

## PHYSICAL STATE OF THE SECOND MATURE AGE MEN WORKING AS TEACHERS OF HIGHER EDUCATIONAL ESTABLISHMENTS

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**Annotation.** It is presented characteristic of physical state of the second mature age men working as teachers of higher educational establishments. The experiment involved 46 teachers - men second mature age. The investigation shows that the studied people have most data of cardiovascular and respiratory system of a low level. It indicates the necessity of improvement of body's functional systems and increasing a hypoxia tolerance level. Planning of selection of physical education means in the sphere of preventive and sanitary classes with male – teachers of higher educational establishments is substantiated. It is marked that in the system prophylactic health-improvement employments it is necessary to utilize individual approach for men with the high, middle and low level of physical preparedness. The necessity of account of motivational priorities, decisions of the personal aims and tasks, specifics of pedagogical activity, is marked, selection of facilities which have a high health effect.

**Keywords:** physical, state, men, mature age, teachers.

### Introduction

Physical culture is an important factor in solution of health protection problem, maintaining of physical workability on appropriate level, creative activity, increasing of organism's resistance to environmental unfavorable factors and, in the whole, in improvement of mature and aged people's life quality [1].

In our country critical situation with the population's state of health has emerged, morbidity has dramatically increased, especially it concerns the cases of hypertension (3 times), stenocardia (2.4 times), cardiac infarction (by 30%). About 70% of adult persons have low and lower than middle level of health state, including those of 40-59 years old - 81,2 % [8].

By the data of I. Ripak [7] healthy life style is observed only by 26,7 % of people, besides a lot of questioned follow harmful way of life, which brings to change of habits. That is why solution of problem of healthy life style optimization and involving of people in physical culture and sports will promote perfection of their health.

Intensification of mental activity of scientific-pedagogical workers demands searching of radical means of workability improvement and organism's restoration during academic year. [2].

As it was stated by M.O. Ripak [8] the problem of pedagogues' professional health is especially important, because exactly their professional activity influences on the health of young generation. With it, health improvement stipulates application of physical culture means, which would facilitate organism's resistance to environment unfavorable conditions, to mental tension, stresses, different diseases [3-6].

It is known, that nearly 20 % of pedagogues are permanently in state of acute respiratory diseases. Statistics of International association of doctors proves that only acute respiratory diseases take from 10% to 30% of lecturer's creative time. By WHO data up to 70% of human health abnormalities of healthy person (especially of pedagogues) are psychosomatic. Neuroses, hypertension, extra weight, osteochondrosis are professional diseases of pedagogues, whose reason is hypodynamia as well as stresses [8].

That is why, determination of physical state for grounding of means and methods of 2<sup>nd</sup> maturity persons' – higher educational lecturers' health improvement training – is an acute problem.

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### Purpose, tasks of the work, material and methods

*The purpose of the research:* determination of physical health level of 2<sup>nd</sup> maturity persons – lecturers' of higher educational establishments (HEE) for grounding of health improvement training methods..

*The methods of the research:* pedagogical observation, anthropometry, functional methods of research, methods of mathematical statistics.

*Organization of the research:* the research was conducted from January 2012 to May 2012. 46 persons of 2<sup>nd</sup> maturity – lecturers of Uman state university took part in the research.

### Results of the research

The growing intensification of HEE scientific-pedagogical workers' mental work causes health state worsening, reduction of mental workability. That is why application of reasonable physical loads for reaching of health improving effect requires consideration of actual physical state.

One of the most important indicators of human physical health state is physical development, which is characterized by a complex of somato – metering, phisio-metering and indicators of somatoscopy.

3The changes of physical development indicators are conditioned by age peculiarities, genetic factors, environmental conditions.

Indicators of 2<sup>nd</sup> maturity persons - HEE lecturers physical development are given in table 1.

Table 1

*Indicators of 2<sup>nd</sup> maturity persons physical development*

Indicators	X	$\sigma$	V	m
Height, cm	178,22	6,08	3,41%	1,01
Mass, kg	81,94	8,06	9,84%	1,34
Chest circumference, cm	109,19	6,73	6,16%	1,12
HBF (heart beats frequency), beats/min.	69,89	7,15	10,23%	1,19
VLC (vital capacity of lungs), lt.	3,96	0,61	15,42%	0,10
BP (blood pressure) diastolic, mm.merc.col.	123,33	7,32	5,93%	1,22
BP, systolic, mm.merc.col.	81,14	6,81	8,39%	1,13
Appropriate body mass, kg	69,83	4,19	6,00%	0,70
Kettle's index, g/cm	459,50	39,56	8,61%	6,59
Index of proportionality, %	60,94	4,40	7,22%	0,73
Life index, ml/kg	48,40	5,96	12,31%	0,99
Index PS, conv.un.	0,58	0,14	23,95%	0,02

Evaluation of physical development indicators was fulfilled in compliance with standard indicators. So, analysis of appropriate body mass in comparison with the obtained witnesses that mean indicator of body mass exceed the standard by 18%.

For determination of interconnection between certain anthropometric indicators we used the method of indices.

Kettle's index is relation of body mass to the change of body. Mean indicator of the tested exceeds the standard by 14%, which is 370 – 400 g/cm for men.

Mean indicator of proportionality index, which permit to determine of chest character, is 60,94%, which is characteristic for people with wide chest.

Indicators of functional state are important for determination of reasonable health improving means and evaluation of health improving programs' efficiency.

HBF of HEE lecturers in the rest is 69 beats/min., that corresponds to age standard of 2<sup>nd</sup> maturity persons and as per indicators' standards corresponds to mark "good".

One of the main indicators of cardio-vascular system's functional state is blood pressure, which characterizes heartbeat function, elasticity and vascular lumen. Mean indicator of diastolic BP is rather lower than age norm, and systolic BP is within normal limits.

For control of respiratory system's functional state we used VCL indicator. Evaluation of appropriate VCL value was carried out by Ludvig's formula and was 5 180 ml, that is by 24% higher than actual mean indicator of the tested – 3 960 ml. Low indicators of actual VCL witness about low functional reserves of respiratory system.

Lungs' reserves were determined with the help of life index, which was 48,4, that witnesses about low VCL indicator or increased indicator of body mass.

Thus, on the base of availability of interconnection between physiological indicators, evaluation of physical state was executed in compliance with calculation of physical state indices.

For control over efficiency of trainings, the method of R.M Bayevskiy, A.N. Arsenyeva, N.R. Panieva is considered to be sufficiently informative; this method is used for evaluation of cardio-vascular system's adapting to environmental factors.

Table 2

*Evaluation of adapting potential, blood circulation system and physical workability of 39-60 years old persons*

Functional state indicators	X	$\sigma$	V	m
Adapting potential	2,57	0,43	16,80%	0,07
Golub's test	58,39	14,19	24,30%	2,36
Rufiet's index	5,52	2,23	40,36%	0,37

Mean indicator of the tested contingent is 2.57 that, as per the scale of adapting potential, correspond to the level “tension of adapting mechanism”.

To find out the influence of health improving means on the level of organism’s resistance to hypoxia and evaluation of organism’s response, which is directed to maintaining of homeostasis in conditions of loads is possible with the help of Golub’s test. Mean indicator of HEE lecturers is 58,39 conv. un., which is within the limits of coefficient scale of physiological reserves’ consumption 45-85 conv. un. and corresponds to indicators of groups “risk of pathologically burdened formation of adapting or violation of the offered activity modes”.

Considering the data of physical state of 39-60 years old persons, health improving trainings shall be, first of all, oriented on improving of organisms functional systems, especially cardio-vascular and respiratory systems, on increase of resistance to hypoxia.

As a method, which promotes reaching of high health improving effect for HEE lecturers, we chose ping-pong, which permits to develop and perfect physical abilities, helps to form such features as attention, quickness of thinking, scope and periphery of vision, motion memory, simple and complex responses, response to moving object. Positive effect of these trainings resulted in improvement of psychic, formation of moral and volition features, expands intellect and erudition.

With developing of system of health improving trainings with 2<sup>nd</sup> maturity persons main attention was paid to the following aspects:

- considering of motivation priorities;
- reaching of personal aims and tasks in the process of training;
- provision of organization-methodic conditions, which would facilitate increase of health improving training’s efficiency.

In the course of health improving training general and specific tasks were solved.

General tasks mean: improvement of health, increase of adapting to environmental unfavorable factors, increase of organism’s functional reserves.

Special tasks are oriented on prevention from professional diseases by physical culture means.

Pedagogic activity is often connected with stress situations, that is why, diseases of cardio-vascular system, chronic overtiredness, nervous-psychic disorders are related to pedagogues’ professional diseases. Such diseases appear, most often, because of constant overloading of organism and, consequently, decreasing of immunity. Profession of pedagogue stipulates the necessity to speak much during a lecture and it causes tension of voice system. That is why, it is purposeful to use exercises for prevention from laryngitis, pharyngitis, special exercises for vocal cords in the course of health improving trainings.

Abnormalities of supporting motor system are also related to pedagogues’ professional diseases. It is connected with working position – sitting, often uncomfortably, that can cause osteochondrosis, problems with joints and backbone.

With organizing of physical culture trainings for aged persons the necessity of individual approach to selecting of exercises should be constantly considered. If, exactly age characterizes physiological peculiarities of young and mature people organisms and to certain extent determines their workability, then among people of 45-60 years old and more, we can meet representatives with quite different level of workability maintaining. Among aged people there are rather a lot of persons, who preserved not only high workability, but they even take part in competitions, which require very high endurance (marathon, rowing, skiing). At the same time among the representatives of this age there are people, whose workability, owing to a number of age physiological changes in organism, or due to weakening of general state of health, is significantly reduced. Selection and assignment of exercises for this contingent of people shall be conducted carefully, with appropriate consulting doctors. Special attention shall be paid to gradual increase of loads at trainings, to gradual transition from rest state to intensive work and vice a versa. That is why for applying of individual approach we programmed health improving trainings separately for groups with high, middle and low levels of physical preparedness (PP).

The following aims and tasks were determined for every group:

1. For group with high PP level – increase of physical state and physical workability, perfection of technical level, rising of special and general physical preparedness levels, individual perfection of ping-pong technique.
2. For group with middle PP level – rising of physical and functional preparedness, physical workability, prevention from professional diseases, perfection of ping-pong techniques, development of special physical abilities (quickness of response, feeling of ball, quickness of strikes, quickness of movements), familiarizing with rules of competitions.
3. For group with low PP level – strengthening of health, increasing of physical workability, correction of physical state, prevention of professional diseases, formation of steady interest to ping-pong, improvement of physical preparedness.

### Conclusions

1. Analysis of physical state of 2<sup>nd</sup> maturity persons witnesses about unsatisfactory state of most of cardio-vascular and respiratory systems’ indicators.

2. With planning of health improving trainings with HEE lecturers it is necessary to consider the motivation priorities, solution of personal tasks, specifics of pedagogic activity, selection of means with maximal health improving efficiency.

3. In the system of health improving trainings it is necessary to use individual approach for persons with high, middle and low levels of physical preparedness.

*The prospects of further researches.* It is envisaged to determine efficiency of application of health improving trainings for HEE lecturers of 36-60 years old.

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