

SCI-CONF.COM.UA

**INNOVATIONS
AND PROSPECTS
OF WORLD SCIENCE**



**PROCEEDINGS OF VI INTERNATIONAL
SCIENTIFIC AND PRACTICAL CONFERENCE
FEBRUARY 2-4, 2022**

**VANCOUVER
2022**

INNOVATIONS AND PROSPECTS OF WORLD SCIENCE

Proceedings of VI International Scientific and Practical Conference
Vancouver, Canada
2-4 February 2022

Vancouver, Canada

2022

UDC 001.1

The 6th International scientific and practical conference “Innovations and prospects of world science” (February 2-4, 2022) Perfect Publishing, Vancouver, Canada. 2022. 1072 p.

ISBN 978-1-4879-3794-2

The recommended citation for this publication is:

Ivanov I. Analysis of the phanistic composition of Ukraine // Innovations and prospects of world science. Proceedings of the 6th International scientific and practical conference. Perfect Publishing. Vancouver, Canada. 2022. Pp. 21-27. URL: <https://sci-conf.com.ua/vi-mezhdunarodnaya-nauchno-prakticheskaya-konferentsiya-innovations-and-prospects-of-world-science-2-4-fevralya-2022-goda-vankuver-kanada-arhiv/>.

Editor

Komarytskyy M.L.

Ph.D. in Economics, Associate Professor

Collection of scientific articles published is the scientific and practical publication, which contains scientific articles of students, graduate students, Candidates and Doctors of Sciences, research workers and practitioners from Europe, Ukraine, Russia and from neighbouring countries and beyond. The articles contain the study, reflecting the processes and changes in the structure of modern science. The collection of scientific articles is for students, postgraduate students, doctoral candidates, teachers, researchers, practitioners and people interested in the trends of modern science development.

e-mail: vancouver@sci-conf.com.ua

homepage: <https://sci-conf.com.ua/>

©2022 Scientific Publishing Center “Sci-conf.com.ua” ®

©2022 Perfect Publishing ®

©2022 Authors of the articles

PHYSICAL AND MATHEMATICAL SCIENCES

38. *Gerus V.* 242
THE URGENCY OF THE PROBLEM OF DETECTING ANOMALIES IN
TIME SERIES.
39. *Ахиев Алаббас Сейди оглы, Нифталиева Мехрибан Муслим кызы* 248
НАПРЯЖЕННО ДЕФОРМИРОВАННЫЕ СОСТОЯНИЯ КУСОЧНО
ОДНОРОДНОЙ СРЕДЫ С ТРЕЩИНОЙ.
40. *Мусаев А. М., Алиева С. О.* 252
О ХАРАКТЕРИСТИКЕ КЛАССОВ ФУНКЦИЙ В МЕТРИКЕ
ПРОСТРАНСТВЕ $L_p(-\infty, +\infty)$ ($p \geq 1$).

GEOGRAPHICAL SCIENCES

41. *Война І. М., Любчак А. О.* 261
ВИСОТНА ДИФЕРЕНЦІАЦІЯ АНТРОПОГЕННИХ ЛАНДШАФТІВ
ВІННИЦЬКОГО ПРИДНІСТЕР'Я.
42. *Козинська І. П., Дяченко А. С.* 268
ОСОБЛИВОСТІ ПОДІЄВОГО ТУРИЗМУ ЧЕРКАСЬКОЇ ОБЛАСТІ З
ОГЛЯДУ ЙОГО ВПЛИВУ НА ЕКОНОМІКУ УКРАЇНИ.

PEDAGOGICAL SCIENCES

43. *Abdullina G. T., Kuralbayeva A. A., Zhetibayeva Z. K.* 277
ONLINE SCHOOLS CANNOT REPLACE TRADITIONAL CLASSROOM
FOR PRIMARY CLASS STUDENTS.
44. *Berehova M., Zhdanova A.* 284
COMPREHENSIVE DEVELOPMENT OF A CHILD WITH SPECIAL
EDUCATIONAL NEEDS BY MEANS OF A FAIRY TALE.
45. *Chernenko O., Hurieieva A., Serdyuk D., Chernenko A.* 287
STUDY OF THE LEVEL OF PHYSICAL ABILITY OF 18-20 YEARS OLD
FOOTBALL PLAYERS DURING THE ANNUAL CYCLE OF TRAINING.
46. *Gubareva O. S., Kasianenko O.* 296
THE CONTRIBUTION OF FOREIGN AND DOMESTIC EDUCATORS
TO THE DEVELOPMENT OF PEDAGOGY.
47. *Kochubei T. D., Shturba A. O.* 304
THE MAIN FEATURES OF THE EXTENDED DAYCARE GROUP IN
THE UKRAINIAN PRIMARY SCHOOL.
48. *Kopzhasarova U. I., Rykhlikova I. S.* 309
EXAMINING THE CONTENT OF DIGITAL COMPETENCE AS A KEY
PRE-REQUISITE FOR EDUCATIONAL DIGITALIZATION.
49. *Pohorielov O. V., Chun Liu* 316
PREFERENCES OF STUDENTS' OF HIGHER MEDICAL
EDUCATIONAL INSTITUTION TO SOME FORMS OF TRAINING AT
CONDITIONS OF COVID-19.

UDC 796.332.012.12:796.015.22“450”-053.81

**STUDY OF THE LEVEL OF PHYSICAL ABILITY OF 18-20 YEARS OLD
FOOTBALL PLAYERS DURING THE ANNUAL CYCLE OF TRAINING**

Chernenko Olena

PhD, assistant professor

Hurieieva Antonina

PhD, assistant professor

Zaporizhzhia State Medical University

Zaporizhzhya, Ukraine

Serdyuk Dmytro

PhD, assistant professor

Zaporizhzhya national university

Zaporizhzhya, Ukraine

Chernenko Andrii

senior lecturer

National university «Zaporizhzhya politech»

Zaporizhzhya, Ukraine

Annotation. The study identified the main stages of training of 18-20 years old players during the annual cycle. It is established that, at the moment, in the system of sports reserve training the task of improving motor skills should remain one of the main throughout the annual cycle, regardless of the stages of training. The purpose of the study is to investigate the dynamics of changes in the physical performance of 18-20 years old football players during the annual training cycle. Methods: analysis and generalization of data from modern sources of information; pedagogical observations; physical fitness testing; pedagogical experiment; methods of mathematical statistics. The research was conducted during the training and participation of football players of IFC "Metallurg-2" (Zaporizhzhya) in the Ukrainian Football Championship among amateur teams 2020/2021. It is established that at the end of the first and second preparatory periods of the 2020/21 season for the majority of 18-20 years old football players, the indicators related to the "average" level of development were recorded. These include - an indicator of physical performance and aerobic capacity of athletes. At the end of the study it was found that all indicators that characterize physical

performance, aerobic capacity decreased ($p < 0.05$) and belonged to the functional class "below average" and "average", respectively.

Key words: physical capacity, football players, annual training cycle, aerobic capacity.

Introduction. Trends in the development of modern football, first of all, are manifested in the evolution of the game itself, the practical reflection of which should be the improvement of all aspects of the educational and training process of football players [1]. However, according to experts, there is no system in the education of highly qualified players in Ukrainian football today, and the training process of young athletes is focused on achieving results today, rather than the systematic preparation of talented young men to transition to professional football. As a result, there is a transition from the teams of a large number of talented young players between the ages of 11 and 13, and then from 16 to 20 years [2].

A variety of different motor actions performed by football players during the game requires the development of a number of physical qualities and functional improvement of all body systems of football players, which is achieved in various physical training and is a necessary prerequisite for improving technical and tactical skills [1]. In the practical activities of athletes, the solution of this problem is usually associated with increasing the volume and intensity of training loads. For 18-20 years old players, this approach requires careful planning, which is associated with accurate time distribution and optimal combination of loads of different energy orientation and careful selection of training tools to prevent overtraining and fatigue of athletes [1, 2].

There are generally accepted approaches to training qualified players, which involve the division of the annual training cycle into three main periods: preparatory, competitive, and transitional. With such planning of the training process, the main increase in the level of physical fitness of football players should happen in the preparatory period. And the main training task of the competitive period is to maintain the level of sportsmanship achieved in the preparatory period. However, practice shows that in the system of sports reserve training the task of improving

motor skills should remain one of the main throughout the annual cycle, regardless of the stages of training. This necessitates the search for and implementation of more effective training programs, organizational forms, tools and techniques that will contribute to the rational planning of physical activity.

Thus, there is a necessity to find and implement effective tools, methods and forms of training to increase the level of special performance of football players during the annual training cycle, which will improve the level of technical and tactical skills.

The goal. The purpose of our study is to investigate the dynamics of changes in the physical performance of football players aged 18-20 during the annual training cycle.

Materials and methods. To achieve this goal during the study we used the following methods: analysis and generalization of data from modern sources of information; pedagogical observations; physical fitness testing; pedagogical experiment; methods of mathematical statistics. Pedagogical observations were conducted directly during the training sessions and performances of football players at the Ukrainian Football Championship among amateur teams.

To determine the level of physical fitness of 18-20 years old football players, we used the generally accepted submaximal bicycle ergometric test PWC_{170} . It should be noted that this test is considered by many scientists as a test to determine the level of general physical fitness. The calculation of $aPWC_{170}$ (absolute value of physical performance), $rPWC_{170}$ (relative value of physical performance), $aMOC$ (absolute aerobic capacity), $rMOC$ (relative aerobic capacity) was performed according to the formulas proposed by M. Malikov, A. Svatyev, N. Bogdanovskaya (2006). To evaluate the results used, the data are given in table 1 [3].

Table 1

**Scale of qualitative assessment of the level of indicators PWC₁₇₀ and MOC
of 18-35 years old male athletes**

(M. Malikov, A. Svatyev, N. Bogdanovskaya, 2006)

Levels	PWC ₁₇₀		MOC	
	aPWC ₁₇₀ kgm·min ⁻¹	rPWC ₁₇₀ kgm·min ⁻¹ kg ⁻¹	aMOC l·min ⁻¹	rMOC ml·min ⁻¹ ·kg ⁻¹
Poor	<1067,50	<15,25	<3,50	<50,00
Below average	1067,50-1294,50	15,25-18,49	3,50-3,85	50,00-54,99
Average	1294,51-1750,00	18,50-25,00	3,86-4,55	55,00-65,00
Above average	1751,00-1995,00	25,01-28,25	4,56-4,90	65,01-70,00
High	>1995,00	>28,25	>4,90	>70,00

The study was conducted on the basis of the city football club IFC "Metallurg-2" (Zaporozhye). Experimental studies were conducted during the training and participation of players of FC "Metallurg-2" (Zaporozhye) in the Ukrainian Football Championship among amateur teams 2020/2021. The experiment involved players with different roles in the team. A total of 18 players took part in the competition.

Results and discussion. Based on the analysis of scientific literature, the results of research, the experience of the coaching staff of IFC "Metallurg-2" (Zaporozhye) was analyzed the training program for 18-20 years old football players in the annual cycle of the season 2020/21.

According to the analysis, it was found that approximately 55% of the total training time of 18-20 years old football players falls on the physical and functional training (by one means or another) of athletes for the next competitive period.

It should be noted that one of the main tasks of training both the first and second preparatory periods of the annual cycle is to increase the general and special endurance of athletes. In the program of training players of IFC "Metallurg-2" (Zaporizhzhya) to solve this problem is allocated approximately 25% of the time of the training process. Slightly less time is devoted to technical and tactical training of athletes. In the process of training players, about 10-12% of the time is devoted to other types of training.

Physical performance is an important condition for the development of all basic physical qualities, the basis of the body's ability to withstand high specific

loads, the ability to realize functional potential for intensive recovery in all sports [1]. It largely determines the sports result at all major stages of long-term training [2].

Physical performance testing is the most important component of comprehensive control of athletes' fitness, because it determines the functional capabilities of the body, identifies weak links in adaptation to stress and factors that limit performance.

The role of such testing is especially growing in game sports, including football, where it is difficult to assess performance due to the specifics of physical activity [2].

Based on the above, we analyzed the indicators of physical performance of 18-20 years old football players during the annual training cycle.

Due to the fact that the program of the Ukrainian Football Championship among amateur teams provides for games on the circle system in two rounds, the annual cycle of training athletes is built according to the competition calendar. In the 2020/2021 season, the games of the first round of the Championship started in August and lasted until October inclusive, the games of the second round - March-May, respectively. Thus, the annual cycle of training IFC "Metallurg"-2 (Zaporozhye) athletes consisted of two preparatory and two competitive periods, which is reflected in the program of training sessions.

During our study, we processed the results of a survey of football players at the end of the first and second training periods, the first and second competitive periods of the 2020/21 season.

At the first stage of our study (end of the first preparatory period) we identified indicators that characterize the level of physical performance and aerobic capacity of the body of 18-20 years old football players. These parameters were determined by conducting a submaximal bicycle ergometric test PWC170 and calculating the absolute and relative value of physical performance, absolute and relative aerobic capacity. The obtained results indicate that the average statistical indicators of physical performance and aerobic capacity of 18-20 years old football players correspond to the functional level of "average" (table 2).

Analyzing the results, we can say that the players of IFC "Metallurg"-2 (Zaporozhye) indicators of physical performance and aerobic capacity of the body at the end of the competition period decreased significantly, but are still characterized as indicators of "average" level. Significantly decreased $aPWC_{170}$ and $rPWC_{170}$ (by 14.7%). In our opinion, these are objective indicators, because the competitive period of any athlete is quite exhausting and is reflected in the physical and functional level of fitness. The obtained data are confirmed by the results of studies of many specialists [1, 2, 3].

Table 2

Indicators of physical performance and aerobic capacity of 18-20 years old football players at the end of the first preparatory and competitive periods of the 2020/21 season (M±m) (n=18)

Indicators	I preparatory period	I competitive period	Relative growth, %
$aPWC_{170}, \text{kgm} \cdot \text{min}^{-1}$	1542,51±41,64 average	1315,75±39,51* average	-14,7
$rPWC_{170}, \text{kgm} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$	22,79±1,24 average	19,44±2,47* average	-14,7
$aMOC, \text{ml} \cdot \text{min}^{-1}$	4463,5±37,31 average	3964,65±39,11* average	-11,2
$rMOC, \text{ml} \cdot \text{min}^{-1} \cdot \text{kg}^{-1}$	65,93±4,78 average	58,56±3,87* average	-11,2

Notes: * – $p < 0,05$ the difference between the indicators of the preparatory and competitive periods

The results of the re-determination of indicators of physical performance and aerobic capacity of the body of 18-20 years old football players at the end of the second preparatory period of the annual 2020/21 season training cycle show that all indicators correspond to the level of development of "average" and unreliably higher compared to the indicators recorded after the first preparatory period (table 3).

Table 3

Indicators of physical performance and aerobic capacity of 18-20 years old football players at the end of the second preparatory and competitive periods of the 2020/21 season (M±m) (n=18)

Indicators	II preparatory period	II competitive period	Relative growth, %
aPWC ₁₇₀ , kgm·min ⁻¹	1614,49±39,13 average	1211,34±41,47* below average	-24,9
rPWC ₁₇₀ , kgm·min ⁻¹ kg ⁻¹	23,71±1,13 average	18,05±1,68* below average	-23,9
aMOC, ml·min ⁻¹	4621,9±38,87 average	3734,95±37,67* below average	-19,2
rMOC, ml·min ⁻¹ ·kg ⁻¹	67,87±3,67 average	55,66±2,97* average	-18,0

Notes: * – p<0,05 the difference between the indicators of the preparatory and competitive periods

The next determination of these indicators took place at the end of the second competitive period of the annual cycle of training athletes (after the games of the second round of the Ukrainian Football Championship among amateur teams of the season 2020/21 – June 2021). After analyzing the results, we can state that all indicators decreased significantly (p <0.05) under the influence of prolonged physical and psychological stress of players (Table 3.2). The decrease in physical performance and aerobic capacity of athletes was reflected in the distribution of test results by levels: almost all indicators were at the level of "below average", and the rate of MOC – at the "average" level.

Thus, we see that after the second round of the Ukrainian Football Championship among amateur teams of the 2020/21 season, almost all indicators that characterize the physical performance and aerobic capacity of the body of 18-20 years old football players were marked by even more significant negative changes compared to indicators after the end of the first round of competitions (November 2020).

A significant decrease in physical performance and aerobic capacity of FC "Metallurg-2" (Zaporozhye) players can be explained by the young age of athletes (18-20 years), for whom participation in competitions among adults is a great physical and psychological stress. In addition, the management set a task - according

to the results of the games to take a place not less than third among the teams of Group №3, for further participation in the fight for awards. But according to the results of the competition, the team's players took only 8th place in the group, which did not allow them to continue the competition. All these factors have contributed to significant depletion of athletes both physically and psychologically.

As a result of such significant negative changes in physical performance, aerobic capacity, general and special training of 18-20 years old football players, the final 8th place in Group №3 of the Ukrainian Amateur Football Championship and the cessation of competition for prizes.

Conclusions. Analyzing the results of the study, we can state that at the end of the first and second preparatory periods of the 2020/21 season forth most of 18-20 years old football players, the indicators related to the "average" level of development were recorded. These include - an indicator of physical performance (aPWC₁₇₀ and rPWC₁₇₀) and aerobic capacity of the body of athletes (aMOC, rMOC).

After the second round of competitions, all indicators of physical performance, aerobic capacity decreased ($p < 0.05$) and belonged to the functional class "below average" – aPWC₁₇₀ and rPWC₁₇₀, aMOC, "average" – indicators rMOC.

In general, analyzing the results of the study, we can say that the existing program of functional training in the preparatory and competitive periods of the annual cycle of training 18-20 years old players is not effective and does not significantly improve these indicators during the preparatory periods and maintain optimal levels of competitive indicators periods, which will allow athletes to show higher results in competitions. It may be necessary to use more modern means and methods of training, means of recovery and rehabilitation of athletes throughout the annual training cycle, taking into account age and individual characteristics.

REFERENCES

1. Кокарева С. М., Кокарев Б. В., Черненко О. Є. Особливості змін рівня фізичної роботоздатності та фізичної підготовленості футболістів високої кваліфікації у другому підготовчому та другому змагальному періодах річного

циклу підготовки. Фізична культура, спорт та здоров'я нації. Житомир: ФОП Євенок ОО, 2017. Вип. 4. С. 65-70.

2. Шамардин А.А., Таможников Д.В., Шамардин А.И. Функциональная подготовка футболистов на этапах годичного тренировочного цикла на основе использования регламентированных режимов дыхания. Волгоград: ВГАФК, 2008. 80 с.

3. Маліков М.В., Сватъєв А.В., Богдановська Н.В. Функціональна діагностика у фізичному вихованні і спорті: Навчальний посібник для студентів вищих навчальних закладів. Запоріжжя: ЗДУ, 2006. 227 с.