



Features of organizing strength health programs for women of the second mature age based on a psychophysical approach

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Abstract

Objective of the study is to improve the psychophysical state of women of the second mature age based on the assessment of various components of adaptation in the process of strength training in a gym.

Methods and structure of the study. The experiment was conducted at the Impulse Sports Palace in Protvino (November 2023 – February 2024). The study involved 27 women aged 35-55 years (average age 47,2), 12 people in the experimental group and 15 in the control group. All participants had various health conditions. To assess heart rate variability, the Psychotest software was used. The assessment of women's physical fitness included: pull-ups from a hanging position while lying on a low bar, push-ups from the knees, lifting the body from a supine position, bending forward from a standing position.

Students included in the experimental group were offered a health route that expands adaptation reserves, forming a stable set of defensive reactions that allow them to resist negative influences and maintain health. It is characterized by the use of power loads with a tonic effect, making maximum use of the entire range of stress factors. A distinctive feature was also the presence of cyclicity and staging of loads.

Results and conclusions. The inclusion of coordination and psychophysical components in strength training, identification of stress factors and their timely correction made it possible, without increasing the power of strength work, not only to contribute to the improvement of physical conditions comparable to the control group, but also to significantly and reliably increase the indicators of the neuropsychic and regulatory components of adaptation.

Keywords: *women of the second mature age, strength training, health route, psychophysical approach, adaptive reactions.*

Introduction. Modern living conditions lead to significant psychologization of all aspects of life, which is expressed in a consistent increase in pathological adaptation reactions: first, the neuropsychic level of adaptation, and then the regulatory one. The constant signs of a working woman are: anxiety, fatigue, headaches, apathy... Physical exercise has a high health potential, as noted in the Strategy for the Development of Physical Culture and Sports until 2030. Unlike large cities, in small settlements there is a gym the gym is one of the most popular forms of exercise, along with aerobic programs for women aged 35-55 or more. Strength programs for women of the second mature age are mainly based on the basic principles of bodybuilding and do not take into

account the peculiarities of the course of adaptation processes and existing deviations in health [2, 3].

Among women of the 2nd mature age who have health problems, the increase in pathological adaptive reactions is quite widespread. By assessing the adaptive capabilities of the body based on indicators of heart rate variability and the neuropsychic link of adaptation, it is possible to identify their correlation dependence. Moreover, adaptive changes in the neuropsychic link always precede changes in the immune-endocrine response and disturbances in heart rate variability [1, 4].

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To assess heart rate variability, we used the Psychotest software. The assessment of women's physical fitness included: pull-ups from a hanging position while lying on a low bar, push-ups from the knees, lifting the body from a supine position, bending forward from a standing position.

Methodology of conducting classes. In the control group, warm-up, cool-down, and exercises to develop flexibility are performed by the trainees independently after training by a trainer and with additional consultations throughout the entire training period. In this group, there was a lack of cyclicality and periodization of loads, typical of fitness programs. The training session itself is aimed at obtaining the maximum possible functional shift in order to achieve the maximum effect of supercompensation.

Students included in the experimental group were offered a health route that expands adaptation reserves, forming a stable set of defensive reactions that allow them to resist negative influences and maintain health. It is characterized by the use of power loads with a tonic effect, making maximum use of the entire range of stress factors (hypoxia, psychotraining, coordination exercises...). A distinctive feature was also the presence of cyclicality and staging of

loads (adaptation, conditioning, coordination, psychophysical and recovery stages).

The adaptation stage is characterized by the use of power loads of a trophic nature (a small number of repetitions, 2-4 approaches with a degree of effort of no more than 50% of max), to increase the overall anabolic background. At this stage, non-standard techniques are mastered and adapted to a specific student, and relaxation influences are also applied aimed at mitigating stressful conditions, if any were identified as a result of functional testing.

The conditioning stage is characterized by the use of expanding the volume and nature of power loads in a tonic mode, and hypoxic training.

At the coordination stage - strength training using suspension training and using an unstable support. In the warm-up and cool-down, in addition to stretching, there are wave gymnastics complexes.

The psychophysical stage is characterized by the creation of conditions for associated psychophysical influence (in conditions of time shortage, space limitations, in conditions of gaming and competitive activity; inclusion of creative activities).

During shock microcycles, it is recommended to conduct classes using the method of functional training, including switching from speed to power, to coordination, etc.)

Classes were conducted over a 6-month period from September 2023 to March 2024. On average, all women studied 2-3 times a week. Attendance was 2,71 in the control group and 2,57 in the experimental group.

Results of the study and discussion. Comparing the final test indicators (see table), we can conclude that the parameters of strength qualities changed approximately equally in both the control and experimental groups. The most significant differences

Dynamics of the psychophysical state of women during training

Name	Control (n=15)		Experimental (n=12)	
	Before	After	Before	After
Fitness level				
Push-up	13,3±2,28	19,1±2,01	14,4±2,18	19,5±2,20
Raising the torso	16,2±1,2	21,1±1,94*	16,0±1,84	21,7±1,23*
Pull-up	8,3±2,28	13,9±1,09*	8,0±1,13	12,5±0,96*
Forward lean	-3,9±1,93	-0,5±1,47	-4,2±2,02	1,9±1,29*
Adaptation state				
Indicator of activity of regulatory systems (PARS)	6,4±0,69	5,9±0,75	6,2±0,74	4,1±0,35*
Neuropsychic (according to I.N. Gurvich)	26,2±2,03	23,2±1,82*	24,6±2,29	16,8±1,34*

* p < 0,05



were identified in the results of the «forward bend» test, which can be explained by the experimental group's more advanced ability to relax.

It was found that in the dynamics of motor qualities, there were no significant differences between the control and experimental groups. It is characteristic that the differences in adaptation indicators were significant. The changes recorded in the indicators of the experimental group not only register reliable progress, as in the control group, they indicate the transition of the body to a higher and more economical level of functioning. Such changes lead to increased activity and mood of women in everyday life, improving its quality.

Conclusions. The experimental methodology, which was based on taking into account the nature of adaptive reactions, constructed using a psychophysical approach, showed that health-improving strength training for women of the second mature age should focus not on the maximum increase in strength indicators, but on improving intermuscular and intramuscular coordination. Timely identification and correction of stress factors in the process of

health-improving training can significantly expand the adaptive potential of those involved.

References

1. Garkavi L.Kh. Aktivatsionnaya terapiya. Antistressornyye reaktsii aktivatsii i trenirovki i ikh ispolzovaniye dlya ozdorovleniya, profilaktiki i lecheniya. Rostov-on-Don, 2006. 256 p.
2. Korobova A.V., Ryazanov V.N., Andreychenko A.V. Povysheniye effektivnosti trenirovochnogo protsessa dlya zhenshchin srednego vozrasta, zanimayushchikhsya fitnesom. Izvestiya Tulskego gosudarstvennogo universiteta. Fizicheskaya kultura. Sport. 2022. No. 1. pp. 35-41.
3. Semenova S.A., Reznikov V.A. Ozdorovitel'naya trenirovka adaptatsionnoy napravlenosti. Study methodological guide. M.: Editus publ., 2020. 198 p.
4. Khursa R.V., Eremina N.M., Korzun N.N. Skrinigovyye metody otsenki adaptatsii organizma v ambulatornoy praktike. Study methodological guide. Minsk: BGMU publ., 2018. 43 p.