DOI: 10.14526/2070-4798-2020-15-2-17-25

Complex fitness-training orientation, content and methodology among men of the first period of adulthood

Olga N. Stepanova^{1*}, Sergey V. Savin²

¹Moscow Pedagogical State University
Moscow, Russia

ORCID: 0000-0002-4114-2801, stepanova.olga.mpgu@gmail.com*

²Russian State Social University
Moscow, Russia
fizzdorovie@gmail.com

Abstract: As the results of many scientific works show, the first serious health problems in men begin during the first period of adulthood –22-35 years old. At the same time, during this age period a person still has high level of the training ability of motor functions, there are favorable preconditions for considerable health-improving and even sports results achievement. During recent years a great amount of material, concerning the problems of homogeneous content fitness-programs effectiveness substantiation, has been accumulated: power-oriented, aerobic, playing, gymnastics, based on swimming and hatha yoga means use. However, at a modern stage of development most scientists use a complex approach to health-improving conditional training programs construction. **Materials.** The article presents the results of testing and examining 35 men at the age of 22-35. They are the clients of fitness-club “Territory of fitness” (Moscow). Materials of the test were the guiding lines for orientation and content substantiation and also the methodology creation of a complex fitness-training among men of the first period of adulthood. **Research methods.** Information sources, concerning the problem of the research, analysis and summarizing, questioning (questionnaire survey, conversations), anamnesis, anthropometric measures, PWC₁₇₀ test, maximum oxygen consumption (MOC) revelation, general working capacity coefficient and body mass index revelation; Romberg test, method of control exercises, pedagogical experiment, methods of statistical data handling. **Results.** We created the methodology of a complex fitness-training in men of the first period of adulthood. It includes 4 thematic blocks of physical exercises: aerobic, functional, correctional-preventive and relaxing. **Conclusion.** Using the methodology of a complex fitness-training provided effective health-improving problems solution, the indices of cardiorespiratory system functional state normalization, psycho-emotional and general somatic state improvement, pain syndrome decrease in cervical-collar zone, thoracic section and lumbosacral spine, the level of physical readiness and general physical working capacity increase, the parameters of constitution development in men of the first period of adulthood.

Keywords: men of adulthood, fitness-testing, complex fitness-training.

For citation: Olga N. Stepanova*, Sergey V. Savin. Complex fitness-training orientation, content and methodology among men of the first period of adulthood. Russian Journal of Physical Education and Sport. 2020; 15(2): 15-22. DOI: 10.14526/2070-4798-2020-15-2-17-25

INTRODUCTION

An important role in national health improvement nowadays belongs to health-improving physical culture and fitness [2]. The results of many scientific research works show that most diseases of a person start, when the organism is on the verge of norm and pathology [5, 7]. In this dangerous for a person state there are 70% of adults of Russia and he first serious problems with health among men start during the first period of adulthood – 22-35 years old [3]. At the same time, during this age period a

person still has high level of the motor functions training ability, there are favorable preconditions for considerable health-improving and even sports results achievement [1, 4].

During recent years the questions of health-improving fitness-training content substantiation and organization in people of adulthood were studied by I.V. Adamova [1], N.N. Vengerova [2], S.A. Golovanov [2], L.D. Nazarenko and V.M. Vavilov [6], N.I. Perevoznikova [8], S.V. Savin, O.N. Stepanova [9], A.V. Stafeeva and A.L. Deryabina

[11] and others. At the same time, most part of the enumerated and other research works was fulfilled either in women, or in men of the second adulthood period.

Speaking about the research works, carried out in men of the first period of adulthood, most works are dedicated to the effectiveness of homogeneous fitness-programs substantiation (power-oriented [11,12,13,14], aerobic [3, 9], playing [8, 10], gymnastic [6], based on swimming [1], hatha yoga [1] means use). However, at a modern stage of fitness theory and methodology development more and more scientists and practitioners support a complex approach to health-improving conditional programs of fitness training construction.

In this connection the aim of the research was to substantiate the orientation and content and create the methodologies of complex fitness-training in men of the first adulthood (22-35 years old).

MATERIALS AND METHODS

In order to achieve the set aim we used the following research methods: Information sources, concerning the problem of the research, analysis and summarizing, questioning (questionnaire survey, conversations), anamnesis, anthropometric measures, PWC170 test, maximum oxygen consumption (MOC) revelation, general working capacity coefficient and body mass index revelation; Romberg test, method of control exercises, pedagogical experiment, methods of statistical data handling.

The research work was held on the basis of fitness-club "Territory of fitness" (Moscow, Russia). The research sampling was 35 men of the first adulthood period (22-35 years-old). They trained at the mentioned above fitness club.

RESULTS AND DISCUSSION

As the questionnaire survey results showed the dominant aims (motives) of fitness lessons in 35 men at the age of 22-35, who train at Moscow fitness club "Territory of fitness" are the following: desire to achieve health improvement and decrease the risk of health disorders (23% of respondents), lifetime period increase - (11%), rehabilitation after diseases - (6%) and injuries - (3%); desire to

improve visual appeal – improve constitution (17%), body weight correction (fat mass decrease or muscle mass increase) (14%), desire to look great for oneself and other people (11%); need for rest– to relieve emotional tension (9%) need for communication (6%).

It is interesting that nobody among the respondents mentioned, came to fitness club for the deficiency of motor activity avoidance or for physical load getting.

During the research we revealed the kinds and frequency of locomotor apparatus disorders among 35 men of the first period of adulthood, who were the clients of "Territory of fitness" fitness club. The most frequently met disorders are the following: hypertonia of muscles in cervical-collar zone, thoracic section and spine (69%) and scoliosis in thoracic, lower-thoracic and lumbosacral spine (61%). Then go lordosis, hyperlordosis in cervical and lumbar spine, kyphosis in thoracic section (48%) and shoulder girdle asymmetry. It is met among 42% of the respondents. 11% of the respondents had osteochondrosis of cervical, thoracic section and lumbar cord, 8% of the respondents had weak pectoral girdle and platypodia. Such diseases and disorders, as intervertebral hernia, arthrosis, cervical section instability are met in 4% of the respondents (each). As the conversations showed the revealed situation of disorders happens because of a low level of motor activity: in most examined respondents there is a professional and general hypokinesia.

The results of the held anthropometric measures prove that all constitution and physical development indices in men of the first period of adulthood, who train at "Territory of fitness" club (height 170-185 cm) and who have the following parameters: chest circumference ($99,7 \pm 10,4$ cm), waist circumference ($88,6 \pm 13,8$ cm), hips circumference ($99,7 \pm 4,7$ cm), correspond with or are close to own age related norms. The exception is body mass index ($25,5 \pm 4,7$ units). It shows excess weight problem among 42% of respondents and weight deficiency among 6% of respondents.

The results of a functional fitness-testing showed the following:

- negative deviation from the norm in the

following indices: systolic pressure- among 65,4%, diastolic pressure- among 61,5%, HR at rest- among 84,6%, MOC-among 23%, general working capacity – among 53,8%, Romberg test –among 26,9% of respondents.

- in the average HR indices at rest among men correspond with “good” (55-65 beats/min) state of cardiac muscle, the indices of systolic (121-126 mm Hg) and diastolic blood pressure (76-81 mm Hg) correspond with “the average” health level;

- the results of PWC₁₇₀ test (950-1500 kgm/min) and MOC indices (39-53 ml/min/kg) are at a necessary level. It shows “good” physical health and “good” adaptation of an organism to physical loads;

- general working capacity of fitness-testing participants is estimated as 17-22 units; in the average this result can be explained as “high” one;

- Romberg test (“stork” position) showed “good” level of the respondents’ ability to realize static balance (10-25 seconds).

We created the methodology of a complex fitness-training in men of the first adulthood.

The main aims and the objectives of fitness-training in men of the first adulthood would be the following:

- firstly, personally significant results of fitness lessons achievement: attractiveness improvement, constitution development, body weight correction (decrease or increase); rehabilitation after the diseases and injuries; psycho-emotional state improvement, rest after an emotionally stressful working day;

- secondly, locomotor apparatus disorders correction: hypertonia of spine muscles decrease; bearing disorders correction; spine and joints diseases prevention;

- thirdly, constitution and body weight indices normalization: fat mass (in terms of muscle mass preservation or increase) decrease, weight normalization; circumference body sizes decrease. They are beyond the borders of age-related norms (waist, buttocks); body circumference in back localization increase (shoulder, shin, hip and others);

- fourthly, functional state indices of cardiorespiratory system normalization;

- fifthly, the level of general physical working capacity increase: the level of general physical working capacity increase till age-related norms; “weak” physical qualities improvement- general (aerobic) endurance and coordinating abilities till the level of age-related norm.

The set objectives demand 4 thematic blocks of physical exercises use during fitness-training process in men of the first period of adulthood: aerobic, functional, correctional-preventive, relaxing (Mind & Body) (table 1).

Experimental methodology provides the methods of strictly regulated exercise use, repeated not overall efforts, dynamic efforts use, even-continuous, even-alternating, interval methods and circular training method use.

Each health-improving training lesson includes three parts: preparatory (warming), main (includes aerobic, functional and correction-preventive blocks of the lesson) and final (relaxing block).

In different parts of the lesson pulse regimen is not even. During the preparatory part of the lesson the recommended pulse regimen during aerobic block exercises and general warming-up use - 60-70% of maximum HRmax (approximately 115-130 beats/min). During the main part of the lesson: pulse regimen of a functional block - 65-75% of HRmax (within 120-140 beats/min), correction-preventive block- 60-70% of HRmax (115-130 beats/min).

During the final part of the lesson- in the relaxing block it is recommended to preserve pulse regimen within 55-65% of HRmax (which corresponds with 105-120 beats/min). During intensive aerobic exercises fulfillment pulse can achieve till 70-80% of maximum value, 130-150 beats/min.

The offered methodology provides uneven amount of lessons in a week. At the initial stage it is recommended to train three times a week (60-70 min), at the main and the final (stabilizing) stages the amount of lessons increases till 4 times a week (duration is the same 60-70 min). At the main and the final stages for the intensive aerobic load the separate day is given. The rest between the trainings is one day.

The plan for the first 6 months of lessons is presented in a form of a macro cycle. It includes three mesocycles (initial, main and stabilizing) and 24 weekly microcycles (table 2).

Table 1 – Thematic blocks of complex fitness-training in men of the first period of adulthood, their orientation (objectives) and the main means

Thematic blocks	Orientation (objectives)	Means
Aerobic	General (aerobic) endurance level, general working capacity and functional state of cardiorespiratory system increase (till the level of age-related norm), (fat body mass decrease, circumference body sizes decrease till the border of the age-related norm)	Cyclic exercises at cardio training simulators: racetrack, stepper, elliptic and rowing training simulator, stationary bike
Functional	The main muscle groups strengthening, constitution and attractiveness improvement, the level of coordinating abilities increase	Power oriented exercises (for muscle mass increase and constitution correction), power endurance exercises and exercises for coordination in a form of circular training from the arsenal of a functional training: at “not stable surface” (fitball, hemisphere “bosu”), with TRX loops, rubber bandage, with own weight
Correctional-preventive	“Muscle corset” strengthening (abs muscles, muscles-spine stabilizers) in order to correct bearing disorders, prevent spine and joints disorders, rehabilitation after the diseases and injuries	Exercises at training simulators of a block type, with own weight, with additional equipment, complexes of exercises from remedial gymnastics (depending on disorders in health state)
Relaxation (Mind & Body)	Psycho-emotional state normalization, muscles and joints flexibility improvement, spine muscles hypertonia decrease, tension decrease after a working day	Exercises from the arsenal of pilates, stretching, fitness-yoga, respiratory gymnastics

At the end of a 6-month pedagogical experiment, dedicated to the effectiveness of the offered methodology estimation, body mass of the respondents decreased in the average for 3,8 kg (4,3%; $P < 0,05$) and became the norm. Body mass index also became the norm, decreased in the average from 25,5 till 24,7 ($P < 0,05$) units.

There was constitution indices improvement in the respondents. It was seen in waist circumference decrease for 4,2 cm and pelvis – for 2,7 cm ($P < 0,05$). Positive, but statistically insignificant shifts were registered in HR indices at rest, systolic and diastolic arterial pressure. It corresponded with the level “insignificantly higher than the norm”. The results of Romberg test, PWC₁₇₀ test, the level of MOC and general working capacity coefficient were within the range of “perfect” values.

The respondents also mentioned own

psycho-emotional and general somatic state improvement, pain syndrome decrease in cervical-collar zone, thoracic section and lumbosacral spine, satisfaction with the achieved results of the lessons.

CONCLUSION

The use of the complex fitness-training methodology includes 4 thematic blocks of physical exercises: aerobic, functional, correctional-preventive and relaxing, provided an effective health-improving problems solution, functional state of cardiorespiratory system indices normalization, psycho-emotional and general somatic state improvement, pain syndrome decrease in cervical-collar zone, thoracic section and lumbosacral spine, the level of physical readiness and general physical working capacity increase, the constitution parameters development in men of the first period of adulthood.

The results of the experimental work show the opportunity to use the offered methodology of a complex fitness-training in the men of the first period of adulthood and form the base for further research works concerning the creation of effective methodologies of health-improving conditional training in the representatives of other social-demographic and nosologic groups of population.

REFERENCES

1. Adamova I.V. The effectiveness of complex lessons influence with the prevailing use of swimming and hatha-yoga on psychic-physical state of men at the age of 21-35. *Pedagogiko-psihologicheskie i medico-biologicheskie problemy fizicheskoy kul'tury I sporta* = Russian Journal of Physical Education and Sport. 2019; 14(2): 43-47. DOI: 10.14526/2070-4798-2019-14-2-43-47 [In Russ., In Engl.]
2. Vengerova N.N., Kudashova L.T., Lyuik L.V. Fiskul'turno-ozdorovitel'nye tehnologii kondicionnoj napravlenosti [Physical culture-health-improving technologies of a conditional orientation]. Saint-Petersburg: Saint-Petersburg State Economic University. 2015: 91 [In Russ.].
3. Golovanov S.A. Complex health correction among men with obesity in terms of aerobic physical loads. *Teoriya I praktika fizicheskoy kul'tury* = Theory and practice of physical culture. 2014; 3: 57-61 [In Russ., In Engl.].
4. Levushkin S.P., Sonkin V.D. Age-related changes of physical fitness of the population of the Russian Federation according to the results of RLD (GTO) complex norms fulfillment. *Teoriya I praktika fizicheskoy kul'tury* = Theory and practice of physical culture. 2019; 1: 89 [In Russ., In Engl.].
5. Lutchenko I.G., Perevoznikova I.I., Vysotskiy Yu.M. Scientific-theoretical aspects of a person's ontokinesiologal potential development. *Teoriya I praktika fizicheskoy kul'tury* = Theory and practice of physical culture. 2015; 3: 61 [In Russ., In Engl.].
6. Nazarenko L.D., Vavilov V.M. Physiological mechanism of athletic gymnastics means influence on men of the second adulthood (40-49 years-old). *Pedagogiko-psihologicheskie i medico-biologicheskie problemy fizicheskoy kul'tury I sporta* = Pedagogico-psychological and medico-biological problems of physical culture and sport. 2014; 9(2): 134-140. DOI: 10.14526/00_1111_18 [In Russ., In Engl.]
7. Pasmurova L.E. Modern health problems of a person. *Pedagogiko-psihologicheskie i medico-biologicheskie problemy fizicheskoy kul'tury I sporta* = Pedagogico-psychological and medico-biological problems of physical culture and sport. 2008; 3(3): 104-110. URL: <http://journalsport.ru/images/vipuski/3-1/3.pdf> [In Russ., In Engl.].
8. Savin S.V., Stepanova O.N. Methodology of functional (fitness-) training among maturity age women. *Kul'tura fizicheskaya I zdorov'e*. 2017, 1(61): 42-45 [In Russ.].
9. Stafeev A.V., Deryabina A.L. Effectiveness of physical culture-health-improving lessons of power fitness with maturity age men. *Uspehi sovremennoj nauki I obrazovaniya*. 2016; 1(12): 209-212 [In Russ.].
10. Bogaerts A., Delecluse C., Boonen S., Claessens A., Milisen K., Verschueren S.M.P. Changes in balance, functional performance and risk fall following whole body vibration training and vitamin D supplementation in institutionalized elderly women. A 6 month randomized controlled trial. *Gait and Posture*. 2011; 33: 466-472. DOI: 10.1016/j.gaitpost.2010.12.027.
11. Bogaerts A., Delecluse C., Claessens A.L., Coundyzer W., Boonen S., Verschueren S.M. Impact of whole-body training versus fitness training on muscle strength and muscle mass in older men: A 1-year randomized controlled trial. *Journal of Gerontology A: Biological Sciences*. 2007; 62: 630-635. DOI: 10.1093/gerona/62.6.630.
12. Brooke-Wavell K., Mansfield N.J. Risks and benefits of whole body vibration training in older people. *Age and Ageing*. 2009; 38: 254-255. DOI: 10.1093/ageing/afp036.
13. Lan F.M.H., Lau R.W.K., Chung R.C.K., Pang M.Y.C. The effect of whole body vibration on balance, mobility and falls in older adults: A systematic review and meta-analysis. *Maturitas*. 2012; 72: 206-213. DOI: 10.1016/j.maturitas.2012.04.009.
14. Rees S.S., Murphy A., Watsford M. Effects of vibration exercise on muscle performance and mobility in an older population. *Journal of Ageing and Physical Activity*. 2007; 15: 367-381.

Table 2 – Structure and content of a complex fitness-training macrocycle in men of the first period of adulthood

Mesocycles	Initial mesocycle (November)				The main mesocycle (December-March)					Stabilizing mesocycle (April)
	November				December	January	February	March		
	1	2	3	4						
The used means										
Aerobic block										
Cyclic exercises:										
- at stationary bike	+				+			+		+
- at stepper		+			+		+			+
- at elliptic training simulator			+		+		+		+	+
- at running track				+		+		+		+
Functional block										
exercises:										
- for power at training simulators	+							+		
- for power endurance with own weight		+						+		
- for power endurance with rubber bandage			+			+		+		+
- for power endurance and coordination with TRX loops				+			+		+	
- for coordination at non-stable surfaces					+		+		+	+
- for power and power endurance in a form of circular training						+			+	+

End Table 2

Mesocycles	Initial mesocycle (November)				The main mesocycle (December-March)				Stabilizing mesocycle (April)
	November				January				January
	1	2	3	4	December	January	November	December	21-24
The used means									
Correction-preventive block									
Exercises for the existing locomotor apparatus disorders correction									
- at training simulators	+				+	+	+	+	+
- with own weight		+				+	+		+
- with additional equipment			+				+	+	+
- therapeutic exercises complex				+				+	+
Relaxing block									
Exercises from the arsenal of:									
- pilates	+				+	+	+		+
- stretching		+				+	+		+
- fitness-yoga			+				+	+	+
- respiratory gymnastics				+				+	+

Submitted: 12.03.2020

Author's information:

Olga N. Stepanova – Doctor of Pedagogics, Professor, Moscow Pedagogical State University, 119571, Russia, Moscow, prospect Vernadskiy, House 88, e-mail: stepanova.olga.mpgu@gmail.com

Sergey V. Savin – Candidate of Pedagogics, Associate Professor, Russian State Social University, 129226, Russia, Moscow, Vilgelm Pik str., House 4, Block 1, e-mail: fizzdorovie@gmail.com