on the preparation of both parties. In some cases, after the engagement, the parties could have several gap years before the wedding for some reasons, and that was not considered as an exception as in present day. The bridegroom paid certain amount of money for the bride. In Khiva, in average social spheres about 30 gold pieces, for instance the khan had to pay up to 15,000 gold pieces of payment. The full amount of money was given to the girl's parents. According to the laws of the Sharia, 'qozi' the judge (judges) could make a sentence. If the wife brought evidence or testimony that his husband would discriminate, humiliate, or fail to fulfill all necessary food, clothing, and other material supplies, she could have divorced. The husband, on the other hand, had the same right to deduce. If the betrayal of women was determined, she was buried in the ground until the chest to beat down with stones and the guilty male was sentenced to death by hanging. The court proceedings related to these crimes and the abduction of women were prosecuted by the participation of the khan. Most often, according to the records of Russian authors, the death penalty was used for those crimes.

Some women of the Khiva khanate had also been active in the country's social life. We can prove this point with the archives of the Khiva Khanate of 1843 containing the names of women whose names were connected with madrasahs. (Bibi Khadija mosque).

In Turkestan, especially in the Khiva khanate, but even less the women were appointed to the position of a well-deserved from landowning. Apparently, women's social work was also present in the khanate.

In Turkestan, especially in the Khiva khanate, but even less the women were appointed to the position of a well-deserved from landowning. Apparently, women's social employment was also taken into consideration in the khanate.

In Khiva Khanate, which was the education was an important area of cultural life; there were a lot of elementary schools, which were mostly built at the mosques. The educated women of some imams attempted to create schools for girls in their own homes and tried to literate them.

To sum up, in the late 19th and early 20th centuries, the women of Uzbek and other nationalities living in the Khiva khanate contributed significantly to the development of society, family peace and prosperity, and economic development of the country.

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**UDC: 822.512.133**

## **THE REFLECTION OF ANCIENT KHOREZM MEALS ON THE ARCHEOLOGICAL MATERIALS**

**K. S. Sobirov, U. M. Abdalov (UrSU)**

**Anotatsion.** This article researched the cuisines of ancient Khorezm people which were consumed in the materialistic culture in Khorezm region.

**Аннотация.** Ушбу мақолада Хоразм воҳаси қадимий аҳолисининг маиший турмушида истеъмол қиладиган таомларининг хусусиятлари ёритилган.

**Аннотация.** В данной статье рассматриваются характерные особенности употребляемой пищи людьми в бытовой жизни древнего населения Хорезмского оазиса.

**Key words:** archeologiya, ethnography, fish, camel, horse, pork, stock breeding, agriculture.

**Калит сўзлар:** археология, этнография, балик, туя, от, чўчка гўшти, чорвачилик, деҳқончилик.

**Ключевые слова:** археология, этнография, рыба, верблюд, лошадь, свинина, скотоводство, земледелие.

As a result of initial activity of Amu-Darya Uzbay and the land around it appeared. The surface of Uzbay and its lands around it are described by dunes, sand passage among them, Kangkakir that was not over 80-100 meter, Tuzkir, Butentov and Tarimkiya heights. The passages formed among Uzbay beach and dunes that were joined to were ready to habitat by people having been turned into water reservoirs, having natural-economical resource on the effect of anthropogenic landscape. According to the results of archeological researches this area was not adopted by primitive people in the early Neolithic periods. In connection with the rise of water provision of Amu-Darya a stream next to Shuroxon appeared on the right bank and the process of filling the squares between Kizilkum dunes with water began. This stream was noted with the name "Okchadarya" in historical and geographical literature.

According to historical data, leading consumption product was fish in their daily life because of the fact that the main activity of primitive people was fishing in 40-12 millennium years B.C. The places of primitive people related to that historical data were studied around Sultan Uvays Mountain and their food was also meat.<sup>1</sup>

Coming to Mesolite period meat products dominated in daily meals of "yesterday's hunters" in north-west and north-east of Ustyurt and this process continued in the Neolithic period, too.<sup>2</sup> Coming out of logical conclusion, Ustyurt field was not rich in flora in Mesolite period because its geographical and climate did not coincide with it. Wide field of Ustyurt remained as a place for animals to hunt. Geographical condition covered the surrounding of the Sultan Uvays distinguished from Ustyurt areas considerably. Our ancestors had a chance to do harvesting and hunting due to the fact that slopes of Sultan Uvays Mountain were abundant in flora and fauna. Our ancestors took vitamins by eating the fruits of wild plants grew in the side of the mountain. In this way they were provided with nature products as well as meat. Coming out of logical assumption, new descendants of hunters living around Sultan Uvays Mountain began migrating towards south-east to find new natural primitive places having left their own motherland.

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<sup>1</sup> Виноградова Е.А., Е.Б. Бижанов. Первые палеолитические находка с Юго-Восточного Устюрта. АО 1977, М., «Наука», 1978

<sup>2</sup> Бижанов Е.Б. Мезолитические и неолитические памятника севдю-западного Устюрта. / Археология Приаралья. Т., "Фан", 1982, Вып. 1, с 14-37.

Okchadarya tributary formed great number of water basins filling the streams around Yonboshkal'a. Aforementioned water basins and their beach were rich in natural-economical resources and there was good condition for our ancestors to come and form ethnogeographic and ethnotoponomic terms in 7-6 millennium years B.C. According to the results of Vinogradov's researches, In the last period of Stone Age hunters continued taking up their activity as well as hunting and harvesting in Burli-3 location on the right bank of Amu-Darya.<sup>1</sup> The surroundings of water basins situated in north-east and south-east areas of Yonboshkal'a hill were turned into ethnic locations in the V-IV millennium years B.C. According to the results of archeological researches, wild animals' bones, shells of egg, remains of oyster were found from the cultural layers of Yonbosh-4 area. However, archeologists did not find the locations of primitive people related to the abovementioned date in Okchadarya basin. It should be stated that tribes worked on the basin of Okchadarya created new water basins as a result of Amu-Darya level either increase or decrease and old water basins became dry in the middle of II millennium B.C. In the small fertile lands hoe farming was done. In dough products were listed in daily life of Suyargon folk and Tozabogyop people.

It is obvious from the results of M. A. Itina's researches, as a consequence of Suyorgan people and Tozabogyop people unity, Amirobods who were the founders of Yakkaperson-2 location stepped into the irrigational farming culture by using irrigation facilities whose length is short and width is small by separating from the south part of Okchadarya creek.<sup>2</sup>

So, in connection with the wheat planting dough products were not less important than meat products. It should be noted that meat products were dominant in Yakkaperson people's menu. In accordance with M. A. Itina's data the bones of great horned animals were more found rather than small horned animals' in Yakkaperson-2 location having explored 20 rooms in IX-VIII century B. C. Furthermore, one horse bone was found from each house.<sup>3</sup>

**Home animals bones were distributed as in the following table made by V.I.Salkin in Khorezm in the VII-IV centuries B.C.<sup>4</sup>**

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<sup>1</sup> Виноградов А.В. Неолитические памятники Хорезма. / МХЭ, Вып. 8, 1968, с. 126-129.

<sup>2</sup> Итина М.А. Поселение Яккапарсон-2. (Раскопки в 1958-1960 гг). М. №6 "Наука", 1963.

<sup>3</sup> Итина М.А. История степных племен южного Приаралья. 11-начало 1 тыс. до.н.э. ТХЭ, Т-Х, 1977, с.185.

<sup>4</sup> Цалкин В.И. Древнее животноводство племен Восточной Европы и Средней Азии. МИА, №135, М, 1966, №35, с. 108.

Types of home animals	Kuyisoy	Ko'zalikir	Ding'ilja	Kuykurilganqal'a Yonboshqal'a Ayozqal'a Tuproqqal'a
Great horned oxen	28,9	32,6	21,7	18,4
Small horned oxen	40,1	49,7	61,7	60,9
Pig	1,86	3,4	2,5	11,0
Horse	18,69	8,2	5,9	5,2
Donkey	2,8	4,1	4,1	3,0
Camel	7,47	2,0	4,1	1,5

According to B.I. Vaynberg's information, the bones of great and small horned animals, horse, camel, donkey, dog, and pig, kabon, and Bukhara deer were found in the houses of Kuyisoy location that was related to VII century B.C. It is obvious from the data that small horned animals were dominant in the Kuyisoy households and in the second place great horned home animals were common.<sup>1</sup> Great horned horse and camel outnumbered in Kuyisoy rather than Ko'zaliqirs. Kuyisoy had 55 % and Ko'zaliqir had 42, 8. Coming out from the aforementioned data, livestock farming was the leading one in Kuyisoy people and Ko'zaliqir people's household.

Considering abovementioned data, it can be concluded that meat products were the main meal in the menu of the people who lived in Sariqamish basin in the middle of second half of VII-VI centuries B.C.

Moreover, the remains of large jug in Kuyisoy location prove that the population did hoe farming. So in Kuyisoy people's menu had not only meat products but also dough products. The Kuyisoy people arranged to produce a new type of dishes- large jug in clay pottery. Large jugs did not have different ornaments.<sup>2</sup> The production of jugs gave for the Kuyisoy people chance to save grain products in their daily life.

In this way, all of aforementioned information shows the following conclusion. It is clear from the historical data that meat products had an important role in our ancestors' menu in the last period of Stone Age and Mesolite.

The unities of kins' company added dough products into the list of food products till the end of V millennium year- the middle of II millennium year B.C. Narrow-leaved oleaster also took place in the list of food products as dough. It should be noted that dough products were dominant since the population lived on the right and left beaches of Amu-Darya from the second half of II millennium till the IV century A.D. made husbandry the main field.

**UDC: 94.575(338.966)**

<sup>1</sup> Вайнберг Б.И. Памятники Куяусайской культуры. / Кочевники на границах Хорезма. М., «Наука», 1979, табл-1, с.23.

<sup>2</sup> Вайнберг Б.И. Памятники Куяусайской культуры. / Кочевники на границах Хорезма. М., «Наука», 1979, с. 13, табл. IV-V.

## UZBEK MODEL” OF CITIZENSHIP SOCIETY DEVELOPMENT AND IT’S NATIONAL FEATURES

**B.O. Jumaniyozov (UrSU)**

**Annotatsion.** In this article is anylired to develope institutes of citizen society, political parties, nongovermenfal-noneavnercial organization, to organize structure of society democracy liberalization of government in the country.

**Аннотация.** Мақолада мамлакатда давлат бошқарувини эркинлаштириш ва номарказлаштириш тамойилларини ривожлантиришнинг мақсадлари фуқаролик жамияти институтлари – сиёсий партиялар, нодавлат нотижорат ташкилотлар, ўзини ўзи бошқариш органлари каби жамиятнинг таркибини ташкил этиш эканлиги таъкидланган.

**Аннотация.** В статье отмечается, что институты гражданского общество политические партии, негосударственные-некоммерческие организаций, органов самоуправления граждан, как цели развития принципов либерализации и децентрализации государственного управления в стране.

**Key words:** civil society, nongovernmental-noncommercial organizations, public control, democracy, institution of civil society, ecological control, Uzbek” model, political process, development.

**Калит сўзлар:** Фуқаролик жамияти, нодавлат-нотижорат ташкилотлар, концепция, жамоатчилик назорати, демократия, ўзбек модели, сиёсий жараён, ривожланиш.

**Ключевые слова:** Гражданское общество, негосударственнье-некоммерческие организации, общественный контроль, узбекский модель, политический процесс, развитие.

From the first days of Independence of Uzbekistan, building of citizenship society in the country were proclaimed as a main strategic and initial aim. The first Constitution of the Republic of Uzbekistan adopted on December 8, 1992, plays an important role in formation of citizenship society institutions in Independen Uzbekistan. Higher Council of Uzbekistan adopted a law “On community associations in the Republic of Uzbekistan” on February 15, 1991, in order to form the citizenship institutions. This law gives possibility to reform the activities of the community associations deeply which are working in the republic and to clear them from the former single dominant ideology, the law also creates a legal conditions to separate of society association structures from state and government system. Citizenship institutions- independence of non state non commercial organizations, their positions as subjects which can work free of the state and government were recognized firstly in the history of the country. This was one of the main signs related to the citizenship society. Prohibition of state organizations and officials` interference in community associations activity, contrariwise interference of community associations in state organizations and officials` activity are strengthened on a legal way by the law.

Theoretical basics of passing period to the citizenship societies, legal state and market relations were made by I.A. Karimov, the first president of the Republic of Uzbekistan. Of course, they expressed the development traditions of the country, democratic principles and the world outlook of our people, including, the national interests of the country. As for I.A.Karimov, the first president of the Republic of Uzbekistan, “ Democratic processes has it`s peculiarities formed in the historic times ”. It is very important to mention about this. Consequently, the democratic processes develop step by step and regularly. To attempt to make reforming attempts in this sphere may cause undesirable even tragic results.

The western scientists also called the revolution “primitive and wild form of social development”. Naturally, such way is not suitable for us”<sup>1</sup>

Building of citizenship association in the country began on the base of development “Uzbek model”. “Uzbek model” consisted of the followings:

Firstly, economic reforms must not be left behind the politics, so that the economics must be higher than the politics. Including, it must be provided to clear the inner, external and economic relations from the ideology;

Secondly, state must a main reformer in passing period. It must determine the priority directions of reforms, construct the policy of changes and implement it consistently;

thirdly, to succeed the priority of law, it must be followed to the laws strictly;

fourthly, strong social policy must be performed taking account the demographic structure of people;

fifthly, to pass to the market economy must be implemented by taking account of the objective laws of market, without the recent history “revolutionary jumps”, so that, thinking deeply, step by step<sup>2</sup>.

In beginning of the XX th century the conceptual program “From a strong state to a strong citizenship society” admitted by the first president of the Republic of Uzbekistan I.A.Karimov came into a new stage. Including, it was made conditions to raise as the organization degree of non state and community organizations in connection with two chamber parliament reforms expressing the interests of social classes and groups and their wiles, to coordinate the interests of various social levels in the society, created a consistent base for the society to be peace, including, made social and political conditions to enlarge the citizens` participation in ruling of society and state bodies. Guaranteeing of the citizenship institutions activities by the state and laws made possibilities to deepen the reforms.

The following thoughts in the first president`s lecture of the Republic of Uzbekistan, I.A.Karimov, named “More deepening the democratic reforms and development conception of citizenship” which were held on November 12, 2010 in the join assembly of Senate and Legislative chamber of the Republic of Uzbekistan assessed the current roles of non stateal and non commercial organizations factually: “ More deepening the roles of non govenmental non commercial organizations and

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<sup>1</sup> Karimov I.A. Main concepts of political-economical and economical perspective of Uzbekistan. //Motherland is as sacred as worshipping place.T.3.Tashkent, “Uzbekistan”,1996, p-9.

<sup>2</sup> . Karimov I.A. Will remain free and flourished Country from Us.Tashkent, “Uzbekistan”, 1994, p- 28-29.

other citizenship institutions forming of citizenship society, democratization and integration of our country to the world society in current development stage of our country, without exaggeration I think, it is not necessary to explain someone, is a main solving factor.”<sup>1</sup>.

As a result of adoption of laws appointed in the conception “On social partnership”, “On society control of the Republic of Uzbekistan”, “Ecological control” are made possibilities to act independently and freely of non state non commercial organizations- the main institutions of the citizenship societies, in addition, starts as a expresser of various social levels` interests in the society.

Including, as a result of changes to code of “On administrative responsibility ” of the Republic of Uzbekistan “to insert changes and additions pointing the reinforcement of state body officials` responsibility for breaking the law documents` requirements appointed the rights of non state non commercial organizations in society and state building, in various spheres of economical development in regions assigned the non state non commercial organizations gained legal bases to implement their functional tasks and powers. Of course, democratic values like mainly human freedom, protection of his rights, implementation of human interests which are specific features for the citizenship society are embodied in the Conception as a result of implementing the legal bases assigned to be adopted to develop the citizenship society institutions.

Democratic institutions of citizenship society are forming on democratic principles during the period of 25 years of Independence in the country. Currently, about 10000 self governing bodies are working. Up to date, the number of officially registered and working non state non commercial organizations have been exceeded more than 8300. These are – various Non State Non Commercial Organizations, social funds, associations, federations, committees and other forms of community associations.

Generally, the reforms related to create the base of state independence began to pass by fitting the practice of developed countries in the world and traditions which are proper to the mentality of Uzbek people. Including, the reforms of citizenship society development also were integrated. The country is going on the way to get a proper place among the developed countries.

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2. Каримов И.А. Биздан озод ва обод Ватан қолсин. Тошкент, “Ўзбекистон”, 1994, 28-29-бетлар.

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<sup>1</sup> . Karimov I.A. Conception of more deepening of democratic reforms and development of citizenship society. Lecture in joint assembly of Senate and Legislative Chamber of the Higher Council of the Republic of Uzbekistan. November 12,2010. Toashkent: “Uzbekistan”, 2010, p- 44.

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**UDC: 1:316.614.5**

## **UZBEK BUSINESSWOMAN: THE SOCIAL PORTRAIT AND KNACK OF WORK PECULIARITIES N.**

**Annayeva (UrSU)**

**Annotation.** In this article today's Uzbek women's entrepreneurial activity is analyzed. Not only women's managerial skills, but also their business excellence are examined in this article. Furthermore, social portrait of today's businesswoman is defined.

**Аннотация.** Ушбу мақолада бугунги кун ўзбек аёлларининг тадбиркорлик фаолияти таҳлил қилинади. Шу билан бирга унда аёлларнинг бошқарувчилик қобилияти, ишчанлик фазилатлари тадқиқ этилади. Бундан ташқари бугунги кун тадбиркор аёлининг ижтимоий портретига таърифлар келтирилади.

**Аннотация.** В данной статье анализируется предпринимательская деятельность узбекских женщин. Также рассмотрены управленческие навыки женщин бизнеса, приведены определения к социальному портрету современной женщины предпринимателя.

**Keywords:** women's entrepreneurship, economic democracy, moral and ethical qualities, organizational skills and business excellence.

**Калит сўзлар:** аёллар тадбиркорлиги, иқтисодий демократия, маънавий-ахлоқий фазилатлар, ташкилотчилик, ишбилармонлик.

**Ключевые слова:** женское предпринимательство, экономическая демократия, моральные качества, организаторство, бизнес.

Economical democratic traditions are represented in real relationships like socio-economic events, in relationships of producers and consumers whereas in our view, the character and deeds, the lifestyle of businesswomen are represented in their social portrait. Thus, in current theme we have taken into consideration the social portrait and the peculiarities of business excellence of Uzbek businesswomen.

What is “social portrait” itself? There is no any kind of definition for that word in scientific literatures. Even the researchers who have tried to create women's social portrait get this term without any definitions and descriptions to use. In the years of independence there have been a number of researches on creating Uzbek woman's social portrait. However, our aim is to determine the peculiarities of businesswoman's social portrait. We classify them into three directions:

1. Moral – ethical qualities

2. Necessary qualities for managerial and organizational skills
3. Required peculiarities for being an entrepreneur

While speaking about moral- ethic qualities businesswomen's social portrait, moral- ethic peculiarities, organizational skills and the ability on entrepreneurship take the first place at once. Above mentioned qualities are closely connected with the issues of social universe putting in front of a human being, the criteria, which explore his deeds and character. For that reason, the portrait of women entrepreneurs taking place in the social existence of such democratic values is seen as a reflection of emerging new economic relations, in the meantime, we will continue the first keeping in mind the second and third directions. Three sections that fill one another give us a wider outlook on a contemporary Uzbek businesswoman. The skills of management and organization relate to high level of excellence. Women leaders who occupied this level are not outnumbered in the world of business. For example, women in the UK will not exceed more than 3 percent [1].

Managerial and organizational skills are nothing more than "an aspiration of human activity and nature, efforts to achieve the goal of life and the rational management. Thus, management system paradigm, the fundamental functions of human life is the reflection of the endeavor of human's self-control (democracy)".[2] Consequently, any managerial and organizational abilities come out of human's life goals. Such social aim of this kind effects deterministically. There are two vital goals here are being spoken about the harmony of the aim of an individual and the aim of a society. Human's life goal, especially in the small business and private entrepreneurship, are closely related to the social goals, because social objective of management, organizational activities effects deterministically. "It is right that the social determinism urges one to do the management systems to operate with high sense of responsibility, the highest management performance in accordance with the dynamic development of the society, but the management system is obliged to take into account the possibilities of self-government"[3]. Women entrepreneurs know their work very well and they put getting profit in the first place. Money is not considered to be a confusing and blamable activity in the market economy. He is one of the democratic and economic values. Wealth and money, in the world of business, lead to glory, knowledge, experience, the degrees also. World experience shows that a wish to live cozy encourages people to engage in business with an unusual request.

In our opinion, even if wealth, money, profit determine many things, they are due to the leadership of their businesses. At a glance the highest level of management seems to be light, in a nutshell, the implementation of activities, which seems to be the fate of the whole team in strategic decision-making is carried out in this level. The business purpose of the high-level depends on organizational leadership.

The purpose of business management tactics is implemented by the secondary stage. Uniting people, attracting personnel, creating necessary conditions for the effective operation, recommending to stimulate are on the

shoulders of mid-level managers. These mid-level managers are the subjects or managers of harmonizing the overall objectives of the company and the interests of the employees hired managing. According to our estimates, this level is not more than 10-12 percent of the women. They are mostly in the field of non-productive small business and private entrepreneurship. In the productive sphere of small business and private entrepreneurship of female managers are observed in trade, cultural and educational services.

Being an organizational leader is a special skill. Without these qualities it is difficult to carry out business activities. Sometimes it is hard to understand it by women entrepreneurs, consequently, they are exposed to physical and moral stress ultimately. Organizing the activities of the working team rightly, promoting necessary personnel in the middle and lower level, monitoring their work, assessing the changes are the duties of an organizational leader. In this respect, money, wealth, income, and to be the owner of the private property is not enough, the awareness of the art of management, staff skills are of vital importance.

Mainly, ethno stereotypes, especially family members' and her husband's not supporting women's entrepreneurial activities is the main obstacle. Even if our government is supporting women's entrepreneurship a lot, in many cases, they cannot get rid of the ethno stereotypes formed in the minds of her family and husband. We are not going to say that women we are not ready to initiate a new work, but, on the contrary, in many companies the majority of women are working. Therefore, our women are ready to take the initiative. But they have a strong tendency to work in the execution sphere. Business requires the responsibility of organizing and uniting others around them. This urges one to deal with ethno stereotypes stubbornly. Many of these women are unable to resolve the conflict [4].

In cooperation with the UNESCO National Commission of the Republic of Uzbekistan "On measures on women's economic empowerment through training programs" to start work on the project loans worth around five million sum for women entrepreneurs in starting. During the nearly two-year project only 125 women and girls used it. The project workers looked for women in the first year and urged them to take loans. Specific information is known that initial 39% of women entrepreneurs used the capital of their spouse, 33% of them got bank loans, 28% of women borrowed from relatives. We can notice that 70% of women get the support of his family and relatives. One-third of them got bank loans [5].

Finance - the financial and banking system which is needed to be an entrepreneur (third line). We have to mention that ethno-cultural traditions and lifestyle effect initiative operation of women entrepreneurship once again. The problem of finding jobs in rural areas remains still a problem. Due to the development of inadequate rural infrastructure, the lack of small business and private entrepreneurship women used farmers' mercenaries. This is a seasonal work. Therefore, farms include only 5% of women [6].

We can be the witnesses of women in rural areas are engaged in the activities of buying and selling things. This means rural women are inclined in

entrepreneurship. If they are aware of the social and legal orders, the activities may lead to a formal basis. However, such private business organization still does not provide evidence of leadership qualities. Organizational and leadership skills require the ability to unite people around a specific purpose. Their main indicator of the quality is working with people, providing their attendance in this situation and responsibility for work. Subordination and coordination are the peculiarities of organization. Small private entrepreneurship cannot have coordination and subordination.

Women with higher education in their activities feel the importance of organizational excellence first and foremost more than benefit, profit. They occupy (64%) in management and high (31%). Thus, knowledge and work experience value organizational and leadership qualities highly. The lower level of women's incomes take the first place, but they were one of the organizers of the last (12%) of women. Perhaps they are not sufficiently aware of the importance of managing the team, organizational and leadership qualities.

"To consider the case, the Aristotle says, any person who is separate from others cannot be mature." [7] The skill of organization requires all the time actions of people and uniting people around it. They mean consulting with experts, agencies and especially employees. Indeed, conducting an effective job requires as F.Beckon said : "the preparation, review or discussion and fulfillment capabilities." [8] " Yes, one of the most difficult art is the art of management." [9] Max Weber's definition, especially, refers to the difficulties of working with people and team. Not everyone can deal with all these difficulties, especially in the new democratic society, management practices and relationships with people are getting complicated. Diversity of interests and interest in the management of cases, the conflict between them turn management into a complex type of activity. Economic democracy develops as the product of such a complex and controversial events and matters. They are clearly visible in the field of small business and private entrepreneurship management system.

According to experts, a person who managed another one and get him obey himself small business and private entrepreneurship, he can manage large companies also. "If you are aware of the secret of managing one person, you can manage the entire one million ..." Tzu-Ning Tsung believes that, in many cases, Asian companies rely on the experience of the West and they actually try to implement the activities of the East into theirs. Actually, the East owns the knowledge of the management of the unique heritage. In this respect, we can illustrate our view by these below such as the great statesman, Amir Temur forgave his enemies and gave them high positions in the palace, but he could not forgive betrayal and deception, Babur united ethno-cultural traditions and urged public living in peace, first President Islam Karimov's entering into a fire burning Ferghana (1989) for our country's peace [10]. They are the charismatic examples from the East. It is true that they are very far from the management of small business and private entrepreneurship, but they are in essence close to each other because a person must defend his own beliefs.

Tzu-Ning Tsung who learned management, organizational learning and leadership small business and private entrepreneurship considers the followings as basic principle: 1) wisdom and honesty; 2) to justify the confidence of others, and to win it; 3) tactfulness; 4) determination; 5) courage, bravery [11].

Wisdom, equity management, targeted staff staunch, long-oriented. Business woman, especially, a leader must be kind, wise to the workers as a mother. Winning and justifying the confidence of the staff develops union and the harmony in the society. Work colleague believes that woman leader as they believe themselves. Tactfulness decorate the leader, work colleague believes the plans and projects of that person. However, tactfulness cannot be achieved through encouraging the staff and always flattering.

Persistence shows the leader's outlook and strategy. Without these quality while defending himself the leader has to be insensitive. Persistence is the quality formed by gentleness, courtesy, organization, consistency.

Courage is a noble quality. Admitted his mistake, and the desire to overcome it, if it is necessary to sacrifice their own interests for the interests of the collective courage is bravery. The leader who does not have the ability of courage cannot guide others and unite them. In general, the state and society managing qualities are also important qualities in managing the affairs of business and entrepreneurship. They cannot be put against each other, but they complement each other, reflect the complexity of the activities of the management and it should be viewed as a virtue.

Like all social activities entrepreneurship possesses its own requests put in front of a man. These requirements differ from other activities. The woman entrepreneur's social portrait consists of socio-cultural and organizational, leadership qualities.

The process of learning women's entrepreneurship urged us to show following peculiarities and properties. Professional requirements belonging to the portrait of businesswomen:

- The pursuit of profit, income;
- Risks;
- Competitive performance;
- The private use of the property;
- Pay to hired workers;
- Loans;
- Contracts;
- To carry out calculations;
- Examine the needs and interests of the population;
- Legal and economic knowledge and develop skills.

Getting profit and income is one of the socio-economic factors invented by human body. A well-known economist N. Shmelev said, "For many centuries, mankind has been unable to discover other sources of income as the criterion of efficiency other than income"[12]. Therefore, in business women consider profit, income as the purpose of the work. However, Uzbek businesswomen are not

satisfied with the revenues only, they care for the welfare of the family, and colleagues in a friendly manner and that is more important for them.

In small business and private entrepreneurship risks are the most important feature. However, the Uzbek women entrepreneurs do not understand taking risks, competition as loss of property, the family bankrupt. Of course, among the informal private entrepreneurs engaged in the buying and selling one can see the ones who bankrupted.

Entrepreneurship is conducted on the basis of private property. Private property turns the entrepreneur into a person who is prudent, efficient, sensitive and the one who does not take risks a lot. Businessman increase its interest to ensure the inviolability of private property. Especially women in business are economists and mean. This is not a bad habit, but it the perception of not forgetting responsibility for the fate of her children and family.

We can see usage from the services of hired workers in family businesses, farms and more. Businesswomen in need of physical force use of hired workers' service. In fact, this is one of the most important qualities of businesswoman. Engaging auxiliary personnel, organization, employment, labor organizations to monitor the implementation of the agreements will require leadership skills. This is not just vacant places of jobs, but the employment of income using the power of the workers. It is also possible to increase the expansion of the business activities of private property.

It is possible to prolong professional requirements, but, in our opinion, the above qualities of the entrepreneur help to create a social portrait clarification enough.

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## THE ROLE OF SPIRITUAL VALUES AND FUTUROLOGICAL ANALYSIS IN THE LIFE OF DEMOCRATIC SOCIETY.

V. Sapayev (UrSU).

**Annotation.** The matter of the spiritual values role in the process of building democratic society in Uzbekistan is explored from the point of future.

**Annotatsiya.** Ushbu maqolada O'zbekistonda demokratik jamiyat qurish jarayonidagi ma'naviy qadriyatlarning o'rni masalasi kelajak nuqtai nazaridan tahlil qilingan.

**Аннотация.** В этой статье анализируется с точки зрения будущего место духовных ценностей в процессе построения демократического общества в Узбекистане.

**Key words:** futurological exploration, value, spiritual value, futureshock, spiritual criteria, information civilization, tech-humanitarian balance, hypothesis of tech-humanitarian balance.

**Kalit so'zlar:** futurologik tadqiq, qadriyat, ma'naviy qadriyat, futurshok, ma'naviy mezon, axborot sivilizatsiyasi, texno-gumanitar balans, texno-gumanitar balans gipotezasi.

**Ключевые слова:** футурологическое исследование, ценность, духовная ценность, футуршок, духовный уровень, информационная цивилизация, техно-гуманитарный баланс, гипотеза техно-гуманитарного баланса.

It is known that from human society, man, his spiritual world, values and his today and future always made all human kind think deeply. Today, to explore the aspects fit to the spirituality of the new epoch upon the attitudes of spiritual values are also becoming one of the important themes of our period. There is one important question: "Can today's humankind assess the role of spiritual values enough correctly in the man kind's life?" In this article we tried to explore the important aspects of values connected with future in addition to it's honour for today and yesterday. In this article we explored the futurology considered one of the special spheres of philosophy (latin word "futurum"- "future", "logos"- "science"),<sup>1</sup> from point of broad meaning : about human`s future, general conception about global problems.

In fact, "value" – philosophical-axiological notion which means various views of event, happening, process, nature, aspects related to the society, features and others` any subjective person, class, social value and importance for any nation"<sup>2</sup>. It is known from the description that value is the notion which shows the importance of the subject or subject group chosen of specially chosen object. In addition, there are special groups of values which play an important role in the person`s life and they actuate the person for the goals involving the person to perfection, person`s

<sup>1</sup> Shermukhammedova. Philosophy. –Т.: 2010 Page-519

<sup>2</sup> K. Nazarov. Axiology (Philosophy of values) Experimental manual. –Т.: "Academy", 2011 Page-50

appearance, person`s immixture into social life in the society and for the goals put forward before him by the society. Special system of the values on our modern life these are the values. Spiritual values- belong to the historical, political, philosophical life aspects of the life, these play an important role in the person`s clarification of his goals. Besides, the spiritual value means the value forms which are the most important for the human`s education and perfection, enhancing of the human`s spirituality, having an immeasurable importance for the thought development.”<sup>1</sup>

Spiritual values serve as a means of definers for the person`s decision. These values are connected with the human`s spiritual world and this criterion reclines on the conduct norms assigned in the society. Originally, “Society– expression of the relations based on among the people`s spiritual criteria”<sup>2</sup>. Scientific-technical, economical changes can cause some external structural changes in the social life and happenings in the life, but it can not influence on the person`s spiritual world enough. Today other forms of values can not also achieve these goals without spiritual values. As the first President of the Republic of Uzbekistan, Islam Karimov emphasized” pirituality of any nation or people, it`s history, it`s unique customs and traditions can not be impressed separately without vital values.”<sup>3</sup>. Spiritual values show the man the way of spiritual development. Developing level can be assessed according to the popularity and application of the spiritual values.

Values, becoming the forms of system for the implementation of various aims put forward before the society passing from generation to generation, it reclines to historical memory and inner spiritual quietness. This principle, especially, plays an important role in spiritual values. For example, our national-spiritual values express honour to Motherland, traditions, faithfulness to ancestors and other humanity features.

Treatment of the spiritual circumstance equalized to serious illness and called “future shock” or “shock of the future” said by E.Toffler, “is important to emphasize that they are spiritual values”<sup>4</sup>. Throughout development of the nation is not observed by economic supremacy or technical development in future but it is observed in the nation`s knowledge of spiritual values.

Today, throughout the humanity is realizing that there is no way for the future without spiritual perfection, but it is important to say about people who reject this thought.

Spiritual values are developing according to the modern life. As a result of this development, new values are joining to spiritual-ethical values. As the first president of the Republic of Uzbekistan, I.A.Karimov emphasized: “Revival of spiritual values–means their adaptation to the world and information civilization values<sup>5</sup>. For example, media awareness - today is the notion means the expression of the human`s

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<sup>1</sup> K. Nazarov. Axiology (Philosophy of values) Experimental manual. –T.: “Academy”, 2011 Page- 91

<sup>2</sup> T. Kamilova, Development features of social spirituality in the independence Candidate dissertation –T.: 2007 Page -23

<sup>3</sup> I.A. Karimov Higher spirituality – invincible power –T.: “Ma`naviyat”, 2008, Page- 29-30

<sup>4</sup> Obidov.A. “Elvin Toffler`s political views “Master dissertation –T.: 2006 Page-31

<sup>5</sup> Karimov.I.A. Uzbekistan is on the sill of XXIth century: danger to safety, condition of stability and development guarantees. –T.: Uzbekistan, 1995, Page-263

spiritual appearance, filtering of information in the mind – today is becoming a new value.

If we take into consideration of the values to come across into evolution because of historical process, it will be true, the independence became the reason for this evolution. Today, human`s demandiness on his interests in the century of development is being observed. In it`s turn, this demandiness shows if the origination of new values and complication of the old one`s don`t occur, in future, spiritual deviation can be larger. Today, when we speak about spiritual values, we know, it is a historical fact that there is no any weapon like an axe to cut the roots of the spiritual values rather than the people who do not recognize themselves, outsider from spiritual values.

During the globalization, the struggle is happening between spiritual values for the human`s mind which are considered to be the measurement of all things and the values which are becoming the reason for the public culture. As a result of these struggles, the generation is appearing who considers the position without spirituality to be the situation in spirituality, depravity to be the ethics. One side of the matter is techno-values. In future, the process assigning the direction of the development of techno-values from the side of technological aspect will increase, spiritual values will provide their sympathy with the sympathy in the process of the human`s social life. To say with a word, spiritual values can continue in their development in case they can negotiate with technological enhancement.

In the process of technological development, the invention of new technics leads to look at the old one as a remnant of decrepitude. Today, some classes tried to apply in spiritual values. As a result of this, humanity, as it was emphasized in the work by R. Bucken “Western catastrophe”, stays in the maelstrom of the destructive problems. If we take into consideration “The essential meaning of the social life –this inheritance”<sup>1</sup> development of spiritual values are not assigned with coming of new one instead old one, but it is assigned with inheritance.

When we speak about the future of values, we need spiritual values than ever, there are the people who think against this. According to the representatives of techno-humanitarian balance hypothesis, “Technological process assigns the regulator development of spirituality, behavior and thinking.”<sup>2</sup> It means, human`s spiritual world is connected with technological process throughout. Finally, this situation can finish with the complicated spiritual-ethical limitation. One side of the matter, this is that if the spiritual values do not adapt to technological development tendency on time, spiritual explosion can occur in the society.

In future, it is very important to enhance the aspiration for the perfection powerfully than today. Human`s higher enhancement degree on the value can lead to get rid of the destruction of social life and restrain of any harms to this spiritual value.

The danger of public culture to humanity`s spiritual world is that the wave of artificial values can spread around the world. In this case, the human`s honour for his

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<sup>1</sup> T. Kamilova. Development features of social spirituality in the independence –Т .2007 Page- 31

<sup>2</sup> A.Turchin. Futurology XXIth century: immortality or global catastrophe, -М.: БИНОМ. Laboratory knowledge Page-82

country with cosmopolitan thoughts, sympathy for the national culture with deviation for the outer ideas, feeling the duty before the society and state with egocentric worldview, ethical norms existing from the former times and passing on the basis of inheritance and the places of application from them can be replaced with the situation which totally rejecting them.

Humanity`s society was connected with different situations in different periods. For example, a) the period of passing to the production (6-BC millennium) b) invention of iron (XVII BC) d) scientific-technical revolution (the end of the XIX<sup>th</sup> century and the beginning of the XX<sup>th</sup> century) and etc. This connection caused to call the names of all of these periods.

In the futurological analytical process of the place and importance of spiritual values, the following main conclusions are given:

Firstly, initially for the person working in a democratic society, in addition to forming of juridical awareness, thought and culture, it is important to form the ethical worldview. This shows the importance, place, valuability of spiritual values in future,

Secondly, today, during the ideological struggling process for owing the human`s consciousness, taking into consideration of the aspiration of owing the human`s spiritual world, artificial idea burning for the premeditated intentions, dangers to destroy the spiritual values, it is important to form the ideological immunity in the minds of the society members.

Thirdly, information struggle happening in the world information area, requires to act, not with emotion but with cleverness and thought. Spiritual values are considered to be the leading and solving means of this process;

Fourthly, the person educated on the basis of spiritual values, in it`s turn, is responsible for passing these spiritual values to the next generation, trying to keep the importance of the spiritual values in future, and an important role of the spiritual values in the life of society.

Fifthly, spiritual values, especially, spirituality needs the care of the state system. And this necessity can be a means of solution;

Now, aspiration for the spiritual perfection can be a means of protection from destruction, directing to the development of the humanity than technical development, achievements in science.

To sum up, human`s fate will change according to the person`s attitude to the spiritual values and the place of spiritual values in the society, not to the degrees of wide scientific-technical achievements.

**UDC: 391 (575.171)**

## **CEREMONIES RELATED TO ZOROSTRANISM IN TRADITIONAL LIVESTOCK-BREEDING HOUSEHOLDS OF UZBEKS (IN THE EXAMPLE OF KHOREZM OASIS)**

**Abdalov U.M. (UrSU)**

**Аннотация.** Ушбу мақолада Хоразм воҳаси аҳолисининг анъанавий хўжалигида чорва ва баъзи уй ҳайвонлари билан боғлиқ бўлган одатлар ва магик хусусиятлар илмий таҳлилга олинган.

**Аннотация.** В статье исследуются некоторые черты обычаи и магические особенности скотоводства и домашних животных связанные в традиционной хозяйства население Хорезмского оазиса.

**Annotation.** In this article researched the significance of animal husbandry in the traditional economy of Kharezm region and magic aspects relating to domestic pets in the life of Uzbeks.

**Калит сўзлар:** археология, этнография, сигир, туя, от, чорвадор, чорвачилик, деҳқончилик.

**Ключевые слова:** археология, этнография, корова, верблюд, лошадь, хозяин ранчо, скотоводство, земледелие.

**Key words:** archeologiya, ethnography, cow, camel, horse, rancher, stock breeding, agriculture.

As there has been in all areas of our Republic some customs, ceremonies, folktale and myths have also been kept over thousand years in Khorezm oasis. This opinion can be proved by the materials of archeological and ethnographic researches by S.P. Tolstov who is the scholar of the history of ancient Khorezm<sup>1</sup>.

It is fact that there are two types of household in the world peoples: agriculture and cattle-breeding. One of the most ancient resources related to the history of household relations is the holy book of Zoroastrianism, "Avesto" and in this book cattle and cattle-raisers were especially emphasized. For example, among the anthems of Akhura Mazda in Avesto there are such words like "you are the one who created cattle that is the life source for us.... Cattle need a good owner. I provide a free life and free walking for the cattle owners here". Some words are met such as

"There were so many fields for cattle at "Gah"s". "I approve seed fields of which cattle-breeding is developed and wheat can give a great deal of crop"<sup>2</sup>.

Ceremonies related to livestock-breeding in traditional household of Uzbek people of Khorezm oasis was not researched as a special research object although lifestyle, customs and ceremonies of cattle-raisers, folklores of shepherds, attitudes connected with cattle-breeding were learned on some extent from the ethnographic point of view<sup>3</sup>. There will not be any exaggeration if we say that revealing the historical importance of ceremonies and traditions is one of the update issues of current time. In Middle Asia habits lasted from ancient periods were strong. In the areas of Khorezm and regions with the same border (6-5 thousand years B.C Jaytun and Chaqmoqli locations in Turkmenistan are mentioned) land began to be owned for livestock-breeding and farming specialized

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1 Толстов С.П. По следам древнехорезмийской цивилизации. – М., - Л., 1948; Уша муаллиф. По древним дельтам Окса и Яксарта. – М.: Восточные литература, 1962; Уша муаллиф. Древний Хорезм. – М., 1949.

2 Махмудов М. "Авесто" –буюк комус-Урганч., 2001. – Б. 20.

3 Снесарев Г.П. Реликты домусульманских верований и обрядов у узбеков Хорезма, - М., Наука. 1969. С. 142; Г.П. Снесарев. Домусульманские верования и обряды в Средней Азии. "Наука", 1975; Под небом Хорезма. М., 1973; Хорезмские легенды как источник по истории религиозных культов Средней Азии. М., "Наука", 1983; Аширов А. Ўзбек халқининг қадимги эътиқод ва маросимлари. Т., "Ўзбекистон Миллий кутубхонаси нашриёти", 2007; Абдолниёзов Б, А.Аҳмедов. Хоразмнинг қадимги чорвачилиги ва "Авесто". Хива, 2001, 116-бет; Бўриев О. Қўйчилик удумлари //Ўзбек халқи боқий қадриятлари. Қарши, 2005, 40-50-бетлар; Саримсоқов А.А. Шимолий Фарғона кипчоқларининг чорвачилик билан боғлиқ маросим ва урф-одатлари // Марказий Осиёда анъанавий ва замонавий этнографик жараёнлар, 2-китоб. Тошкент, 2005.

for man-made irrigation system 7-8 thousand years ago. It can be concluded from this that the animals encountered in ceremonies and religious belief of Khorezm oasis Uzbeks are firstly domestic animals. Folktales related to them are mostly about ox, camel, ram and fish. Since Khorezm region is situated in the Amudarya delta, fishing was a special activity of this area. Now we look through the preservation of ceremonies and customs related to those animals in Oasis areas

Region population took care for the oxen in cattle, the word “best ox” is used in Khorezm. That is why there was such attitude that it was prohibited to beat the ox.

To kick the ox with a leg was regarded especially as shameful act. According to the elderly’s opinion” if the ox is lying it should be patted from his back in order to make him stand<sup>1</sup>. If we pay attention feeding an ox was turned into a habit in each house of region people. According to legends ox was attached to harness by peasant for the first time.

The cow milk was considered to be holy in Zoroastrianism. To add water to it was sin. Cow milk and haoma liquid was the favourite drinks of Zoroastrian’s mother when she was pregnant<sup>2</sup>.

At the beginning period of farming there were quite small celebrations in the families. Cooking buns and another custom called “smell” were held for the honour of peasants. Besides, the horns of oxen were oiled before taking them to the field. If an ox or cow was ill, an amulet was hung on its neck. Moreover, some customs such as burning incense for an ox or cow that gave a birth newly are still kept<sup>3</sup>.

There was a small celebration for a new born calf. The custom called “Ko’z oydin” was held and all family members cooked a dumpling from cow’s milk that was named “uz barak”<sup>4</sup>. The uz of cow that gave a birth newly was milked for three days and distributed to neighbours. It should be especially mentioned that to sell the cow milk was regarded as shame. The people who did not have cows were able to take the milk from neighbours. In Gurlan and Shovot districts there were a special vase to keep milk and to pour it other drinks was prohibited. There are sayings such as “cow is a spring” and “cow brings happiness” in the whole Khorezm. There was a custom including the cow was encircled around a new built house in order to be peace and freedom in it. The custom of encircling the cow around the bride by groom three times is still held nowadays<sup>5</sup>.

Furthermore, the traditional value of an ox was in close connection to the activity of Khorezm peasant. For example, Khorezm peasant’s fate depends on capricious river. Nowadays in early spring there are some floods and “degish”<sup>6</sup>s happen as a result of the fastidiousness of Amu-Darya and the stick of ice pieces. Therefore, farming and several ceremonies related to Amu-Darya depend on the

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<sup>1</sup> Дала ёзувлари. Хозарасп тумани. 2012 йил.

<sup>2</sup> Толтов С.П. Древний Хорезм. М., 1948, С.317.

<sup>3</sup> Дала ёзувлари. Урганч, Қўшқўпир, Хозарасп туманлари. 2011 йил.

<sup>4</sup> Дала ёзувлари. Хоразм вилояти, Урганч тумани. 2012 йил.

<sup>5</sup> Абдолниёзов Б, А.Аҳмедов. Хоразмнинг қадимги чорвачилиги ва “Авесто”. Хива, 2001, 116-бет.

<sup>6</sup> “Дегиш” – оқимнинг дарё сохилларини ювиб кетиши. Дегиш Х асрада Хоразмнинг қадимги пойтахти Кат шахрини бутунлай ювиб, йўқ қилиб юборган.

position of the river. Sacrifices made to water in Khorezm are carried out in different scenes like Middle Asia. Karakalpakistan Republic, Turtkul population also make a black ox sacrifice for Amu-Darya in the middle of XX centuries. This custom is so ancient. The ox made sacrifice for the honour of The God of water Ardivisura Anaxita was mentioned in Avesto several times<sup>1</sup>. In archeological and ethnographic data the ox is a symbol of “bread spirit”<sup>2</sup>. There are several instances for that, for example: in the past ox blood was collected in cattle-shed and in spring it was mixed with soil and scattered to the field in order the crops to grow, to develop. It was plentiful for their development.

Customs related to sheep are widespread in Khorezm and ram is the amulet that was against bad things. Therefore sheep was kept in houses with young children from the ancient times and when someone comes to the house his look first was on the ram and it is believed that it prevents the house from harm. One of the widespread customs in the oasis is to put the first teeth of a child under the feet of ram. The meaning of this is to save the child from different calamities. In ancient Khorezm hanging the horn of a ram on the front door was common. It means that it saves the house from evils<sup>3</sup>. Nowadays this custom is also performed in some houses. However there were such situations that it saved the adult people, too. For example: the Khiva people go to bazaar to pat the ram head before doing something new<sup>4</sup>. Conventions related to rams fighting were common. Therefore not only the ram itself, but also the wool of it was used as an amulet.

In the history of world peoples the first widespread religious belief is considered to be a horse. Most ceremonies and holidays depended on that conviction<sup>5</sup>. The totem horse played an important role in Turkish peoples as well as in Uzbek people history. Its signs are met in the ceremonies including from the birth of a child to the funeral ones.

The symbol of camel was also admitted in Zoroastrianism. Camel was imagined as an amulet of greatness, accuracy, government and power. That is the reason why the throne of kings was made in the form of camel in the past. Ethnographer G.P.Snesaryov states that the traces of camel were kept in the previous ceremonies and customs of Khorezm people. Particularly, there are some conceptions related to this animal's name under the customs including the respect towards the camel as a holy animal, to name them with mythological strength arals that control the river water, to attach them amulets called “tuyakuz” (“cameleye”), to value the wool of camel as a matter that has magic feature<sup>6</sup>.

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<sup>1</sup> Снесарёв Г.П. Под небом Хорезма. М., 1973, С.116-117.

<sup>2</sup> Фрезер Д. “Золотая ветвь” вып. I-III, М., 1925, 1928, С.171-173.

<sup>3</sup> Абдолниёзов Б, А.Аҳмедов. Хоразмнинг қадимги чорвачилиги ва “Авесто”. Хива, 2001, 123-бет.

<sup>4</sup> Дала ёзувлари. Хива тумани. 2011 йил.

<sup>5</sup> От тасвири ва култига бағишлаб ёзилган махсус илмий адабиётлар борасида батафсилроқ қаранг: Кузьмина Е.Е. Конь в религии и искусстве саков и скифов // Скифы и сарматы. – Киев, 1977; Беленицкий А.М Конь в культах и идеологических представлениях народов Средней Азии и евроазиатских степей в древности и раннем средневековье // КСИА. Вып. 154. – М., 1978. – С.36; Ремпель Л.И. Цепь времен.. – С. 25-29.

<sup>6</sup> Снесарев Г.П. Реликты домусульманский верований и обрядов у узбеков Хорезма. –М.: Наука, 1969, С.317-С.317-318.

Camel was regarded as a pure animal in holy sense. Camels were called “ arals” in Khorezm. Both divine and angels, spirits were also understood with this term. To beat the camels like the oxen was banned. They say: “ It was prohibited to beat camel even with hand as well as cursing, throwing away its wool to different places since it was considered to be special wool”. In Khorezm the protector of camel breeder was Sultan Uvays. Camels have also the feature to save from bad things. Its wool was used as an amulet.

It can be concluded that various customs , ceremonies and traditions having been kept in the lives of Khorezm people did not lose their importance. The preservation of ancient religious imaginations, conceptions of Uzbek people was observed especially at the weddings, funerals and annual holidays of some districts such as Hazarasp, Khiva, Gurlan and Urgench. This phenomenon is noticed in current regional people. There are sayings devoted to cows: “ hov enam ov, hov enam”(oh granny, oh granny), “sigir baxt keltiradi”(cow brings happiness) and “sigir-buloq” (cow is a spring). Oxen were called like “sara ho’kiz” (best ox), “ non ruhi” (bread spirit).

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### THE SIMILAR SIDES BETWEEN ANGLO-SAXON POEM “BEOWULF” AND UZBEK NATIONAL DASTANS

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**Annotation.** This article points out the similar features of the literary works in both: Uzbek and English. Anglo-Saxon poem “Beowulf” and Uzbek national dastans are compared, besides some examples are discussed. The description of the main characters and places’ names are analyzed.

**Annotatsiya.** Bu maqolada o‘zbek va ingliz xalq adabiy asarlaridagi o‘xshash jihatlar haqida so‘z boradi. Shuningdek, anglo-sakson dostoni “Beovulf” hamda o‘zbek xalq dostonlari qiyoslanib, ba’zi masalalar muhokama qilingan. Bosh qahramonlar va joy nomlari qiyosiy tahlil qilingan.

**Аннотация.** В статье рассматривается сходства английских и узбекских художественных литератур. Сравняется английская поэма "Биовульф" и узбекские национальные дастаны, кроме того обсуждаются некоторые вопросы, касающиеся на эту тему. Дается сравнительные анализы главных героев, название местности.

**Key words:** dastans, comparable characteristics, description of castles, folklore poems, devs, giants, expressing ways.

**Kalit so‘zlar:** dostonlar, taqqoslanuvchi xarakterlar, saroylar tasviri, xalq dostonlari, tasviriy ifoda usullari.

**Ключевые слова:** дастаны, сравниваемые характеры, описание замков, народные дастаны, способы изображения.

Generally, dastans (an epic or lyric genre widely encountered in the literature of the East) portray the history, lifestyle, customs, traditions and desires of the nations, which they were actually originated. As a case in point, the aforementioned circumstances are discerned in most of the Uzbek national dastans, such as “Alpomish”, “Go’ro’g’li”, “Ravshan” and others. Nevertheless, this state can also be behold in other abundant nations literary property. As an illustration, the Anglo-Saxon folklore-poem “Beowulf” shows the unique aspects of the English literature. In the following article, we will discuss the identical examples that come across in both Uzbek national dastans and “Beowulf”.

At the outset, the emerging of both poems is very similar. “Beowulf” is the foundation stone of all British poetry. It tells of times long before the Angles and Saxons came to Britain. The author of the poem is unknown. Resembling, our national Uzbek folklore dastans’ authors were also anonymous. As they were passed from generations to generations, some parts were added and some were removed from the masterpieces later.

Secondly, there are many comparable features in the characteristics of Beowulf and other Uzbek national heroes who were described in folklore dastans.

For instance, Alpomish and Beowulf both are very responsible, in addition to this they always care about their people, not their own life. Alpomish, the main character, fights bravely for the freedom of his own people and his country. As well, Beowulf crosses sword not for his own glory, but for the benefit of his people. He is delineated, as he is ready to sacrifice his life for them. His unselfish way of protecting people makes him worthy to be a folk-king. The main reason for these masterpieces surviving until nowadays is those characteristic peculiarities of the main personages. People will always remember the warriors and the patriotic heroes by these folklore poems. These works were handed bequeathed to children and grandchildren and this process is still going on.

Thirdly, learning and analyzing the original work of “Beowulf” is rather difficult process for the non-specialists. However, the translation form is quite good and understandable. The part that we are going to pay attention now is the beginning of the “Beowulf”. In this part the king Hrothgar and his wonderful palace is defined:

“Once he decided to build a large palace where he could feast with his kinsmen and warriors. When the gold-roofed hall was built, it was so beautiful that all the people around couldn’t tear their eyes off it”.

Possessing such kind of magnificent and great palace was considered as the vivid sign of immense power and interminable authority. Consequently, nearly all the great people in history built the castles and palaces in order to flaunt their superiority. For instance, Amir Temur established many castles, including Oqsaroy, Kuksaroy and others. Construction of castles is also represented in Uzbek national poems as well. In “Farhod and Shirin” which is one of the dastans in “Khamsa” by Navoi, the scene of erecting was considerably exaggerated:

“Farhod yigit yoshiga yetdi. Lekin tug'ma ishq ta'sirida dili g'amgin, alam va dardlar bilan ko'milgan edi. Buning sababini o'zi ham tushuntirib berolmas edi. Otasi uning g'amini aritmoq uchun turli tomoshalar, bazmlar, ziyofatlar uyushtirdi. Foydasi bo'lmadi. Shunda xoqon Farhodning ko'nglini olish uchun yilning to'rt fasliga moslab to'rt xil qasr qurdirish fikriga keldi”

In the initial part of this dastan, Farhod described as sad and unhappy, hence in order to cheer him up his father decides to have the four castles built according to each seasons of the year: spring, summer, autumn and winter. Similar to the one in “Beowulf” lots of parties and feasts were organized in this castles.

In another dastan, “Sab'ai Sayyor” the description of seven castles' constructions were given: after losing his lovely wife – Dilorom, Shakh Bahrom becomes very distressed and gives up hope and interest to rule the country. The people around him make a plan. They build seven castles painted and decorated in seven colors. On each day of the week, Shakh Bahrom throws a huge party. Every night he listens the story from the travelers who come from different countries.

In the “Beowulf”, the King Hrothgar also builds a castle. It is called Heorot or Stag hall. Because it was decorated with antlers of the stags. In the marvelous hall, Hrothgar presents costly gifts to his warriors and gives splendid banquets.

From these examples, we can perceive the common sides in building, decorating, and applying the castles in different cultures.

In the poem, Beowulf has his own group consisted of fourteen people:

“As soon as he learned that the life of the Danes was in danger, he decided to help Hrothgar. With fourteen chosen companions he set sail for the country of the Danes”.

The resembling point can also be observed in Uzbek national folklore poems. As a case in point, Go'rog'li also has forty men accompanying him in his every war. In these situations, the group of people who escort the main hero show another almost identical feature in both Uzbek and Western literature.

The descriptions of the giants are tend to be similar, as well. For instance, Grendel in “Beowulf” who is a fierce-sea monster attacks Heorot. He was portrayed like this:

“Grendel looked like a man but was much bigger, and his whole body was covered with long hair, so thick and tough that no weapon could harm him”.

Resembling points are also encountered in Uzbek national dastans, and these kind of creatures are called as “dev”s in most of these folklore ones. “Dev” is a giant who is very strong and have particular internal capability for something, for example, to distinguish smells, to predict future events, to fly in the sky, to move one place to another in a moment and others.

For example, In “Malikai ayyor”, we can come across several “dev”s , such as Yaproqdev, Qizildev, Baymoqdev, Oqshohdev, and others. It is noticeable that there are particular dastans that are devoted to certain “dev”s, such as “Govdaroz dev”. Nearly in all the dastans, devs are portrayed as the main rival of heroes, eventually the main character wins the fight with devs and saves the country, people or particular queens, princes, kings.

It is interesting that almost the same parts are obvious not only in the character of main heroes or events, but also in expressing ways of the works. In most of the dastans, the hero's fighting, the movement of horses, and the parts in which the occurrences become intense were represented in a lyric way. As an example, we can pay attention to the verse that is from “Ravshan”:

“Qush uchmagan cho'llardan, So'na yuzgan ko'llardan,  
Odami yo'q yo'llardan, Dim uchi yo'q cho'llardan,  
Tomosha qing, mard Hasan qistab o'tib boradi”.

(“Across the deserts where even birds cannot fly,  
Across the lakes where ducks swim, Along the roads without people,  
Over the deserts, which even, have not any borders,  
Watch! Brave Hasan is stepping over intensively”)

Such kind of lyric parts were commonly used in “Beowulf” as well:

“Beowulf answered: Grieve not, oh wise one!

For each it is better his friend to avenge

Than to cry; Oh King, quick let us hasten

To look at the footprint of the mother of Grendel.

I promise thee this now: to her place she'll escape not".

However, the addressing, the place descriptions, general information were identified in a prosaic way. This position of the works, we mean using both lyric and prose in the same context has potentials to help the reader catch the meaning clearer and keep the events in mind for a long time.

In conclusion, the works in the world's literature illustrates the important sides of people's life, and dispenses kindness to the hearts. Superiority of goodness, compassion and humanity over wickedness and achieving the aim eventually are very important parts of them. No matter in which part the people are living, such humanity conceptions are of great importance all the time. Therefore, learning the literature of different countries encourages us to strengthen the collaborations between countries.

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### THE CREATIVE USAGE OF THE ENGLISH IDIOMS IN VARIOUS OCCASIONS.

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**Annotation.** In the given article the English idioms are given and discussed their meanings and equivalents are given in those languages. Moreover, there are many examples for phraseological fusion and their literal translation to other languages.

**Annotatsiya.** Ushbu maqolada ingliz tilidagi iboralarning ma'no va tahlillari, shu tillardagi variantdosllari keltirilgan. Bundan tashqari frazeologizmlarning boshqa tillardagi badiiy tarjimalari misollar bilan yoritilgan.

**Аннотация.** В данной статье представлены значения и эквиваленты английских идиом. Более того, предлагаются примеры фразеологических единиц и их литературный перевод на других языки.

**Key words:** idiom, metaphorical way, non-literal way, semantic principle, phraseological units, semantic cohesion, word combination.

**Kalit so'zlar:** ibora, metoforali usuli, noadabiy usul, semantik xossalari,

frazeologik birliklar, semantik bog'liqlik, so'zlarning birlashuvi.

**Ключевые слова:** идиома, метафорический путь, небуквенный путь, семантический принцип, фразеологический элементы, семантический сцепления, слова комбинация.

### **Introduction**

Here we will analyze an extended idiom. Extended idioms were described in the introduction as being featured in their original form together with an additional piece of text that somehow makes a comment on the idiom itself. This comment is often fairly concise and occurs in direct proximity to the idiom, either directly preceding or immediately following it. The main effect provided by the comment is to draw attention to the literal meaning of the idiom.

#### ***Burn the candle at both ends, then get rid of the smoke.***

This extended idiom is found in an ad for a product by Comfort called Refresh, which is sprayed onto clothes to remove smells, or as the slogan promises, it “puts freshness back into clothes”. The entire background of the ad consists of a picture of a woman wearing a dress and a cardigan, but it seems to have been cut in two pieces, with the left half showing her at night in a dark and smoky room, her hair slightly disheveled and her cardigan flailing open, revealing the straps of her dress. In the right-hand half of the picture it is daytime, she standing in a brightly lit room with a desk and a computer visible in the background. Her hair has been combed and her cardigan is neatly adjusted. The woman is holding a spray bottle of Comfort Refresh in her left hand, spraying its contents towards the smoky left-hand half of the picture. The idiom itself, burn the candle at both ends, is written across the smoky half of the picture, while the comment, then get rid of the smoke, is superimposed on the other side. The idiom is partly motivated by conceptual metaphor(s), but it is also possible that conventional knowledge plays a part in forming mental images, at least for some speakers. According to Szabó, the underlying metaphor behind this idiom is energy is fuel for the fire, but it is unclear exactly what they mean and they fail to give a more detailed analysis. Presumably, if we understand energy in terms of fuel for a fire, it means that we need energy to keep the fire burning, in this context perhaps the fire of life. My attempt at an explanation would be that if we burn the candle at both ends, i.e. use up too much energy late at night and early in the morning, there will not be enough left.

Nighttime is when we recuperate and gather more energy, and if that time is cut short there will be no fuel for the fire. However, is it not possible that some other metaphor is involved as well, one that involves time rather than fuel for a fire? One very common metaphor we use in order to understand time is by seeing it as a physical object, sometimes more specifically as a container, which we can move in and out of, as in expressions such as We're well into the century and He's like something out of the last century, or as a moving object. In my view, burning the candle at both ends could be partly motivated by this metaphor as well, if we think of a period of time as a bounded entity or slot that can be shortened at both

ends. The candle burning at both ends would then correspond to our night rest being shortened at both ends.<sup>1</sup> Interestingly enough, the reference in this ad is not specifically to the lack of energy that is caused by late nights out and early mornings, but rather it addresses the problems associated with smoky venues and how to feel clean and fresh the next day. The focus is thus not on the short period of rest, but on the short period of time in which you must get your clothes feeling fresh again. What our conventional knowledge tells us, and which could influence our mental images associated with this idiom, is that it is often dark late at night and early in the morning. Being up at these times would therefore require some form of light source, such as a candle, which then would have to be burned at both ends of the day.

Regardless of the exact motivation behind the idiom, it is clear that the element smoke in the comment is grounded both in the literal meaning of the idiom, according to which a candle is burning, and in the wider situation associated with the metaphorical meaning of the idiom, i.e. the knowledge that late nights are associated with going out to smoky bars or clubs, which is information that is partly provided by the picture. Out of context, the idiom would perhaps be difficult to understand, since our attention is drawn to its literal meaning by the comment clause then get rid of the smoke. Gibbs et al., reporting on earlier studies by Gibbs, point out that “people do not ordinarily process the entire literal meanings of idioms,” which often results in a “double-take” when they encounter idioms in a non-metaphorical context.

This is clearly what has been exploited by the makers of the ad in question. When reading the idiom burn the candle at both ends, we are more likely to access the metaphorical meaning, which is why we might react when we get to the word smoke, which triggers the literal meaning. This incongruity draws our attention to the underlying metaphorical mappings, and allows us to access the input spaces. The source domain object/fuel is elaborated as a candle space, which contains the candle, the process of burning, and the smoke, or perhaps rather soot, that results from it. The target domain time/energy is instead elaborated as a nightlife space, in which a person stays out late, frequents venues where people smoke cigarettes, and as a result end up with clothes that smell of smoke.

### **Statement of the problem**

In the headline, which may be understood as a conceptual blend, both these spaces are activated at the same time, and a humorous effect is created by the double literal interpretation of the element ‘smoke’ against both the inputs.

A good example of an altered idiom in commercial is following:

#### ***Ex. Comfort is in the eye of the beholder***

This advertisement one for Focus contact lenses, which appeared in Marie Claire in March, 1997. The main part of the ad is taken up by a picture of a woman dressed in a white knitted polo jumper, cuddling a fluffy toy animal that might be a

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<sup>1</sup>G. Nikolayeva. The Newcomer, F. L. P. H.- Moscow, 1985. -145p.

teddy bear. The headline above the picture is written in white against a green background and reads *Comfort is in the eye of the beholder*, a variant form of the idiomatic expression or proverb *Beauty is in the eye of the beholder*.<sup>1</sup> As with the previous ad, the headline is ambiguous and may be interpreted both literally and metaphorically. Again, the fact that the idiom has been altered triggers the otherwise non-salient literal meaning, but perhaps not as strongly as in the previous ad, since *Comfort is in the eye of the beholder* may actually be understood in an entirely metaphorical sense, as opposed to *Don't get your panty liners in a twist*, where a literal interpretation is inevitably highlighted.

### **Analyses of the examples.**

This is the original idiom, which is partly motivated by the conceptual metaphor 'feelings are objects' or in this case rather personal characteristics or abstract notions are objects. Being seen in terms of an object is what enables beauty to be located in different places, in this case in the eye of the beholder as opposed to in the face of a woman. Fittingly enough, contact lenses are also objects that are located in the eyes of some beholders, namely those with poor eyesight. The source domain objects are elaborated as a more specific space, which will be referred to as lenses, and it includes the simple scenario in which lenses are worn or placed in a person's eyes. In addition, we can identify two elaborations of the target domain feelings/ characteristics, where one may be labeled comfort and the other beauty. In the comfort space, there is the feeling of comfort, which exists in the opinion of the person experiencing the event, while in the beauty space; there is the characteristic of beauty, which exists in the opinion of the observer. In the altered idiom in the headline, all these spaces are activated simultaneously, and contribute to the understanding of what it means to use the Focus lenses. Not only will they improve a person's eyesight, they are also comfortable for the wearer and make her/him look good in the eyes of other people. Moreover, all three input spaces may be understood to be reflected in the image, in particular the comfort space, to which the warm jumper and cuddly toy belong, but perhaps also the beauty space, which in that case is reflected in the face of the woman, and possibly also the lenses space, if we assume that the woman in the ad is wearing them. However, they are also signaled in the text or slogan at the very bottom of the ad, which says "see better," "feel better" and "look better," and these are of course linked to the three different input spaces lenses, comfort, and beauty.

**Conclusion.** The altered idiom in the headline may also be seen as a comment on the image, which actually illustrates some examples of what comfort may involve, but at the same time asks what it really means for something to be comfortable. Is it wearing a warm jumper and cuddling a fluffy toy as the woman in the picture is doing, or is it something else? That is all up to the beholder, which of course carries a possible negative implication as far as the aim of the ad is concerned. Are the contact lenses really comfortable or is that also, metaphorically,

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<sup>1</sup>German Y., "The Cause You Serve", F.L.P.H., Moscow. 1997.-237

in the eye of the beholder?

The role played by metaphor and conceptual blending in these creative examples shows that advertising language follows the same cognitive principles as everyday language, but many processes, which are normally unconscious and therefore largely go unnoticed may be highlighted and made more noticeable.

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**FINANCING THE HIGHER EDUCATIONAL SERVICE OF  
INTERNATIONAL MODELS OF SUPERVISION OF THE HIGHER  
EDUCATION IN THE DEVELOPMENT OF QUALITY**

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The paper deals with the analysis of different approaches and models of budgetary financing reforms in some foreign countries (Japan, Germany, Russia) for the purpose of their autonomy expansion in the context of their application opportunities in Uzbekistan. Moreover, the growth in the social demand for higher education, the globalization and internationalization of the higher education system, the recognition of the need to improve the quality of studies coincide with the financing aspects of activities of higher education institutions.

**Key words:** Budgeting, budget financing reform, budget financing model, results-oriented, economic autonomy of universities, additional education services.

Financing of the higher education system is one of the key elements of improving the quality of higher education, improving the quality of personnel training, and increasing the efficiency of higher education in the context of modernization of the economy.

In the world practice of modeling higher education systems, there are different views on economics, education, and management. They focus on the sources of funding and theoretical concepts, focusing on the positive and negative aspects of budgetary and private funding. Specifically, two types of higher education financing are mentioned by D. Braun, A. Wagner, P. Cazenave, B. Salter, Ir T. Tapper, S. Kmit, L. Kraujutaitytės:

1. In accordance with the authority to finance and manage the higher education system, models of financing based on kidney, collective, free market economy;
2. Financing from the State Targeted Funds, such as institutional and targeted programs.

In the higher education system, it is important to ensure the optimal balance of use of budget and private funds to improve the quality of staff training and to provide training efficiency. This, in turn, strengthens the market mechanism. The government encourages private firms to finance the Universities and form a market mechanism in this area. In the case of a shortage of financial resources, HEIs are involved in attracting additional resources and effectively utilizing available funds.

**In addition, the following models of higher education financing are available in developed countries:**



The classic neoliberal market model of free market-oriented financing model determines the model of financing education, and over the past decade these models are practically used outside of European countries. They are mainly US, England, Scotland, Australia, New Zealand, South Africa, the Netherlands, Spain and some Eastern European countries.

The concept of humanitarianism as a theoretical basis of the model of financing a market-oriented education is evident. Financial resources will be used to increase the effectiveness of state HEIs in order to meet the requirements of the real labor process and to ensure the availability of education.

Antibacterial model of alternative integrated socially oriented education is being developed and theoretical basis is being developed by the Council of European Trade Unions (Brussels), the Council of German Trade Unions Research Institute and the German Research Center Employees Research Center (Frankfurt).

As a result, the increasing competition in education in foreign countries has become the main source of economic growth. Specifically, the analysis of the changes in the system of higher education, the peculiarity of the developed economic mechanisms and the factors shaping the competition between countries such as Germany, Japan and Russia, the diversity of the funding sources of higher education, the continuity and uniqueness of the organization of higher education, and the diversity of young people in education.

**In Germany.** As of November 30, 2015, there are three types of higher education institutions: universities (110, including 66% of students) and scientific research associations (231, 30% of undergraduate students), higher vocational-schools of Art and Music - 58, covering 1% of students. The difference between higher education institutions and universities is that they are relatively small compared to universities and their average length of education is five years (Master's - 1; 1,5; 2 years; Bachelor - 3; 3,5; 4 years; Doctorate From -2 to 3 years). The country has 60% of state higher education institutions, 30% of private higher education institutions, and 10% of church services, with a total of \$ 1.8 million. or 32% of young people are educated. Among the higher education institutions, 96 are universities, where 72.9% of the students study.<sup>1</sup>

The education system in Germany is governed by local governments. First, they have full autonomy in the development of the education system and management of higher education institutions, and secondly, overseeing access to higher education institutions, curriculum plans, testing systems, staffing schedules of professorial staff, and wage payment system.

In general, the government's share of funding for higher education is 8 percent, the share of local governments is 90 percent, and the share of individuals and organizations is 2 percent. Educational expenditures in Germany are equal to 4.3 percent of GDP (1.2 percent for higher education) compared to 2014.

The financing of higher education institutions is a multistage, complex process. There is strong control over the government at various levels.<sup>2</sup>

**In Japan.** The higher education system is historically influenced by the German model. Organized by the Ministry of National Education, centralized management is combined with the autonomous functioning of universities.

There are three universities in Japan. These are national, municipal and private universities. 628.1 thousand students are studying at 137 national universities in Japan. This is about 20% of all students. 75 percent of these universities are financed from the state budget. The majority of students (76%) are studying in private educational institutions. The number of private educational institutions is 965. They are financed through private sources. In addition, there are

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<sup>1</sup> [www.edpubs.gov](http://www.edpubs.gov). Comparative Indicators of Education in The United States and Other G-20 Countries:2015

<sup>2</sup> [www.ambafrence.ru/rus/looks/number20003.asp](http://www.ambafrence.ru/rus/looks/number20003.asp).

122 municipal high schools in Japan. They are managed by local and regional governments.<sup>1</sup>

In recent years, Japanese corporations needing practical skills and highly qualified professionals have demanded a reform of the system of higher education. Reforms are focused on promoting market competition in the higher education system.

Measures to reform the system of higher education in Japan include strengthening the autonomy of universities, the decision-making on the issues of budget formation and staff salaries, curriculum development and the opening of new courses.

Key issues discussed:

- Development of a learning system for globalization;
- A special requirement for innovation in scientific research;
- Encouraging students to learn more, to focus their time on learning and to improve their learning;
- Encouraging adult learners;
- Expanding the preparation of managers to the public and social sectors, etc.

**In Russia.** In 2000, based on the concept of reforming the education system, the formation of effective economic relations in the education system has been established to improve the quality and effectiveness of education. According to it, the training will include budgetary allocation for all levels, including the allocation of funds for the development of education, increasing the level of economic autonomy of educational institutions, maintaining a high degree of funding, ensuring transparency in the allocation of funds by higher education institutions and increasing their funding, on a competitive and contractual basis, with additional training provided by educational institutions INI organization of the foundation of education reform.

In 2000-2015, the number of government and municipal organizations declined, and the number of private educational institutions increased. At the same time, the number of university graduates has declined to 15 in 2000-2015. In the 2014-2015 academic years, private schools have a 45% share of the total number. However, this figure was 37% in the 2000-2001 academic years.<sup>2</sup>

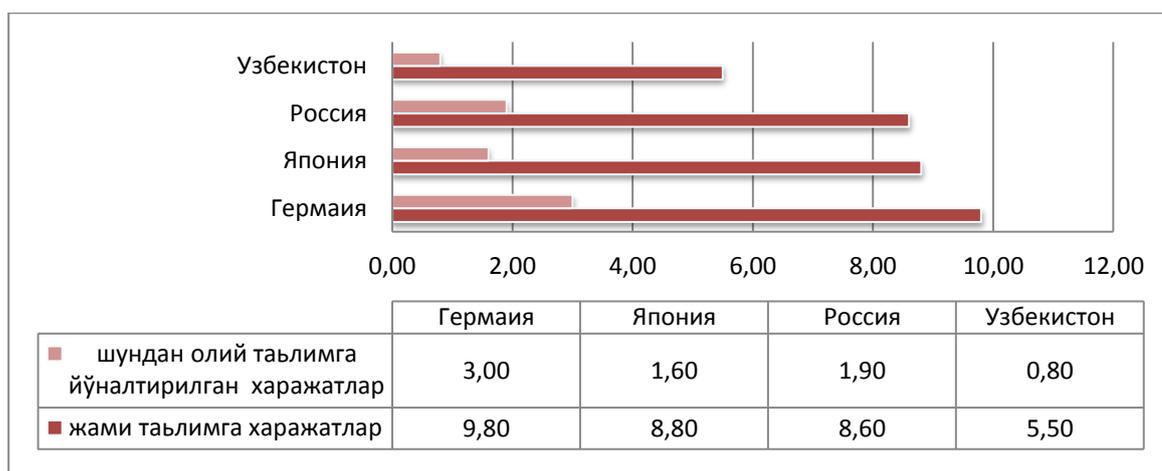
## Diagram 1

### Total Public Expenditure on Education by Countries, 2014,%:

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<sup>1</sup> Higher education in Japan in 2011. FY2011 Quick report of school basic Survey

<sup>2</sup> Образование в цифрах: 2016: краткий статистический сборник/ Л.М.Гохберг, И.Ю.Забатруина; нац.исслед. унв-т "Высшая Школа экономики". -М: НИУ ВШЭ,2016



The system of postgraduate education has been introduced in 2010 since the establishment of a new training service, i.e. vocational training institutions. The number of post-secondary educational institutions decreases, with the remaining number of students.

In 2014, the share of public expenditure on education in Germany, Japan and Russia was 9.1% (3.7% of GDP), while the average expenditure on higher education was 2.2% 1.9%) share (diagram 1).

It should be noted that, due to the globalization process, ensuring the competitiveness of countries in the world market is a necessity to reform the higher education system and adapt it to the ongoing changes; necessity of decentralization of higher education system, necessity of transition of administrative bodies from administrative methods to indirect, i.e. economic methods; the formation of a healthy competition environment among higher education institutions on the market of educational services, the need for strategic management of higher education institutions; the issues of expropriation of higher education, the promotion of new mechanisms for the financing of higher education, increasing the effectiveness of higher education, the development of higher education in the countries of the analysis, its adaptation to the environment, this level of our country can also be attributed to the educational system.

In our view, the following experiences in improving the system of higher education in foreign countries are also important for our country:

- ✓ Increasing the scope of economic tactics in management and finding a reasonable ratio between centralization and decentralization of higher education management;
- ✓ Improving the mechanism of formation of a healthy competition environment in the educational services market, further expanding the market of educational services;

- ✓ Further enhancement of the quality of higher education, the integration of market infrastructure, supporting the higher education system, exchange of information between student and market subjects of higher education;
- ✓ Further expansion of new mechanisms for financing higher education.

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## EVALUATION OF EFFICIENCY OF TAX PRIVILEGES INFORMATION OF KHOREZM REGION BUDGET

M.Gulmanov (UrSU)

**Annotation:** Budget effectiveness of tax breaks is analyzed, the coefficient of budget effectiveness of tax breaks for several types of taxes and districts in Khorezm region is determined in this article. Practical advice and recommendations for the improvement of tax system and tax breaks are presented as well.

**Аннотация:** Ушбу мақолада солиқ имтиёзларининг бюджет самарадорлигига таъсири таҳлил қилинган, Хоразм вилоятидаги солиқ имтиёзларининг бюджет самарадорлиги коэффициенти туманлар кесимида ва бир нечта солиқ турлари учун аниқланган. Шу билан биргаликда солиқ тизимини, солиқ имтиёзларини такомиллаштиришга оид амалий маслаҳатлар ва тавсиялар берилган.

**Аннотация:** В статье анализируется эффективность бюджета налоговых льгот, определяется коэффициент эффективности бюджета налоговых льгот для нескольких видов налогов и для регионов Хорезма. Следовательно, даются практические советы и рекомендации по совершенствованию налоговой системы, а также налоговые льготы.

**Keywords:** Fiscal policy, tax, tax system, budget, tax break, tax burden, budget effectiveness of tax breaks, value added tax, income tax, single tax

**Калит сўзлар:** фискал сиёсати, солиқ, солиқ тизими, бюджет, солиқ имтиёзи, солиқ юки, солиқ имтиёзларининг бюджет самарадорлиги, қўшилган қиймат солиғи, даромад солиғи, ягона солиқ.

**Ключевые слова:** Фискальная политика, налог, налоговая система, бюджет, налоговой льгота, налоговое бремя, бюджетная эффективность налоговых льгот, налог на добавленную стоимость, подоходный налог, единый налог.

Fiscal policy implemented in our country plays a crucial role in ensuring sustainable socio-economic development, employment and increasing the export potential of the state in condition of modernization of the economy and further deepening of economic reforms. Because any change in taxation has a multiplicative impact on the economy that is a certain decrease in the tax rate leads to the increase in production several times.

As the First President of The Republic of Uzbekistan I.A. Karimov emphasized: “High economic growth rates will be ensured through a wide-ranging and well thought-out tax and monetary policy. This policy will be primarily aimed at reducing the tax burden on the economy and stimulating its incentive role in the activities of business entities<sup>1</sup>”.

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<sup>1</sup> O`zbekiston Prezidenti Islom Karimovning mamlakatimizni 2014-yilda ijtimoiy-iqtisodiy rivojlantirish yakunlari va 2015-yilga mo`ljallangan iqtisodiy dasturning eng muhim ustuvor yo`nalishlariga bag'ishlangan Vazirlar

Moreover, in the Strategy of Actions on Further Development of Uzbekistan there is great attention paid to continue the policy of reducing the tax burden and improving the taxation system, improving tax administration and expanding appropriate stimulus measures<sup>1</sup>.

In the sustainable development of the modern economy, the use of tax breaks is becoming increasingly important as many means and tools. In today's complicated situation, the results of our state's tax policy are mostly dependent on the degree of sensitivity of current tax breaks.

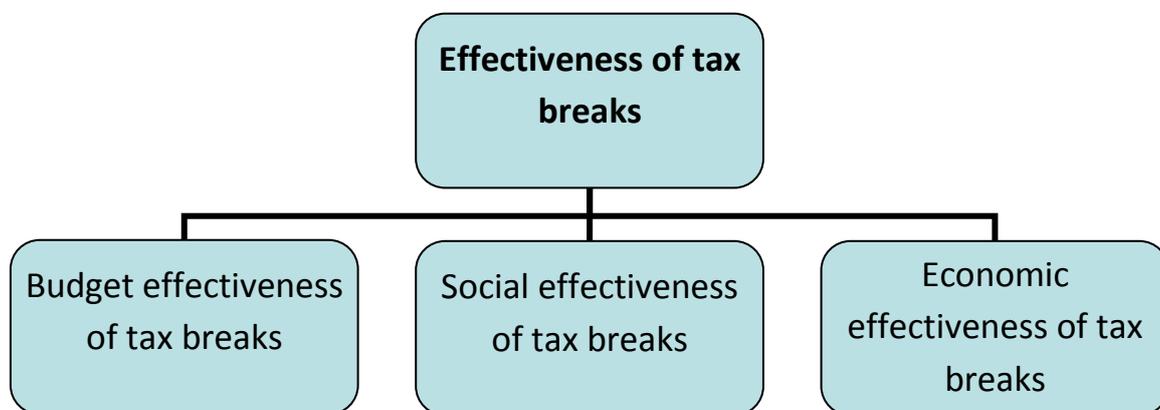
In our opinion, the adequate high level of sensitivity of tax breaks has made it possible to reach the goals that have been set in advanced.

However, based on the results of the analysis, we can conclude that despite the fact that today there are many tax benefits, not all of them are effectively used.

Therefore, it is important to assess the effectiveness of tax breaks and to make comparative analysis between the results from tax breaks with expected results. It should be noted that in Uzbekistan there is not sufficient scientific research conducted on the effectiveness of tax breaks and methodological bases of its valuation. Therefore, we have focused on assessing tax incentives in the following directions.

We will carry on the following calculations on the basis of evaluation of the socio-economic effectiveness of tax breaks in Khorezm region.

In our view, it is valuable to understand the effectiveness of tax breaks as its effect on the formation of budget revenues, the improvement of the social environment and the economic effectiveness of the enterprise organizations.



**1- graph. Main directions of assessing effectiveness of tax breaks<sup>2</sup>.**

Consequently, the mechanism of assessing the effectiveness of tax breaks can be divided into 3 groups:

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Mahkamasining majlisidagi “2015-yilda iqtisodiyotimizda tub tarkibiy o`zgarishlarni amalga oshirish, modernizatsiya va diversifikatsiya jarayonlarini izchil davom ettirish hisobidan xususiy mulk va xususiy tadbirkorlikka keng yo`l ochib berish – ustuvor vazifamizdir”// Xalq so`zi, 17-yanvar, 2-bet.

<sup>1</sup> [www.uza.uz/en/politics](http://www.uza.uz/en/politics) Decree of President of the Republic of Uzbekistan Sh.Mirziyoyev “On the strategy of actions for further development of the Republic of Uzbekistan” on February 7, 2017 №-4947.

<sup>2</sup> Developed by author based on theoretical knowledge from literatures. .

The budget effectiveness of tax breaks is known as the ratio of additional budget revenues to the amount of tax benefits as a result of the efficient use of financial resources left on the grace basis.

Budget effectiveness of tax breaks (hereinafter referred to as BETB) is estimated using the following budget performance ratios based on quantitative indicators:

- volume of tax proceed on budget;
- amount of tax breaks.

In the condition of modernization of the economy the widespread introduction of market mechanisms requires a new approach to the issue of the effectiveness of tax breaks.

In this context, in our opinion, the question of the effectiveness of tax breaks should be settled separately for different categories of taxpayers. Including:

1. BETB for taxpayers of legal entity carrying out entrepreneurial activity, as well as budget organizations is characterized by increased tax revenues to the budget as a result of effective use of taxpayers' funds left to budget<sup>1</sup>.

The BETB coefficient is determined by the following formula:

$$K_{BS} = \frac{ST_t - ST_{t-1} * I_t}{SI_t} \quad (1)$$

Here:

*ST<sub>t</sub>* – the volume of tax revenues to the budget for the period under review;

*ST<sub>t-1</sub>* – the amount of tax revenues to the budget prior to the assessment;

*SI<sub>t</sub>* – amount of tax breaks;

*I<sub>t</sub>* – inflation rate in the period under review.

*K<sub>BS</sub>* – If the value is greater than or equal to 1, BETB is considered to be acceptable.

*K<sub>BS</sub>* - If the value is smaller than, BETB is not considered to be acceptable.

Taking into account the abovementioned, the budget effectiveness of tax breaks is calculated using the formula (1) based on the following data given in the table1 for 4 types of taxes.

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<sup>1</sup> O. Yuldashov. Soliq imtiyozlari samaradorligini baholash metodologiyasi.// Moliya va soliq jurnali, 101-bet

1-Table

**Amount of tax revenues and breaks for VAT, Income tax, single tax for  
2014-2015 years (thousand sooms)<sup>1</sup>**

Types of tax	2014-yil	2015-yil		
	Income	Break	Income	Inflyatsiya, % da
VAT	124030243,9	110276902,7	168994585,1	105,6
<i>Income tax</i>	9585620,4	3120296,4	15041432,8	105,6
<i>Single tax for trade and catering businesses</i>	27593738,4	1098400,9	35890550,7	105,6
<i>Single tax</i>	35576865,5	12148628	46883801,9	105,6

Tax breaks given in the table 1 constitute more than 80 percent of total tax benefits. Using the data given, we will calculate BETB coefficient for Khorezm Region by using the formula (1):

$$BETB_{QGS} = \frac{168994585,1 - 124030243,9 * 1,056}{110276902,7} = 0.34$$

$$BETB_{FS} = \frac{15041432,8 - 9585620,4 * 1,056}{3120296,4} = 1.57$$

$$BETB_{SU} = \frac{35890550,7 - 35890550,7 * 1,056}{1098400,9} = 6.14$$

$$BETB_{YS} = \frac{46883801,9 - 35576865,5 * 1,056}{12148628} = 0.76$$

We can see from the calculations that budget effectiveness of VAT is equal to 0.34, which is not optimistic, that is earned income as a result of VAT break provide budget deficit of the region. In sum, it is not advisable to increase the tax break on this type of tax.

It can be seen that budget effectiveness of income tax is 1.57. This result shows that tax breaks efficiently effects budget income. Also, there is an opportunity to increase tax breaks for this type of tax until the BETB ratio is equal to 1.

The budget effectiveness of the single tax for trade and public catering enterprises is equal to 6.14, indicating that the effectiveness of tax break is high in budget effectiveness. Therefore, there is an opportunity to increase the amount of tax breaks.

<sup>1</sup> Developed by author based on the data from State Tax Administration of Khorezm Province.

Finally, the further increase of tax breaks for a single tax may have a negative impact on the revenues of the local budget, as the level of budget effectiveness for unified taxpayers and small enterprises is lower than the coefficient of 1.

If budget effectiveness of tax break for each region is determined using that method and implemented tax breaks with high positive effectiveness, in our opinion, will increase the ability of local budgets to strengthen financial self-reliance without relying heavily on the national budget.

The results of the calculations show that each of the taxpayers has different sensitivity, which assumes that the assessment of the budget effectiveness for each type of tax will provide a basis for future business and budget revenues.

Based on the above, we will estimate the budget effectiveness of tax breaks for towns and districts of Khorezm region.

Due to the fact that the development of entrepreneurship in the cities and districts of Khorezm region was not the same in 2015, the budget effectiveness of tax breaks also varied across the regions.

In particular, in Urgench district the amount of breaks was 5735687.1 thousand soums, which had a positive impact on the budget revenue, that is the BETB coefficient was 2.53, so there is an opportunity to increase the amount of breaks till BETB coefficient reached to 1.

**Amount of tax revenues and breaks in towns and districts of Khorezm region in 2014-2015 (thousand soums)<sup>1</sup>**

Towns and districts	2014	2015			Budget effectiveness of tax breaks
	Total income	Total income	Total breaks	tax Inflation, %	
<i>Urgench city</i>	218 101 284,1	275 145 290,7	61522907,9	105,6	<b>0,73</b>
<i>Urgench district</i>	69 572 234,2	88 013 924,3	5735687,1	105,6	<b>2,53</b>
<i>Khiva district</i>	42 846 527,4	47 589 552,4	3019374,2	105,6	<b>0,77</b>
<i>Khazarasp district</i>	45 220 995,7	65 050 597,9	7040518,9	105,6	<b>2,45</b>
<i>Gurlan district</i>	21 647 129,5	29 169 116,2	4816380,2	105,6	<b>1,31</b>
<i>Shavat district</i>	25 744 225,6	32 477 569,6	11758020,8	105,6	<b>0,45</b>
<i>Yangiariq district</i>	15 406 871,3	20 189 881,3	9687282	105,6	<b>0,40</b>
<i>Qo'shko'pir district</i>	20 885 772,7	25 688 987,0	7453365,2	105,6	<b>0,48</b>
<i>Bog'ot district</i>	25 575 089,4	30 804 223,1	8694410,2	105,6	<b>0,43</b>
<i>Xonqa district</i>	34 684 204,5	48 358 833,3	29635117,8	105,6	<b>0,39</b>
<i>Yangibozor district</i>	11 998 954,6	15 136 315,5	7072624,2	105,6	<b>0,35</b>
<b>Total</b>	<b>531 683 289,0</b>	<b>677 624 291,3</b>	<b>156435688,5</b>	<b>105,6</b>	<b>0,74</b>

We can say the same things for the situation in Khazarasp district as in the case of Urgench district.

In the Gurlan district, we can say that the BETB coefficient is normal. Shovat, Yangiariq, Koshkupir, Bagat, Hanka and Yangibazar districts have an average

<sup>1</sup> Developed by author based on the data from State Tax Administration of Khorezm Province.

coefficient of 0.4. In addition, for Urgench city we can see that it is close to the regional coefficient.

Based on calculations done above, we can point out that the scientifically based assessment of the effectiveness of tax breaks is an important basis for balanced budget revenues and expenditures, as well as achieving sustainable economic growth. In addition, if results of the tax breaks effectiveness assessment are used to develop an effective tax breaks and to eliminate inefficient tax incentives in good time, in our opinion, the objectives aimed from tax breaks will fully met.

**UDC: 339.187.62 338(575.171)**

## **CURRENT STATE AND PROSPECTS OF LEASING FINANCE DEVELOPMENT IN KHOREZM REGION**

**Abdullayev F.O. (UrDU)**

**Ismailov A.B. (UrSU)**

**Аннотация:** Мазкур мақолада Ўзбекистонда лизинг хизматлари диверсификациялашувининг аҳамияти Хоразм вилояти мисолида таҳлилий маълумотлар асосида ёритиб берилган бўлиб, мақолада мазкур соҳанинг муаммолари ва истиқболлари ҳам кўрсатиб ўтилган.

**Аннотация:** В статье исследуются проблемы и перспективы развития лизинговой отрасли на основе аналитических данных Хорезмской области освещена важность диверсификации лизинговых услуг в Узбекистане.

**Annotation:** The article examines the problems and prospects for the development of the leasing industry and, based on the analytical data of the Khorezm region, highlights the importance of diversifying leasing services in Uzbekistan.

**Калит сўзлар:** лизинг, лизинг берувчи, лизинг тўловлари, лизинг портфели, лизинг компаниялари, банк кредитлари, кичик бизнес, лизинг операциялари, инфратузилма.

**Ключевые слова:** лизинг, лизингодатель, лизинговые платежи, лизинговый портфель, лизинговые компании, банковские кредиты, малый бизнес, лизинговые операции, инфраструктура.

**Keywords:** leasing, lessor, leasing payments, leasing portfolio, leasing companies, bank loans, small business, leasing operations, leasing transactions, infrastructure.

Despite the general decline in economic performance in the developing countries of the Europe and Central Asia (ECA) region, Uzbekistan's economy continues to grow at a rather rapid pace. This level of economic performance was maintained for several years thanks to a powerful financial stimulus in response to deteriorating external conditions.

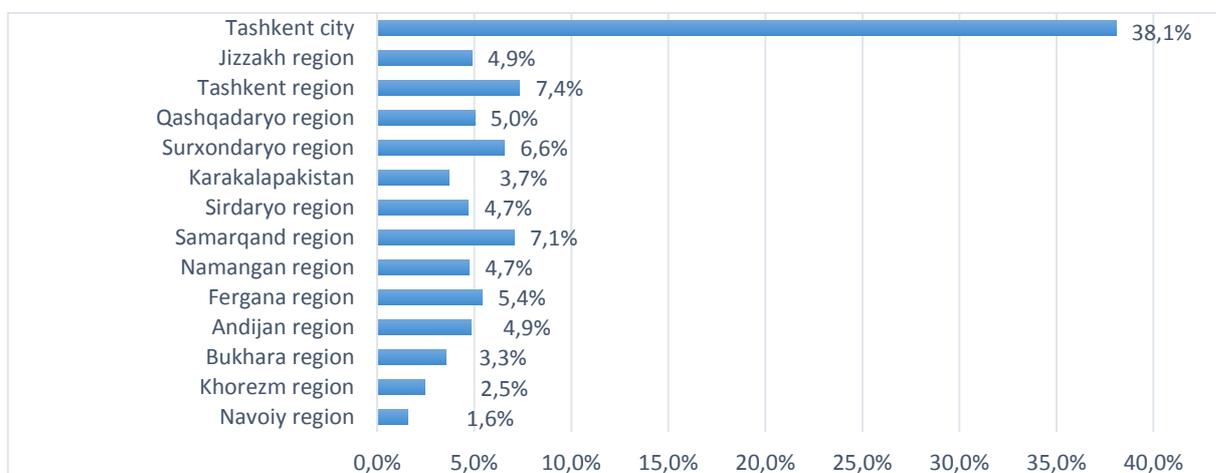
According to the report of the International Monetary Fund “World Economic Outlook”, in 2016 the world economy grew by an average of 3.1 percent, and the volume of foreign trade – only 1.9 percent, which is associated with a decrease in investment by 13 percent compared to the indicator of 2015[1].

Against this background, the State Budget was executed in accordance with the approved parameters and with a surplus of more than 132 billion soums. The GDP growth was 7.8 percent, industrial production and agriculture – 6.6 percent, respectively. In addition, real aggregate income per capita increased by 11 percent, the average monthly salary of employees of budget organizations, pensions, social allowances and scholarships by 15 percent, respectively [2].

In this kind of thriving economy, small business plays a critical role. For instance, in our country last year (January-December 2016) the share of small business in GDP was 56.9% versus 56.5% in January-December 2015 [3]. Especially on access to finance, bank loans and overdrafts are the most widespread debt financing methods for small business, but that alternative sources like **leasing** and factoring have also a high relevance. An important element of small business finance is not directly provided by banks through traditional loans but rather by leasing or factoring companies.

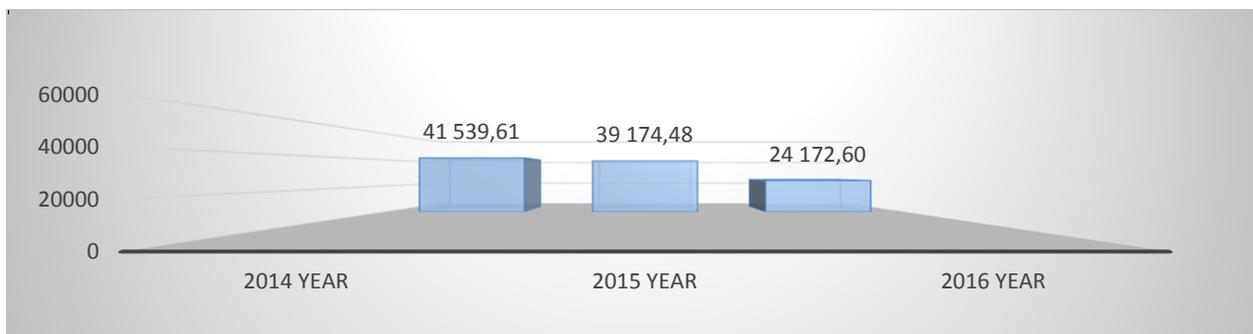
The **leasing market**, as one of the indicators of the activity of the economy, showed active growth, in particular, the lessors concluded more than 5,540 new leasing transactions, and their volume thus amounted to more than 973.1 billion som and increased by 121.9 billion som compared with 2015 [4]. According to the report of ALU (Association of Lessors of Uzbekistan), the increase in the volume of new leasing transactions for the year of 2016 was 14%, and the leasing portfolio demonstrated growth of more than 5.5%.

Distribution of leasing operations in the republic is fairly even, with the exception of the city of Tashkent, which accounts for 38.1% of all implemented new leasing operations in the country's market. Among other regions The Tashkent region (7.4%) and the Samarkand region (7.1%) are leading the market and it is shown in the diagram below (Fig.1)



***1-Fig. Volume of leasing operations across the country in 2016 year.***

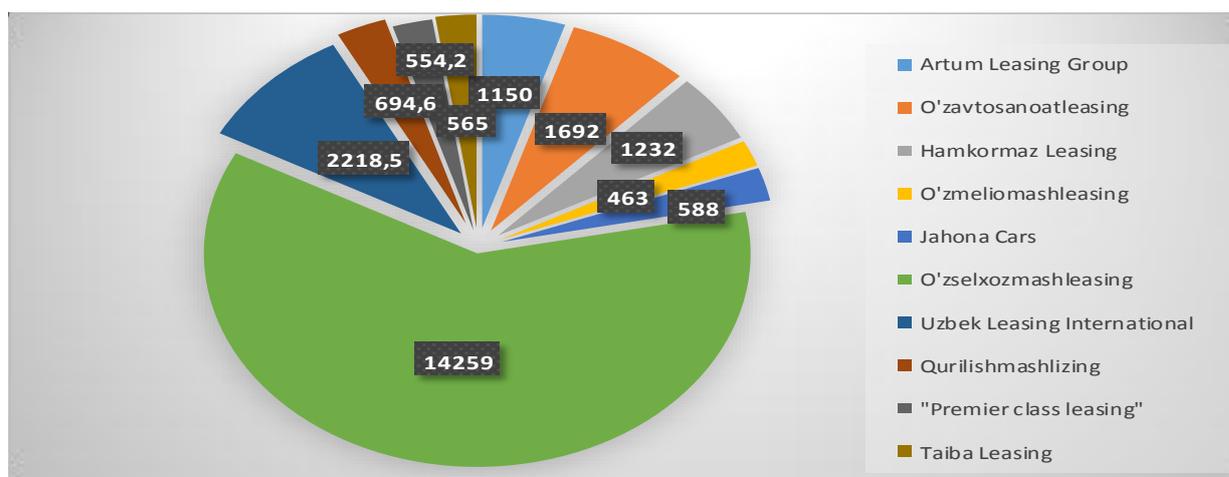
Due to the reduced demand for leasing services over the past three years, the volume of leasing operations in Khorezm has fallen by twice over the period from 2014 to 2016 (Fig.2).



**2-Fig. Total volume of leasing transactions of Khorezm region for the last three year (mln. som)**

In 2014 Khorezm region's share was 5,4 % and 2016 year it was indicated as 2,5 %. According to the statistics of ULA total volume of leasing operations of local financial institutes is getting reduced year by year. In 2014 the number of regional leasing service was 330, in 2015 year 319 and during the 2016 year it was only 226[4]. However, the real importance of the leasing industry and its impact on the financial market was noted by the local key clients of the largest leasing companies.

Analyzing the leasing market of Khorezm, it is necessary to note the fact that "O'zselxozmashleasing" not only topped the ranking of financial institutes in terms of the volume of new leasing transactions, but also became the first largest lessor in the market. In 2016, financial institutions like 12 leasing companies and 2 commercial banks in Khorezm region provided 226 leasing services in the amount of 24 172,6 mln som. The largest leasing company "O'zselxozmashleasing" signed 180 leasing agreements in the amount of 14259 mln. som. (Fig.3)



**3-Fig. Volume of Distribution of leasing transactions in Khorezm region by leasing companies in 2016 (in mln. som)**

The leasing is becoming more and more competitive because of the new leasing companies are entering the market. Still there remains a lot of scope which these firms can explore. The political stability and overall economic development is an essential precondition of the smooth growth of this sector. If these two preconditions can be met, the leasing sector of Khorezm region would be able to perform strong role in our industrial development. The local government should also focus on leasing sector as a prominent source of financing in addition to commercial banks and other financial institutions and thus they (government) should more extends facilities for the overall growth of this sector. Moreover, the leasing firms should come up to give more precise ideas and knowledge about lease among general public. In addition to these, they should also focus on their individual performance and should try to overcome the problems and challenges that they are facing for operating their business.

As shown above, the pace of leasing development does not correspond to the current needs of the economy, and the demand for these services is not fully satisfied.

The need to develop leasing in the Khorezm region, including the formation of the leasing market, is primarily due to the unfavorable state of the Equipment Park and insufficient investment activity. There are some problems, drawbacks, and ways of their solution mentioned below. (Table.4)

<b>№</b>	<b>Regional problems</b>	<b>Way of solution</b>
<b>1.</b>	Gaps in legislation: the procedure for completing the contract of leasing and transfer of property to the lessee.	It is necessary to redevelop the projects of “Law of the Republic of Uzbekistan on leasing” and putting it to public discussion on government site <a href="http://www.regulation.gov.uz">www.regulation.gov.uz</a>
<b>2.</b>	There is no system of insurance of commercial risks in leasing transactions	It is necessary to transfer the foreign experience of financial risk insurance to the regional market of leasing services.
<b>3.</b>	There is no system of regional credit bureaus and credit ratings	Establishing system of regional credit bureaus and credit ratings, adoption of a law on credit bureaus
<b>4.</b>	There are no ready solutions in the field of complex automation of the leasing company	Development by specialized companies of programs on automation of leasing.
<b>5.</b>	Lack of qualified personnel in the field of leasing	Introduction of the specialty "Leasing", or the subject "Leasing" in the curriculum

**1-Table. Actual problems of leasing in the Khorezm region and ways to solve them**

## Conclusion.

The leasing market of the Khorezm region needs the development of an information infrastructure. This requires the efforts of all participants in the leasing market. And it is one of the main instruments of long-term investment in the renewal of fixed assets. For a number of infrastructure sectors (transport, communications, energy, agriculture, tourism and hospitality, medicine ) leasing financing is the basic source of business modernization funds. Settlement of legal issues and establishment of economically favorable conditions for leasing operations will contribute to further active development of leasing in Khorezm.

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**UDC: 334.021**

## **SOCIAL ENTREPRENEURSHIP AND CORPORATE SOCIAL RESPONSIBILITY IN PROMOTING SOCIAL WELFARE**

**Nasretdinova F. (UrSU)**

**Annotatsiya.** Ushbu maqolada ijtimoiy tadbirkorlik konsepsiyasi, uning rivojlanish sabablari, turlari va korporativ ijtimoiy ma'suliyatning jamiyat muammolarini hal qilish va ijtimoiy farovonlikni oshirishdagi ahamiyati xorijiy mamlakatlar misolida batafsil yoritilgan.

**Annotation.** This article discusses the concepts of social entrepreneurship, its causes, types and importance of corporate social responsibility in solving community problems and promoting social welfare.

**Аннотация.** В этой статье обсуждаются концепции социального предпринимательства, его причины, типы и важность корпоративной социальной ответственности в решении проблем сообщества и содействие социальному обеспечению

**Kalitso'zlar.** Ijtimoiy tadbirkorlik, ijtimoiy mas'uliyat, ijtimoiy faollik, ijtimoiy biznes, korporativ ijtimoiy ma'suliyat, ijtimoiy korxonona.

**Keywords.** Social entrepreneurship, social responsibility, social activities, social business, corporate social responsibility, social enterprise.

**Ключевые слова.** Социальное предпринимательство, социальная ответственность, социальная деятельность, социальный бизнес, корпоративная социальная ответственность, социальное предприятие.

***The reasons for the emergence of social entrepreneurship.***

What are the reasons for the emergence of social entrepreneurship? Mankind has been experiencing such rapid and significant changes in recent centuries as have not been observed during the previous millennia. On the one hand, there is a general humanization of society, an increase in the value of human life and personality, the concept of human rights emerged and these rights are reflected in international legal documents. There was an organization of the United Nations, which can formulate common goals and rules for the further development of mankind. But the development of social structures is more inert than the life of society itself. The state has never been an ideal tool for solving public problems and problems, it is not even now, although comparing the methods and effectiveness of public administration in today's society and even 200 years ago, we can state significant positive changes. However, many social problems with a deep history and again arising in connection with global and local changes are not solved or solved by existing state and charitable structures inadequately. The state is limited in means by the amount of collected taxes, and these funds are not enough to solve all problems. The electoral mechanism makes politicians positive from the point of view of public control over the activities of them, however, rely on easily achievable results in the short term, ignoring long-term systemic reforms.

Private charitable donations that provide irreplaceable assistance in situations of catastrophes and other extreme events are unstable and incapable of financing long-term programs aimed at systemic changes. Meanwhile, the world's population is growing every year, and the problems of poverty of one sixth of the world's population, and the lack of clean drinking water, adequate nutrition, education and health in more than a billion people, climate change, the disappearance of natural resources, global epidemics, terrorism and local wars that threaten to transform into global ones and the possibility of the complete disappearance of mankind in the use of nuclear weapons - this is an incomplete list of the most serious problems of our time.

And, probably, every person once thinks what exactly he can do to solve these problems. Social entrepreneurship is one of the answers to this question, because it is a really functioning tool of positive social transformations in the hands of ordinary people who are not exposed by the authorities and do not own multimillion-dollar states.

***The concept of social entrepreneurship.*** What is social entrepreneurship? Because social entrepreneurship is very young, there is no generally accepted definition of this concept. One of the shortest definitions of the SE is the following: SE is an activity aimed at solving social problems with the help of sustainable innovative business models.

***Social entrepreneurship and social activism.*** Social activism is the efforts of individuals and public organizations to address or alleviate social problems.

Similarity with social entrepreneurship is the focus on solving social problems. The difference is that social activism does not involve the production of goods and services and the use of business models to solve social problems.

***Social Entrepreneurship and Charity.*** Charity is an activity for the benefit of society, financed through voluntary donations of organizations and individuals. Charity differs from social entrepreneurship in that it involves gratuitous use of funds collected by donors and does not involve the use of business decisions and methods and activities related to the extraction of profits.

***Forms of entrepreneurship.*** Not all forms of entrepreneurship are the same. If we use the classification Low (2006), entrepreneurship can be divided into two main categories - innovative and replicative (i.e. repeating something that already exists).

Their difference is especially important when it comes to social entrepreneurship. Innovative entrepreneurship is the engine of economic growth through the creation of material wealth. Replicative same entrepreneurs produce and sell goods or services that are already available on the market (Shaw and Carter, 2007). The difference between the two forms plays an important role in the research of the joint venture because replicative entrepreneurship is the main activity for combating poverty and, therefore, the issue is of considerable interest to social entrepreneurs. Replicative enterprises can also be created and expanded through the identification of entrepreneurial opportunities by administrative and government bodies, and not just by individual entrepreneurs. Innovative entrepreneurship is to a much greater extent connected with individual activity, which can be stimulated by the absence of administrative and state barriers for its beginning and implementation.

***Cooperatives.*** A cooperative is a membership-based association of people and organizations created to achieve common economic and social goals related to the satisfaction of the material or other needs of members who have contributed a share to the fund created for this, recognizing participation in the risks and results of the organization and participating in it functioning as shareholders, managing it in a democratic way. Cooperative is an enterprise based on joint activities and mutual assistance of members of the cooperative. The cooperative has a direct connection with the economic interests of its members. Cooperative principles are the basis of cooperative activity. The basic principle: one shareholder cooperative - one vote, which is fundamentally different from the principles of management of commercial organizations.

At present, there are about 700 million cooperators in the world. The international cooperative alliance includes 192 national cooperative unions from 76 countries. By their type, cooperatives can be productive (with mandatory labor participation of members) and consumer, where mandatory labor participation of members in the economic activities of the cooperative is not required.

Production cooperatives are commercial organizations, i.e. the main goal of their activities, the same as with any commercial organization: profit maximization. Consumer cooperatives are non-profit organizations, i.e. they are

created to meet the material and other needs of their members and do not have the goal of making a profit.

***Social entrepreneurship and corporate social responsibility.*** Another area adjacent to social entrepreneurship is corporate social responsibility (CSR), which is sometimes confused with a joint venture.

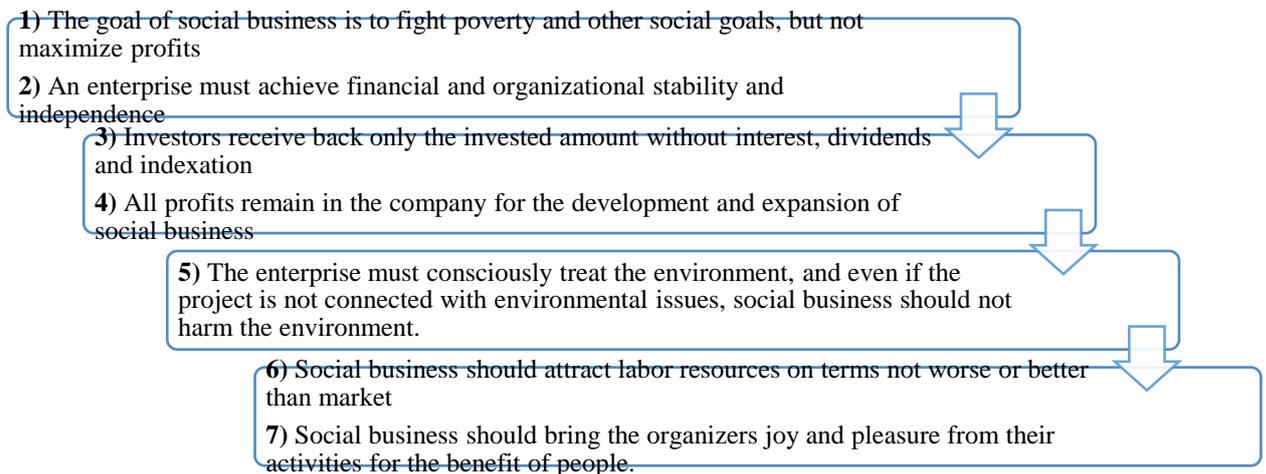
**Corporate social responsibility (CSR)** is one of the forms of corporate self-regulation integrated into the business model. CSR functions as a built-in self-regulating mechanism through which business controls and ensures in its practice an active compliance with the spirit of the law, ethical and international norms. CSR is a process motivated by a sense of responsibility for the actions of the company and encouraging the positive impact of its activities on the environment, consumers, employees, communities and other stakeholders. Many scientists define CSR as an instrument of public relations (PR), used to create competitive advantages by improving the image and increasing the legitimacy of the company. Jolberg (2009) notes that while CSR may have a global character, recent research shows that its application can have significant variations in different social, economic, cultural, legal and political contexts. The fact is that CSR can be viewed as a truly global concept, spread by transnational companies. This practice is increasingly built into the global management culture every year, and is also important for the reputation of the company that wants to be modern and legitimate in the eyes of society. The maximum development of CSR has reached in countries such as Switzerland, Sweden, Finland and Norway. These findings contradict the theory of researchers such as Matten and Moon (2008), who argue that CSR activity is higher in neoliberal countries, since it is designed to compensate for the state's low spending on social insurance.

The Baron (2007) sees the following differences between CSR and JV: Companies take on strategic responsibilities for corporate social responsibility, seeking to obtain competitive advantages and increase profits, whereas the strategic goal of social entrepreneurs is a social mission, rather than maximizing profit and market value. Thus, these activities differ in motivation, intensity, goals and objectives.

Despite the differences in definitions, in practice these spheres often come into contact. For example, many social enterprises receive starting capital through CSR units of large commercial companies such as Coca-Cola (Lehner, 2011) and some social entrepreneurs choose their consulting model for consulting large companies within their corporate social responsibility projects. Due to the close interaction of the joint venture, sustainable entrepreneurship and corporate social responsibility, the boundaries of these concepts are blurred and change over time, depending on the practical development of each of these areas.

***The concept of social business.*** Characterizing the notion of social entrepreneurship, it is also necessary to dwell on a concept close to social entrepreneurship, and yet allocated by its author in a separate direction due to fundamental considerations. This is the concept of "social business", developed and promoted by Nobel Peace Prize winner Muhammad Yunus. In what, in fact, he

sees the differences between the joint venture and social business? The main difference is that the investor does not receive dividends, interest, or inflation indexation of the invested funds when investing in the social business. After a certain period, he can simply get the invested funds back exactly the same amount that was invested by him. Yunus believes that the Western understanding of social entrepreneurship does not exclude the possibility of attracting investors' funds on commercial terms. Yunus singles out 7 criteria for social business. They are in following diagram.



**Diagram 1. Seven criteria for social business by Muhammad Yunus<sup>1</sup>**

As a strategy for organizing the work of the group of companies Grameen Yunus very much uses partner schemes with locomotives of commercial business. He acts as follows: the heads of organizations with whom he is interested in creating a joint social enterprise, he sends a memorandum of intent with a clear description of his position regarding the company's investments. He explains that the only benefit that a commercial corporation will receive is the improvement of the image and achievement of the corporate social responsibility goals that it has set for itself. Then, if the management of the company shows interest in cooperation, he holds a meeting with him, which already comes with the idea of joint business.

An example of such cooperation may be a joint social enterprise Grameen-Danone. This enterprise solves the problem of malnutrition of children in rural areas of Bangladesh, which constantly lacks vitamins and trace elements, which lead to a delay in the children's mental and physical development, as well as to numerous diseases. As a result, the joint venture produces and distributes small packages (60-80 gr.) Of cheap yogurt in rural areas of Bangladesh and in cities, in two boxes of which there is a weekly dosage of vitamins and microcells necessary for children. And the distribution of products in rural areas is carried out with the help of women who have received microcredits from Grameen, which gives them and their family additional substantial income. Similar joint ventures Grameen Bank established with the company Adidas, and with the company Intel.

**Conclusion.** Many scientists believe that the concepts of capitalism and socialism in their pure form have proved that they have a lot of significant

<sup>1</sup><https://cyberpedia.su/11x82d6.html>

drawbacks therefore future belongs to different variants of hybrid economies. The concept of social enterprises best suits this view, and every year the growing number of social enterprises proves the popularity of such a vision.

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## THE PERSPECTIVES OF THE DEVELOPMENT OF THE LIGHT INDUSTRY OF UZBEKISTAN

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**Annotation.** In this paper given information on the significance of light industry in Uzbekistan and its perspectives for further development. In addition, given recommendations and suggestions identifying and eliminating the factors affecting the development of the light industry in Uzbekistan.

**Аннотация.** Ушбу мақолада Ўзбекистонда иқтисодийетида энгил саноатнинг ахамияти ва унинг ривожлантириш истиқболлари тўғрисида маълумотлар келтириб ўтилади. Шунингдек, Ўзбекистонда энгил саноат

тармоғининг ривожланишига таъсир кўрсатувчи омиллар ва уларни бартараф этиш бўйича тавсия ҳамда таклифлар берилди.

**Аннотация.** В этой статье представлена информация о важности легкой промышленности в Узбекистане и ее перспективах ее развития. Также приводятся факторы, влияющие на развитие легкой промышленности в Узбекистане, а также рекомендации и рекомендации по их устранению.

**Key Words:** light industry, investment, diversification, strategy, investment policy, competitive products, export potential.

**Калит сўзлар:** энгил саноат, инвестиция, диверсификация, стратегия, инвестиция сиёсати, ракобатбардош махсулот, экспорт салоҳияти.

**Ключевые слова:** легкая промышленность, инвестиции, диверсификация, стратегия, инвестиционная политика, конкурентоспособная продукция, экспортный потенциал.

Uzbekistan has great opportunities for developing textile industry, given the availability of all production factors, such as high-quality raw materials, qualified specialists, etc. Almost annually, more than 20 textile enterprises put into action. Consequently, more than 3,500 jobs created in the regions of the country.

Ever since created, encouraging conditions for the development of light industry, privileges and preferences, a solid normative-legal base have been shaped, based on the result what kind of enterprises and the production have achieved significant successes, as well as reached a qualitatively new stage of development. Moreover, over 2.5 billion dollars of investments attracted to the sector and more than 200 large investment projects implemented. Now a day, light industry plays a key role in the macroeconomic development of Uzbekistan.

In the Strategy of Actions on Further Development of Uzbekistan, paid great attention to further modernization and diversification of the industry by introducing a qualitatively new level of rapid development of high value added production based on deep processing of raw resources<sup>1</sup>.

As of 01.01.2017, the JSC “Uzbekengilsanoat” has 400 industrial enterprises, including 27 large enterprises, 373 enterprises classified as small and private businesses.

In 2016 enterprises of JSC “Uzbekengilsanoat”, produced consumer goods amounted 1680.2 billion sooms, and increased 122.3 percent to the corresponding period of the previous year. The volume of industrial production amounted 3714.5 billion sooms with a growth rate of 118.1%. The average utilization of production capacity was in the production of cotton - 75.6%, cotton fabrics - 74.2%, knitwear - 84.4%, hosiery - 67.1, clothes - 51.2%, silk fabrics - 63.6%.

Production rates in terms of the main nomenclature of products in physical terms provided, including 348.6 thousand tons of cotton (growth rate 113.4%), cotton fabrics - 198.7 million square meters (109.0%), knitted fabrics - 62.8 thousand tons (117.7%), knitted goods - 219.4 million (118.6%), hosiery - 46.1

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<sup>1</sup> [www.uza.uz/en/politics](http://www.uza.uz/en/politics) Decree of President of the Republic of Uzbekistan Sh.Mirziyoyev “On the strategy of actions for further development of the Republic of Uzbekistan” on February 7, 2017 №-4947.

million pairs (118.4%), garments - 37.9 billion sums (123.1%), non-woven materials - 41.5 million square meters. (113.8%), raw silk fiber - 1230.1 tons (114.2%), cotton wool - 31.6 thousand tons (114.9%). In 2016, 330 thousand tons of cotton fiber purchased.

Because of the measures to reduce accounts receivable and payable, to strengthen the discipline of payments to the budget and to non-budgetary state trust funds, during January-December 2016 the enterprises of the joint-stock company paid taxes and deductions amounted 266.5 billion sooms (an increase of 136.5%). Including 111.4 billion sooms to the budget (growth of 138.6%), 129.5 billion sooms to a pension fund, 16.6 billion sooms to a road fund, 8.8 billion sooms to a school fund.

According to paragraph 2 of the Decree of the Cabinet of Ministers of the Republic of Uzbekistan dated 29.12.2015 No.374 "About additional measures on production cost reduction, production prime cost decrease in industry", the parameters of reducing the cost of production for large enterprises of JSC "Uzbekengilsanoat" for 2016 was amounted 6.3 percent. Enterprises of the joint-stock company (except small businesses) produced products amounted 1350.0 billion sooms, where planned expenditures amounted to 270.0 billion sooms. Because of the measures taken to reduce the cost, the actual amount of expenditures (excluding raw materials) were 270.0 billion sooms, while reduced expenditure was 17,010.0 million sooms, or 6.3% of the total cost. The main factors of cost reduction are: a decrease in energy consumption of 2.20% (a reduction of 5,940.0 million sooms), optimization of raw material costs -0.45% (1215.0 million sooms), a decrease in other production costs and operating costs - 0.55% (1485.0 million sooms), decrease in overhead costs -0.40% (1080.0 million sooms), etc.

JSC "Uzbekengilsanoat" manages enterprises through existing shares and shares exclusively through representatives in supervisory boards, as well as auditing commissions of joint-stock companies, with participation in general meetings of joint-stock companies.

The election of supervisory boards and executive bodies in joint-stock companies, JSC "Uzbekengilsanoat" is carried out in accordance with the procedure established by legislation at the general meeting of shareholders.

In accordance with the Resolutions of the President of the Republic of Uzbekistan of September 27, 2006 No. PP-475 "About measures for further market development of securities" annual business plan of joint-stock companies considered at the meetings of supervisory boards in time until the first December.

According to the Laws "On joint-stock companies and protection of shareholders' rights", "On the Securities Market", the Company's economic entities disclose information by publishing on the official website of the authorized state body for regulation of the securities market and providing authorized government body for regulation of the securities market in the prospectus of securities issue, in the quarterly and annual report of the issuer, in reports on material facts of the issuer's activities.

In order to improve corporate governance in enterprises where there is a share of JSC “Uzbekengilsanoat”, representatives of the company participate in meetings of supervisory boards, general meetings of companies, on which quarterly reports of business leaders on the implementation of forecast indicators of business plans.

In accordance with the legislation of the Republic of Uzbekistan, internal audit services have been established in business entities (JSC Norinteks, JV LLC Sirkeshi Tashtextil), which appointed and accountable to the supervisory boards.

In accordance with the decree of the President of Republic of Uzbekistan 24.04.2015 No. UP-4720 “About measures for implementation of modern corporate management methods in joint-stock companies” and protocol No. 9 of the Commission on increasing the efficiency of joint-stock companies and improving the corporate governance system (dated 02.02.2016 No. 02-02 / 1-187) JSC “Uzbekengilsanoat” adopted decisions on compliance with the recommendation of the Corporate Governance Code, approved internal documents (Regulations on Information Policy, Internal Control, Dividend Policy, Procedures for Conflict of Interest)

In accordance with the Decree of the Cabinet of Ministers of the Republic of Uzbekistan of July 28, 2015 No. 207 “On implementation of criteria for assessing the performance of joint-stock companies and other business entities with a share of the state” “Uzbekengilsanoat” were developed, approved and posted on the website.

In order to organize the implementation of the Decree of the President of the Republic of Uzbekistan "On measures to introduce modern corporate governance practices in joint-stock companies" dated April 24, 2015 No.UP-4720 and the Resolution of the President of the Republic of Uzbekistan "On measures to increase the share and importance of private property in the economy" from 28 April 2015 No. PP-2340, during 2016 the work on the implementation of these government decisions was continued.

In order to implement the Presidential Decree on the priority creation of joint-stock companies with the participation of foreign capital, the formation of favorable conditions for attracting foreign investment and the implementation of the Resolution of the President of the Republic of Uzbekistan “On measures to increase the share and importance of private property in the economy” the followings was done to attract foreign investors:

- All proposals distributed through diplomatic representatives of the Republic of Uzbekistan abroad;

- Offers were sent to all potential partners, as well as textile associations in partner countries, including in Korea, Singapore, India, Bangladesh, etc.;

- placed advertisement on the site of the State Committee of the Republic of Uzbekistan for assistance to privatized enterprises and development of competition implemented shares of certain foreign investors;

- The investment passports of all the enterprises being realized (in Russian and English), which are posted on the official website of the company;

- shares of “Norinteks” JSC (13.96%) Namangan region, “Kitab ip yigiruv” JSC (25%) Kashkadarya region, “Sirkeji tastextile” LLC (25%) Tashkent, “Engtijmarkaz” Ltd. (25%), Tashkent city, “Sanam” LLC (25%) Kashkadarya region put up for public bidding.

In order to implement the Order of the President of the Republic of Uzbekistan of February 10, 2016 № R-4613, the Decree of the President of the Republic of Uzbekistan of 21.12.2015. № 2454, Decrees of the President of the Republic of Uzbekistan of 16.11.2015. №-2432, JSC "Uzbekengilsanoat" held general meetings of shareholders with the inclusion in the agenda of issues of selling state assets included in the privatization program.

On the sale of 25% of JSC “Kitab ip yigiruv” an appeal was sent to the State Tender Commission (from 20.06.16 №IH-21-1783) with a proposal to acquire a foreign investor a stake in the national currency. This issue previously agreed with the Ministry of Economy, the Ministry of Finance, and the State Committee on Competition.

In accordance with the Resolution by President of the Republic of Uzbekistan dated December 21, 2015 № PP-2454. “On the Additional Measures Aimed at Attraction of the Foreign Investments into the Joint-Stock Companies” a foreign investor was involved in the statutory fund of JSC "Kitab ip-yigirov". A foreign investor (Edel Trading UK) bought out 20.47% of the company’s shares.

Also, 25 percent share of OOO “Engmattizhmarkaz” sold in December 2016 at the auction “Respublika mulk markazi” LLC “Textile Supply”.

On the sale of 25% of OOO “Sanam” at the general meeting of participants on July 8 2016. The issue of acquiring the state share of the company included in the privatization program considered. The head of the society was reelected, the founders are considering the issue of redemption of the share.

25 percent share of JV “Sirkechitashtekstil” LLC (trust management) was sold at auction of the Turkish company “Sirkechi Textil Sanayi ve Ticaret A.S.”.

In the solution of tasks increasing employment and sustainable growth of incomes of the population, priority given to the implementation of the State Program for the Creation of New Jobs. According to the results in 2016 7265 working places were created within the program of new workplaces, under the localization program 8, in the development of production - 5440 under the home-based working place program 73. The total working places created - 12786, the growth rate to the previous year was 102 percent.

As of 01.01.2017 in the sector, within the framework of ISO-9001 implemented 201 enterprises. Within the framework of the implementation of the QMS, a set of measures for the implementation of international quality standards for 2015-2017 was developed and approved. According to the network schedule approved by the Cabinet of Ministers, in 2016 planned to introduce QMS at 54 enterprises, in fact, introduced into 61 enterprises.

Enterprises of the sector are equipped with modern high-tech equipment and production laboratories those meet international standards. Out of the 286 production enterprises 255 test laboratories function. The remaining 31 enterprises

(sewing and knitting industry) do not envisage the presence of a testing laboratory in the technological process.

In 2016, at the eighth Republican Fair of Innovative Ideas, Technologies and Projects, 2 projects worth 65 million sooms were concluded and implemented.

Together with the Ministry of Labor and Social Protection of Population, the Center for Secondary Special Vocational Education of the Republic of Uzbekistan, the Employment Centers of the regional, city and district khokimiyats, the schedule of labor fairs in the regions of the republic for graduates of secondary special vocational colleges. The following priority tasks undertaken in our country in the light industry:

attraction of foreign investments, creation of new joint ventures and expansion of existing production capacities;

increase the volume of deep processing of cotton fiber;

technical re-equipment and modernization of existing enterprises, the development of innovation and innovative cooperation with other enterprises by establishing new high-tech enterprises;

provision of the domestic market with ready products and capacity building of the network;

development of the textile industry, the production of new capacities for producing ready-made fabrics, including the production of new types of products demanded on the domestic and world markets;

production of artificial and synthetic fibers and yarns in our republic and, consequently, the production of fibrous fabrics and weaving industry inexpensively.

As a result of implementation of the above tasks the light industry will accelerate in the country

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**SOME STRUCTURAL FEATURES OF SPREAD OF HYPERTENSION DISEASES IN THE REGION OF KHOREZM**

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**Annotation.** In the region of Khorezm primary disablement caused by hypertension diseases comes to - 14,4 to every 10000 people. Repeated disablement equals to -  $56,7 \pm 2,19$ . The characteristics of Yangibozor and Urgench regions are higher compared with the indicators of Hazarasp region that is -  $88,6 \pm 3,66$  to every 10000 people. Total number of disablement caused by hypertension diseases in the region is -  $71,1 \pm 4,51$  to every 10000 people. Its higher level appears to be in Yangibozor -  $103,6 \pm 3,96$ . Characteristics of total disablement number in the rural areas compared with the city is higher to 29,0%.

**Keywords.** Hypertension, disease, disability, indicator, population, primary, repeated, general, region, district, town.

**Аннотация.** Хоразм вилоятида қон босими касаллиги сабабли бирламчи ногиронлик ҳар 10 000 та аҳолига 14,4 га, қайта ногиронлик  $56,7 \pm 2,19$ га тенг бўлиб, бу кўрсаткич Янгибозор туманида ва Урганч шаҳрида Хазорасп туманига нисбатан 2 маротаба юқори, яъни ҳар 10 000 аҳолига  $88,6 \pm 3,66$  тенг бўлди. Вилоятда АҚБ касаллигидан умумий ногиронлик ҳар 10 000 та аҳолига  $71,1 \pm 2,45$  тенг бўлиб, унинг энг юқори даражаси Янгибозор туманида кузатилди ва  $103,6 \pm 3,96$ га тенг эканлиги аниқланди. Умумий ногиронлик қишлоқда шаҳарга нисбатан 29,0%га юқори эканлиги аниқланди.Калит сўзлар.

Гипертония, касаллик, ногиронлик, кўрсаткич, аҳоли, бирламчи, қайта, умумий, вилоят, туман, шаҳар.

**Аннотация.** В Хорезмской области первичная инвалидность от гипертонических болезней составила на каждые 10000 населения – 14,4. Повторная инвалидность –  $56,7 \pm 2,19$ . Показатели Янгибазарского района и показатели города Ургенча в 2 раза больше, чем показатели Хазараспского района, то есть на каждые 10000 населения -  $88,6 \pm 3,66$ . Общая инвалидность в вилояте от гипертонических заболеваний составила -  $71,1 \pm 4,51$  на каждый 10000 населения. Его высокий уровень оказался в Янгибазарском тумане -  $103,6 \pm 3,96$ . Показатель общей инвалидности в сельских районах по сравнению с городом оказались выше на 29,0 %.

**Ключевые слова:** Гипертония, заболевание, инвалидность, показатель, население, первичный, повторный, общей, область, район, город.

The diseases of the blood circulation system are considered to be the most problematic issues in the health systems in many countries and one of the leading illnesses is arterial blood pressure (ABP). Its main distinguishing aspect is that it passes with severe symptoms.

According to the statistical data given by the Regional Cardiology Center, the ABP disease has a rising tradition. In fact, in 2005 the percentage of ABP in total number of blood circulation diseases comprised 28,8 %, and 41,9 % in 2006. Obviously, the number of complaints to the cardiologist rose to 45,5 % in a year. According to U.K.Akhmadalieva and others` scientific research (2006) among the males aged 15-70 in Andijan city, the light form of ABP is endemic (72, 6 %), the more serious ABP forms is 2,6 times less than that (27,9 %) and the most critical forms make up 24,5 %. Most importantly, it has been found that 1 of every 3 male has had the prescription to implement the first, second and the third preventive measures of ABP. Among male and female population, relatively to their age, the ABP can increase to 7,5 times. Moreover, it was noted that there were 11 main severe factors among men, and 9 among women that are life-threatening. According to scientific findings of Fayzullaev.B.R. (2005), when analyzing the expansion of blood pressure diseases among rural population, it was divided into 2 groups: the first consumed the water that was high in minerals and the latter group consumed the water that was low in minerals. The results showed that, in first group, the percentage of ABP was 71,2% among people aged 61-74, 68,4 % among 36-60 year-old people, 26,9 % among people aged 22-35 and 5,3 % among 18-21 year-old ones, and in second group the indicators showed 51,6 %, 42,7 %, 12,8% and 0,5 % respectively. The main purpose of our research has been studying and estimating the characteristics of expansion of disablement caused by ABP diseases in Khorezm region.

To analyse the disablement caused by ABP disease in the region The sociohygienic and sanitary-statistic methods were used in analyzing the collected materials.

Table.1

**The level of spread of primary disablement in the towns and villages of the Khorezm region**

(to every 10 000 people) ( $P \pm m$ )

Region	Total number of disablement	sex		Disablement group			total
		male	female	I-group	II-group	III-group	
Urgench city	248	22,1±1,80	14,1±1,42	0,5±0,60	16,8±1,10	8,0±0,76	18,1±0,44
Yangibozor region	98	13,5±	16,4±	-	13,1±1,41	1,8±0,27	15,0±0,13
Hazarasp region	155	15,9±1,46	4,4±0,58	0,3±0,14	9,4±0,79	0,3±0,14	10,1±0,07

Simultaneously, the levels of primary, repeated and general disablement and their components has been analyzed. Primary disablement comprises 30,3 % of general disablement in Urgench city and the number of disablement was 18,1±0,44 to every 10 000 people. This indicator was, among rural population, 14,5%

(15,0±0,14) in Yangibozor and 20,1 %(10,1±0,07) in Hazarasp.

Apparently, the disablement caused by ABP in city was 1,4 times greater than that of in village. In Urgench city, the percentage of males was 1,6 times greater than woman's. In villages, especially in Hazarasp district, the percentage of male's disablement was 3,6 times greater than women's. we can see the opposite condition in Yangibozor, that is the woman disablement is higher. I group invalids constitutes 5,5 % of total disablement, and the III group-44,2 % and 50,3 % is made up by II group.

If we analyze this condition in rural population, there was not any I group invalids registered during 5 year in Yangibozor. II group invalids comprise 87,3 % and III group invalids- 12 %. In Hazarasp district II group invalids constitutes 93,0 % of total disablement.

The short summery is that, patients of ABP mainly becomes II group invalids, which means, they will not lose their working abilities totally and permanently, furthermore, they will not need other people's help. The important aspect is that, primary disablement in Urgench was 1,8 times greater than Hazarasp, and 1,2 times than Yangibozor (Table.1).

All study areas of primary disablement caused by ABP had the feature of increasing among people aged less than 60.

Table.2

**The spread of primary disablement according to the age of the patients**

(to every 10 000 people) (P±m)

Region	sex	Age					
		Up to 20	21-30	31-40	41-50	51-60	60
Urgench city	male	-	-	0,3±0,02	37,1±1,3	181,8±3,42	85,6±1,84
	female	-	-	2,7±0,32	59,5±2,0	106,1±2,42	11,6±0,94
Yangibozor region	male	-	-	6,7±0,64	81,6±2,41	63,6±1,84	11,9±0,76
	female	-	-	22,5±1,44	92,8±2,57	67,6±1,96	-
Hazarasp regioin	male	-	0,84±0,02	1,2±0,06	42,3±1,75	137,9±3,76	26,2±1,70
	female	-	0,8±0,02	0,8±0,02	20,2±0,75	26,0±1,65	8,5±0,76
Total	male	-	0,28±0,03	2,73±0,35	53,7±2,41	127,7±3,56	41,2±1,75
	female	-	0,28±0,03	8,66±1,2	57,5±2,34	66,5±1,99	6,7±0,51

The primary disablement was not registered until the age of 30, except Hazarasp. It comprises 5,3 % of total disablement there. Some unique characteristics of the expansion of primary disablement due to the ages were defined. Primary disablement is generally higher among males, but at the age of 31-40 and 41-50, mostly women have the primary disablement. However, since the primary disablement had increased sharply among males at the age of 51-60, therefore, the indicators increased among males.

Considerably, among women, especially at the age of 31-40, the disablement caused by ABP is 3,2 times higher than men.

In both conditions, we can see that the highest point of primary disablement was at the age of 51-60. (Table.2)

The repeated disablement comprises 78,3 % of total disablement, and it is equal to  $56,7 \pm 2,19$  in every 10 000 people in the Yangibozor in studied areas. This indicator is as twice greater as in Urgench city and Hazarasp district and equals to  $88,6 \pm 3,66$  to every 10 000 people.

The analysis shows that the repeated disablement among males is 1,9 times higher on average than that among females. This condition in Urgench equals to 1,2, in Yangibozor-2,6 and in Hazarasp-1,9. This means that the ABP disease is spread twice more than in females. Traditionally, the major disabled people were registered as II group invalids, and they comprise 79,2 % in Urgench, 90,97 % in Yangibozor and 95,0 % in Hazarasp. So, most patients are considered to have lost their working ability totally and permanently (Table.3). As patients age, the repeated disablement also increases at the age of 60, and reaches its peak at the age of 51-60.

The main features of ABP illnesses is that, invalids registered in the studied areas do not work anywhere, though it's known, in some foreign countries the patients who are ill with ABP are employed according to their some abilities.

Table.3

### The spread of repeated disablement caused by ABP in the region of Khorezm

(to every 10 000 people) ( $P \pm m$ )

Region	Disabled people(number)	sex		Disablement group			total
		male	female	I-group	II-group	III-group	
Urgench city	569	$45,1 \pm 2,57$	$38,0 \pm 2,34$	$1,0 \pm 0,02$	$32,9 \pm 1,54$	$7,3 \pm 0,72$	$41,5 \pm 1,73$
Yangibozor region	578	$128,5 \pm 3,76$	$49,5 \pm 2,78$	$0,6 \pm 0,30$	$80,6 \pm 3,50$	$7,3 \pm 1,05$	$88,6 \pm 3,66$
Hazarasp region	599	$52,4 \pm 2,65$	$28,1 \pm 1,37$	$0,9 \pm 0,24$	$38,1 \pm 1,59$	$1,0 \pm 0,25$	$40,1 \pm 1,63$

The general disablement caused by ABP diseases in selected and studied areas in region equals to  $71,1 \pm 2,45$  per 10 000. This indicator's highest level was in Yangibozor district and is  $103,6 \pm 3,96$  and it is as twice as Hazarasp ( $50,2 \pm 1,85$ ) and 1,7 times higher than Urgench ( $59,6 \pm 2,08$ ). General average disablement in district is 29,0% higher than in city ( $76,9 \pm 2,66$ ).

It's shown in the table that general disablement caused by ABP diseases among males ( $92,46 \pm 3,66$ ) is 1,8 times higher than that among females, in Yangibozor this was noted that the percentage is 2,1 times greater than females. Of

the total disablement registered-89,4 % was registered for II group invalids, which means, the people who lost their ability to work totally and permanently. This indicator 98,5 % in Yangibozor, 94,6 % in Hazarasp. It's obvious from the data given that the general disablement either in males and females caused by ABP has the characteristic of increasing as patients get older and its peak appears to be in all social groups at the age of 51,60 and its average level equals to 440,7±3,24 per 10 000 people.

Table 4

**The spread of general disablement caused by ABP in the region of Khorezm**

(to every 10 000 people) (P±m)

Region	Disabled people(number)	sex		Disablement group			total
		male	female	I-group	II-group	III-group	
Urgench city	817	67,2±3,13	52,1±2,73	1,6±0,34	49,7±1,90	8,1±0,76	59,6±2,08
Yangibozor region	676	141,0±4,82	66,2±3,40	0,6±0,04	93,8±2,44	9,2±1,50	103,6±3,96
Hazarasp region	750	68,3±3,03	32,5±2,07	1,2±0,28	47,5±1,78	1,4±0,30	50,2±1,82
On average	748	92,46±3,66	50,26±2,73	1,13±0,22	63,6±2,04	6,23±0,72	71,1±2,62

This indicator equals to 461,8±3,35 in Urgench, 483,7±3,15 in Yangibozor and 376,7±3,3 in Hazarasp. In all areas and social groups the general disablement has a sharp decrease after the age of 60 due to people's life quality. According to the analytical results above the following summaries can be concluded.

Table.5

**The spread of general disablement caused by ABP according to the age of the patients in the region of Khorezm**

(to every 10 000 people) (P±m)

Region	sex	Age					
		Up to 20	21-30	31-40	41-50	51-60	60<
Urgench city	male	-	2,7-	6,0±	107,8±	519,0±	289,6±
	female	-	1,8-	15,7±	194,0±	404,6±	41,9±
Yangibozor region	male	-	-	8,7±	904,1±	590,9±	319,8±
	female	-	-	36,9±	367,9±	376,5±	14,6±
Hazarasp region	male	-	5,9±	8,1±	155,0±	481,6±	279,2±
	female	-	4,9±	8,5±	207,6±	271,9±	27,8±
On average	male	-	4,3±	7,6±	388,9±	530,5±	296,2±
	female	-	3,35±	9,36±	196,5±	351,0±	28,1±

## Summaries:

1. Relying on the statistical data and scientific research analysis in Khorezm region, we can say that, blood circulation system diseases such as the expansion of arterial blood pressure diseases among others is relatively high;
2. The expansion of primary disablement caused by blood pressure illnesses in region equals to  $18,1 \pm 0,44$ , repeated disablement- $56,7 \pm 2,19$ , and general disablement- $71,1 \pm 2,45$  per 10 000 people;
3. The highest level of general disablement was in Yangibozor district and equals to  $103,6 \pm 3,96$  per 10 000 people, it's twice greater than Hazarasp district and 1,7 times higher than Urganch city. General average disablement in rural areas ( $76,9 \pm 2,66$ ) is 29,0 higher than in city;
4. The general disablement among men ( $92,46 \pm 3,66$ ) is 1,8 times higher than that of women ( $50,26 \pm 2,73$ ). 89,4 % of total disablement registered was estimated as II group invalids. This condition is 98,5 % in Yangibozor and 94,6 % -Hazarasp.
5. It was founded that the general disablement increases either genders as they age and the peak point is 51-60, and it equals to  $440,7 \pm 3,24$  per 10 000 people. This indicator was  $461,8 \pm 3,35$  in Urgench,  $483,7 \pm 3,5$  in Yangibozor and  $376,7 \pm 3,3$  in Hazarasp.

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## **SURGICAL TREATMENT OF DIFFERENT FORMS OF GOITER**

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**Annotation.** The results of operative treatment of 245 patients aged from 17 to 72 years with various forms of goiter are analyzed. Of these, 90 patients were operated under local anesthesia, 114 under endotracheal anesthesia. 41 patients

were operated under endotracheal anesthesia using a contact AIG laser. The analysis of the results shows the use of a contact AIG laser in surgical interventions on the thyroid gland that allowed to significantly reduce postoperative complications. In practice, the opinion circulated among surgeons was not confirmed, that during surgery under anesthesia, the risk of damage to the laryngeal nerves increases.

**Аннотация.** Буқокнинг ҳар хил турлари билан оғриган 17-72 ёшдаги 245 беморда хирургик даволашнинг натижалари таҳлил қилинган. 90 та бемор маҳаллий анестезия остида, 114 таси эндотрахеал наркоз остида операция қилинган. 41 бемор эндотрахеал наркоз остида АИГ контактли лазер билан операция қилинган. Натижалар таҳлили шуни кўрсатадики қалқонсимон безда операцияни эндотрахеал наркоз остида АИГ лазер билан бажарилиши операциядан кейинги асоратларни анча камайишига олиб келди. Эндотрахеал наркоз остида операция қилинганда халқум нерви кўп шикастланади деган фикр амалиётда тасдиқланмади.

**Аннотация.** Анализированы результаты оперативного лечения 245 больных в возрасте от 17 до 72 лет с различными формами зоба. Из них 90 были оперированы под местной анестезией, 114 под эндотрахеальным наркозом. 41 больной был оперирован под эндотрахеальным наркозом с применением контактного АИГ-лазера. Анализ результатов показывает применение контактного АИГ лазера при оперативных вмешательствах на щитовидной железе, это позволило значительно сократить послеоперационные осложнения. На практике не подтвердилось мнение, распространенное среди хирургов, что при операциях под наркозом увеличивается опасность повреждения гортанных нервов.

**Key words:** thyroid gland, nodal goiter, diffusion toxic goiter, haemothyroidectomy.

**Калит сўзлар:** қалқонсимон без, тугунли буқок, диффуз токсик буқок, гемитиреоидэктомия.

**Ключевые слова:** щитовидная железа, узловой зоб, диффузно токсический зоб, гемитиреоидэктомия.

**Introduction.** Modern surgery proved the advantage of general anesthesia in operations with goiter, which makes it much easier to conduct operations, simplify its technique and shorten the time of intervention at any degree of gland enlargement and location options. However, there remains an unresolved dispute between supporters [4,5,6] and opponents of general anesthesia [1,7].

The fear of damaging the laryngeal nerve for most surgeons is the reason for refusing general anesthesia. At the same time, the effectiveness of using a laser with this disease is poorly covered in the literature. Our own experience of treating such patients allowed us to express our views on these issues

**The aim** of our work was to improve the results of surgical treatment of various forms of goiter.

**Materials and methods:** In our clinic for the period from 1999 to 2011. 245

patients with various forms of goiter were operatively treated: 219 women, 26 men, 26. nodular goiter was noted in 155 patients, mixed in 62, diffuse in 23, and recurrent in 5 patients. The mild degree of thyrotoxicosis was in 36 patients, the average in 104, severe in 48 patients, euthyroid goiter was detected in 57 patients. Goiter III degree was detected in 50, IV-152, and V-degree in 43 patients. At the age of 20, there were 38 (15.5%) patients, 21-30 years old - 66 (26.9%), 31-40 years old - 69 (28.2%), 41-50 years - 41 (16.7%), 51-60 years - 17 (6.9%), over 61 years - 14 (5.7%).

All patients underwent a comprehensive examination, including, anamnestic data, examination and palpation, laryngoscopy, chest x-ray, determined the basal metabolic rate. Laryngoscopy was eaten by every patient with goiter, even in the absence of voice changes, since latent paralysis of the vocal cords may be detected due to the involvement of recurrent nerves in the pathological process [3].Surgical treatment was considered to be shown in all types of nodular or mixed goiter, diffuse toxic goiter of medium and severe forms - in the neurohumoral stage of the disease, in the absence of a clinical effect from conservative therapy conducted for 2-3 months, and also for large groups, the compressive organs of the neck. Indications for surgery were considered absolute in the presence of visceropathic changes (atrial fibrillation, cardiovascular decompensation, thyrotoxic hepatitis, cirrhosis, etc.). When identifying co-morbidities for their treatment, a delay or even a cancellation of the operation was required.

Our experience proves the great importance of conducting correct preoperative preparation of patients, which allows to prevent the development of thyrotoxic crises and severe thyrotoxic reactions.

The operation was performed in compliance with the basic principles of subtotal subfascial resection of the thyroid gland according to O.V. Nikolaev with the leaving of healthy tissue in the posterolateral region of the trachea 4-8 g on each side, which corresponds to a culture 3-4x2x1.5-2.0 cm in size [2]. In all cases of suspicious node malignization, we resort to urgent histological examination during the operation. When malignization of the node was detected, extrafascial subtotal or total thyroidectomy was performed with a thorough revision of the entire thyroid gland and regions of regional metastasis. The degree of radical resection was consistent with the severity of thyrotoxicosis. In the most severe patients with the presence of visceropathic changes, they performed an extremely radical operation. Particular attention was paid to the radical removal of the upper parts of both lobes of the gland, the leaving of which is often the cause of recurrence of goiter. For a more complete exsanguination of the operating field and the convenience of removing the lobes between the two ligatures, the isthmus of the gland was crossed. When the lower thyroid artery was tied up, the proximity of the right recurrent nerve was taken into account and tried to trace its location visually.

Hemi thyroidectomy was performed when there were several nodes in the gland lobe. Indication for hemi thyroidectomy was the presence of nodes in the lobe and isthmus, regardless of their size (5 patients). When performing the

operation for recurrent goiter, all the principles of O.Nikolaev's method were observed, i.e. Operated subfascially, treating the scars as a thickened fascia of the thyroid gland. Mobilization of the gland began with the most accessible sites, where there is less scar tissue, that is, from its lateral surface. The clamps were applied subfascially, releasing the lower pole, which is the zone most dangerous with regard to damage to the recurrent nerve and the parathyroid glands.

**Discussion:** The 1-group included 90 patients aged 17 to 68 years who were operated under local anesthesia. There were 85 women, 5 men. Nodular goiter was detected in 60 patients, diffuse - in 7, mixed - in 22. Goiter of third degree - in 16, IV - in 60, V degree - in 14 patients. Concerning a recurrent goiter, 1 patient was operated. An easy degree of thyrotoxicosis was established in 15 patients, average - in 38, severe - in 16 patients. Euthyroid goiter was noted in 21 patients.

The second group included 114 patients aged 16 to 72 years who were operated under endotracheal anesthesia. There were 104 women, 10 men. The duration of the disease is from 2 to 15 years. Nodular goiter was diagnosed in 75 patients, diffuse - in 9, mixed - in 28 patients; Goiter III degree - in 24, IV - in 69, V degree - in 21 patients. Recurrent goiter was detected in 2 patients. Thyrotoxicosis of mild degree was in 13, medium severity - in 50, severe - in 21 patients. Euthyroid goiter was detected in 30 patients.

Group 3 consisted of 41 patients aged 17 to 70 years who were operated under endotracheal anesthesia using a contact AIG laser. Nodular goiter was detected in 20 patients, diffuse - in 7, mixed - in 12, recurrent - in 2 patients. Goiter of the third degree - in 10, IV degree - in 23, and - degree - in 8 patients. There were 30 women, 11 men with surgery. Three patients were operated with a goitered arrangement of goiter, with an easy degree of hyperthyroidism - 8, moderate severity - 16, severe - 11 patients. Euthyroid goiter was in 6 patients.

The operation was performed using special laser compression clamps, which allowed to obtain a dosed compression with decreasing thickness of the crossed part of the gland due to the displacement of the liquid component from the zone of the incision. Using special tools results in minimal damage to the tissue in the cut zone. The formation of laser blood clots in the crossed blood and lymphatic vessels and the formation of a coagulation film on the surface of the incision, resulting in no parenchymal hemorrhage and lymphorrhoea from the intersected parenchyma. The technique allows reducing the operation time and reducing the number of hemostatic clamps and the amount of blood loss. The frequency of early postoperative complications, depending on the method of anesthesia and treatment, is presented in Table 1.

Table 1.

**Postoperative complications on patients with different forms of goiter (%)**

Complications	1 - group	2 – group	3 – group
Bleeding	3 (3,3%)	-	-

Seroma	5 (5,6%)	3 (2,6%)	-
Suppuration	4 (4,4 %)	1 (0,9%)	-
Paresis of the recurrent nerve	2 (2,2%)	2 (1,7%)	1 (2,4%)
Thyrotoxic crisis	4 (4,4 %)	2 (1,7%)	-
Hypoparathyroidism	3 (3,3%)	1 (0,9%)	-
Hypothyroidism	3 (3,3%)	1 (0,9%)	-
<b>Total:</b>	<b>24 (26,7%)</b>	<b>10 (8,8%)</b>	<b>1 (2,4%)</b>

Postoperative complications were observed in 35 (13.3%) patients, including 24 (26.7%) patients operated under local anesthesia and 10 (8.8%) operated under endotracheal anesthesia. Among patients operated under endotracheal anesthesia with the use of an AIG laser, postoperative complication occurred only in 1 (2.4%). There were no lethal outcomes. Analysis of complications shows that there is no significant difference in the number of cases of damage to recurrent laryngeal nerves with local anesthesia and endotracheal anesthesia. Taking into account the peculiarities of our contingent of patients, this percentage of complications can be considered low. This does not exceed the data of surgeons operating only under local anesthesia.

Since 2000, we have completely abandoned local anesthesia, which does not meet modern requirements in goiter operations and we operate all patients only under anesthesia. Here is a brief extract from the medical history.

**Patient S.** (clinical illness No. 15233), 18 years old, entered the clinic on 20.12.2007 with complaints about the presence of a tumor-like formation on the front surface of the neck, palpitations, dyspnea, irritability, shortness of breath, tearfulness, poor sleep. She considers herself to be sick for 5 years. During the last three years I was regularly treated at the regional endocrinology dispensary. Because of the lack of effect, it is directed for surgical treatment. The patient has the right constitution, low nutrition. There are tremors of the hands, exophthalmos. Symptoms of Moebius, Stelwag, Grefe are positive. The anterior and lateral surfaces of the neck are occupied by a tumor-like formation, extending from the lower jaw to the clavicle, dramatically changing the configuration of the neck, the dense elastic consistency. With palpation, the formation consists of separate nodes of different sizes, not connected with each other. With auscultation along the carotid artery, systolic murmurs are heard. Pulse 106 per minute, arrhythmic, arterial pressure - 120/70 mm Hg. Art. On the ECG - pronounced sinus tachycardia. The main exchange + 45. The analysis of a blood: Hb.- 60 g / l, l.- 5800, ESR - 13 mm / h. Blood sugar - 4.07 mmol / l, the total protein of blood - 65.0 g / l, total. Bilirubin - 12,9 micromol / l, bound-no, prothrombin index - 86%.

**Diagnosis:** mixed goiter V degree, thyrotoxicosis of medium severity. In the preoperative period the patient received anaprilin, panangin, potassium-magnesium asparaginate, detoxification agents.

On December 25, 2007, subfascial, subtotal resection of both parts of the thyroid gland by O.V. Nikolaev (B.N. Kuryazov) was performed under endotracheal anesthesia. In the postoperative period, the patient received cefazolin, erythrocyte mass, fresh frozen plasma, asparks, cocarboxylase, stabilazole, vitamin C. The postoperative period proceeded without complications, the seams were removed on the 5th day, the wound healing by primary tension. At discharge, the pulse is 80 min. Blood pressure - 110/70 mm. Gt; St, basal metabolism + 9. Histologically: mid-follicular colloid goiter. On 30.12.2007, in good condition, I was discharged home. Examined after three months. Practically healthy, no complaints.

**Conclusion:** our data do not support the widespread opinion among surgeons that surgery under anesthesia increases the risk of damage to the laryngeal nerves. Our experience convinces us of the great expediency of using endotracheal anesthesia, which creates optimal conditions for conducting operations. The use of a contact AIG laser with a set of compression instruments for surgical interventions on the thyroid gland reduced the operation time and significantly reduced the number of postoperative complications.

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### TREATMENT OF POSTOPERATIVE VENTRAL HERNIES WITH THE USE OF POLYPROPYLENE ENDOPROSTHESIS

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(Urganch branch of TMA)**

**Abstract.** The authors performed alloplasty of postoperative ventral hernias in 180 patients. To characterize hernias, they were used by the classification of K.D. Toskin and Rath A. Two types of operations were performed: Reconstruction

of the anterior abdominal wall (170) and correction of the anterior abdominal wall (10). A polypropylene mesh was used as an alloplastic implant. All patients underwent all necessary studies, including measurement of intra-abdominal pressure, determination of body mass index (BMI). Local complications were observed in 13 (7.2%) and in 5 (2.8%) general complications were observed. In the study of long-term results for a period (7 years), a recurrent hernia was not detected. Alloplasty of postoperative ventral hernias using polypropylene mesh is the method of choice among the existing methods of hernioplasty.

**Аннотация.** Авторлар томонидан операциядан кейинги вентрал чурра ташхиси билан 180 беморда аллопластика операцияси бажарилган. Чуррани характерини аниқлашда К.Д. Тоскин ва А.Ратх классификациясидан фойдаланишган. Аллопластика операцияси икки типда бажарилган яъни қорин олд девори реконструкцияси (170) ва коррекцияси (10). Аллопластик имплантант материали сифатида полипропилен сеткалар ишлатилган. Барча беморлар комплекс текширишдан ўтказилган шунингдек, қорин ичи босимини ўлчаш ва тана оғирлик индексини аниқлаш усуллари ҳам қўлланилган. Маҳаллий асоратлар 13 (7,2%) та беморда ва умумий асоратлар 5(2,8%) та беморларда кузатилган. Операциядан кейинги даврдаги узок натижалар (7 йил) кузатилганда чурра рецидиви кузатилмаган. Операциядан кейинги вентрал чурраларда полипропилен сеткаларни ишлатиш замонавий герниопластиканинг асосий методи ҳисобланади.

**Аннотация.** Авторами выполнена аллопластика после операционных вентральных грыж у 180 больных. Для характеристики грыж использовали классификатор К.Д.Тоскина и Rath А. Провели два типа операций: реконструкция передней брюшной стенки (170) и коррекция передней брюшной стенки (10). В качестве аллопластического имплантата использовали полипропиленовую сетку. Всем больным проводились все необходимые исследования, в том числе, измерение внутрибрюшного давления, определение индекса массы тела (ИМТ). Местные осложнения наблюдались у 13 (7,2%), а у 5 (2,8%) наблюдались общие осложнения. При изучении отдаленных результатов за период (7 лет) рецидива грыжи не обнаружено. Аллопластика послеоперационных вентральных грыж с использованием полипропиленовой сетки является методом выбора среди существующих методов герниопластики.

**Key words:** hernia, hernia repair, polypropylene endoprosthesis

**Калит сўзлар:** чурра, чуррани кесиш, полипропилен эндопротез

**Ключевые слова:** грыжа, грыжесечение, полипропиленовый эндопротез

**Introduction.** Surgical treatment of postoperative ventral hernias (PVH) remains one of the urgent problems of modern herniology. Postoperative ventral hernias are called hernias, which appeared after laparotomy for any surgical

disease, except hernia of the abdominal wall. Hernias that emerged after the previously produced plastic, called recurrent ventral hernias [19].

The use of synthetic materials has become the "gold standard" in the treatment of patients with postoperative ventral hernias [28].

Frequency ventral hernias after laparotomy varies from 2 to 20% [18, 31, 32, 33, 38, 41].

Relapses ventral hernias with plastics using local fabrics is 30-60% [14, 17, 23, 24], and with prosthetic mesh endoprotheses 3-6% [3,14,15,21,22]. Mortality after elective surgery for postoperative ventral hernias is 3-7% [23,29,36]. The main reasons for relapse after allogernioplasty are technical and tactical errors in fixing the implant, the development of purulent wound complications, the presence of concomitant diseases that adversely affect postoperative period [7,20]. Most hernias occur frequently in the elderly with weak abdominal wall, reduced regenerative capacity, obesity, presence of concomitant diseases, in particular related to the increase in intra-abdominal pressure [5,10]. Plastic large diameter defects local tissues leads to a sharp reduction in the volume of the abdomen, increased intra-abdominal pressure (IAP), and as a consequence of the development of abdominal compartment- syndrome [7,16].

Currently, the alloplasty method with polypropylene mesh is widely used in the treatment of ventral hernias. Polypropylene is a monofilament inert material. A distinctive feature of this net is non-absorbability, high strength, biological inertness, a good structure, which are not lost under the influence of tissue enzymes. Fabric fibers spread along the surface of the mesh and germinate through it, further increasing the strength of the latter. The mesh well resists infection and is easy to handle [14].

In the literature, among practical surgeons there is no consensus on surgical tactics: what are the layers of the abdominal wall and how should they be strengthened by the mesh implant, in which spaces of the abdominal wall it should be placed? [8,44]. From the correct choice of plastic in a particular situation, the immediate outcome of the operation and the long-term result largely depend [1].

The purpose of this study was to evaluate the clinical use of the polypropylene mesh "Esfil" manufactured by LLC "Linteks" (St. Petersburg). In all cases, polypropylene "Monophil" was used as a suture.

**Material and methods:** In the department of abdominal surgery of the Khorezm regional multiprofile medical center being the base of the department of general surgery of the Urgench branch of the Tashkent Medical Academy, alloplasty of postoperative ventral hernias was performed in 180 patients from 2009 to 2013. There were 54 men (30%), women - 126 (70%). The age of patients ranged from 24 to 79 years. In accordance with the classification of WHO under the age of 29 years, there were 9 patients, from 30 to 44 years - 44, from 45 to 59

years-96, from 60 to 74 years-27, from 75 to 89 years - 4. The majority of patients - 96 (53.3%) were aged 45 to 59 years (mean age), somewhat smaller - 44 (24.4%) - were people 30-44 years old (mature age). The diameter of the abdominal wall defect did not always correspond to the size of the hernia.

To characterize hernias, we use the classification of K.D. Toskin et al [25]. Recently, the classification developed by Rath A. et Chevrel S. [40], which was adopted at the 21st International Congress of Gerniologists in Madrid (1999), has started to be used. This classification includes three positions - S, W, R. S - localization: median (M), lateral (L), combined (ML); On the width of the hernia gates: W1- up to 5 cm, W2- from 5 to 10 cm, W3 - from 10 to 15 cm, W4 - over 15 cm; By frequent relapses: R1, R2, R3, etc. These parameters are considered the main ones in determining the indications for choosing one and the other type of abdominal wall plastic. There were two types of operations. Reconstruction of the anterior abdominal wall with suturing of the aponeurosis defect "edge to edge", providing restoration of its physiological function was performed in 170 (94.5%) patients in the "Onlay" position. Correction of the abdominal wall - closure of the aponeurosis defect without suturing and without restoration of the physiological function in the "Inlay" position - in 10 (5.5%) patients. Among our patients, W3, W4 were detected in 98 (54.4%) patients. Giant hernias were present in 12 (6.7%), extensive - in 52 (28.9%), medium - in 13 (7.2%), small - in 15 (8.3%). In 32 (17.8%) patients, hernias were recurrent. In four patients, several hernias of different localization were simultaneously detected. Hernias occurred after the following operations: on the liver and biliary zoo (26), gynecological operations (53), peritonitis of various etiology (35), operations on the stomach and pancreas (16), appendectomy (10), surgery for ventral hernias (32), operations on the kidney and ureter (4), adenomectomy (4). In 35 (19.4%) patients, simultaneous operations were performed. The most frequently performed simultaneous operations were: excision of skin-fat apron (in 14), ovarian cystectomy (in 11), cholecystectomy (in 6), liver echinococemia (in 4). 152 (84.4%) patients had concomitant diseases. The most frequent cases were coronary heart disease in combination with hypertension (40), obesity II-III degree (53), and diabetes mellitus (18). All the patients underwent the necessary laboratory and instrumental examinations including clinical and biochemical blood and urine tests, ECG, body mass index (BMI), ultrasound of the hernia protrusion and abdominal wall defects to determine its structural characteristics, fistulography in the presence of fistulas with bacteriological examination of the fistula, CT scan if necessary.

The body mass index was determined by the following formula:  $BMI = \text{weight in kg} / \text{height in m}^2$ . According to which the degree of obesity, often influencing the choice of the method of operations, was determined. The degree of obesity by BMI: the norm is 18.5-25 kg / m<sup>2</sup>; Pre-fattening - 25-29,9 kg / m<sup>2</sup>; I - degree-30-34.9 kg/m<sup>2</sup>. II-degree - 35-39.9 kg m<sup>2</sup>; III degree - more than 40 kg/m<sup>2</sup>.

In the preoperative period used banding of the abdominal wall, breathing exercises, slag-free diet, duphalac 20 ml in the morning on an empty stomach for

2-3 days, elastic bandaging of the lower extremities. With excision of the old scar of postoperative hernial sac separated from changed tissue and excised. Subcutaneous fat mobilized from the fascia at a distance of 5 cm from the edges of the hernia ring with extraaponeurotic fixation implant. When excision of excess skin-fat flap over herniation consider the possibility of comparing tension-free edges of the skin wound. When choosing the method of allogenioplasty, the size of the hernial protrusion, the size of the hernial defect, BMI, intra-abdominal pressure, and the presence of concomitant diseases were taken into account. To determine the level of intra-abdominal pressure, the technique proposed by Kron.I. L was used 1984g. [34]. The patient on the supine position on the back of the urethra were injected with a Foley catheter, a tube was connected to the tube from the system for infusion therapy. After urinary evacuation, 100.0 ml of sterile 0.9% sodium chloride solution was injected into the bladder. The transparent tube attached to the urinary catheter was lifted and held perpendicular to the horizontal plane in such a way that the lower end was at the level of the pubic articulation, which was taken as the zero mark. After the preventive licking of the margins of the hernia defect, the level of the water column was measured with a centimeter ruler (Fig. 1).

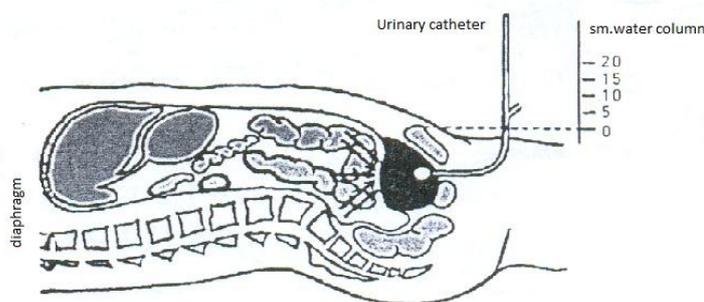


Fig. 1. Measurement procedure IAP

Distinguish the following degrees of intra-abdominal hypertension [43]: I- 10-15 mm Hg. St (13.6-20 cm of water); II-15-25 mm Hg. (20-34 cm of water); III- 25-35 cm. Hg. (34-47 cm of water column); IV-more than 35 mm Hg (more than 47 cm H<sub>2</sub>O). Note: 1 mmHg. = 1.36 cm of water. [12].

Our experience shows that in the presence of hernia gates with a diameter of more than 15 cm, close it with local tissues, without causing a significant increase in intra-abdominal pressure and disruption of the function of the cardiovascular and respiratory systems is not possible. Therefore, with intra-abdominal pressure not more than 15 cm of water. st, and at a size of W3 we perform reconstructive plastic ("Onlay"). If the intra-abdominal pressure is above 15 cm of water. At sizes W4 we carry out corrective operations ("inlay")

**Results.** In the postoperative period, all patients received antibiotics from the group of cephalosporin's (cefazolin, cefotaxime) 1.0 g. 2-3 times a day for 3-5 days. In order to prevent thromboembolic complications and to control intestinal paresis in patients with large and giant ventral hernias, and grade II-III obesity,

thrombopol, clexane, sorbilact, rheosorbilact, bandaging of the lower limbs with elastic bandage was prescribed. It was recommended wearing a bandage to reduce the "dead space" between the subcutaneous tissue and the prosthesis. Patients were allowed to get up on the next day of surgery.

In all patients with the goal of preventing the development of postoperative wound complications, the wound was drained with two polyvinylchloride tubes from the system for infusion therapy through a separate puncture of the skin. Drainages were usually removed 2-5 days after the operation. In 85 patients, drains were removed for 2-3 days, in 89 patients for 5 days before discharge after ceasing the flow of sulfuric fluid. 6 patients with excision of skin-fat apron and prolonged exudation from the wound were discharged home with drains. Drainages in these patients were removed on the 14-17th day after the termination of the discharge of serous fluid. After removing the drainage, we perform ultrasound of the abdominal wall to avoid accumulation of fluid. In 3 patients, seromas were stopped by puncture and in 1-by drainage.

Plastic surgery of the abdominal wall with the use of various plastic endoprotheses can lead to the development of general and local complications. According to the literature, common complications occur in 3-19.5% of cases, and are most often observed on the part of the respiratory (bronchitis, pneumonia, respiratory failure, pleurisy), cardiovascular system (heart failure, myocardial infarction), and abdominal cavity organs (Paresis of the intestine, acute intestinal obstruction) [6,11,13,27,28,26, 35]

Local complications are the most common cause of the complicated course of the early postoperative period, which occur in 10.5-49% of cases [1,9,39,42]. Local complications include prolonged exudation from a wound, seroma, wound infiltration, suppuration, marginal skin necrosis, subcutaneous tissue infarction, a skin between the skin and a graft, a transplant cyst, granulomas [2,25]. In extraaponeurotic fixation of the prosthesis, prolonged exudation was observed in 16.7% of cases, seroma 6.7%, suppuration of the wound 6.7%, hematoma in the wound in 3.3% of cases [26].

In the early postoperative period, out of 180 patients, 5 (2.8%) experienced general complications. Among them intestinal paresis in 3 (1.7%) patients, SIAG - in 2 (1.1%). The low frequency of development of common complications in our patients is apparently associated with the features of allogernioplasty, since the plastic of the aponeurosis was performed without tension "edge to edge", without duplication. This reduces the risk of increasing intra-abdominal pressure with an increase in the height of the diaphragm dome and the occurrence of abnormalities from the respiratory and cardiovascular system.

Local wound complications developed in 13 (7.2%) patients: prolonged exudation from the wound in 7 (3.9%), seroma - in 4 (2.2%), hematoma of the postoperative wound in 1 (0.6%), Partial necrosis of the edges of the wound in the region of closure of the incisions after dermo lipectomy in 1 (0.6%). The analysis of complications shows that, the most frequent of them is prolonged exudation from a wound and seroma. In our opinion, more frequent development of gray is

associated with the response of the body to foreign material and surgical trauma, as well as background diseases (edema of the dermal-subcutaneous layer of the lower abdomen in patients with obesity, diabetes, chronic cardiac and respiratory insufficiency) and with the correct The management of the postoperative period does not present a serious problem for the surgeon and can be considered as a feature of the course of the postoperative period with this kind of plastic surgery. There were no fatalities.

In the study of long-term results for the period from 6 months to 7 years of recurrence of hernia was not found. Discomfort, pain, sensation of a foreign body in the area of operations was not noted. All patients returned to a full life, do not limit physical activity. There were no cases of rejection of the prosthesis. We give one of the observations.

**Patient R.** 47 years old entered the department of abdominal surgery of the Khorezm regional multiprofile medical center on October 26, 2009 with the diagnosis "Giant rotational postoperative ventral multi-chamber hernia in the right upper quadrant". Complaints on admission for the presence of a herniated protrusion and pain in the right upper quadrant intensifying with physical exertion. 7 years ago, he suffered a cholecystectomy in occasion of chronic calculous cholecystitis. At admission the condition is satisfactory, nutrition, increased. The abdomen is sharply asymmetric due to the tremendous hernia protrusion in the right upper side region of 34.0 x 30.0 cm. The contents enter the abdominal cavity. Herniated gates in the size of 24,0x20,0 cm. At the examination, hypertensive illness of II deg., Obesity of II deg. (BMI-38). 22.10.2009. Surgery - hernia repair, resection of the large omentum, correcting hernioplasty of the abdominal wall with the polypropylene mesh "Esfil" in the "Inlay" position, draining the subcutaneous tissue with polyvinylchloride tubes. (As. B.N.Kuryazov)

The postoperative period proceeded without complications. Drainages are removed on the 8th day after the termination of the flow of serous fluid. The wound healed by primary tension. Discharged 06.11.2009. After 7 years, there is no recurrence of hernia. Works as a salesman without wearing a bandage.

**Conclusion:** The main direction of herniology is an individual approach to the choice of the method of operations. The wide introduction of new technologies and synthetic prostheses into practice allowed to dramatically reduce the traumatic nature of surgical interventions, reduce the number of postoperative complications, and improve immediate and long-term results in patients with postoperative hernias. Alloplasty of postoperative ventral hernias using polypropylene mesh is the method of choice among the existing methods of hernioplasty. Extraaponeurotic fixation of the endoprosthesis is characterized by a low traumatization of tissues, a prostate of execution, which makes it possible to recommend it more widely in the treatment of small and medium postoperative ventral hernias.

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**“INFLUENCE OF NON-TRADITIONAL METHODS OF TREATMENT  
ON THE HEALTH OF PATIENTS WITH METABOLIC SYNDROME”**

**Rahmetova M. (Urgench branch of TMA)**

**Annotation.** Проведено исследование пациентов с метаболическим синдромом (ожирением, гипертонией, сахарным диабетом), которые пытались добиться нормализации веса, артериального давления и сахара в крови посредством соблюдения поста «Рамазан». Результаты наблюдения выявили положительный эффект у 54,5% больных и отрицательный - у 45,5%.

**Ключевые слова:** метаболический синдром, ожирение, гипертония, сахарный диабет; нормализации веса, артериального давления и сахара в крови; соблюдение поста «Рамазан».

Ушбу тадқиқотда метаболик синдром (қандли диабет, гипертония, семизлик) билан оғриган беморлар ўрганилди. Улар Рамазон ойида Рўза тутиш йули билан ортиқча вазн, артериал қон босими ва қондаги қанд миқдорини меъёрига келтиришни мақсад қилдилар. Натижалар шуни кўрсатдики, 54,5 % беморларнинг умумий аҳволи яхшилашган бўлса, 45,5 фоизида салбий оқибатларга олиб келди.

**Калит сўзлар:** Метаболик синдром, қандли диабет, семизлик, гипертоник касаллик, ортиқча вазн

The research was conducted with the patients with metabolic syndrome (obesity, hypertension, diabetes mellitus), who had tried to achieve normalization of their weight, blood pressure and sugar level by fasting within month of Ramadan. The results of the observation revealed a positive effect in 54.5% and negative effect in 45.5% of patients.

**Key words:** metabolic syndrome, diabetes mellitus, obesity, hypertension  
Normalization of weight, blood pressure and sugar level in the blood.

Day by day, the prevalence of the metabolic syndrome increases globally, which leads to an increase in associated cardiovascular diseases (CVD), diabetes, hypertension, endometrial cancer and cancers of colon, breast and prostate. In 1997, the World Health Organization (WHO) declared the epidemics of obesity as a problem that affects "the health of the population more than traditional health problems, in particular starvation and infectious diseases" [2]. According to WHO experts, in 2025 all over the world there will be more than 300 million people with obesity problem, more than 300 million patients with diabetes and over 1 billion people with hypertension disease. American researchers have established an increased mortality index in obese people [3], primarily from cardiovascular complications. "The widespread increase in morbidity and mortality from CVD is due to objective reasons: socio-economic factors, increasing psychosocial loads, urbanization, nutrition changes, labor and living conditions, bad habits and unhealthy lifestyle of the majority of the population [5]. Traditionally, obesity has been considered as a disease of elder people, but in recent years, the number of obese children and adolescents is sharply increasing [4].

The metabolic syndrome includes many components. The following ones have been studied more than others: obesity, hypertension, diabetes mellitus and impaired glucose tolerance. If the issues of correction of the violation of carbohydrate metabolism, normalization of blood pressure, dyslipidemia have specific outlines, then the prospects for treatment and prevention of obesity require further development. The worst situation is with the "Compliance" of obese patients. Nowadays, the success of obesity treatment is very modest in comparison with the breakthrough in hypotensive, lipid-lowering treatment. Perhaps, it is because of the fact that obesity is a polyetiological disease and along with drug therapy, other correction methods are very important [6]. Treatment of obesity is very difficult; it includes diet therapy, a complex of physical exercises, medical and surgical treatment. However, the patient with a metabolic syndrome is unable independently and correctly to choose proper dietetic food, to increase the level of physical activity, sharply to change the standard of life, habitual food and to combine the abovementioned with the intake of hypotensive, hypoglycemic and other drugs. Fulfillment of all the above mentioned is possible for a team of specialists: endocrinologists, therapists, psychologists, physiotherapists, nutritionists.

However, obese people usually try to manage their problem independently. As a result, attempts to lose weight will be unsuccessful, which leads to disappointment and psychological discomfort of the patient. It is necessary to have an additional stimulus, which would help people to fight their grave illness. Such an incentive for obese Muslims is doing the fast month of Ramadan. There is a myth that fasting people not only significantly lose weight, but also improve overall health. "A complete change in eating habits is the key to achievement of consistent weight loss" [3]. Is it real?

Long-term monitoring of obese patients with other components of the metabolic syndrome (hypertension and diabetes) suggests that doing Ramadan fast can be dangerous for this category of patients.

**Research objective:** To study the effect of Ramadan fast on the health status of patients with metabolic syndrome.

**Materials and methods of research:**

Preliminary medical examination was conducted among 50 patients with metabolic syndrome, who decided to fast. It included examination of patients, measurement of blood pressure, fast blood glucose, weight and body mass index (BMI), waist circumference (according to ethnicity and gender), drug history, primarily lipid lowering medications. Diagnostic criteria for the metabolic syndrome for adults adopted by IDF has been used [4]. Particular attention was paid to the presence and predisposition of cardiovascular diseases. As a result of the examination, people with severe cardiovascular pathology, type 1 diabetes, decompensated type 2 diabetes and severe degree hypertension were excluded. For both groups: the excluded and involved in the study, were given detailed explanations about the danger of excessive changes in the diet, which accompanies fasting.

Out of 50 people wishing to follow the fast, 28 of them (56%) had contraindications. The remaining 22 were obese people; including 10 (45.5%) women and 12 (54.5%) men at the ages between 19 to 60 years were monitored during the entire period of compliance with the post and were again subjected to medical examination after the end. Out of the 22 patients, 10 (45.4%) have 1st degree obesity, 6 (27.3%) have II degree obesity, 6 (27.3%) have III degree obesity. Patients with IV degree obesity were strongly advised to abandon Ramadan fasting. An increase in blood pressure as 125/86 - 139/90 mm Hg was noted in 13 (59.1%) patients, 9 (40.9%) patients had medical compensation of hypertension (persons with essential hypertension of 2 and 3 degree were also excluded from the survey and they were given detailed recommendations about the dangers of a sudden change in the regime of the day and nutrition).

In 19 (95%) patients, in addition to the abovementioned, gastrointestinal tract diseases were diagnosed: 6 people (31,6%) had indication on the presence of colitis, 7 people (36,8%) had hepatocholecystitis in the anamnesis; 6 people (31,6%) suffered from gastritis. The main motivation for fasting was the desire to improve the digestive activity of the stomach and intestines. Five patients (22.7%): three men and two women suffered varicose veins of the lower extremities. Fasting plasma glucose was measured in all 100% of people. Among the patients suffering from diabetes mellitus, one man and one woman showed a sharp increase in blood sugar, which is an absolute contraindication to fasting. Two people (9,1%) having compensated diabetes, despite explanatory work, insisted on the desire to fasting. Before the fasting, five people (22.7%) of the patients were trying to normalize the weight by running (running, swimming): 4 men and 1 woman, other four people (18.2%) with medication: 1 male and 3 women. Smoking is abused by 3 (15%) men, alcohol consumption is noted by 8 (36.4%) men. Among women, none had the above harmful habits.

### **Results and its discussion:**

Weight loss was noted in 8 (36.4%) people, and in 6 (75%) people—decrease by 3 kg, in two (25%) people - by 5 and 6 kg. Out of the 8 studied people, 7 suffered from obesity of the first degree and only one of them - II degree. No tangible results were achieved by 14 (63.6%) people, including 7 women and 7 men. The waist size was reduced in all patients, without exception, by an average of 1.9 cm in women and 2.1 cm in men. Both patients with diabetes mellitus had repeated mild hypoglycemia, which was stopped by the ingestion of sweet food and sweet drink. All patients with this diagnosis noted subjective and objective betterment signs of hepatocholecystitis, but one patient noted normalization of the stool. At one of the studied people (4,5%) development of acute gastritis, in 2 people (9%) exacerbation of chronic colitis, in 3 (15%) people a decrease in hemoglobin of the blood was recorded. An increase in blood pressure was noted in 6 (27.3%) patients, normalization or a noticeable decrease was noted at 7 (31.8%). Two patients (9.1%) noted sleep disturbance, 4 (18.2%) patients noted increased tiredness and

weakness during the day, 5 (22.7%) patients noted violation of concentration due to sleep disorders.

### **Conclusions:**

1. Only 8 (36.4%) patients achieved a slight decrease in body weight, while 14 (63.6%) of them did not lose weight as a result of Ramadan post. Half of the subjects achieved normalization of blood pressure, while 27.3% of hypertensive patients experienced worsening.

2. Subjective improvement of the general condition was noted by 14 (63.6%) patients, while impairment by 8 (36.4%) of them. As for an objective assessment, a positive effect of fasting was noted in 12 (54.5%) people, negative - in 10 (45.5%). Both subjective and objective dynamics were observed in patients with obesity of 1 and 2 degrees. A negative result is in patients with obesity of grade 3. Thus, the impact of fasting on the health status of patients with metabolic syndrome is ambiguous and effective only in the early and uncomplicated stage of obesity, with hypertension without target organ damage. During diabetes manifest, compliance with fasting is unacceptable, even with light circumstances of disease. It is dangerous, primarily because of episodes of hypoglycemia. In people with an unfavorable premorbid background, as well as obesity of grade 3, fasting leads to negative consequences.

This dictates the need for a preliminary examination and monitoring of each patient with a metabolic syndrome, who decided to fast.

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## CLINICAL AND EPIDEMIOLOGICAL FEATURES OF HEADACHES IN THE REGION OF ARAL SEA

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**Abstract.** The investigation was undertaken on 200 adults in the age from 20 to 60 years in the Aral area region. Comparative analysis showed that headache syndrome was appeared in 60.5%.

**Аннотация.** Илмий тадқиқот ишида мақсад қилинган муаммони ўрганиш учун 20 ёшдан 60 ёшгача бўлган 200 та бемор тиббий кўрикдан ўтказилган. Олинган маълумотларга қараганда текширилганларнинг 60,5 фоизиди бош оғриги бўлиб туришига шикоят қилган.

**Аннотация.** Для решения поставленных задач обследовано 200 взрослых, в возрасте от 20 до 60 лет. Согласно полученным данным, жалобы на головную боль предъявляли 60,5% обследованных.

**Key words:** Headache, Aral Sea region, migraine.

**Калит сўзлар:** Бош оғриги, Оролбўйи худуди, мигрень.

**Ключевые слова:** Головная боль, Приаралья, мигрень.

Headache is one of the most frequent complaints of patients in the outpatient practice of a doctor and represents a serious medical and social problem [2,3,4]. According to the epidemiological studies of World health organization, headache episodic or chronic is found in the population in almost 85% of cases. Headache according to different authors, meets from 27 to 60% of the working-age population [3,4,7]. In part, this is due to differences in the choice of study groups, as well as an ambiguous approach to the interpretation of the headache clinic [5,7].

The results of epidemiological studies, presented at the 7th International Congress on Headache, show that more than 70 percent of the population of the developed countries of Europe and America suffer from headaches. Classification of headaches, approved by the International Association for the Study of Headache in 1988, distinguishes 13 forms of headaches. This classification distinguishes independent pathological forms of headaches (migraine, cluster headache, chronic paroxysmal hemicrania, tension headache) and symptomatic headaches [1,6]. The most common types of pain are tension headaches (69-88%) and migraine (38%) [2,3,7].

Despite such a wide prevalence of headache, each region has its own peculiarities in structure and prevalence, which are affected by natural conditions, ecological disasters, way of life, traditions, etc. If we take into account the fact that the climate in the Aral sea region has changed dramatically due to the Aral Sea disaster, the study of the structure of headache among the working age population is becoming more relevant

**Materials and methods of research.** 200 adults, aged from 20 to 60 years (of them 100 men, 100 women) were examined to solve the tasks. The survey was conducted using the method of a continuous questionnaire, taking into account the recommendations of the International Society for the Problem of Headache. Of the 200 examined, 121 had headache. These patients were examined somatically and neurologically to clarify the diagnosis; The anamnesis of life and illness was analyzed, and additional instrumental research was carried out according to indications: analysis of the fundus of the fundus, reoencephalography, elektroencephalography, computed tomography of the brain. If necessary, patients were referred for consultations to dentists, ophthalmologists and other specialists.

**Results and discussion.** According to the data received, 60.5% of the examined patients presented headache complaints: 29% of those surveyed had tension headache, 7% had cervicogenic headaches, 6,5% of headaches due to organic pathology of cerebral vessels, 4% of migraines ,5%. With less frequency, headache occurred in the pathology of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint – 3.5%, 2.5% had headaches of a post-traumatic nature associated with cranial nerve damage and intracranial processes; Even less frequently there were unclassifiable headaches – 1.5% and associated with extra-cerebral infections – 1%. When studying the distribution of the syndrome of headaches due to gender, it was found that in women, the syndrome of headache occurs in 2 times more often than in men. Moreover, with symptomatic headache such as: posttraumatic headache associated with intracerebral infections, with intracranial processes, with diseases of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint, with lesion of cranial nerves and unclassified headache inter-sex differences in frequency The occurrence of headache was not observed. Differences were noted with migraine, tension headache, cervicogenic and vascular headache, and in women the prevalence was noted in 2-3.5 times.

With further study of the mean age of various headache syndromes, it was found that the mean age for tension headache was  $30.2 \pm 2.1$  years, for migraine  $35.8 \pm 2.3$ , for cervicogenic headache –  $42.1 \pm 1.8$ , for patients with headache, due to the organic pathology of the cerebral vessels –  $52.1 \pm 2.7$ . With symptomatic headache, such as: posttraumatic headache associated with cerebral infarction, with intracranial processes, with diseases of the ears, nose, paranasal sinuses, teeth, temporomandibular joint, with cranial nerve damage and unclassified headache due to the small number of patients and symptomatic headache, the average age of patients would be unreliable and uninformative, so we do not give this information in this article. Evaluation of the neurological status of patients showed that disorders of cranial nerves were most common in patients with tension headaches, less often than in other groups, such abnormalities were observed in patients with migraine. Disorders of the motor sphere in the form of asymmetry of tendon and periosteal reflexes were noted in 66.6% of patients with migraine, 69.2% of patients with headaches due to organic vascular pathology, 67.2% of patients with tension headaches and 57.1% Patients with cervical headaches. Sensitive sphere disorders were most common in patients with headaches due to organic vascular

pathology (36%) and in patients with cervical headaches (30.8%). More rarely, these disorders were noted in patients with migraine (22.2%) and in patients with tension headaches (22.4%). Coordinator disorders occurred, mainly, in the form of shakiness in the Romberg sample and uncertainty in the performance of a finger-nasal and knee-calcane test. These disorders were noted in 23.1% of patients with headaches due to organic pathology of the cerebral vessels and in 11.1% of patients with migraine. In patients with stress-related headaches, similar disorders were detected in 3.4% of cases.

Table 1

Prevalence and types of headaches among the examined

Types of headaches	Men n = 100	Women n = 100	All n = 200
Tension headache	18 (18%)	40 (40%)	58 (29%)
Cervicogenic headache	4 (4%)	10 (10%)	14 (7,0%)
Vascular headache	4 (5%)	9 (9%)	13 (6,5%)
Migraine	2 (2%)	7 (7%)	9 (4,5%)
Headaches associated with diseases of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint	3(%)	4(4%)	7 (3,5%)
Posttraumatic headaches	3(3%)	2(2%)	5 (2,5%)
Headaches associated with intracranial processes	2(%)	3(3%)	5 (2,5%)
Headache associated with the defeat of the cranial nerves	2(%)	3(3%)	5 (2,5%)
Unclassifiable headaches	2(%)	1(1%)	3 (1,5%)
Headaches associated with extracerebral infections	1(%)	1(1%)	2 (1,0%)
<b>Total:</b>	41 (41%)	80 (80%)	121 (60,5%)

**Conclusion.** Thus, the information we obtained about the structure of the syndrome of headaches among the population aged 20 to 60 years (table 1) in the Aral Sea region allows us to draw the following conclusions:

1. In the Aral Sea region in the age group from 20 to 60 years, 60.5% of the population has a headache syndrome.

2. Syndrome of headaches predominates in women 2: 1

3. In different age groups, as the age of the headache syndrome increases, the nosological basis is tension headache, migraine headaches, cervicogenic headaches and headaches due to the organic pathology of the cerebral vessels.

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## **EXTRACRANIAL HEMODINAMIC ALTERATIONS IN ISCHEMIC STROKES WITH UNDERLYING SYMPTOMATIC ARTERIAL HYPERTENTION**

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**Abstract.** 30 patients with ischemic stroke of vasorenal etiology have displayed convolution of extracranial vessels, a pathological deformation more often caused by the acquired pathology, in particular by the arterial hypertension increasing hydrodynamic pressure to vascular wall that necessitate consideration of treatment regimens of this pathology.

**Аннотация.** Симптоматик артериал гипертензия фонида каротид кон томирлар ҳавзасида ривожланган ишемик инсульт билан оғриган 30 та бемор текширилди. Экстракраниал артерияларнинг орттирилган патологик деформацияси, кўпинча артериал гипертензия туфайли томир деворига гидродинамик босим таъсири оқибатида ривожланади, бу эса даволашда муҳим омил бўлиб хизмат қилади.

**Аннотация.** Обследовано 30 пациентов в острейшем периоде ишемического инсульта в каротидном бассейне вазоренальной этиологии, обусловлены извитостью хода экстракраниальных сосудов, что патологическая деформация чаще обусловлена приобретенной патологией, в частности артериальной гипертензией, увеличивающей гидродинамическую нагрузку на сосудистую стенку, что необходимо учитывать в выборе тактики лечения данной патологии.

**Key words:** Ischemic stroke, occlusion of brachiocephalic artery, ultrasonic dopplerography, duplex scanning, computer tomographic angiography, stenosis

**Калит сўзлар:** Ишемик инсульт, брахиоцефал қон-томирлар окклюзияси, ультратовуш доплерография, дуплекс сканирлаш, компьютер томографик ангиография, стеноз.

**Ключевые слова:** Ишемический инсульт, окклюзия брахиоцефальных артерий, ультразвуковая доплерография, дуплексное сканирование, компьютерно-томографическая ангиография, стеноз.

Although the problem of ischemic stroke is not novelty, the high death rate and inability, as well as a tendency to the growth of the case rate have been inducing real concern during a series of decades. The progressive increase in the incidence of cerebral stroke and its rejuvenation is mainly due to the high prevalence of arterial hypertension, which plays the leading pathogenic role in the development of the acute disorders of a cerebral circulation. Depending on etiological factors, Investigating of hemodynamic disturbances plays an important role in the choice of treatment regimens of ischemic strokes.

The purpose of this research is to study the features of extracranial hemodynamic alterations in ischemic strokes with underlying symptomatic arterial hypertension.

**Materials and methods of the research.** 30 patients in the hyperacute period of ischemic stroke of the carotid territory with underlying symptomatic arterial hypertension due to renovascular or suprarenal etiology are examined. Severity of the disease and degree of neurologic deficiency were estimated on Scandinavian and American (NIHSS) scales of severity of stroke, whereas severity of impaired consciousness – on a scale of comas of Glasgow. Computed Tomography imaging confirmed the diagnosis of ischemic stroke of hemisphere in all 30 (100%) patients.

Ultrasonic doppler sonography of brachiocephalic vessels along with common carotid (CCA), internal carotid (ICA) and supratrochlear (STA) arteries was done in all stroke patients. The device used was "Logidop-4" of the company of Cransbuchler (Germany) with the sensor of a frequency of 4 and 8 MHz with definition of linear and average rates of a blood flow, Purselo's (RI) index and Goslinga (PI). The assessment of patency of extracranial part of carotid arteries was performed with the aid of functional assay – the carotid compression test. The condition of complex of intima media, characteristics of an atherosclerotic plaque, as well as the congenital and acquired malformations were investigated by the method of duplex scanning. MSCT used in the research was 64 multispiral computed tomography "GE Light Speed 64" of Philips, USA.

**Results of the research.** In 14 (47,14%) out of 30 patients with ischemic strokes of hemispheric origin ischemic lesion was localized in the right hemisphere, in 16 (52,86%) – in the left cerebral hemisphere.

All patients with ischemic strokes came to the clinic in the acute period of the disease. Only 3,57% of patients came to the hospital within the first 6 hours of the disease, whereas 45,71% within the first 24 hours from the moment of the onset of the first clinical symptoms of the disease, remaining 50,72% of them came to the clinic in a day and more later after the beginning of the disease.

Average age of patients with symptomatic arterial hypertension was  $42,3 \pm 5,4$  years. Studying of sex differences of the patients indicated appreciable statistically significant ( $p < 0,001$ ) predominance of ischemic acute cerebrovascular disease

resulted from symptomatic arterial hypertension in men (73,33%), rather than in women (26,67%). Acute cerebrovascular disease always results from sudden rise in arterial pressure over 180/100 mm of mercury associating with fear, emotional anxiety, and fast heartbeat, a numbness of extremities and. etc., because of sympathoadrenal crises.

Studying of severity of the condition and degree of neurologic deficiency according to the clinical scales has shown that they corresponded to a moderately severe stroke. So, mean score on the Scandinavian scale was  $33,44 \pm 2,5$  points, on NIHSS scale –  $14,83 \pm 3,1$  points, corresponding to moderately severe degree of the disease.

Dynamic control of the disease in most of patients with acute cerebrovascular disease revealed decrease in neurologic deficiency and improvement of the condition of patients that was expressed as augmentation of average score on the Scandinavian scale to  $42,72 \pm 3,1$  and decrease of clinical score on NIHSS scale to  $8,29 \pm 2,0$  points. The lethality rate by the 10th days of a disease was 0,06.

Results of the research have been shown that the increase in linear velocity of the blood flow in carotid BCV, as well as the degree of peripheral resistance and tonus of vessels is frequently manifested on the site of the lesion. Signs of a vasomotor spasm of carotids are quite often (46,66%) accompanied with depression of the diastolic index, rising of the index of Purselo and Goslinga and reduction of velocity of the blood flow in supratrochlear artery on the site of the lesion with asymmetry of reaction to compression test, asymmetry of velocity of a blood flow in the CCA and ICA. Such type of a dopplegraphic curve which assumes existence of convoluted line of CCA and ICA is statistically significantly more often ( $p < 0,001$ ) encountered in symptomatic arterial hypertension. So, different types of deformation of the lumen of CCA, ICA and SA was detected in 85% of the examined patients with renovascular ischemic acute cerebrovascular disease. So, in 11,76% of cases C shaped curve, in 35,29% - S shaped curve, in 5,88% of cases – loop shaped curve were observed. Deformation on type of King-King was detected in as most of the patients as 47,05. In vertebral arteries C shaped curve (4%) and looping (6%) was most often observed. An atherosclerotic plaque with generally patchy heterogeneous local plaques was seldom finding.

The MSCT-angiography in hypertensive acute cerebrovascular disease (symptomatic, renovascular) showed statistically significant disturbance of hemodynamic indicators resulted from preponderance of deformations in the line of brachiocephalic vessels in this surveyed group. Pathological flexures of CCA, ICA are detected in 16 patients (80%) with acute cerebrovascular disease with underlying symptomatic arterial hypertension. 31,25% (5 patients) of them showed C shaped curve, 43,75% (7 patients) – S shaped curve and 25% of cases (4 patients) – looping. The pathological curving of vertebral arteries was observed in 40% of cases (8 patients): out of which 62,5% had C shaped flexure and 37,5% had looping.

Atherosclerotic lesion of carotid and vertebral BCV was also observed in surveyed patients with acute cerebrovascular disease with underlying symptomatic arterial

hypertension (SAH), however their extension was most often limited to the orifice of ICA and had local character. Development of atherosclerotic lesions of vessels was statistically significantly slower in comparison with all other examined groups. Stenosis of the vessel lumen as a result of atherosclerotic lesion in these patients never reached critical (>85-90%) values and has averaged  $41,5 \pm 4,5\%$ .

Thus results of the research demonstrate that Ischemic hemispheric stroke resulted from symptomatic arterial hypertension which in admission gained the maximum point on the Scandinavian scale and minimum – on NIHSS scale have the most safe course that in both cases manifests the slightest neurologic deficiency. In patients of this group the lethality rate by the end of the 10th days of the disease was the lowest among all examined groups accounting for 0,06. Other feature of this etiological version of Ischemic cerebral stroke was statistically significant prevalence of males of young age.

**Conclusion:** Acute cerebrovascular disease of vasorenal etiology are resulted from convolution of extracranial vessels, pathological deformation more often caused by the acquired pathology, in particular by the arterial hypertension which increases hydrodynamic pressure to vascular wall necessitating to consider treatment regimens of this pathology.

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## THE ROLE AND SIGNIFICANCE OF TRANSIENT CEREBRAL CIRCULATION DISORDERS IN THE DEVELOPMENT OF CEREBRAL STROKES IN EMERGENCY NEUROLOGY

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(Urgench branch of the TMA)

**Abstract.** Forecast specification of transient cerebral circulation disorders has a direct influence on the important problem of the forecast and preventive measures of a brain stroke, to occurrence, which can precede transitory ischemic attacks. In the present work the retrospective analysis of cases with a brain stroke is made 178 patients with the presence of anamnesis transient cerebral circulation disorders.

**Аннотация.** Бош миёда қон айланишининг ўткинчи бузилиши ташхисини аниқлаштириб олиш миё инсульти оқибати ва профилактикаси муаммосига бевосита боғлиқдир. Бош миё қон айланишининг ўткинчи бузилишлари миё инсултларини бошланишидан олдин кузатилиши мумкин. Бу илмий тадқиқот ишида миё инсульти ўтказган 178 та беморнинг касаллик тарихи ретроспектив таҳлил қилинган.

**Аннотация.** Уточнение диагноза переходящих нарушений мозгового кровообращения имеет непосредственное отношение к важной проблеме прогноза и профилактики мозгового инсульта, возникновению которого могут предшествовать транзиторные ишемические атаки. В настоящей работе произведён ретроспективный анализ случаев мозгового инсульта у 178 больных с наличием в анамнезе переходящих нарушений мозгового кровообращения.

**Key words:** Transient cerebral circulation disorders, hypertensive cerebral crises, ischemic stroke, hemorrhagic stroke.

**Калит сўзлар:** Бош миёда қон айланишининг ўткинчи бузилиши, гипертоник церебрал криз, ишемик инсулт, геморрагик инсулт.

**Ключевые слова:** Преходящая нарушение мозгового кровообращения, гипертонический церебральный криз, ишемический инсулт, геморрагический инсулт.

The prognostic value in relation to the possibility of developing a repeated cerebral stroke in the event of transient cerebral circulation disorders, in young people is not well understood. As several authors [1,4,6], different conclusions on this issue are associated, first of all, with the unequal nature of the study, the lack of unified diagnostic criteria, which makes it difficult to compare the results obtained. Interest in this problem is due to the fact that the development of a repeated cerebral stroke is a formidable complication and in most cases determines the prognosis and outcome of the disease. Often they end in more severe outcomes than the first violations of this nature [7,8]. That is why the issues of their

prevention are urgent, especially in patients who have undergone transient ischemic attacks.

The purpose of this work is to study the clinical significance of transient ischemic attacks – TIA in the development of repeated cerebral strokes and the outcome of the disease.

**Materials and methods of research.** In the present work, a retrospective analysis of cases of cerebral stroke with a history of TIA was made. For this purpose, the medical history of 180 patients treated in the department of emergency neurology of the Khorezm branch of RCEMT was analyzed. Of these, 95 (53%) patients developed a stroke with hypertension, 48 (27%) had cerebral atherosclerosis, 21 (12%) had obesity, 16 (9%) had diabetes mellitus. To transient impairments of cerebral circulation developing before the stroke, we, according to the recommendation of the WHO [4,5], referred only those cases in which cerebral, focal or mixed symptoms lasted no more than 24 hours. Not only "transient cerebral circulation disorders" were included in the group of transient disorders of cerebral circulation, but also hypertensive cerebral crises that lasted no more than a day. It was also established that the relationship between transient impairments of cerebral circulation and cerebral stroke is different for transient ischemic attacks – TIA and hypertensive cerebral crises [1,2,6]. Brain cerebral symptomatology was considered as an expression of transient disturbance of cerebral circulation only when it arose suddenly and was represented by more than two general cerebral symptoms (headache, nonsystemic dizziness, etc.). Attacks of systemic vertigo were regarded as a symptom of a transient cerebral circulatory disorder in the vertebrobasillar basin only if they were combined with some other local neurologic symptom.

**Results of discussion.** As can be seen from Table 1, the greatest number of patients with cerebral stroke is age, according to the WHO classification, from 45 to 55 years. In patients with hypertensive disease, stroke developed significantly more often.

Table 1

The distribution of patients by age and underlying disease, which led to a stroke.

Age	The main disease leading to a stroke				The total number of patients
	Hypertensive disease	Cerebral atherosclerosis	Obesity	Diabetes mellitus	
	95	48	19	16	178
From 20 to 44	35	1	3	1	10
45 to 54	49	5	8	4	66
55 to 64	23	19	5	6	51
65 to 74	12	15	2	3	32
From 74 and above	6	8	1	2	17

Of the 178 patients, 84 (47%) sought medical care at different times after the onset of the stroke. It should be noted that in most patients with transient ischemic attacks, which resulted in a stroke, there was a different degree of hypertonic

disease, coronary heart disease, diabetes mellitus and peripheral vascular atherosclerosis, which aggravated the somatic status.

The results of our studies showed that in 74 patients (42%) with transient attacks in the history of the stroke occurred in the period from 10 months to 3.8 years. However, it occurred earlier-up to 6 months in 28 (16%) patients, from 6 months to 1 year in 43 (23%), much later-from 3 to 5 years in 23 (13%) and 5 to 10 years- In 10 (6%).

When taking into account the underlying disease, it is established that in hypertensive illness this period is on average 1.5 years, with atherosclerosis – 2.4 years, and with the combination of atherosclerosis and hypertensive disease, 1.8 years. Many authors believe that in cerebral stroke, the vascular basin is most often affected, in which previous transient ischemic attacks were noted [4,5,7].

Our observations show that 118 (65.6%) patients developed a stroke as a result of circulatory disturbance in the carotid basin, and 62 (34.4%) in vertebrobasillar disease. Thus, a significant prevalence of the number of strokes that develop as a result of pathology in the system of carotid arteries is revealed, which corresponds to the literature data [1,3,8].

Regardless of the underlying vascular disease, the same vascular pool was affected in most patients with stroke (Table 2).

table 2

Prognostic value of transient ischemic attacks depending on the vascular pool

Vascular pool	transient cerebral circulation disorders			
	With the subsequent cerebral stroke		Result	
	Abs	%	Ischemic stroke	Hemorrhagic stroke
Carotid pool	118	65,6	86(48%)	32 (18%)
Vertebrobasillar pool	62	34,4	43 (24%)	19 (10%)

When analyzing the results of our clinical observations, it was found that, when circulation in the carotid basin was disturbed, cerebral stroke developed not only more often but also earlier than the stroke caused by a deficiency in the vertebrobasillar basin.

When determining the prognosis of transient ischemic attacks, it is important to consider the importance of individual clinical symptoms. When comparing local symptoms in the group of people with transient attacks not complicated by stroke, and in the group of people with cerebral stroke and transient attacks in the history of patients of the second group, the symptoms were also more frequent: motor disorders (39% compared to 28.6%) , Speech disorders (27% compared to 15.3%) and bulbar disorders (9.5% compared with 4.7%).

Thus, the data obtained allow for a relatively large risk of developing cerebral stroke when motor and speech disorders appear during transient ischemic attacks [5,8].

Mortality. Of the 128 patients with ischemic stroke, 83 (65%) transient ischemic attacks in the anamnesis were not noted; In this group, 13 (7%) patients

died in the acute period of the stroke. Out of 45 (35%) patients with ischemic stroke and with transient ischemic attacks, 3 (2%) patients died in anamnesis.

Thus, the mortality from ischemic stroke was significantly lower among those in whom transient ischemic attacks preceded ischemic stroke. This can be explained by the fact that transient vascular disorders contribute to the development of collateral circulation pathways in atherosclerotic vascular lesions (2,3,8). However, another explanation is possible. Patients who have suffered transient ischemic attacks appear to be treated more systematically than those who did not.

Among the 50 patients with hemorrhagic stroke, 37 (74%) had no transient ischemic attacks in the anamnesis, of which 14 (8%) died.

At the same time, 9 (5%) patients died of 13 (26%) patients with hemorrhagic stroke and transient ischemic attacks. This is due to the fact that hypertensive cerebral crises, which basically preceded hemorrhagic stroke, arose as a result of vasospasm followed by plasma penetration of the vascular walls, which led to the formation of pathological changes in them, which created favorable conditions for rupture of the vessel wall [3,4,7]. In patients with ischemic stroke (survivors), the average age at the appearance of the first transient ischemic attacks was 51.2 years, and in the deceased group – 63 years. In the group of patients with hemorrhagic stroke (survivors), on the contrary, the average age for the appearance of transient ischemic attacks before their stroke was 53.1 years, and in the deceased group – 46.2 years.

Thus, in patients with ischemic stroke, the prognosis for life is better if they have transitional ischemic attacks that precede stroke and develop at a younger age, when the possibilities of compensatory mechanisms are more significant [1,4,8].

Our retrospective analysis of a very large number of cases of cerebral stroke has allowed us not only to establish the frequency of transient ischemic attacks in stroke of different etiology and character, but also to evaluate their prognostic value regarding the possibility of recurrence of the cerebral stroke, its timing, localization of lesions and outcomes. When predicting transient ischemic attacks, it is necessary to take into account the nature of seizures (cerebral, local, mixed). If TIA manifest local symptoms, the forecast is worse. TIAs that originated in the carotid basin are more threatening in terms of the possibility of stroke than those occurring in the vertebrobasillar basin.

**Conclusions.** Thus, the results of the study suggest that transient ischemic attacks can be harbingers of a stroke if they arise against the background of such aggravating factors as coronary heart disease, atherosclerosis, diabetes mellitus and others that, regardless of the presence or absence of transient cerebral circulation disorders, can lead to vascular Catastrophe.

Based on the analysis, it was noted that in patients with transient ischemic attacks, repeated ischemic cerebral stroke usually develops at a later age and proceeds more easily than in patients who did not have these disorders.

The threat of hemorrhage to the brain and mortality from it is greater if transient cerebral circulation disorders precedes hemorrhagic stroke.

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**UDC: 616-005.756.6-006.325.03**

## **CLINICAL AND PROGNOSTIC IMPORTANCE OF TRANSIENT ISCHEMIC ATTACKS IN THE DEVELOPMENT OF CEREBRAL STROKES IN EMERGENCY NEUROLOGY**

**Hudayberganov N.Yu., Izyumov D.P., Jabbarov M.T., Matyoqubov M.O  
(Urgench branch of the TMA)**

**Summary.** Forecast specification of transient ischemic attacks has a direct influence on the important problem of the forecast and preventive measures of a brain stroke, to occurrence, which can precede transitory ischemic attacks. In the present work the retrospective analysis of cases with a brain stroke is made 178 patients with the presence of anamnesis transitory ischemic attacks, which have been treated in the branches of emergency neurology of Khorezm branch under Republician Center of Emergency Medical Treatment.

**Keywords:** transient ischemic attacks, hypertensive cerebral crises, ischemic stroke, hemorrhagic stroke.

**Аннотация.** Транзитор ишемик хуруж ташхисини аниклаштириб олиш мия инсульта окибати ва профилактикаси муаммосига бевосита боғлиқдир. Транзитор ишемик хуружлар мия инсултларини бошланишидан олдин кузатилиши мумкин. Бу илмий тадқиқот ишида мия инсульта утказган 178 та беморнинг касаллик тарихи ретроспектив таҳлил қилинган. Беморларнинг барчаси олдин транзитор ишемик хуруж утказган ва шошилинч неврология бўлимида даволанган. Калит сузлар: транзитор ишемик хуруж, гипертоник церебрал криз, ишемик инсульт, геморрагик инсульт.

**Аннотация.** Уточнение диагноза транзиторных ишемических атак имеет непосредственное отношение к важной проблеме прогноза и профилактики мозгового инсульта, возникновению которого могут предшествовать транзиторные ишемические атаки. В настоящей работе произведён ретроспективный анализ случаев мозгового инсульта у 178 больных с наличием в анамнезе транзиторных ишемических атак, пролеченных в отделении экстренной неврологии Хорезмского филиала Республиканского научного центра экстренной медицинской помощи.

**Ключевые слова:** транзиторная ишемическая атака, гипертонический церебральный криз, ишемический инсульт, геморрагический инсульт.

The prognostic value in relation to the possibility of developing a repeated cerebral stroke in the event of transient ischemic attacks in young people is not well understood. As several authors [1,4,6], different conclusions on this issue are associated, first of all, with the unequal nature of the study, the lack of unified diagnostic criteria, which makes it difficult to compare the results obtained. Interest in this problem is due to the fact that the development of a repeated cerebral stroke is a formidable complication and in most cases determines the prognosis and outcome of the disease. Often they end in more severe outcomes than the first violations of this nature [7,8]. That is why the issues of their prevention are urgent, especially in patients who have undergone transient ischemic attacks.

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led to the formation of pathological changes in them, which created favorable conditions for rupture of the vessel wall [3,4,7]. In patients with ischemic stroke (survivors), the average age at the appearance of the first transient ischemic attacks was 51.2 years, and in the deceased group – 63 years. In the group of patients with hemorrhagic stroke (survivors), on the contrary, the average age for the appearance of transient ischemic attacks before their stroke was 53.1 years, and in the deceased group – 46.2 years.

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**Conclusions.** Thus, the results of the study suggest that transient ischemic attacks can be harbingers of a stroke if they arise against the background of such aggravating factors as coronary heart disease, atherosclerosis, diabetes mellitus and others that, regardless of the presence or absence of TIA, can lead to vascular Catastrophe.

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The threat of hemorrhage to the brain and mortality from it is greater if TIA precedes hemorrhagic stroke.

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**INFLUENCE OF VEGETABLE RESOURCES ON ANTIBODY  
FORMATION AND THE ORGANS OF IMMUNITY AT THE  
IMMUNODEFICIENT IMMUNODIFFERENTIATION**

**Djumaniyazova N.S., Sapayeva Sh.A.  
(Urgench Branch of the TMA)**

**Summary.** It has been established that immunant almost halves the antibody titer to ram's erythrocytes in peripheral blood of mice, while under the influence of "filipil" and "tribulipil" the antibody titer increases by 1.38-1.50 times. The number of cells in the thymus, bone marrow and lymph nodes decreases by 1.50-1.79 times, and plant remedies raise their level by 1.20-1.41 times.

*Key words:* immunant, to ram's erythrocytes, thymus, plant remedies.

It is known that herbal preparations possess antioxidant [7], hypolipidemic [9], choleric [6] properties, are used as adaptogens [11]. They have a positive effect on the immune system [1, 3, 12]. In previous studies, the qualitative properties of "tribulipil" [5], its effect on the androgenic activity of rats [8], as well as the effect of "filipil" and "tribulipil" on immunological re-activity in intact animals [4] and in experimental anemia [2]. It was of interest to study the immunotropic properties of these herbal remedies on other models of secondary immunodeficiency states.

**PURPOSE OF THE STUDY**

To study the effect of infusion and extracts of "Filipil" and "Tribulipil" on antibody formation and immunity in secondary immunodeficiency caused by the immunosuppressant immunity.

**MATERIAL AND METHODS**

In the experiments, white mongrel mice were used for 2-3 months. age of 20-22 g. Immunosuppressant immunant was administered intraperitoneally daily for 3 days at a dose of 50 mg / kg. One day after the last introduction of the immunant, the mice were immunized with erythrocytes of a ram (EB) at a dose of  $2 \times 10^8$  and after 5 days in peripheral blood the antibody titer to EB. In the thymus, bone marrow and lymph nodes, the total number of nucleated cells was counted.

The animals were divided into 5 groups of 7 heads. 1 gr. - control – we sham injected EB (intact mouse); 2 g. - mice were injected with immunant + EB (without the introduction of herbal remedies); 3 g. - mice were injected with immunant + EB + on-stand Filipila in a dose of 15.0 ml / kg; 4 g. - mice were injected with immunant + EB + extract "Filipila" in a dose of 50 mg / kg; 5 g. - mice were injected with immunant + EB + extract "tribulipil" in a dose of 50 mg / kg.

Results on the study of the effect of herbal remedies on the titer of antibodies to EB in the peripheral blood of mice treated with immunant are shown in Table 1. As seen in the control group, the antibody titer to EB is  $4.7 \pm 0.3$ . Under the influence of the immune system, inhibition of the antibody formation process is observed. Thus, the antibody titer to EB in the blood in comparison with control animals is reduced by 1.96 times and is  $2.4 \pm 0.2$ .

All three herbal remedies increase the antibody titre to EB in the blood of immunodeficient mice as compared with the untreated group: infusion of Filipila - 1.50 times, extract of Filipila - 1.38 times, extract of "tri-bulipila" - in 1.42 times. There was no significant difference in the stimulating activity of the agents.

Table 1

Influence of herbal remedies on antibodies titer to erythrocytes of ram in the blood of mice receiving imran ( $M \pm m$ ,  $n = 7$ )

Group	Dose of substances	Antibody titer to the EB (log2)	IS
1.control	-	$4.7 \pm 0.3$	-
2. imran		$- 2,4 \pm 0,2a$	-1,96
3. imran + infusion of Filipila	15,0 ml / kg	$3.6 \pm 0.2ab$	+ 1.50
4.imuran + extract Filipila	50,0 mg / kg	$3.3 \pm 0.2ab$	+1.38
5.imiman + extract of "tribulipil"	50.0 mg / kg	$3.4 \pm 0.2ab$	+1.42

Note: IS - index of the ratio: (-) - relative to 1 gr., (+) - with respect to 2 gr., And - authentically to 1 gr., B - authentically to 2 gr.

Thus, the studied herbal remedies have the ability to increase the titer of antibodies to EB in the peripheral blood of mice with immunoreactivated immunodeficiency. The next stage was the study of the effect of herbal remedies on the total number of cells in the central and peripheral organs of immunity in mice receiving imarant (Table 2). In intact mice (control), the number of thymocytes is  $42.1 \pm 2.5 \times 10^6$ , and under the influence of imarant, the level of thymocytes significantly decreases by 1.50 times.

Table 2

The influence of herbal remedies on the number of cells in the central and peripheral organs of immunity in mice receiving iman ( $M \pm m$ ,  $n = 7$ )

Group	Dose of substance	Cells thymus	IC	Cells of bone marrow $\times 10^6$	IC	Cells of lymph nodes $\times 10^6$	IC
1.control	-	$42,1 \pm 2,5$	-	$10,9 \pm 0,4$	-	$22,6 \pm 0,7$	-
2. imran	-	$24,3 \pm 1,5^a$	-1,50	$6,1 \pm 0,2^a$	-1,79	$13,2 \pm 0,6^a$	-1,71
3. imran + infusion of Filipila	15,0 ml/kg	$33,8 \pm 2,0^{ab}$	+1,39	$8,6 \pm 0,3^{ab}$	+1,41	$17,8 \pm 0,4^{ab}$	+1,35
4.imuran + extract Filipila	50,0 ml/kg	$29,6 \pm 1,8^{ab}$	+1,22	$7,6 \pm 0,2^{abc}$	+1,25	$15,9 \pm 0,5^{abc}$	+1,20
5.imiman + extract of "tribulipil"	50,0 mg/kg	$31,6 \pm 1,9^{ab}$	+1,30	$8,1 \pm 0,3^{abc}$	+1,33	$17,2 \pm 0,5^{ab}$	+1,30

Note: SSCs are nucleated cells of the spleen, IS is the correlation index, (-) with respect to 1 g, (+) - in relation to 2 grams, and - authentically to 1 g., B - reliably to 2 grams , B - authentically to 3 gr.

When the infusion of "Filipila", extracts of "Filipil" and "Tribuli-la" is introduced, the number of thymocytes significantly increases compared with the immunodeficiency group, respectively, in 1.39, 1.22 and 1.30 times. There was no significant difference between the activities of plant remedies. Thus, the studied extracts and infusion significantly increase the number of cells in the thymus of mice that received imran. At the same time, in no case there is a complete recovery of the thymocyte level to the control indices

In the bone marrow of the control group mice, the total number of cells is  $10.9 \pm 0.4 \times 10^6$ , and in the mice receiving the imran, the rate is reduced by 1.79 times. Infusion "Filipila" in 1.41 times increases the number of bone marrow cells in immunodeficient mice. Less pronounced stimulating effect was found in the extract of Filipila: the number of cells in the bone marrow is 1.25 times higher. The stimulating activity of the infusion of "Filipila" is certainly higher than that of the "Filipila" extract. The extract of "tribulipil" increases by 1.33 times the number of cells in the bone marrow of the mice receiving imran. Consequently, bone marrow cells were sensitive to the stimulating effect of all plant extracts and infusions.

As can be seen from Table 2 in the control group, the number of cells in the lymph is equal to  $22.6 \pm 0.7 \times 10^6$ , and under the influence of the imarant, their number decreases by 1.71 times. In the groups of immunodeficient animals receiving "Filipila" infusion, "Filipil" and "Tribulipil" extracts, the number of cells in lymph nodes significantly increases in 1.35, 1.20, and 1.30 times, respectively. As in the counting of bone marrow cells, the stimulating activity of "filipila" infusion is significantly higher than that of "Filipila" extract.

Thus, based on the data obtained, it can be concluded that the studied herbal remedies have the ability to increase the number of cells in the central and peripheral organs of immunity in mice receiving the immunosuppressant imarant.

#### CONCLUSIONS:

1. "Filipil" and "tribulipil" significantly increase the antibody titer to erythrocytes of the sheep in the blood of mice with secondary immunodeficiency caused by the imunant.
2. In immunodeficient animals, "Filipil" and "Tribuliiil" significantly increase the number of cells in the central (thymus, bone marrow) and peripheral (lymph nodes) immunity.

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## SPECIFICALS OF STRUCTURE OF HEADACHE AMONG ADULTS POPULATION IN THE REGION OF ARAL SEA

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**Summary.** The investigation was undertaken on 200 adults in the age from 20 to 60 years in the Aral area region. Comparative analysis showed that headache syndrome was appeared in 60.5% of cases and in women headache syndromes was prevalence in comparison with men 2:1. In other age group the nosological base of headache was tension headache, cervical headache and headache under cerebrovascular diseases.

**Key words:** headache, Aral sea region, migraine.

**Аннотация.** Илмий тадқиқот ишида мақсад қилинган муаммони ўрганиш учун 20 ёшдан 60 ёшгача бўлган 200 та бемор тиббий кўрикдан ўтказилган. Олинган маълумотларга қараганда текширилганларнинг 60,5 фоизида бош оғриғи бўлиб туришига шикоят қилган. Ўрганилган турли ёш гуруҳларида бош оғриғининг турли нозологик шакллари: зўришдан бош оғриғи, мигрень, цервикоген бош оғриқлар ва мия қон томирларига боғлиқ бўлган бош оғриқлар аниқланди.

**Калит сўзлар:** бош оғриғи, Оролбўйи худуди, мигрень.

**Аннотация.** Для решения поставленных задач обследовано 200 взрослых, в возрасте от 20 до 60 лет. Согласно полученным данным, жалобы на головную боль предъявляли 60,5% обследованных. В различных возрастных группах, по мере увеличения возраста при синдроме головных болей нозологической основой являются головная боль напряжения, мигрень, цервикогенные головные боли и головные боли, обусловленные органической патологией церебральных сосудов.

**Ключевые слова:** головная боль, Приаралья, мигрень.

Headache is one of the most frequent complaints of patients in the outpatient practice of a doctor and represents a serious medical and social problem [2,3,4]. According to the epidemiological studies of World health organization, headache episodic or chronic is found in the population in almost 85% of cases. Headache according to different authors, meets from 27 to 60% of the working-age population [3,4,7]. In part, this is due to differences in the choice of study groups, as well as an ambiguous approach to the interpretation of the headache clinic [5,7].

The results of epidemiological studies, presented at the 7th International Congress on Headache, show that more than 70 percent of the population of the developed countries of Europe and America suffer from headaches. Classification of headaches, approved by the International Association for the Study of Headache in 1988, distinguishes 13 forms of headaches. This classification distinguishes independent pathological forms of headaches (migraine, cluster headache, chronic

paroxysmal hemicrania, tension headache) and symptomatic headaches [1,6]. The most common types of pain are tension headaches (69-88%) and migraine (38%) [2,3,7].

Despite such a wide prevalence of headache, each region has its own peculiarities in structure and prevalence, which are affected by natural conditions, ecological disasters, way of life, traditions, etc. If we take into account the fact that the climate in the Aral sea region has changed dramatically due to the Aral Sea disaster, the study of the structure of headache among the working age population is becoming more relevant

**Materials and methods of research.** 200 adults, aged from 20 to 60 years (of them 100 men, 100 women) were examined to solve the tasks. The survey was conducted using the method of a continuous questionnaire, taking into account the recommendations of the International Society for the Problem of Headache. Of the 200 examined, 121 had headache. These patients were examined somatically and neurologically to clarify the diagnosis; The anamnesis of life and illness was analyzed, and additional instrumental research was carried out according to indications: analysis of the fundus of the fundus, reoencephalography, elektroencephalography, computed tomography of the brain. If necessary, patients were referred for consultations to dentists, ophthalmologists and other specialists.

**Results and discussion.** According to the data received, 60.5% of the examined patients presented headache complaints: 29% of those surveyed had tension headache, 7% had cervicogenic headaches, 6,5% of headaches due to organic pathology of cerebral vessels, 4% of migraines ,5%. With less frequency, headache occurred in the pathology of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint – 3.5%, 2.5% had headaches of a post-traumatic nature associated with cranial nerve damage and intracranial processes; Even less frequently there were unclassifiable headaches – 1.5% and associated with extra-cerebral infections – 1%. When studying the distribution of the syndrome of headaches due to gender, it was found that in women, the syndrome of headache occurs in 2 times more often than in men. Moreover, with symptomatic headache such as: posttraumatic headache associated with intracerebral infections, with intracranial processes, with diseases of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint, with lesion of cranial nerves and unclassified headache inter-sex differences in frequency The occurrence of headache was not observed. Differences were noted with migraine, tension headache, cervicogenic and vascular headache, and in women the prevalence was noted in 2-3.5 times.

With further study of the mean age of various headache syndromes, it was found that the mean age for tension headache was  $30.2 \pm 2.1$  years, for migraine  $35.8 \pm 2.3$ , for cervicogenic headache –  $42.1 \pm 1.8$ , for patients with headache, due to the organic pathology of the cerebral vessels –  $52.1 \pm 2.7$ . With symptomatic headache, such as: posttraumatic headache associated with cerebral infarction, with intracranial processes, with diseases of the ears, nose, paranasal sinuses, teeth, temporomandibular joint, with cranial nerve damage and unclassified headache due to the small number of patients and symptomatic headache, the average age of

patients would be unreliable and uninformative, so we do not give this information in this article. Evaluation of the neurological status of patients showed that disorders of cranial nerves were most common in patients with tension headaches, less often than in other groups, such abnormalities were observed in patients with migraine. Disorders of the motor sphere in the form of asymmetry of tendon and periosteal reflexes were noted in 66.6% of patients with migraine, 69.2% of patients with headaches due to organic vascular pathology, 67.2% of patients with tension headaches and 57.1% Patients with cervical headaches. Sensitive sphere disorders were most common in patients with headaches due to organic vascular pathology (36%) and in patients with cervical headaches (30.8%). More rarely, these disorders were noted in patients with migraine (22.2%) and in patients with tension headaches (22.4%). Coordinator disorders occurred, mainly, in the form of shakiness in the Romberg sample and uncertainty in the performance of a finger-nasal and knee-calcane test. These disorders were noted in 23.1% of patients with headaches due to organic pathology of the cerebral vessels and in 11.1% of patients with migraine. In patients with stress-related headaches, similar disorders were detected in 3.4% of cases.

Table 1

Prevalence and types of headaches among the examined

Types of headaches	Men n = 100	Women n = 100	All n = 200
Tension headache	18 (18%)	40 (40%)	58 (29%)
Cervicogenic headache	4 (4%)	10 (10%)	14 (7,0%)
Vascular headache	4 (5%)	9 (9%)	13 (6,5%)
Migraine	2 (2%)	7 (7%)	9 (4,5%)
Headaches associated with diseases of the ears, nose, paranasal sinuses, teeth, eyes, temporomandibular joint	3(%)	4(4%)	7 (3,5%)
Posttraumatic headaches	3(3%)	2(2%)	5 (2,5%)
Headaches associated with intracranial processes	2(%)	3(3%)	5 (2,5%)
Headache associated with the defeat of the cranial nerves	2(%)	3(3%)	5 (2,5%)
Unclassifiable headaches	2(%)	1(1%)	3 (1,5%)
Headaches associated with extracerebral infections	1(%)	1(1%)	2 (1,0%)
Total:	41 (41%)	80 (80%)	121 (60,5%)

**Conclusion.** Thus, the information we obtained about the structure of the syndrome of headaches among the population aged 20 to 60 years (table 1) in the Aral Sea region allows us to draw the following conclusions:

1. In the Aral Sea region in the age group from 20 to 60 years, 60.5% of the population has a headache syndrome.
2. Syndrome of headaches predominates in women 2: 1

3. In different age groups, as the age of the headache syndrome increases, the nosological basis is tension headache, migraine headaches, cervicogenic headaches and headaches due to the organic pathology of the cerebral vessels.

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## EFFICIENCY OF NASONEX IN TREATMENT OF POLYPOID ETHMOIDITIS.

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**Annotation:** Frequency of polyposis rhinosinusitis (PRS) has an accurate tendency of growth, specific gravity in the structure of a case rate of ENT organs makes 5-20%.

Search of new approaches to early diagnosis and well-timed medicamental treatment of PRS.

**Аннотация:** Полипоз риносинусит (ПРС)-касаллиги билан касалланиш суръати кейинги йилларда нисбатан кўпайиб бориб, ЛОР аъзолари касалликларининг 5-20% ни ташкил қилади.

Полипоз этмоидитларни эрта ташҳислаш ва ўз вақтида медикаментоз даволашга янги усулда ёндашиш, нафақат касалликни қайталанишини балки тарқалишини олдини олишда ҳам муҳим аҳамият касб этади.

**Аннотация:** Частота полипозный риносинусит (ПРС) имеет четкую тенденцию к росту, удельный вес в структуре заболеваемости ЛОР-органов составляет 5-20%.

Поиск новых подходов к ранней диагностике и своевременному медикаментозному лечению полипозного этмоидита является актуальным не только из-за частого рецидивирования заболевания, но и из-за большой распространенности этого заболевания.

**Key words:** polyposis etmoiditis, diagnostic, disease, treatment.

**Калит сўзлар:** полипоз этмоидит, таъхислаш, касаллик, даволаш.

**Ключевые слова:** полипозный этмоидит, диагностика, болезнь, лечения.

**Incrodution:** To date, chronic rhinosinusitis in many countries is one of the most common diseases among all chronic human diseases. In the United States, 14.7% of the population suffer from chronic rhinosinusitis. Over the past 10 years, the incidence rate has doubled [2].

In accordance with standard document EP<sup>3</sup> OS (European position paper on rhinosinusitis and nasal polyps 2012. A summary for otorhinolaryngologists), adopted in 2012, CP - Chronic disease nasal cavity and paranasal sinuses characterized by two or more necessarily present symptoms: blockade (Obstruction) of the nasal breathing and rhinorrhea (bleeding), and concomitant symptoms (pain or sensation of tension in the forehead and nose, loss and reduction of smell) that last more than 12 weeks [5]. In the treatment, the local anti-inflammatory as well as vasoconstrictor activity in fluticasone propionate is many times higher than that of flucitолone acetonide; 2 times higher than that of beclomethasone dipropionate, 4 times that of budesonide. When the drug is ingested (after application in the nose), its bioavailability is 1%, that is, fluticasone practically does not enter the systemic circulation [4].

Despite a lot of works devoted to clarifying the various aspects of etiology and pathogenesis, PRS is still an unresolved problem for doctors, since there is no radical treatment for this disease. Nevertheless, in the process of studying the etiology and pathogenesis of the PRS, several concepts of the development of the disease have been formed [1]. Theory and allergic development of ORS, infectious-allergic, autoimmune origin of polyposic vegetations, the infectious genesis of the disease, the theory of mucosal rupture and the theory of lymphostasis in the mucous membrane of the nose have been developed and established [6]. Among the proponents of infectious and infectious-allergic origin of PRS, some researchers pay more attention to bacterial infection, others to the fungal factor, and third place special attention to viruses [3.].

**Objective.** Evaluation of the effectiveness of the application of mometasone furoate in the treatment of polyposic etmoidites.

#### **Material and methods of investigation.**

In the ENT department, the Khorezm multidisciplinary center for 2014-2015. 72 patients with polyposic etmoiditis were examined, 44 of them (61.1%) were males, 28 (38.9%) were females. The prevalence of ORS was characteristic for all age groups.

The diagnosis of polyposis etmoiditis was determined according to the generally accepted method.

The general condition of the patients was satisfactory. The main complaints of patients were: difficulty nasal breathing, headache, fatigue, decreased performance, poor sleep.

In 29 patients, these complaints were observed for 6 months, 26 - 1 year, 10 - 2-3 years, 7 - more than 3 years.

With anterior rhinoscopy in the nasal cavity, small polyps in the form of "bunches of grapes" appearing from the upper parts of the nasal cavity are revealed.

In 42 patients (54.5%), a positive own allergic anamnesis was revealed. Hemograms of patients were within normal limits. In patients with a positive allergological status in peripheral blood, a certain increase in the number of eosinophils has been revealed.

56 patients underwent inpatient treatment, which included a sparing polypotomy without destroying the cells of the trellis labyrinth, followed by tamponade of the nasal cavity for 48 hours, and photodynamic poly-laser therapy with "Vostok" daily in the nasal cavity for 10 days.

In the postoperative period, the intranasal corticosteroid drug "Nazonex" was administered for 3-6 months as a spray. We prescribed 100 µg (2 doses) of 2 injections per nostril 1 time / day (total dose of 200 µg).

This drug suppresses all links of allergic inflammation of the nasal mucosa, does not inhibit the mucociliary activity of the epithelium of the nasal cavity, does not cause irritation and dryness of the mucous membrane.

16 patients with polyposis etmoiditis under an outpatient control under the supervision of a physician under the background of photodynamic poly-laser therapy were administered a conservative intranasal corticosteroid therapy without surgical intervention, since the polyps were single, small, only in the upper nasal cavity.

15 patients with polyposis etmoiditis of allergic origin were treated with antihistamine therapy. Observation over the patients for 1.5 years stated that there was no relapse of the polyposis process.

In all groups, patients noted good tolerability of the drug and no side effects from the application.

### **Conclusions:**

1. "Nazonex" is a well tolerated drug, it has a good clinical effect in polyposal etmoiditis and is the drug of choice in this disease.
2. Corticosteroid therapy Flutinex at 3-6 months after Carried out Polypotomy Renders favorable Effect Increasing the time Remission of Polyposal etmoiditis.
3. Treatment of polypoid etmoiditis on Early Stages Forming Polyps Flutinex Prevents fur ther growth Polyps and promotes their Converse development.

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### THE STATE OF ANTIOXIDANT SYSTEM OF MITOCHONDRIAL FRACTION OF THE HEPATOCYTE IN EARLY TERMS OF ISHEMIC STROKE IN WHITE RATS

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**Annotation.** According to experimental of ischemia reperfusion of brain in the early stages studied antioxidant system mitochondrial fraction of hepatocyte. It was found that the greatest changes in the antioxidant system were noted after 6 hours and was accompanied by increased activity of catalase and superoxide dismutase activity decline. These changes do not regains at 12 and 24 hours after reperfusion.

**Keywords:** cerebral ischemia, mitochondria, superoxide dismutase, catalase.

**Аннотация.** При экспериментальной ишемии реперфузии головного мозга в ранние сроки исследована антиоксидантная система митохондриальной фракции гепатоцитов. Установлено, что наибольшие изменения в антиоксидантной системе отмечались через 6 часов и сопровождалось ростом активности каталазы и снижением активности супероксиддисмутаза. Отмеченные изменения не восстанавливались через 12 и 24 часа после реперфузии.

**Ключевые слова:** ишемия головного мозга, митохондрии, супероксиддисмутаза, каталаза.

**Actuality of the problem.** Cerebrovascular disease leading to acute and chronic forms of vascular-cerebral problem of clinic, neurology (by illness in economical-developed countries stroke takes the 3<sup>rd</sup> place in the I the rate of mortality after heartly-vasculae and oncological pathology, stroke and chronic ischemia of cranial-brain is considered to be in the same place as heavy injuries, leading reasons of disability (materials of IInd Russian international congress “cerebrovascular illness pathology and insult”, 2010). Progressive, an avalanche growth of cerebrovascular pathology leads to a significant increase not only the acute stroke, but the number of patients with chronic cerebral ischemia.

With a long and severe ischemia leads to irreversible neuronal damage; last die on the mechanism of necrosis (with some delay in time) and apoptosis. It is known that in cerebral ischemia observed redistribution of oxygen in the body in favor of the brain. Reduced partial pressure in the internal organs, particularly the liver and kidneys, which contributes to the generation of powerful reactive oxygen species (ROS) of the respiratory chain components (superoxide first formed, and then hydrogen peroxide). Thus, changes haemocirculation, particularly after reperfusion brain can not affect the state of organs and tissues, which will inevitably be reflected in a variety of morphological and biochemical changes in the whole body, especially the liver.

The aim of this study was to investigate the status of enzymes anti peroxide and antiradical systems in the mitochondrial fraction of hepatocytes in the early stages in experimental cerebral ischemia.

**Materials and methods of investigation.** Studies have been conducted on white outbred male rats, initial weight 120-130, the model of cerebral ischemia was reproduced by clipping of the left carotid artery for 40 minutes. As a control, animals were "falsely operated" which dissected carotid artery under ether anesthesia followed by suturing stratified (n = 6). Slaughter of animals were carried out in terms of 1, 3, 6, 12, 24, 72 hours after reperfusion.

Verification of ischemia prosecuted on the basis of morphological studies (stain with silver nitrate by the method of Nissel) (E. Pierce 1962). Subcellular fractions were isolated from liver homogenate by the method differential centrifugation. The total activity of antiperoxide (APA) by the method of M.A. Koroljuk and others (1988), the activity of superoxide dismutase (SOD) by the method of O.S. Brusova and co-auhtors (1976).

**Results and discussion.** Comparison of APA and SOD enzyme activities in the mitochondrial (MX) fraction of liver in false-operated animals after 1 hour from ischemia of reperfusion brain showed that relatively increasing APA in intact group of animals 1.28 times ( $R < 0,05$ ) and a decreasing SOD activity 1.12 times ( $R > 0,05$ ) The remaining period of the study found no significant changes in the sham-operated rats and intact and therefore these results are combined as control. Changes in the activity of enzymes MX fractions were extreme in nature: for the APA with a maximum of 2.01 and a pig with a minimum of 3.49 times in the first hours after reperfusion ischemia.

In clinical studies in neonates with hypoxic ischemic encephalopathy in the blood found an increase of the activity of SOD, accompanied by a decrease in the activity of catalase. Experimental research of SOD's activity in MX fraction of rat's liver in ischemic reperfusion of brain, showed time dependence of the changes from the terms of reperfusion. Found certain time parameters of morphological changes in the liver after ischemic reperfusion of brain in the experiment.

Ischemia with lasting reperfusion causes changes of activity in the anti peroxide and antiradical systems of organism, both expressed in brain tissue and liver. SOD and catalase, as a powerful antioxidant in tandem, provide protection against superoxide anion and hydrogen peroxide are formed inside the cells and in the extracellular space, maintaining the optimal level for the life of the generation of reactive oxygen species (ROS). At the same time the protection of cellular structures from the damaging effects of ROS are produced within the cell (endogenous ROS) and the impact of external (exogenous ROS) is organized in different ways.

Considering the mechanisms of changes in the activity of enzymes and anti-radical anti peroxide protect the liver can be noted, one of the leading causes appears to be a redistribution of oxygen in the body of an experimental animal for the benefit of the affected organ. According Petrukhina A.S., in response to hypoxia in the brain tissues increases with increasing flow rate of the minute volume and the bloodstream in the early hours redistributed so as to maintain the oxygen supply to the brain, "robbing" the internal organs.

Specifically, a reduction in the partial pressure in the liver, which probably was the cause of ROS production and activation corresponding shift in the antioxidant system MX hepatocyte fraction at different time cerebral ischemia reperfusion. Apparently, changes in liver morphology authors found in early brain ischemia reperfusion injury associated with decreased activity and anti peroxide and antiradical defense systems in the first 6 hours after reperfusion.

**Conclusions.** Studied the antioxidant activity of the mitochondrial fraction of hepatocytes in the early stages of experimental ischemia reperfusion brain. The mitochondrial fraction of the liver after ischemia reperfusion brain anti peroxide an increase activity and decrease in superoxide dismutase activity in terms of chosen shall experiment. The mitochondrial fraction of liver enzyme activity anti peroxide system increased and there was a decrease of enzyme antiradical protection with the greatest deviation of up to 6 hours after reperfusion.

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**DETERMINATION OF HEMOLYTIC ACTIVITY OF  
MICROORGANISMS ISOLATED FROM THE FECES OF HEALTHY  
AND SICK CHILDREN WITH DIARRHEA LIVING IN ECOLOGICALLY  
UNFAVORABLE CONDITIONS OF THE SOUTHERN ARAL SEA  
REGION.**

**Sadullaev O. K., PhD, (Urgench branch of the TMA.)**

**Аннотация.** Мақолада диареяли касалликлар билан касалланган болалар нажасидан ажратиб олинган штаммларни назорат гуруҳидан ажратиб олинган штаммларга нисбатан кўп даражада гемолизин ишлаб чиқариши аниқланган.

**Аннотация.** В статье определено, что выделенные штаммы микроорганизмов из фекалий детей больных с диарейными заболеваниями вырабатывался гемолизин в большей степени, чем штаммы выделенной от контрольной группы.

**Annotation.** The article defines that the isolated microorganism strains from the faeces of sick children with diarrheal diseases produced hemolysin heavily than the strains isolated from the control group.

**Калитсўзлар:** гемолизин, экология, нормал микрофлора, штамм, диареяли касалликлар, гемолитик фаоллик, гемолитик ичак таёқчаси, идентификация, вирулентлик.

**Ключевые слова:** гемолизин, экология, нормальная микрофлора, штамм, диарейные заболевания, гемолитическая активность, гемолитические кишечные палочки, идентификация, вирулентность.

**Keywords:** hemolysin, ecology, normal microflora, strain, diarrheal diseases, hemolytic activity, hemolytic E. coli, identification, virulence.

In the works of many researchers demonstrated that the normal intestinal microflora synthesizes the whole complex of B vitamins and vitamin K, it stimulates intestinal peristalsis. The positive effect of the microflora of the colon is clearly manifested in experiments on gnotobiont-highly sensitive to infection. .

It stimulates normal intestinal microflora and immunobiological reactivity renders morphogenetic effect on the intestinal wall, especially at its mucosa and lymphoid system (1,2,3).

Species composition of colon microflora is diverse and abundant. The number of microorganisms was  $10^{11}$ - $10^{12}$  cfu / g, 90-99% asporogenous whom are anaerobes, that is Bifidobacterium, Bacteroides, fusobacteria, lactobacilli, peptococcus, eubacteria and others, and 1-10% falls on the share of aerobic and facultative anaerobic bacteria, Escherichia coli, enterococcus, staphylococcus, streptococcus, fungi, Klebsiella, Proteus and others. We their ability to produce hemolysin (Table) was investigated in the identification of microorganisms isolated strains.

Hemolytic activity of microorganisms isolated from the feces of children, has been studied by 5% blood agar for  $\delta$  or  $\beta$  hemolysis (illumination zone around the colony). In healthy children from 88 strains of 20 had hemolysis ( $22,7 \pm 1,1\%$ ). Among them,  $6,6 \pm 0,5\%$  E. coli with hemolytic properties and  $50,0 \pm 2,3\%$  hemolytic staphylococci. Pediatric patients diarrheal diseases with different etiologies including hemolytic strains increased to  $53.9 \pm 17\%$ . Their number has increased compared to healthy children is 2.4 times ( $P < 0,001$ ). In particular, the hemolytic E. coli increases 5 times ( $32,0 \pm 2,1\%$ ), enterococcus, hemolytic 3.6-fold ( $P < 0.001$ ). The percentage of strains of staphylococci with hemolytic properties increased by 1.8 times, that is, of the 98 studied strains of staphylococcus isolated from patients with diarrhea of children 91 strain was hemolytic ( $92,0 \pm 6,1\%$ ).

Table 1.

Hemolytic activity of the microorganisms isolated from the feces of children.

Microorganisms	Practically healthy children (II control group).			Children with diarrhea.		
	The number of strains studied	The number of positive strains	%	The number of strains studied	The number of positive strains	%
1. Eschrichia coli	30	2	6,6±0,5	103	33	32,0±2,1
2. Enterococcus	28	3	10,7±0,7	101	39	38,6±2,7
3. Staphylococcus	30	15	50,0±2,3	98	91	92,0±6,1
<b>Total:</b>	88	20	22,7±1,1	302	163	53,9±1,7

**Thus**, isolated from the feces of children suffering from diarrhea microorganism strains hemolysin worked out to a greater extent than the same name strains isolated from the control group. The most active in this respect showed staphylococci, followed by enterococci and E. coli. It can be concluded on the basis of these studies, that sick children suffering from diarrheal diseases is marked both quantitative and qualitative changes. Consequently, there is a strengthening of many virulent microorganisms constitute the normal flora of the gastrointestinal tract.

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### **INFLUENCE OF NON-TRADITIONAL METHODS OF TREATMENT ON THE HEALTH OF PATIENTS WITH METABOLIC SYNDROME**

**Rahmetova M. (Urgench branch of TMA)**

**Аннотация.** Проведено исследование пациентов с метаболическим синдромом (ожирением, гипертонией, сахарным диабетом), которые

пытались добиться нормализации веса, артериального давления и сахара в крови посредством соблюдения поста «Рамазан». Результаты наблюдения выявили положительный эффект у 54,5% больных и отрицательный - у 45,5%.

**Ключевые слова:** метаболический синдром, ожирение, гипертония, сахарный диабет; нормализации веса, артериального давления и сахара в крови; соблюдение поста «Рамазан».

Ушбу тадқиқотда метаболик синдром (қандли диабет, гипертония, семизлик) билан оғриган беморлар ўрганилди. Улар Рамазон ойида Рўза тутиш йули билан ортиқча вазн, артериал қон босими ва қондаги қанд миқдорини меъёрига келтиришни мақсад қилдилар. Натижалар шуни кўрсатдики, 54,5 % беморларнинг умумий аҳволи яхшилашган бўлса, 45,5 фоизида салбий оқибатларга олиб келди.

**Калит сўзлар:** Метаболик синдром, қандли диабет, семизлик, гипертоник касаллик, ортиқча вазн

The research was conducted with the patients with metabolic syndrome (obesity, hypertension, diabetes mellitus), who had tried to achieve normalization of their weight, blood pressure and sugar level by fasting within month of Ramadan. The results of the observation revealed a positive effect in 54.5% and negative effect in 45.5% of patients.

**Key words:** metabolic syndrome, diabetes mellitus, obesity, hypertension  
Normalization of weight, blood pressure and sugar level in the blood.

Day by day, the prevalence of the metabolic syndrome increases globally, which leads to an increase in associated cardiovascular diseases (CVD), diabetes, hypertension, endometrial cancer and cancers of colon, breast and prostate. In 1997, the World Health Organization (WHO) declared the epidemics of obesity as a problem that affects "the health of the population more than traditional health problems, in particular starvation and infectious diseases" [2]. According to WHO experts, in 2025 all over the world there will be more than 300 million people with obesity problem, more than 300 million patients with diabetes and over 1 billion people with hypertension disease. American researchers have established an increased mortality index in obese people [3], primarily from cardiovascular complications. "The widespread increase in morbidity and mortality from CVD is due to objective reasons: socio-economic factors, increasing psychosocial loads, urbanization, nutrition changes, labor and living conditions, bad habits and unhealthy lifestyle of the majority of the population [5]. Traditionally, obesity has been considered as a disease of elder people, but in recent years, the number of obese children and adolescents is sharply increasing [4].

The metabolic syndrome includes many components. The following ones have been studied more than others: obesity, hypertension, diabetes mellitus and impaired glucose tolerance. If the issues of correction of the violation of carbohydrate metabolism, normalization of blood pressure, dyslipidemia have specific outlines, then the prospects for treatment and prevention of obesity require further development. The worst situation is with the "Compliance" of obese

patients. Nowadays, the success of obesity treatment is very modest in comparison with the breakthrough in hypotensive, lipid-lowering treatment. Perhaps, it is because of the fact that obesity is a polyetiological disease and along with drug therapy, other correction methods are very important [6]. Treatment of obesity is very difficult; it includes diet therapy, a complex of physical exercises, medical and surgical treatment. However, the patient with a metabolic syndrome is unable independently and correctly to choose proper dietetic food, to increase the level of physical activity, sharply to change the standard of life, habitual food and to combine the abovementioned with the intake of hypotensive, hypoglycemic and other drugs. Fulfillment of all the above mentioned is possible for a team of specialists: endocrinologists, therapists, psychologists, physiotherapists, nutritionists.

However, obese people usually try to manage their problem independently. As a result, attempts to lose weight will be unsuccessful, which leads to disappointment and psychological discomfort of the patient. It is necessary to have an additional stimulus, which would help people to fight their grave illness. Such an incentive for obese Muslims is doing the fast month of Ramadan. There is a myth that fasting people not only significantly lose weight, but also improve overall health. "A complete change in eating habits is the key to achievement of consistent weight loss" [3]. Is it real?

Long-term monitoring of obese patients with other components of the metabolic syndrome (hypertension and diabetes) suggests that doing Ramadan fast can be dangerous for this category of patients.

**Research objective:** To study the effect of Ramadan fast on the health status of patients with metabolic syndrome.

**Materials and methods of research:**

Preliminary medical examination were conducted among 50 patients with metabolic syndrome, who decided to fast. It included examination of patients, measurement of blood pressure, fast blood glucose, weight and body mass index (BMI), waist circumference (according to ethnicity and gender), drug history, primarily lipid lowering medications. Diagnostic criteria for the metabolic syndrome for adults adopted by IDF has been used [4]. Particular attention was paid to the presence and predisposition of cardiovascular diseases. As a result of the examination, people with severe cardiovascular pathology, type 1 diabetes, decompensated type 2 diabetes and severe degree hypertension were excluded. For both groups: the excluded and involved in the study, were given detailed explanations about the danger of excessive changes in the diet, which accompanies fasting.

Out of 50 people wishing to follow the fast, 28 of them (56%) had contraindications. The remaining 22 were obese people; including 10 (45.5%) women and 12 (54.5%) men at the ages between 19 to 60 years were monitored during the entire period of compliance with the post and were again subjected to medical examination after the end. Out of the 22 patients, 10 (45.4%) have 1st degree obesity, 6 (27.3%) have

II degree obesity, 6 (27.3%) have III degree obesity. Patients with IV degree obesity were strongly advised to abandon Ramadan fasting. An increase in blood pressure as 125/86 - 139/90 mm Hg was noted in 13 (59.1%) patients, 9 (40.9%) patients had medical compensation of hypertension (persons with essential hypertension of 2 and 3 degree were also excluded from the survey and they were given detailed recommendations about the dangers of a sudden change in the regime of the day and nutrition).

In 19 (95%) patients, in addition to the abovementioned, gastrointestinal tract diseases were diagnosed: 6 people (31,6%) had indication on the presence of colitis, 7 people (36,8%) had hepatocholecystitis in the anamnesis; 6 people (31,6%) suffered from gastritis. The main motivation for fasting was the desire to improve the digestive activity of the stomach and intestines. Five patients (22.7%): three men and two women suffered varicose veins of the lower extremities. Fasting plasma glucose was measured in all 100% of people. Among the patients suffering from diabetes mellitus, one man and one woman showed a sharp increase in blood sugar, which is an absolute contraindication to fasting. Two people (9,1%) having compensated diabetes, despite explanatory work, insisted on the desire to fasting. Before the fasting, five people (22.7%) of the patients were trying to normalize the weight by running (running, swimming): 4 men and 1 woman, other four people (18.2%) with medication : 1 male and 3 women. Smoking is abused by 3 (15%) men, alcohol consumption is noted by 8 (36.4%) men. Among women, none had the above harmful habits.

### **Results and its discussion:**

Weight loss was noted in 8 (36.4%) people, and in 6 (75%) people—decrease by 3 kg, in two (25%) people - by 5 and 6 kg. Out of the 8 studied people, 7 suffered from obesity of the first degree and only one of them - II degree. No tangible results were achieved by 14 (63.6%) people, including 7 women and 7 men. The waist size was reduced in all patients, without exception, by an average of 1.9 cm in women and 2.1 cm in men. Both patients with diabetes mellitus had repeated mild hypoglycemia, which was stopped by the ingestion of sweet food and sweet drink. All patients with this diagnosis noted subjective and objective betterment signs of hepatocholecystitis, but one patient noted normalization of the stool. At one of the studied people (4,5%) development of acute gastritis, in 2 people (9%) exacerbation of chronic colitis, in 3 (15%) people a decrease in hemoglobin of the blood was recorded. An increase in blood pressure was noted in 6 (27.3%) patients, normalization or a noticeable decrease was noted at 7 (31.8%). Two patients (9.1%) noted sleep disturbance, 4 (18.2%) patients noted increased tiredness and weakness during the day, 5 (22.7%) patients noted violation of concentration due to sleep disorders.

### **Conclusions:**

1. Only 8 (36.4%) patients achieved a slight decrease in body weight, while 14 (63.6%) of them did not lose weight as a result of Ramadan post. Half of the

subjects achieved normalization of blood pressure, while 27.3% of hypertensive patients experienced worsening.

2. Subjective improvement of the general condition was noted by 14 (63.6%) patients, while impairment by 8 (36.4%) of them. As for an objective assessment, a positive effect of fasting was noted in 12 (54.5%) people, negative - in 10 (45.5%). Both subjective and objective dynamics were observed in patients with obesity of 1 and 2 degrees. A negative result is in patients with obesity of grade 3. Thus, the impact of fasting on the health status of patients with metabolic syndrome is ambiguous and effective only in the early and uncomplicated stage of obesity, with hypertension without target organ damage. During diabetes manifest, compliance with fasting is unacceptable, even with light circumstances of disease. It is dangerous, primarily because of episodes of hypoglycemia. In people with an unfavorable premorbid background, as well as obesity of grade 3, fasting leads to negative consequences.

This dictates the need for a preliminary examination and monitoring of each patient with a metabolic syndrome, who decided to fast.

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### **DYNAMIC ANALYSIS OF ETIOLOGICAL FACTORS OF EXTRAMURAL PNEUMONIA IN CHILDREN OF PRESCHOOL AGE**

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**Аннотация.** Статья посвящена анализу трансформации этиологической структуры внебольничной пневмонии у детей дошкольного возраста за период с 2012 по 2016 гг. На основании обследования 120 детей установлено, что за последние 5 лет структура возбудителя внебольничной пневмонии у детей дошкольного возраста существенно изменилась. Преобладающими возбудителями остаются *Streptococcus pneumoniae*, *Streptococcus pyogenes*. Отмечено, что за последние 2 года увеличилась частота пневмонии, ассоциированной с *Mycoplasma pneumonia* и *Chlamydomphila pneumoniae*.

**Ключевые слова:** этиология, внебольничная пневмония, дети дошкольного возраста.

**Summary.** This article analyzes the transformation of the etiological structure of pneumonia in children of preschool age for the period of 2012-2016. After examination of 120 children, it was revealed that for the last six years the structure of extramural pneumonia in preschool children has changed significantly. The predominant pathogens are *Streptococcus pneumoniae* and *Streptococcus pyogenes*. It was revealed that the occurrence of pneumonia associated with *Mycoplasma pneumonia* and *Chlamydomphila pneumoniae* has increased for the past two years

**Key words:** etiology, community-acquired pneumonia, children of preschool age.

**Аннотация.** О'тган 5 йил davomida, zotiljam kasalligini maktabgacha yoshdagi bolalarda qo'zg'atuvchining tuzilishi sezilarli darajada o'zgardi deb topildi. 2012-2016 yillarda 120 nafar maktabgacha yoshdagi shifoxonadan tashqari zotiljam bilan hastalangan bolalarni tekshirish asosida kasallikni qo'zg'atuvchilari *Streptococcus pneumoniae*, *Streptococcus pyogenes* deb topildi. Lekin oxirgi 2 yil ichida *Mycoplasma pnevmonicus* va *Chlamydomphila pnevmonicus* bilan bog'liq zotiljam kuzatilishi ortdi.

**Калит so'zlar:** etiologiya, shifoxonadan tashqari zotiljam, maktabgacha yoshdagi bolalar

**Introduction.** Due to the observations of clinicists, extramural pneumonia often passes without any symptoms and its therapy is not always effective that becomes the cause of prolonged and complicated course of the inflamed process. In Uzbekistan children's becoming diseased with pneumonia is between 8,2-12,8%. One of the main causes of the increase of pneumonia is a high degree of diagnostic mistakes and late diagnostics. The number of pneumonia in which the clinical picture does not coincide with x-ray data and the number of the form of the disease with little symptoms has considerably increased [1,2]. An etiological approach is considered to be important in the diagnosis of acute pneumonia [2, 3, 4]. Difficulties in etiological diagnostics of pneumonia in children are due to its poly etiology. The causative agents of pneumonia can be both typical, bacterial agents (for example, *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Staphylococcus aureus*), and atypical agents (*Mycoplasma pneumonia* and *Chlamydomphila pneumoniae*) and respiratory viruses [5,8]. Influence of each infectious agent on the etiology of extramural pneumonia depends on age group of

patients as in most cases, the causes of the development of the disease in children is mixed bacterial or virus-bacterial infections. However, in the whole, the rise in diseases of extramural pneumonia for the last years is due to atypical agents. [4,7,8].

**The aim of the research** is the dynamic analysis of the etiology of extramural pneumonia in children of preschool age in conditions of children's in-patient department.

**Materials and methods of the research.** The research is based on the results of observations of the course of extramural pneumonia in 120 children of 3 up to 7 years in the period of 2012 up to 2016. The basic part of the group contains children of 3 up to 5 years-54% (64 children). The average period of the patients' stay in the in-patient department is 12 days, that coincides with medical economic standards.

**Results of the research. A definite causative agent (table) was revealed in 68 children out of examined 120 ones.** Cases of unverified agents (42,9%) in extramural pneumonia are linked with that children had antibiotic therapy till they were admitted to the in-patient department. According to the results of the carried experiment, some changes occurred in etiology of the structure of extramural pneumonia for the last 6 years. *Streptococcus pneumoniae* is revealed more often among bacterial agents in extramural pneumonia in children of preschool age than *Staphylococcus aureus*, *Streptococcus pyogenes*. The rate of *Staphylococcus aureus* as a causative agent of extramural pneumonia decreased from 16% up to 3.33%. The spread of *Streptococcus pyogenes* was nearly the same with *inconsiderable waves*.

As the carried out experiment showed, extramural pneumonia due to *Mycoplasma pneumoniae*, in children of preschool age has a complicated course accompanied with high temperature and toxics. A family character of mycoplasma pneumonia was revealed, when several people in a family were diseased at the same time. And this kind of case is not peculiar to pneumonia, that is due to bacterial agents ( $p < 0,05$ ). The peculiarity of season increase of the disease is that the treatment (symptomatic, fever decreasing, sputum discharging, per oral half synthetic penicillin) on a pre-hospital stage was inefficient in all the children admitted to in-patient-department. Children were admitted to in-patient department at late stages of the disease, in the average  $14 \pm 2.5$  days of the disease, that confirms the absence of effectiveness of the treatment in conditions of the out-patient department. The beginning of the disease was characterized with fast worsening of the clinical picture. The increase of the body temperature up to  $38-39^{\circ}\text{C}$ , that preserved up to 8-10 days, with following fall to sub febrile one, was marked. Fever accompanied with the presence of toxics and paleness of skin surface, adynamia, anorexics, headache were marked. In children of 3-7 years, the fever was often accompanied with vomiting (52% -13 people). Catarrhal cases were expressed by upper respiratory tract. Cough in first 10 days was dry and inner. Up to the end of the 2<sup>nd</sup> week, cough became less productive and with attacks. The presence of dry cough

with attacks did not enable the development of symptoms of respiratory insufficiency. Breathlessness of mixed character was very rarely marked.

Physical data in children with pneumonia, due to *Mycoplasma pneumoniae*, were rather low. Different moist rales were heard on the surface of both lungs and the surface of shortened percutor sound was not registered. On x-ray examination of lungs, infiltrate foci with indefinite, unclear contours with tendency to get mixed confluence were revealed. On taking x-ray examination of the organs of the chest a slow absorption of inflammatory infiltrate was marked, only 76 % ( 19 people) pneumonia was formed on the 12<sup>th</sup> day. In general blood analysis, moderate leucocytosis ( $11,3 \times 10^9/l$ )  $\pm 1,6$ , inconsiderable accelerated ESR( $20 \pm 2,1$ ) mm/h were revealed. Saturation of oxygen in the given group of patients was normally inside the parameters of 95-96% out of 98-100% that indicated to the absence of symptoms of respiratory insufficiency. In biochemical analysis of blood, the readings of C- re-active protein were in the norms ( $p > 0.05$ ). Complications of cardio-vascular, urine-excretory and digestive systems were not registered.

So, the structure of causative community-acquired pneumonia in children of pre-school age has considerably changed for the last 5 years. Pneumococci and piogen streptococci remain as the main causative bacterial agents. The spread of pneumonia, associated with *Mycoplasma pneumonia* and *C. pneumoniae*, that composed 29.07% (25 people) in general structure of causative agents of the disease, has increased for the last 2 years. In most patients (65,12%-84 children ) resistance of inflammatory process in the lungs to traditionally applied antibiotics on pre-hospital stage, was marked. And it for certain prolonged the process of treatment. The carried analysis of etiological factors of development in community-acquired pneumonia in children of pre-school age enabled to determine a number of peculiarities of the course of the disease depending on the character of the causative agent. Concluding all these, the choice of antibiotics in the treatment of community-acquired pneumonia must be based on clinical epidemiologic peculiarities of the course of modern pneumonia.

## LITERATURE

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**LEARNING ABILITY PLASMACOAGULATING MICROORGANISMS  
ISOLATED FROM THE FECES OF HEALTHY AND SICK CHILDREN  
OF DIARRHEAL DISEASES LIVING IN ECOLOGICALLY  
UNFAVORABLE CONDITIONS OF THE SOUTHERN ARAL SEA  
REGION.**

**Sadullaev O. K., PhD, (Urgench branch of the TMA)**

**Аннотация.** Мақолада диарейли касалликлар билан касалланган болалар нажасидан ажратиб олинган штаммларни назорат гуруҳидан ажратиб олинган штаммларга нисбатан кўп даражада плазмокоагулаза ферменти ишлаб чиқариши аниқланган.

**Аннотация.** В статье определено, что выделенные штаммы микроорганизмов из фекалий детей больных с диарейными заболеваниями вырабатывали плазмокоагулазу в большей степени, чем штаммы выделенной от контрольной группы.

**Annotation.** In this article it is determined that microbial strains isolated from feces plasmocoagulase worked out heavily than strains isolated from the control group.

**Калит сўзлар:** экология, идентификация, фермент, нормал микрофлора, штамм, назорат гуруҳи, диарейли касалликлар, плазмокоагулаза, ошқозон-ичак тракти.

**Ключевые слова:** экология, идентификация, фермент, нормальная микрофлора, штамм, контрольная группа, диарейные заболевания, плазмокоагулаза, желудочно-кишечный тракт.

**Keywords:** Ecology, identification, an enzyme, a normal microflora, strain control group, diarrheal diseases, plasmocoagulase, gastro-intestinal tract.

On going environmental violations by the example of the Aral Sea and the Aral Sea area for the intensity of the processes of desertification have no analogues in the world practice. This explains the difficulty of quantitative and qualitative assessment of environmental change (1).

Taking into account the negative effects of environmentally adverse factors on the population (1,2,3,4), especially in children who live in the Southern Aral

Sea area, the study of quantitative and qualitative composition of the normal intestinal microflora and the mechanisms of its regulation in this area seems urgent problem. .

The normal intestinal microflora is beneficial for the organism, performing protective, synthetic and enzymatic functions. In the normal physical state of the greatest contribution to the overall metabolic processes makes flora of the distal intestine. microbial enzymes cleave specific amino acids, proteins, formed from edible fatty acids, - hydroxy acids, destroy bile salt is converted to bilirubin stercobilin involved in the metabolism of steroids. The main fiber mass is subjected to cleavage by enzymes of bacteria (5,6,7). .

In the process of identification of isolated strains of microorganisms have been studied for their ability to produce the enzyme-aggression plasmocoagulase (8)

(Table).

In healthy children studied 88 strains of microorganisms had 8 plasmocoagulate ability ( $9,09 \pm 0,8\%$ ). Of the 30 strains of staphylococcus strains were 6 coagulase-positive that was  $20 \pm 1,2\%$ . Of the 20 strains of enterococcus plasmocoagulation ability showed only 2 strains ( $7,14 \pm 0,8\%$ ). In children suffering from diarrheal diseases percentage coagulase-positive strains increased to  $27,8 \pm 1,2\%$ , that is, their number increased 3 fold compared to healthy children ( $P < 0,001$ ).

Table

Plasmocoagulation ability of microorganisms isolated from the feces of children.

Microorganisms	Practically healthy children (II control group)			Children with diarrhea		
	The number of strains studied	Positive strains	%	The number of strains studied	Positive strains	%
1.Escherichia coli	30	-	-	103	5	$4,8 \pm 0,5$
2.Enterococcus	28	2	$7,14 \pm 0,8$	101	8	$7,9 \pm 0,9$
3.Staphylococcus	30	6	$20,0 \pm 1,2$	98	71	$72,4 \pm 4,1$
Total:	88	8	$9,09 \pm 0,8$	302	84	$27,8 \pm 1,2$

Appears E. coli coagulase-positive. Of the 103 strains of Escherichia coli strains 5 has this property ( $4,8 \pm 0,5\%$ ). Percentage of enterococcus was the same as in healthy children. 3.5 fold increased number of strains of staphylococci-plasma coagulation ( $72,4 \pm 4,1\%$ ).

Thus, isolated from the feces of children suffering from diarrhea microorganism strains plasmocoagulase worked out to a greater extent than the same name strains isolated from the control group. The most active in this respect showed staphylococci, followed by enterococcus and E. coli. It can be concluded on the basis of these studies, that sick children suffering from diarrheal diseases marked both quantitative and qualitative changes. Consequently, there is a strengthening of many virulent microorganisms constitute the normal flora of the gastrointestinal tract.

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### INTERRELATION OF CHANGINGS IN STOMACH AND KIDNEY

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**Annotation.** In recent years a lot of information has been given about relation of stomach and kidney functions. According to analysis of books, interrelation with metabolic hyperacidity of stomach illness in kidney illness stands for the first place. It is showed that stomach illnesses with calculous pyelonephritis is 70%.

**Key words:** correlation metabolic, breaking up of changing, ecological problem, pathogenetic relation.

**Аннотация.** В последние годы очень много появилось сообщений о тесной функциональной взаимосвязи между почками и органами пищеварения, Анализ литературы показывает, что в данной проблеме одно из центральных мест занимает связь заболеваний почек с заболеваниями желудочно-кишечного тракта и метаболический ацидоз. Заболевания желудочно-кишечного тракта более чем в 70% сопровождается калькулёзным пиелонефритом.

**Ключевые слова:** метаболитический связь, обменные нарушения, экологические неблагополучие, патогенетический связь.

**Аннотация.** Кейинги йилларда адабиётларда ошқозон ва буйрак ўз фаолиятлари жихатидан жуда яқин туриши тўғрисидаги маълумотлар кўп келтирилган. Адабиётлар таҳлилининг кўрсатишича бу муаммода ошқозон ичак касалликлари билан кечадиган буйрак касалликларининг метаболит ацидоз билан боғлиқлиги биринчи ўринда туради. 70% ҳолатларда ошқозон - ичак касалликларининг калькулёз пиелонефрит билан кечиши кузатилмоқда.

**Калит сўзлар:** Метаболитик боғлиқлик, алмашинувнинг бузилиши, экологик носозлик, патогенетик боғлиқлик.

**Ключевые слова:** метаболитический связь, обменные нарушения, экологические неблагополучие, патогенетический связь.

In recent years a lot of information has been given about relation of stomach and kidney functions. According to analysis of books, in relation with metabolic hyperacidity of stomach illness in kidney illness stands for the first place. It is showed that stomach illnesses with calculous pyelonephritis is 70%.

**Key words:** correlation metabolic, breaking up of changing, ecological problem, pathogenetic relation.

**Research aim:** Analysis of changes in kidneys and relation with common gastrointestinal diseases in children.

The connection between the gastro-intestinal and renal functional metabolic and secretors, excrete, due to the closeness of the tasks, such as genetic link to absorption of the stomach through the intestines, for instance in infants milk absorbs with pinocytosis ways and splits in the kidneys, preserves as the artificial blood, on the other hand, such a link will appear in the stomach and kidneys N<sup>-</sup>ions processed and alkaline pH in the body of this lies in the sustainable protection of equality.

It is seen from this information, that kidney disease can pose a greater risk for stomach and digestive involved in the pathological process causes a more severe course of the disease. However, this disease is accompanied by stomach has not yet been studied, and the treatment of such disease as calculous pyelonephritis is complicated but it is one of the issues that must be addressed. Disturbances of the stomach in this disease have not been completely studied.

Therefore, the issue of treatment of them always marginalized. From some resource given by scientists recurrence of calculous pyelonephritis after the operation

may occur from 7.1% to 32.2%, and stone formation may be from 6.4% to 30% in cases. This process is progressed not only on the renal parenchyma but also on the stomach wall. Considering the period of post-operative treatment of the disease, to find the most effective and efficient methods are of great practical importance.

This disease occurs mainly in children and causes serious complications as hydronephrosis, pyelonephrosis, renal failure and others. There are a number of opinions about the reasons for such a wide range of disease pathogenesis, treatment methods.

Recently, the causes of this disease as a result of metabolic disorders, environmental pollution and the composition of drinking water, malnutrition, lack of amino acids, vitamins, contamination of trace elements with toxic chemicals of agricultural products and a number of other problems, should be taken into consideration.

However, special attention is paid in connection between disturbances of systems and impairment of some organs of people with this illness. The main place is occupied especially by functional link between the kidneys and digestive system. These two members are members of metabolic and endocrine secretion; main function of them is secretion. Secondly, if one stands at the beginning of metabolism another one stands at the end of it, the ingredients that are necessary for body are excluded.

In newborn babies absorption of the milk is happened in the digestive system, kidneys, stomach and the presence of hydrogen ions, working in the same cells in kidneys, stomach converted to the collapse of the effects of certain hormones in the urine in kidneys and the number of diuretics in the stomach secretions increase depression, kidney diuresis. In addition, a number of clinical studies shown that in kidney stone disease, chronic dialysis, gastritis, stomach ulcer, duodenal ulcer a connection between these organs during this disease is functional; pathogenetic connections output in a whole new level.

But in occurrence of kidney stones in children with diseases of the digestive system, especially the stomach morphofunctional changes and their causes, is not yet fully studied. Recently, in known kidney disease cell membranes and fat exchange disturbances particularly on the issues of the treatment put many tasks in front of the researchers.

In kidney-stone disease, particularly in the acute form of the disease causes an increase of metabolic acidosis has been thoroughly studied, some scientists have only put forward reason of increased uric acid, uremia. Yarmuxamedov K.A believes that the main causes of metabolic acidosis, hydrogen ions from the urine secretion are impairment of nephron cell channels.

But here's the  $H^+$  working in their digestive glands completely marginalized, while to be normal in the blood the pH mostly ruled by the stomach and the kidney.

During kidney-stone disease found in children and adults stomach gastritis, ulcers, duodenal inflammation exacerbates even more the disease and leads to even worse consequences.

**Conclusion.** It is desirable, that in children with kidney disease processes during it should be considered from the pathogenetic point of view, and in this disease the state of the stomach should be analyzed. In accordance with it, treatment methods are chosen. One of the actual problems of modern medicine is revealing the relationship between organs, and restoring of normal structure of tissue membranes should be taken into consideration.

Research in the last years has shown that there is a link in morphological similarities, deep functional connection between organs.

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**ACTIVATING THE PROCESS OF SUBJECT TEACHING WITH THE  
HELP OF NEURON NETS WHICH WERE TAUGHT AT THE BASE OF  
LOGICAL STRUCTURED ELEMENTS.**

**Yusupov D. (UrSU)**

**Annotation:** Matters of approaching to modeling the branch of teaching with the principal of neuron nets technology are looked through, and this is the base of coordinated active teaching with computers as well as observation system.

**Key words:** structure, structuring the composition of the subject, logical structure, neuron nets, teaching the neuron nets.

**Introduction:** Teaching the professionals in the field of information technologies requires choosing the teaching models or creating new models. When teaching modules are said, we understand the set of all modules at teaching students, knowledge base of the objective field and the conceptive modules of teaching. The fields of knowledge base which are being looked through, for instance, mathematics, informatics, operating, physics, chemistry and by other natural scientific subjects we work with certain institutional rules of the domain of object; they are characterized with highly formalization degree.

**Importance:** One of the basic functions of adoptive teaching system is optimizing the process of studying. Until now there are not modern universal methods or models despite different kinds of ways of teaching in higher education that is why teacher chooses suitable procedures of teaching which corresponds the object, but it is not always productive. Here we take the depth of studying objects degree by learners, breadth and solidity of gained knowledge, studied degree of theoretical material and practical custom into consideration whether they were mastered firmly. We assess the student's knowledge evaluation between the interval of [0,1]. It is not difficult to express any amount of evaluation between the interval of [0,1]. We select the basics from the forms of describing knowledge: analytical (analytical expressions, mathematical models, algorithms, formalized descriptions and etc), (systems, pictures, videos), (practical methods and offers, descriptions).

**The meaning of the matter:**

We are going to offer net which was built on the basis of logical-graph system at the subject operation basics. Without staying at the matter of logical-structuring issue and formalization of knowledge at the subject of operation basics, we think as followings: the knowledge about the objects are described at net, the

bundles of net convey logically finished conceptions of the field of objects, and its sides describe connections between basic notions. On the basis of net of the subject, suitable algorithm of objects, organically connected, can be worked out.

In order to describe the knowledge gained according to chosen theme, for example, we select m question as a mean of “operation at C++” subject. Each question is explained in the form of analytical appearance or appearance, oappearance. For instance, according to this theme n teachers give lessons. We take the number of teachers that give lessons as n=2, and the number of questions as m=3: Question 1-operating and doing algorithms on the process of ; Question 2-operating and doing algorithms on the process of repeated evaluations. Notes are admitted:

$V = \{v_i\}, i = \overline{1, m}$  -the number of questions;

$P = \{\pi_i\}, i = \overline{1, n}$  -the number of teachers. Linguistic variables:

Analytical

$A = \{\text{“expressions”, “modules”, “algorithms”, “with a word”}\} = \{a_1, a_2, a_3, a_4\}$  ;

The function of logics  $f_a = a_1 \vee a_2 \vee a_3 \vee a_4 = 1, a_i \in [0,1]$  ;

Exhibitional

$O = \{\text{“systems”, “pictures”, “graphs”, “videos”}\} = \{o_1, o_2, o_3, o_4\}$

The function of logics  $f_o = o_1 \vee o_2 \vee o_3 \vee o_4 = 1, o_i \in [0,1]$  ;

Heuristics

$E = \{\text{“heuristics description”, “practical methods”, “offers”}\} = \{e_1, e_2, e_3\}$

The function of logics  $f_e = e_1 \vee e_2 \vee e_3 = 1, o_i \in [0,1]$  .

Analytical, exhibitional, evristic explanations organize the descriptionalkortej and it consists12 elements, more accurately  $Z = \{A, O, E\} = \{a_1, a_2, a_3, a_4, o_1, o_2, o_3, o_4, e_1, e_2, e_3, 0\}$  . The first 4 elements are suitable to the coefficient of descriptive types of knowledge analytically, and the latter 4 – suitable for exhibitional type, the last 4- suitable for evristik type. So there are 4 elements in nimkortej of kortej, that one of it should be equal to 1, more accurately one of the types of analytical, exhibitional and evristik should be used. For instance, kortej(0,0,0,1,1,0,0,0,1,0,0)describes this idea: student receives practical methods in higher degree, receives the material in the form of flowchart well in exhibitional type, receives explanation with words well rather than mathematical rules in evristik type.All kortejlar are composed for the parameters of the module by the same way.

We make the matrix N x Mas a result of uniting kortej ,N-is the number of parameters at the teaching module, M- is the length of kortej . The length (M)of all kortejshould be made same, by completing the elements with zeroes.

The module which expresses the concrete condition of the student at a certain moment of studying is conveyed in the form of matrix consisting zeroes and one.

The adoptive teaching which is being offered, has to propose productive method of teaching according to analysis of the information in formalized matrix. But during the studying moment, changes are made on the basis of the information collected about the student subject, and it effects positively to study method. Selection of productive teaching comes to the matter of classification according to one scale, more vividly, setting the correspondence between the study method and the student subject. In our opinion, by this the study of dynamic should be taken into consideration as well as parameters of the student at different moments. So, by using the completed matrix of study module clarifying student's adaptation to a class, the main principles of the concretely taught subject, defining the study methods that able the conceptions and rules to be received fully and with a maximum speed by students and working out the delivery of information suitably is really important.

Summary. Issues on the basis of neuron nets modeling approach to the subject of education, which is adapted to enable the computer and control system.

Key words. structure, the structure of science Structuring, logical structure, net of neurons, the teaching net of neurons.

The selecting a model of training of specialists in the field of information technology or the creation of new models. Collection of all models of teaching models when we are teaching students to understand the subject of training and knowledge base in the field of conceptual models [1]. Considered the knowledge base areas, such as mathematics, computer science, programming, physics, chemistry and other natural sciences, we see the subject with clearly defined rules and concepts in the field, they are characterized by a very high level of

ECHIM:

Solution.

As a mathematician to solve the issue of classification of such hardware neuron four want to use. Neural nets classification issues and effective enough to solve the issues of understanding of the symbols in the same way [3,4]. Considered in the process of designing the side of these neurons. Neural nets opportunity to resolve issues with traditional methods of circumstances or events that are not possible issuance processes. Neural nets that will collect information during the performance of his smaradorligi will increase with the passage of time, just as permanent as a specialist researcher.

Knowledge available to determine the quality of public and private subjects, related to the application of the concrete. One of the most common systems of evaluation of the quality of the knowledge of four, for example, R1, unsatisfactory, satisfactory R2, R3, R4 are excellent.  $R = \{R1 \vee R2 \vee R3 \vee R4\}$ .

As a result of analysis and review of all cases of the following logical system predikatlar. The construction side of thispredikatlar neurons, and it will serve as a basis for teaching:

*if*  $\Pi 1 \wedge V1 \wedge (A1 \vee A2 \vee A3 \vee A4) \wedge (O1 \vee O2 \vee O3 \vee O4) \wedge (E1 \vee E2 \vee E3 \vee 0)$  *then*  $(R1 \vee R2 \vee R3 \vee R4)$ ;

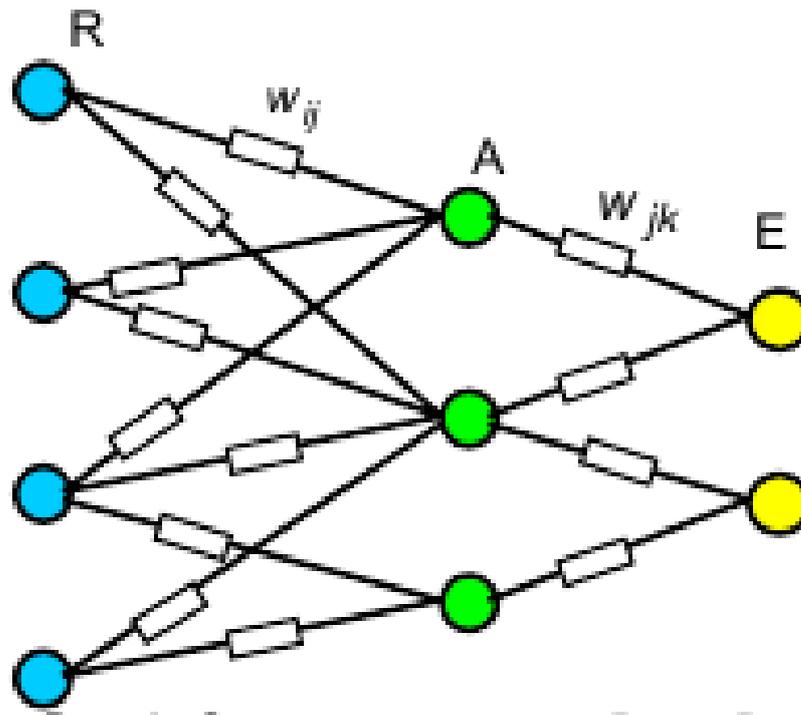
*if*  $\Pi 1 \wedge (V2 \vee V3) \wedge (A1 \vee A2 \vee A3 \vee A4) \wedge (O1 \vee O2 \vee O3 \vee O4) \wedge (E1 \vee E2 \vee E3 \vee 0)$  *then*  $(R1 \vee R2 \vee R3 \vee R4)$ ;

*if*  $\Pi 2 \wedge (V1 \vee V2) \wedge (A1 \vee A2 \vee A3 \vee A4) \wedge (O1 \vee O2 \vee O3 \vee O4) \wedge (E1 \vee E2 \vee E3 \vee 0)$  *then*  $(R1 \vee R2 \vee R3 \vee R4)$ ;

*if  $\Pi_2 \wedge V_3 \wedge (A_1 \vee A_2 \vee A_3 \vee A_4) \wedge (O_1 \vee O_2 \vee O_3 \vee O_4) \wedge (E_1 \vee E_2 \vee E_3 \vee 0)$  then  $(R_1 \vee R_2 \vee R_3 \vee R_4)$ .*

In this case, for example, the first logical thinking in this regard: "If 1 teacher 1 in accordance with the question analytical, visual, or to explain the use of heuristic methods, the training results R1 or R2, or R3 or R4."

Neural nets artificial intelligence system is described in a special class. Neural nets in conditions of uncertainty able to solve problems effectively, it is this ability to understand the symbols in various fields of science and technology, widely used for classification and prediction of current processes [5].



Picture 1. The scheme of four standard architecture of the neuron structure.

Standard architecture plans usually consist of several layers of neurons (Figure 1): P receptor layer, and access to information;

An associative layer, this layer of neurons, data processing, interpretation; The data access layer neuron net reaction (or response).

Neural networks, it is first necessary training, the students have taught any of the things that have knowledge on the subject. During the training side of the neural elements between the weight values, then no symbol information is given in the snare of neurons, neuron nets in accordance with a predetermined answer. Neural nets efficient programs, new facilities to be classified in accordance with the answers to spiritual questions. For example, students' knowledge of the class.

The situation is clear for all, when the issue of the human brain into a single, then developed a new algorithm based on studying the issue at hand. Neural nets its activities in accordance with the same idea. This net of neurons obtained during the previous stage of training problems, the next is set to the correct synaptic connections associated with fragmentlarga. The input signal in accordance with the proposed scheme or a part of the previous block is set to be analyzed.

Within a block of the teaching side of the neural weight change. Fragments free weights  $w_1, w_2, \dots, w_N$  adjustment, they can be obtained using the algorithm functions minimizing (random search, genetic algorithm, inert search) [5]. Trained neural four Replies Z fragment-line registration can be in the form of a combination of the responses of the experts.

$Z = w_1x_1 + w_2x_2 + \dots + w_Mx_M = \sum_{i=1}^M w_ix_i$ , Here is the i-th neurons trained four neurons

signal; - I-trained fragment resulting response rate taking into account the effect of weight.

Conclusion. The proposed plans are in pre-training taught by fragments of neurons. Fragments of one teacher in each of these four systems of neurons, learning, taking into account the impact of the resulting response in the weight coefficients adjusting. Trained fragments in the weight change. This method substantially increases the speed of the train side of neurons and expand the scope of its application. Components of the logic of science Structuring trained neuron four students in the learning process based on knowledge of the real situation, interactive Shaffer opportunities.

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### THE MAIN ROLE OF THE SPORT COACH IN PHYSICAL AND SPIRITUAL EDUCATION OF THE YOUTH

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**Аннотация.** Мақолада жисмоний маданият мутахассисига қўйиладиган педагогик талаблар ва спортчиларни тайёрлаш жараёнида муомала маданияти ҳамда юқори малакали спортчиларни тайёрлай олиш масалалари ёритилган.

**Аннотация.** В статье освещаются вопросы педагогических требований к специалисту в физическое воспитание и его культуры общения в процессе занятий и подготовки высоко квалификационных спортсменов.

**Annotation.** This article deals with the problems of the developing of the culture of greeting and preparing higher qualified sportsmen and the demands to the specialist of physical education.

**Калит сўзлар:** жисмоний тарбия мутахассиси, педагогик талаблар, машғулот жараёни, шуғулланувчилар, муомала маданияти, тарбия жараёнини бошқариш, хусусият.

**Ключевые слова:** физическое воспитание, спортивная этика, нравственное воспитание, нравственные качества, спортсмены, тренер, тренировочный процесс.

**Key words:** physical education specialist, pedagogical demands, process of training, trainers, culture of greeting, controlling education process features. Physical education – it is a pedagogical process, based on morphologic and functional development of human body, and deals with the essential movement skills of their life.

The pedagogical skill of the specialist of physical education appears with organizing fundamental and special branches of teaching programs, knowing physical training and instructions, popular sport games and sport regencies.

The specialist of physical education brings up not only physical ability of the participant but also spiritual view of the participants and helps to choose their direction and human duties in their life.

Pedagogic skill has many sides as an educational process. Pedagogical skill appears in the specialist of physical trainer with affective teaching and development their physical ability, their spiritual outlook, organizing sport teams of the students, their individual features.

The sincerity and truth fullness of the trainer affect positively on the development of spiritual view of the children. Children try to act as their trainer. The negative behavior of the trainer affects badly. Because children mostly take up not their verbal instructions but their acts.

That's why the specialist of physical training must be educated morally and aesthetically with up to date standards.

We must spend our strength and time making our nation stronger, more intelligent, cleverer and hopper than us. The spiritual education helps us in this way. If we lose in this issue and neglect our sacred custom we will get out of world wide developing way.

The coach must be experienced. Education is a very complex process and in order to be true trainer the specialist of physical training must be well educated and do his job forth fully. And he must do the following principles

- Providing educational and training process according to educational standards.
- Individual features of the participants according to their age (physiologic and mental features).
- Respecting and encoring the participants.
- Organing the educational process in "cheerful mood".
- Providing the educational effects with pedagogical demands.
- Organing the lessons and the process of training based on new pedagogical and information technology method.

The trainer must give attention to the participants spiritual condition and prepare them future hope and work in society.

Sport is not essential only for victory but it also increases the spiritual features of the sports ment. Achieving higher level in sport the coach must be highly educated. Because human's physical abilities (strength, quickness, flexibility, activeness and toleraseness), technique and tactical, spiritual features are very complex pedagogical process.

The sport coach must know his students every aspect of life condition whose has friends are, participating in social activities, studying process and his family life.

Therefore the coach must be many sided person.

The coach must know the participants health the development of their physical abilities and temper features, their mind and others. The coach must have a pedagogical diary in order to write his students temper features and their behavior.

In this way the coach archives high results with his students it is important to make good relationship with students. Pedagogical experiments are based on respecting students personality and demanding great achievements demanding and respecting are vital parts of the educating process in other hand, there are some unrespecting situation found in physical education activity by teachers. This kind of situation is the fault of the teacher mis conducting education process.

Consequently, children do not offend sport activities then they commit bad activities.

Pedagogical uncial is based on being sincerity, kindness and talking politely. The attitude of the coach during the competition should be good. The sportsman must be trained in the competition as well.

But sometimes they need physiological help. The coach must give them necessary instructions. Unlike other coaches a good coach must support his students when they don't achieve their goals. The coach is respected if he behaves like this.

The coach's success is organizing and holding sport competitions and activities. The typical features of physical education are making high mood, supporting fun and activities among the participants in the team. Feeling the world happy, makes the students be sure their strength.

Children come over difficulties when doing physical exercises and it helps them to have persistence and sincere. Team exercises serve to more social activeness.

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**UDC: 796.42**

### **INDIVIDUALIZING PREPARING PROCESSES CONSIDERING PHYSIOLOGICAL FEATURES OF SHORT DISTANCE RUNNERS**

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**Аннотация.** Мақолада энгил атлетикачи югурувчиларнинг йиллик циклдаги тайёргарлигини режалаштириш ва ташкил этиш масалалари ёритилган.

**Аннотация.** В данной статье освещается планирования и организация подготовки легкой атлетов в годичном цикле

**Annotation.** Planning and organizing tasks of light athlete runners' preparation in yearly cycle are illustrated in the article.

**Калит сўзлар:** машғулот юкламалари, қисқа спринт, узоқ спринт, жисмоний тайёргарликнинг ўсиши, жисмоний ривожланиш, соматотип, дерматоглифика.

**Ключевые слова:** тренировочные нагрузки, короткий спринт, длинный спринт, прирост физической подготовленности, физическое развитие, соматотип, дерматоглифика.

**Key words:** training loadings, short sprint, long sprint, growing of physical preparation, physical development, somatotype, dermothoglics.

Developing physical education and sport, bringing up the young generation perfectly in all sides is equalized to the level of the state policy. Very important attention is paid to increasing the effectiveness of physical education classes among other subjects in the laws "On Education", "On Physical Training and

Sport”, in the “National Program of Preparing Cadres” of the Republic of Uzbekistan. Nowadays, it is very important to reform and develop the education system, to apply modern pedagogical and informational technologies in it in our country which is moving with rapid steps on the way of development. That’s why the tasks of taking the organisms’ biological features of the youth into consideration in physically toughening them mustn’t be put aside from attention.

For this reason, ensuring pupils’ health, improving physical development and physical preparation in order to apply an important tendency in the system of physical education has always been among actual problems.

The analysis through scientific-methodical literatures and practice of native and foreign specialists show that preparing system of light athletes is considered as complex at its all steps and multi-faceted process

Today there have been done lots of scientific research works which are devoted to the tasks of planning and organizing the preparation of light athlete runners in annual cycle and some tasks were looked through about planning yearly cycled preparation of short, middle and long distance runners in them<sup>1</sup>. However, planning studies loadings of runners who are being specialized to short distance running has remained one of the most complex issues in the sport training system. The issues of composing the trainings and also size and ratio of specialized tools still cause some discussions. It is necessary to identify optimal largeness of the size of loading and intensity in accordance with each sportsman’s individual peculiarities and to detalize the structure of training loads and peculiarities of dynamics in separate stages of wide training cycle<sup>2</sup>. It is possible to improve the effectiveness of preparing light athletes who are specialized in different distance by means of individualizing training process. It is very important to pay attention to biological features of sportsmen in planning classes and besides, to ensure the suitability of carried out work loads to adaptation possibilities of sportsmen’s organisms in order to achieve high results.

In order to learn this problem there was held a pedagogical experience at the faculty of Physical Culture of Urgench State University with the participation of short sprint (100 m) and long sprint (400 m) specialized sportsmen and including controlling group of sportsmen which consists of the sprinters who are specialized in different sprinted distances. The total number of the controllers contain 32 members – their sport experience time is from 3 to 5 years and they gain 1<sup>st</sup> and 2<sup>nd</sup> rates. The selection of experimental groups was carried out on the basis of the results which had been shown by the light athlete runners who had participated in the Universiada held in Fergana in 2016. The first experimental group included in itself the sprinters who gained a good result in the 100 m distance and showed their high speed qualities. The second experimental group gathered the sportsmen who

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<sup>1</sup> Мирзаев М.О. Тактика бега на короткой дистанции: анализ, проблемы, перспективы современный взгляд на подготовку легкоатлетов. Монография. Под редакцией М., 2006. – С.52-64.

<sup>2</sup> Янсен.П. Основы управления подготовкой юных спортсменов. Под редакцией М., 2002. – С. 62-64.

achieved a good result in the 400 m distance and showed their high speed qualities and toughness. The controlling group contained the sportsmen who participated in both short and long distance sprints at the same time. In testing physical qualities we used correlation matrix of the relation between the result in main distance and controlling exercises of mail sprinters (from 12 to 18 years old) who are specialized in short distance runners. This matrix was created by O.I. Pavlov in 2003. For testing informative controlling exercises were selected which are aimed for different distances:

Table 1

Correlation Matrix of the Relation between the Result in Main Distance and Controlling Exercises of Mail Sprinters (from 12 to 18 Years Old)

(according to O.I. Pavlov's correlation matrix, 2003)

Controlling exercises	Age						
	12	13	14	15	16	17	18
Running up 30 m from the start	0.249	0.367	0.341	0.686*	0.849*	0.759*	0.902*
Running up 30 m from the staying place	0.785*	0.681*	0.696*	0.775*	0.711*	0.857*	0.883*
Running up 60 m from the start	0.395	0.421	0.697*	0.745*	0.867*	0.784*	0.858*
Running up 600 m	0.251	0.274	0.385	0.467	0.688*	0.431	0.690*
Tapping test	0.705*	0.698*	0.609	0.557	0.678*	0.776*	0.692*
Running and long jump	0.548	0.612	0.738*	0.781*	0.806*	0.854*	0.823*
Triple jump	0.385	0.308	0.351	0.496	0.729*	0.716*	0.814*
Jump up over	0.618*	0.689*	0.745*	0.729*	0.857*	0.896*	0.820*

*Note: \* – an indicator of reliability.*

Besides, we controlled a special preparation dynamics with the help of the following tests: speed possibilities were evaluated according to running tests from the staying place to 30 and 100 meters, so we selected the following additional tests: speed toughness was evaluated according to running test up 150 meters, and special toughness was tested according to the time of reaching 250 and 400 meter distances. The evaluation tests of the sprinters' physical preparation were held according to the above Table 1.

All participants of experimental groups were tested step by step. Besides, the effect through annual cycle stages of workloads in different directions of specialized running up to 100 and 400 meters and so, checking the dynamics of the results of special work abilities were studied.

Although organizing the preparation periods of short distance runners is individually various, it is often possible to differentiate the following preparation

kinds in annual cycle: passing, autumn-winter preparation, spring training, the summer competition periods. The total process of such preparation cycle contains 48-50 weeks. Besides, it seems to be necessary to separate 8 stages in annual cycle. The duration of each stage contains 4-6 weeks. Such periodisation of training cycle is suitable to academic year. The sportsmen were given a curriculum table of II-I class sprinters for an academic year and working plan composed for members of short and long distance sprints. In identifying physiological directions in workloads the principles and quantitative criterias which were described in the works of N.I. Volkov, A.V. Karasev, E.A. Razumovsky (2006) were used. We separated the following kinds of loadings according to physiological directions: aerobic, mixed aerobic- anaerobic, anaerobic-glycolytic, anaerobic-lactate. Such methodological approach gives the opportunity to divide the runners' loadings into 5 physiological intensity zones: 1 – restoration, 2 – developing, 3 – “extensive”, 4 – sub maximal, 5 – maximal zones.

**Restoration zone 1.** The main task is accelerating the restoration processes of the organs and system of sportsman's organism and preparing him for the work put forward. The main physiologic parameters of this zone: the frequency of cardiac contraction should be 125-130 shots per minute and the running speed should be 4 m/sec.

Main objects: stretching running, running during breaks, slowly running between the parts of distance, overall physical development and doing gymnastic exercises in order to increase tonics (the second half of September), i.e. the loading which have restoration peculiarities.

**Developing zone 2.** The work directed towards developing the experiment and restoration, developing muscles and all aspects of the body and increasing the power of muscles, and as well as towards preparing basic action apparatus. Very large amount of running is fulfilled in this zone; the frequency of cardiac contraction should be 150-155 shots per minute.

Main objects: smooth running without stopping, changeable running through various pieces. The main direction of the training is developing main physiological systems of an organism which provide increasing of toughness. Gymnastic exercises, various jumps, weight lifting and exercising with dumbbells.

According to information from literal sources, the speed of running is equal to 60% at just beginner runners, 75-80% at skillful sportsmen, 92-95% at great runners.<sup>1</sup> The running speed at 4.75 m/sec is admitted as the highest limit speed for skillful runners (October, November).

**“Extensive” zone 3.** It is directed to further development of the systems which provide working toughness. In this zone the frequency of cardiac contraction should be 170-175 shots per minute and the consumption of oxygen becomes maximum in this zone. The speed is higher than 5.8 m/sec for skillful

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<sup>1</sup> Янсен.П. Основы управления подготовкой юных спортсменов. Под редакцией М., 2002. – С. 62-64.

runners at smooth running and at running through pieces.

The main tasks of exercises are increasing the intensity of aerobics, strengthening basic-action apparatus, developing and keeping glycolytic skills. Crosses, biking, swimming are recommended.

Objects: speed running, repeatedly running through pieces, running between the pieces of 30, 60, 100, 200, 400 meter distances. The speed is not higher than 80% in comparison with personal record in the piece. The frequency of cardiac contraction is 120-130 shots per minute. In order to increase the speed in various actions main objects are used like doing exercises more repeatedly and in high speed. In order to improve the mobility of joints and flexibility of spine stained gymnastic exercises, regular exercises are performed at extraordinary circumstances. The main objectives for developing jumping quality are jumping exercises (December-February).

**Sub maximal zone 4.** The action of training is focused on developing and keeping special working ability, The frequency of cardiac contraction is more than 170 shots per minute, its special peculiarity is seen in the complications of aerobic processes i.e. in a decrease of the level of the heart's minute volume.

Main objects: it is performed using the methods of "breakful" exercises, running with speeding up, performing a lot of exercises with nearly the highest power, changing exercises which are performed by tension and relaxation. Running up 200-400 meters repeatedly with the speed of 90-100% according to personal record, running up 50-150 meters with the speed near to the highest speed. As this stage goes on during spring months (March-the 1<sup>st</sup> half of May) it is important to include several additional exercises into the training program like a very large volume of exercises with the ball, weight jump exercises with light dumbbells lifting, gymnastic exercises which are performed at pulling or on a gymnastic wall, besides sprinters running. All of these exercises should be performed additionally together with sprinters running at each training.

**Maximal zone 5.** The work is focused on developing and keeping special work ability, perfecting running tempo and level, developing speed possibilities. Running often goes on in an anaerobic zone. The end of this stage is considered mastering and improving the abilities to perform actions without additional power (mastering relaxation), mastering knowledge in the branch of tactics, developing action techniques. (2<sup>nd</sup> half of May-June-1<sup>st</sup> half of September).

Main objects: fast running in the competition, repeated-running through various distance pieces with the speed of 80% according to maximum, jumping many times from leg to leg and races with maximal intensity with one leg and the other one turn by turn through 50 meters distance pieces.

We can come to conclusion according to the above mentioned ideas that practicing of composing training processes for various distance runners is based on considering bioenergetic mechanisms of providing the action of muscles with energy in the process of performing the loadings of various intensions and directions.

It is identified at the result of theoretical analysis of the research problem and pedagogical practice that in order to describe sprinters' general physical development as well as in order to perform sport selections body length, body surface, the chest circumference are considered the most informative among total indicators. From the morphological point of view the sprinters whose height is  $178,50 \pm 0,80$  cm or more than it, chest circumference is  $94,33 \pm 0,59$  cm and body surface is  $1,92 \pm 0,02$  m are considered as perspectives.

Identification of genetic markers was held in order to diagnose the innate skills i.e. genetic predisposition towards performing exercises aimed at developing speed qualities has been identified. Fingerprints, their conformation and the number of general edges are the most informative among the indicators of dermatoglyphics. The total quantity of the edges which is near to 180-190 is considered as a reliable measure to estimate high level of action qualities and it is offered for usage in the selection of sprinter sportsmen.

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## INCREASING THE POWER QUALITY OF WITH 15-16 YEAR-OLD ATHLETES RUNNING A SHORT DISTANCE THROUGH WEIGHTLIFTING EXERCISES

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**Аннотация.** Мақолада, қисқа масофага югурувчиларнинг йиллик циклдаги тайёргарлигини режалаштириш ва ташкил этиш масалалари ёритилган.

**Аннотация.** В данной статье освещаются планирование и организация подготовки спринтеров в годичном цикле

**Annotation.** In this article there was illustrated organizing and planning the trainings of sprinters in a yearly cycle.

**Калит сўзлар:** машғулот юкламалари, қисқа масофага, жисмоний тайёргарликнинг ўсиши, индивидуалаштириш, юклама хажми, жисмоний ривожланиш, режалаштириш, функционал тадқиқотлар, тезкорлик, саралаш, машғулотларни ташкил этиш, воситалар ва методлар, замонавий технология, таълим, малака.

**Ключевые слова:** тренировочные нагрузки, спринт, прирост физической подготовленности, индивидуальный подход, объём частицы, физическое развитие, быстрота, отбор, организация занятий, методы и средства, современная технология, образование, навык.

**Key words:** training loads, sprint, growth of physical training, individualizing, loading size, physical developing, planning, functional researches, quickness, selection, organizing trainings, methods and means, modern technology, education, experience.

The Laws of the Republic of Uzbekistan “On Education”, “National Program for Personnel Training” and “On Physical Training and Sports” (4 September 2015), “State Policy for Youth”, the Decree of the President of the Republic of Uzbekistan “On further development of popular sport in Uzbekistan” and the Decree of the Cabinet of Ministers “On the active involvement of the population, especially the younger generation in the field of physical culture” are being carried according to the orders of the Ministry.

Physical culture and sports are gaining further development thanks to the targeted policies of the Government of the Republic of Uzbekistan. Decrees of the President of the Republic of Uzbekistan and a number of important decisions of the Cabinet of Ministers of the Republic of Uzbekistan aimed at improving the system and structure of athletes are the proofs of our opinion.

At present, reforms in our political, social, economic and spiritual-enlightenment life under the leadership of our President Shavkat Miromonovich Mirziyoyev appeal to solve the most important tasks as organizing education, sports and healthcare fully in the new content, form and means and bringing up the younger generation as worthy children for the Motherland by the help of great opportunities made for them<sup>1</sup>.

The principle of proportionality in the training of the quality of short-distance running athletes implies the optimal proportion of the development of physical qualities at each age stage. During the process of fulfilling these or those exercises, the intensity and size of doing exercises in each direction and their most successful proportion in the condition of correct timing re-exercising provide the increase of the results of specific exercises. It is possible to achieve the proportion through proper selection of means and methods of doing them in training individual physical qualities during the training of short-track athletes.

The essence of the mainstreaming effect of training short-track athletes is that the pedagogical interventions – the means, methods and forms must be in line with the level of training of the individual's capabilities. However, this conformity is not absolute, but must be relative.

In order to continuously train the physical qualities of athletes running short distances, external influences are to overcome the inner development of certain qualities. If there is no such coincidence that exists in the inner development of external influences, the development of physical qualities faces stagnation. Stagnation in the development of physical qualities is a negative consequence of the use of traditional methods and tools. Due to the increased strength at the age of 15-16 years, the number of exercises with weights of 2-3 kilograms increases, the timepiece is applied to the rope, the fight elements are used. In this age group, power exercises are restricted by the reduction of relative muscle power. In adolescence exercises there should be used exercises that require stable situations, background situations, and hanging support. Physical training of young athletes is one of the most important components of physical training and is a must-have for all other types of organism development, health improvement, physical training and other types of preparation. It is understood as a process of creating a functional database<sup>2</sup>. In addition to traditional exercises, the experimental team performed the following weightlifting exercises: 1) Bending forward and then lifting the armpit. 2) Bending to the right and to the left with the weight is on the shoulders and then to stand erect. 3) Conducting the rotation of the body, directed to the right and left side, with weight on the shoulders. 4) To stand and sit holding the body straight with weight on the shoulders. 5) Sitting and hop standing holding the body straight with weight on the shoulders.

It is expedient to increase the power quality by using weightlifting exercises to increase the outcome of the 15-16 year-old athletes running short distances.

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<sup>1</sup> Шавкат .Мирзиёев Буюк келажегимизни мард ва олий жаноб халкимиз билан қураимиз Т. 2017.

<sup>2</sup> Матвеев Л.П. Основы общей теории спорта и системы подготовки спортсменов. Киев, 1999. 318 стр.

Exercise time can be reduced or multiplied by changing the load orientation and increasing or decreasing the efficiency.

That's why the aim of our job is to increase the power of light athletics of 15-16 years running on short distances through heavy athletic exercises. The results of short-track athletes aged 15-16 are made by identifying the weightlifting exercises that train the power quality effectively. The study was conducted in light athletic exercises with the participation of pupils of the Olympic Reserve College. Studies were conducted between September 2016 and November 2017. We used the 30-60 meter race, jumps from the place and the three jumps and standing and sitting with weight. Classes were carried out 3 times per week for 90 minutes. The control team planned routine trainings and the experimental team accomplished exercises with special exercises, jumping and throwing exercises, as well as weightlifting exercises for athletes running short distances and weight lifting exercises to increase sport results. Average indicators of testing results in groups are shown in Table 1. There are 12 female students in each group and the test results were summarized and average values are shown in Table 1. At the beginning of the study, female pupils of controlled and experimental groups were trained physically.

Table 1.

#	Tests	Controlled group	Experimental group
1.	30 meters running (seconds)	6,0	6,1
2.	60m running (seconds)	11,3	11,4
3.	Jump to length from the place (cm)	127	124
4.	Three point jump from the place (cm)	314	309
5.	Sitting and standing with weight (kg)	37,5	37,4

As can be seen from the table, test scores are almost identical in both groups, even though the physical fitness level of girls' experimental groups is slightly higher in some tests. Conditions and essence of specific pedagogical tests, pedagogical running tests, running to 30-60 meter test types, power, fast-acting, quickness and nimbleness help to determine the level of strength. Based on the capabilities of the 15-16 year-old schoolchildren participating in our study, the speed of running at maximum speeds of 30-60 meters, depending on their capacities and competitiveness, will be most effective in the slogan "Who's the first, who's fast?"<sup>1</sup> These exercises are done repeatedly after a relatively complete recovery. The required distance for a run is measured at a straight line or in any straight place where the start and finish line is drawn. Running from low start (up to 30 m) involves up to 4-6 competitors depending on the number of tracks. In the course of the trainings, the start-up referee will be commanded by the start flags. The final result is recorded by the referees using a stop-watch with 0.1 second

<sup>1</sup> Саламов Р.С. Спорт машгулотларининг назарий асослари. Ўқув қўлланма. Т., 2005й., 152-163 б; Юнусова Ю.М. Теоретические основы физической культуры и спорта. Учебное пособие. Т., 2005г., 219-233 б.

accuracy. All short-haul run exercises are: 1) 15-20 meters in the start, with a repeat run; 2) Repeatedly running to 15-20 m weights; 3) the technique of slowly taking speed and running to 20-30 m repeatedly; 4) distance runs; 5) Controlling and competition running to identify I-II places.

Jumping to length from the place is a measure that helps to determine the strength and speed of power. A long jump is one of the exercises that enhance the power quality. For a long jump, the start line is drawn on the corresponding platform, 5 (10) cm in the direction of the jump with the roulette (centimeter tape), on the divisional marks. The participant must remain in the start line. The participant will move the hands freely half bending with a thin depression of both legs; the measurement of the result is measured on the tracks on the sand, which is close to the descent line. This is the closest to the back of the landing gear or toe, which is the closest to the backstroke line, so it is important to pay attention to the movement of the hand during the jump and landing phases. It is not a jump if the thrust line is pressed with a footpad during the shift. The shift is performed in three choices and the best result is recorded in the protocols. The result is accurately recorded up to 1 centimeter. During the exercise, the jump in the jump, the jump on the ground, the jump on and over the base, the jump-off exercises are fulfilled. This is true of the same requirements. In addition to this traditional exercise, the experimental team performed the following weightlifting exercises: 1) Bending forward with weight on the shoulders and then standing erect. 2) Bend to the right and to the left with weight on the shoulders and then standing erect. 3) Perform the rotation of the body, directed towards the right and left with weight on the shoulders. 4) Sitting and standing with weight on the shoulders holding the body straight. 5) Sitting and jumping up with weight on the shoulders holding the body straight. At the end of the study, the comparison of the physical readiness of the girls in the control and experimental groups is given in Table 2. At the end of the study, indicators of physical readiness of the control and experimental groups of girls.

Table 2.

#	Tests	Controlled group	Experimental group
1.	30 meters running (seconds)	5,8	5,7
2.	60m running (seconds)	10,9	10,5
3.	Jump to length from the place (cm)	132	136
4.	Three point jump from the place (cm)	326	350
5.	Sitting and standing with weight (kg)	41,2	46,1

In table 2, each group of results is presented in absolute figures. Table 3 shows the growth of results for each group in absolute figures and percentages. Compared with their growth dynamics, the experimental group found a significant difference and achieved significant success. For example, in the control group with a height of 30 m, the control group increased by 0.2 and 3.4%, while in the experimental group these figures were 0.4 seconds and 6.5%. During the study, the

control and experimental groups included an analysis of the growth of physical fitness levels of athlete girls (n = 12).

Table 3.

#	Tests	Groups	Results		Growth	
			At the beginning of the study	At the end of the study	Absolute	%
1.	30 meters running (seconds)	C	6,0	5,8	0,2	3,4
		E	6,1	5,7	0,4	6,5
2.	60m running (seconds)	C	11,3	10,9	0,4	3,5
		E	11,4	10,5	0,9	7,9
3.	Jump to length from the place (cm)	C	127	132	5.0	3,9
		E	124	136	12	9,6
4.	Three point jump from the place (cm)	C	314	326	12	3,8
		E	309	350	41	13,2
5.	Sitting and standing with weight (kg)	C	37,5	41,2	3,7	9,9
		E	37,4	46,1	8,7	23,3

**Note: C – controlled group, E – experimental group.**

In the 60 m running, the control group had an increase of 0.4 seconds and 3.5% in the experimental group, 0.9 seconds and 7.9% respectively. In the test jumping to the length from the place, the growth in the control group was 5 cm and 3.9%, in the experimental group, 12 cm and 9.6% respectively. In the three-point jump test, the incidence of growth in the control group was 12cm and 3.8%, respectively, in the experimental group of 41cm and 13.2%. In the test of sitting and jumping up with weight, the incidence of growth in the control group was 3.7 kg and 9.9%, respectively, in the experimental group of 8.7 kg and 23.3%. As the outcome increased, it was found out that the effectiveness of the exercises recommended for enhancing the power quality of the 15-16 year-old athlete at short distance was proven in the research.

Based on the above, it can be concluded that comparing the dynamics of growth during the research using the power quality of weightlifting exercises to achieve the results of the 15-16-year-old athlete, shortcomings have shown that the experimental group achieved significant successes. During the study, the increase in the results, for example, when the control group increased by 30 meter above the control group, increased by 0.2 second and 3.4% in the experimental group, these figures were 0.439 and 6.5%; If the control group had an increase of 0.4 seconds and 3.5% in the 60 meter running, these figures were 0.4 seconds and 6.5% in the experimental group; In the test of jump to the length, the control group showed an increase of 5 cm and 3.9% in the experimental group of 12 cm and 9.6%; In the three-point jump test, the control group showed an increase of 12% and 3.8 per cent in the experimental group by 41 cm and 13.2%; In the test of sitting and standing with weight, the control group showed an increase of 3.7 kg and 9.9%, respectively, in the experimental group it was 8.7 kg and 23.3% The effectiveness

of the exercises recommended to improve the power quality of the 15-16 year-old athlete has been proven in the research.

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