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## **Effective Ways to Maintain the Physical Performance of Students during Distance Learning**

### **Ефективні способи підтримки фізичної працездатності учнів під час дистанційного навчання**

*The objective of the research was to test the effectiveness of the fitness program «WAY TO A HEALTHY LIFE». Indicators of morphofunctional and physical condition of students during quarantine restrictions were studied. The total number of respondents was 926 students (474 girls and 452 boys) from four higher education institutions in Ukraine. To implement the fitness program, the authors developed a model of physical education of students for the period of distance learning. To obtain the necessary information, we used general scientific research methods, namely: analysis of scientific and methodological sources, pedagogical modeling, pedagogical experiment, pedagogical observation, research methods of functional and physical condition of students, expert evaluation method, mathematical statistics methods, SWOT analysis. Five tests characterizing morphofunctional indicators were selected by the method of expert assessment (Stange test; Genchi test; body mass index; Ruffier-Dickson's index; Harvard step test) and seven tests that characterize the indicators of physical development of students (exercises for arm strength; exercise for dexterity, exercise for speed; exercise for the development of abs; exercise for endurance, standing long-jump, Burpie's test). The experimental research showed that out of five tests that characterize the level of development of morphofunctional signs of the body's activity, the girls had improvement in four and the boys in three indicators. Other morphofunctional indicators remained at the previous level. Of the seven tests that characterize the level of development of different physical qualities, significant positive changes were observed in the performance of four exercises in girls and two exercises in boys, maintenance of the level of physical development occurred in the performance of two exercises in girls and four exercises in boys. Only the performance of endurance exercises in girls and boys showed negative dynamics. The SWOT-analysis showed the effectiveness of using the fitness program «WAY TO A HEALTHY LIFE» during distance learning.*

**Keywords:** *fitness program, distance learning, model of physical education, morphofunctional indicators, indicators of physical development, students.*

*Метою дослідження було перевірити ефективність фітнес-програми «Шлях до здорового життя». Досліджено 926 студентів (474 дівчат та 452 юнаків) з чотирьох вищих навчальних закладів України. Для реалізації фітнес-програми автором розроблена модель фізичного виховання учнів в період дистанційного навчання. Для отримання необхідної інформації використовувались загальнонаукові методи дослідження, а саме: аналіз науково-методичних джерел, педагогічне моделювання, педагогічний експеримент, педагогічне спостереження, методи дослідження функціонального та фізичного стану учнів, метод експертного оцінювання, методи математичної статистики, SWOT аналіз. Експериментальне дослідження показало, що з п'яти тестів, що характеризують рівень розвитку морфофункціональних ознак діяльності організму, у дівчат покращилося чотири, а у юнаків – три. Інші морфофункціональні показники залишилися на попередньому рівні. Із семи тестів, що характеризують рівень розвитку різних фізичних якостей, позитивні зміни спостерігалися у виконанні чотирьох вправ у дівчат та двох вправ у юнаків, підтримання рівня фізичного розвитку відбулося при виконанні двох вправ у дівчат і чотирьох вправ для юнаків. Лише виконання вправ на витривалість у дівчат та юнаків показало негативну динаміку. Проведений SWOT-аналіз засвідчив ефективність використання фітнес-програми «Шлях до здорового життя» під час дистанційного навчання.*

**Ключові слова:** *фітнес програма, дистанційне навчання, модель фізичного виховання, морфофункціональні показники, показники фізичного розвитку, учні.*

**Introduction / Вступ.** Anti-epidemic measures introduced in Ukraine in connection with the spread of the COVID-19 pandemic, as well as recommendations to educational institutions to conduct distance learning have negatively affected the health and mental state of students due to a sharp decline in physical activity. To study the changes that occurred during the first wave of the COVID-19 pandemic and to conduct physical education classes remotely, we monitored the morphofunctional status of students and compared it with previous school years. We found that the restriction of motor activity led to functional changes in the body of students, reducing their ability to work and recovery after exercise (Mozolev O., Polishchuk O., Kravchuk L. et al., 2020). Our scientific researches have shown that after nine months of quarantine restrictions, there was a gradual improvement in functional parameters, which indicated the adaptation of the student's body to the new conditions of limited physical activity. At the same time, the functional indicators failed to reach the initial level. A comparative analysis of the dynamics of physical fitness of girls and boys showed that boys' processes of adaptation and restoration of motor activity in the conditions of quarantine restrictions were faster. We determined that some students (12 % – girls and 21 % – boys) were able to restore their physical condition. These are mainly students who led an active lifestyle before the pandemic was announced and sought additional physical exercises during quarantine restrictions. Independent training in the conditions of restrictions allows only to maintain physical shape and only partially contributed to the further development of physical capabilities of students (Mozolev O., Polishchuk O., Shorobura I. et al., 2021; Mozolev O., Chudyk A., Miroshnichenko V. et al., 2021).

Further scientific research led to the need to develop an author's program «WAY TO A HEALTHY LIFE», which was tested during the second wave of quarantine restrictions caused by the COVID-19 pandemic. A characteristic feature of the «PATH TO HEALTHY LIFE» program was that it was based on the use of modern fitness technologies that can be used at home during distance learning. The program met the following requirements: availability and variability; ability to choose the content module according to the individual needs of the student; use of online platforms ZOOM, Google Meet, Viber, Telegram to provide methodological assistance and control; possibility of using household items (water bottles, chairs, bed, rugs, etc.) instead of stationary sports equipment; compliance with safety measures to perform movements in a confined space. The conducted analysis of indicators of physical and morphofunctional condition of students of the experimental group in comparison with the control group showed positive effect of the author's program «WAY TO A HEALTHY LIFE» on the body of students (Kostenko M., Dubovik R., Otroshko O., 2021; Khmara M., Mozolev O., Yashchuk I. et al., 2021).

The next step was the need to conduct a large-scale experiment involving teachers from various educational institutions in Ukraine, working in quarantine restrictions using the program «WAY TO A HEALTHY LIFE». Preparations for the third wave of quarantine restrictions due allowed us to approach the organization of experimental work more carefully and in coordination with other higher education institutions, taking into account their views and wishes on the order and content of classes. At the same time, adjustments were made to the program «PATH TO HEALTHY LIVING», which takes into account the achievements of other groups of scientists working on the development of physical activity of students during distance learning physical education (Backman E. & Barker D. M., 2020; Dominski F. H. & Brandt R., 2020; Kozhokar M. & Slobozhaninov P., 2020; Nyenhuis S. M. et al., 2020; Filiz B. & Konukman F., 2020).

**Aim and Tasks / Мета та завдання.** The purpose of the article is to study the effectiveness of the fitness program «WAY TO A HEALTHY LIFE» on the development of motor skills and indicators of morphofunctional status of students during distance learning.

To achieve the purpose of the research, we solved the following tasks:

1. Development of a structural and functional model of the pedagogical system of physical education of students under the program «WAY TO A HEALTHY LIFE» during distance learning physical education (August 2021);
2. Conducting a seminar and organizing practical training with teachers of physical education of various educational institutions on the implementation of the fitness program «WAY TO A HEALTHY LIFE» (September 2021);
3. Determination of indicators, which, according to experts, should be investigated during the experimental research (September 2021);
4. Obtaining initial data on indicators of physical and morphofunctional development of students before the start of the quarantine restrictions (September 2021);
5. Conducting physical education classes under the program «WAY TO A HEALTHY LIFE» (October – December 2021);
6. Obtaining data on physical and morphofunctional development of students after the completion of quarantine restrictions (December 2021);

7. Carrying out a comparative analysis of indicators of physical and morphofunctional development of students before and after the end of quarantine restrictions (January 2022);

8. Conducting a SWOT analysis and determining the effectiveness of the program «WAY TO A HEALTHY LIFE» (February 2022).

**Organization of the research / Організація дослідження.** The research work was conducted on the basis of four higher educational institutions of Ukraine. The study involved:

- 228 students (186 girls and 42 boys) of Khmelnytskyi Humanitarian-Pedagogical Academy (KhHPA);

- 336 students (144 girls and 192 boys) of the Faculty of Physical Education of Khmelnytskyi National University (KhNU);

- 188 civilian students (76 girls and 112 boys) of the National Academy of the State Border Guard Service of Ukraine (NASBGSU);

- 174 students (68 girls and 106 boys) of Khmelnytskyi Institute of Social Technologies of the University «Ukraine» (KhIST).

The total number of subjects was 926 students (474 girls and 452 boys).

Classes on the program «WAY TO A HEALTHY LIFE» were conducted by 15 teachers, who also acted as experts of the program. The experts determined the indicators of morphofunctional and physical development of students, which were studied before and after the quarantine restrictions. The studied morphofunctional indicators included:

- test a – Stange test (St) – assessment of the respiratory system with breast holding during inhalation;

- test b – Genchi test (Gt) – assessment of the respiratory system with breast holding during exhalation;

- test c – body mass index (BMI) – characterizes the assessment of the correspondence of body weight to human height;

- test d – Ruffier-Dickson's index (RDI) – characterizes the physical performance of the heart;

- test e – Harvard step test (HST) – a quantitative assessment of the body's recovery processes after physical exercises.

Testing the level of physical fitness of students included a study of indicators of the development of the following physical qualities:

- test 1 – bending and extension of the arms based on the bench (30 cm) in horizontal position for girls; pull-ups on a chinning bar for boys (number of times) – strength;

- test 2 – standing long-jump (centimeters) – explosive strength;

- test 3 – Burpie's test (number of times) – determines the development of the ability to general coordination of body movements combined with the differentiation of speed-strength parameters;

- test 4 – running in place for 10 seconds for girls, 15 seconds for boys (number of steps) – speed;

- test 5 – shuttle run of 4x9 m (seconds) – agility;

- test 6 – lifting the torso to the buttocks from a supine position with hands behind the head for 60 seconds – speed and power abilities;

- test 7 – Cooper's test 12-minute run for boys, 6-minute run for girls (distance covered) – endurance.

**Methods / Методи.** To obtain the necessary information, we used general scientific research methods, namely: analysis of scientific and methodological sources, pedagogical modeling, pedagogical experiment, pedagogical observation, research methods of functional and physical condition of students, expert evaluation method, mathematical statistics methods, SWOT analysis.

The analysis of scientific and methodological sources was used to study the current state of views of scientists, coaches and pedagogues on the problem of organizing physical education classes in the conditions in terms of distance learning (Ding D. et al., 2020; O'Brien W. et al., 2020; Chan W. K. et al., 2021). Pedagogical modeling was used during the development of the structural and functional model of the pedagogical system of physical education of students under the program «WAY TO A HEALTHY LIFE» during of distance learning, as well as during the selection of physical exercises to develop experimental content variants of content modules taking into account previously obtained information about the functional and physical condition of the subjects (Dakhin A. N., 2002; Mozolev O., 2018). Pedagogical observation was conducted to obtain current information about the state of health, well-being and morphofunctional changes in the body of students after physical exercises, to determine the impact of physical exercises on the overall performance of students (Chekhovska L. A., 2019; Chen P., Mao L. et al., 2020). Methods of studying the functional state of students were used to obtain scientifically sound indicators of the state of the cardiovascular, respiratory and vegetative nervous system (Zemtsova I. I., 2008; Zhamardiy V., Shkola O. et al., 2020; Mozolev O., Kravchuk L., Ostrovska N. et al., 2020). Research methods of physical condition were used to obtain objective

indicators of students' physical development at the beginning and at the end of the experimental research (Griban G., Skoruy O., Pantieliev K. et al., 2020). The results of the pedagogical experiment and the expert evaluation method were used to determine the effectiveness of the author's fitness program «WAY TO A HEALTHY LIFE». SWOT analysis was used to identify the strengths and weaknesses of the program, identify areas for improvement. Methods of mathematical statistics were used to reliably determine the level of development of motor abilities and morphofunctional abilities of students (Chyzhyk V., Dudnyk O., 2013; Serhienko V. M., 2014).

**Results / Результати.** We have developed the structural and functional model of conducting physical education classes under the program «WAY TO A HEALTHY LIFE» during of distance learning (Mozolev O., 2022). It includes five key blocks, three content modules and defines the means of communication between a teacher and a student. All structural elements of the pedagogical model are closely interconnected and have feedback, which allows at any time to make changes to the proposed program without violating its integrity.

We studied changes in morphofunctional indices of students before and after the quarantine restrictions (Table 1). It was during this period that physical education classes were conducted under the program «WAY TO A HEALTHY LIFE».

*Table 1*

**Dynamics of morphofunctional condition of students at different phases of the experiment (n = 926)**

Tests	Higher education institutions							
	Group of girls (n=474)							
	KhHPA (n=186)		KhNU (n=144)		NASBGUSU (n=76)		KhIST (n=68)	
	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ
test a	38.5±8.2	45.2±7.7	43.7±7.8	48.4±8.5	37.4±9.2	44.0±7.5	36.5±8.8	42.4±8.6
test b	18.6±4.5	23.0±5.1	22.7±7.3	27.3±4.8	18.2±6.3	22.3±5.8	17.9±6.8	20.8±6.3
test c	22.04±3.3	22.16±3.1	21.32±3.2	21.55±3.4	22.24±3.5	22.44±3.9	22.35±3.7	22.26±3.6
test d	9.18±1.26	8.72±1.37	8.12±1.44	7.84±1.52	9.04±1.58	8.76±1.65	9.62±1.23	9.17±1.53
test e	73.4±6.6	77.1±5.2	78.1±4.9	80.4±6.4	74.3±6.8	76.2±5.5	71.7±5.7	74.4±6.3
	Group of boys (n=452)							
	KhHPA (n=42)		KhNU (n=192)		NASBGUSU (n=112)		KhIST (n=106)	
	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ
	test a	42.4±8.0	48.2±8.8	48.7±9.6	53.2±8.2	40.8±9.2	45.2±8.4	41.7±9.6
test b	22.7±5.8	27.2±6.4	28.8±6.7	33.2±7.2	21.7±7.2	25.8±6.0	21.8±6.9	25.2±7.4
test c	21,15±3.6	21,33±3.4	20,72±3.6	20,94±3.8	21,44±3.9	21,71±3.7	21,85 ±3.8	22,12±3.5
test d	8.49±1.28	8.14±1.22	8.04±1.16	7.78±1.46	8.54±1.38	8.18±1.42	8.93±1.54	8.64±1.76
test e	76,3±7.2	78,3±6.6	83,6±4.4	85,7±5.8	75,0±6.7	76,8±7.7	74,4±7.2	75,3±8.1

Analysis of the dynamics of development of the respiratory system before and after the research indicates significant positive changes in indicators (St) and (Gt) that occurred in the body of students. The improvement of the indicator (St) occurred in all studied groups of girls in the range of 11.1% – 17.4% (p < 0.001), in boys the growth of this indicator occurred slightly less and fluctuated in the range of 8.7% – 11.4% (p < 0.01). The most significant was the growth of the indicator (Gt). In girls, the improvement in breath holding occurred within 16.2% – 23.6% (p < 0.001), in boys within 15.3% – 19.8% (p < 0.001). Thus, the implementation of the proposed physical exercises during quarantine restrictions contributed to the development of the respiratory system of students, which generally helped to improve the overall level of fitness.

Analysis of the average body mass index (BMI) in the subjects indicates that it is within normal limits. The conducted research showed a slight increase in all study groups, which indicates an increase in body weight of students during quarantine restrictions. At the same time, its indicators did not exceed the limits of statistical error and did not have significantly significant changes (p > 0.05).

Analysis of the Ruffier-Dickson's index shows that the physical performance of the heart in 92.3% of students studied was at a good level, only 7.7% of students had a satisfactory level of performance. The dynamics of changes in the indicator (RDI) during the conducting of the research indicates its improvement in girls by 3.1% – 5.2% (p < 0.05) and 3.1% – 4.1% (p < 0.05) in boys. This fact indicates the positive impact of the fitness program «WAY TO A HEALTHY LIFE» on the development of the cardiovascular system.

Analysis of the Harvard step test showed that the processes of recovery of students' organisms after physical exercises during distance training have not changed significantly. There is a positive dynamics of recovery processes in girls within 2.9% – 5.0% (p < 0.05), in boys within 1.2% – 2.6% (p > 0.05). Thus, it can be argued that the fitness program «WAY TO A HEALTHY LIFE» allows to support the recovery of the body of boys after physical exercises at baseline and promotes its development in girls.

Analysis of the results of the morphofunctional state of the subjects showed that the performance of students of the Faculty of Physical Education of Khmelnytskyi National University at the beginning and at the end of the experiment was higher than that of students of other educational institutions. We believe that this fact is primarily due to the need of this group of students to systematically engage in various types of physical activity. It should be noted that among the subjects there were no students who go in for sports at the professional level. Only students of KhNU who were engaged in sports activities at the amateur level took part in the research. It should be mentioned that students' sports activities covered both motor and intellectual and technical kinds of sports. Thus, this fact proves that engaging in various sports has a positive impact on the development of morphofunctional abilities of students.

We studied the changes in the indicators of physical development of students before the implementation of the fitness program «WAY TO A HEALTHY LIFE» and after its implementation (Table 2).

*Table 2*

**Dynamics of changes in indicators of physical development of students at different stages of the research (n = 926)**

Tests	Higher education institutions							
	Group of girls (n=474)							
	KhHPA (n=186)		KhNU (n=144)		NASBGSU (n=76)		KhIST (n=68)	
	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ	PHASE 1 X±σ	PHASE 2 X±σ
test 1	8.8±3.6	9.6±4.2	10.7±3.8	11.3±3.8	9.6±4.4	10.2±3.6	8.2±3.2	8.8±3.6
test 2	163.5±16.5	163.2±17.8	167.6±15.7	166.8±17.2	164.2±18.3	164.8±17.7	161.2±14.4	162.0±15.8
test 3	18.0±5.5	19.3±6.4	19.4±6.5	20.5±7.4	17.8±6.7	19.0±7.2	17.2±6.6	18.5±7.0
test 4	37.2±5.8	38.4±5.2	42.6±6.3	43.7±6.0	38.7±5.7	39.8±5.2	36.3±6.7	37.5±7.3
test 5	11.22±0.39	11.18±0.32	11.03±0.27	11.12±0.34	11.16±0.33	11.24±0.37	11.28±0.38	11.37±0.42
test 6	33.2±7.6	34.3±7.3	34.6±6.8	35.8±7.1	32.8±7.7	34.4±6.6	32.3±7.5	33.4±6.8
test 7	1.18±0.17	1.09±0.16	1.21±0.14	1.14±0.15	1.17±0.13	1.06±0.15	1.13±0.11	1.06±0.14
	Group of boys (n=452)							
	KhHPA (n=42)		KhNU (n=192)		NASBGSU (n=112)		KhIST (n=106)	
test 1	11.5±4.0	11.9±5.1	12.7±4.2	12.8±4.7	11.4±3.8	11.6±4.5	10.8±3.7	11.2±4.4
test 2	210.5±22.0	208.8±19.0	215.5±17.5	213.8±18.0	211.8±19.6	211.2±21.2	207.5±17.0	209.3±19.5
test 3	25.6±3.6	26.4±5.1	27.1±4.8	28.0±5.3	26.6±4.4	27.5±4.9	24.5±4.6	25.6±5.2
test 4	97.0±8.1	98.8±7.2	101.2±8.6	100.8±9.0	98.4±8.5	97.2±7.8	94.3±8.7	95.6±7.9
test 5	10.14±0.51	10.08±0.58	9.7±0.45	9.95±0.52	10.06±0.45	10.13±0.55	10.22±0.47	10.17±0.53
test 6	40.3±5.7	42.5±6.9	43.2±7.6	44.8±8.1	41.4±6.2	42.8±7.4	40.6±7.7	42.0±6.5
test 7	2.74±0.23	2.62±0.29	2.83±0.18	2.74±0.25	2.75±0.22	2.66±0.28	2.67±0.24	2.57±0.27

The dynamics of changes in the results of the exercise of bending and unbending the arms on the bench (30 cm) in a horizontal position for girls (test 1) showed positive changes in the development of strength. The increase in indicators in all study groups was 5.6% – 9.1% (p < 0.01). The dynamics of change in the results of the pull-up exercise in boys (test 1) showed that in the two studied groups there was a significant improvement in results within 3.1% – 3.7% (p < 0.05), in the other two studied groups there were no significant changes. Thus, it can be argued that the fitness program «WAY TO A HEALTHY LIFE» promotes the development of strength in girls and allows to maintain the indicators of strength development in boys at the previous level.

The results of students of all studied groups in the performance of standing long-jump exercise (test 2) before and after the research showed that the changes in indicators did not have significant values (p > 0.05). Therefore, we believe that the fitness program «WAY TO A HEALTHY LIFE» allows to maintain the level of development of explosive strength in girls and boys at the previous level.

Analysis of the dynamics of changes in the performance of Burpie's test (test 3) indicates positive changes in the ability of students to improve the overall coordination of body movements in combination with the differentiation of speed and force parameters. The improvement of results was 5.6% – 7.5% for girls (p < 0.01), 3.1% – 4.5% for boys (p < 0.05). This fact indicates the effectiveness of the fitness program «WAY TO A HEALTHY LIFE» for the development of these physical parameters.

The results of the experimental research showed that in the development of speed abilities (test 4) in girls there were positive changes, the increase was 3.4% – 4.6% (p < 0.05). In boys, positive changes were observed in only two of the four studied groups. There were no significant changes in the other two. Thus, it can be argued that the fitness program «WAY TO A HEALTHY LIFE» promotes the development of speed abilities of girls and allows to maintain speed indices of boys.

The dynamics of change of the indices in performance of the exercise shuttle running 4x9 meters

(test 5) in girls and boys of all groups did not have significant changes ( $p > 0.05$ ). This fact indicates that the fitness program «WAY TO A HEALTHY LIFE» can only maintain the agility of students at the previous level.

Analysis of the dynamics of changes in the performance of the exercise lifting the torso to the buttocks from a supine position with hands behind the head for 60 seconds (test 6) showed positive changes in the physical development of students. The improvement of the indices of speed and power abilities in girls was 3.3% – 4.9% ( $p < 0.05$ ), in boys 3.4% – 5.5% ( $p < 0.05$ ). Thus, the fitness program «WAY TO A HEALTHY LIFE» promotes the development of speed and power abilities of girls and boys.

Analysis of the results on the development of endurance (test 7) of students during the quarantine restrictions and conducting classes on the fitness program «WAY TO A HEALTHY LIFE» showed the fact of deterioration of performance in the Cooper test. The decrease in results was 3.2% – 4.4% ( $p < 0.05$ ) for boys and 5.8% – 9.4% ( $p < 0.01$ ) for girls. It should be noted that these changes occurred against the background of improving the functional parameters of the respiratory system. We found out that there is no direct relationship between the improvement of functional parameters of the respiratory system and the level of endurance development. The dynamics of the results of endurance indices of students indicates that the fitness program «WAY TO A HEALTHY LIFE» does not contribute to the development of endurance.

Summary results of the effectiveness of conducting physical education classes during the quarantine restrictions on the use of the fitness program «WAY TO A HEALTHY LIFE» are presented in table 3.

*Table 3*

Results of the SWOT analysis of the effectiveness of use of the fitness program «WAY TO A HEALTHY LIFE» during of distance learning.

	Group of girls (n=474)			Group of boys (n=452)		
	Positive changes (+)	Maintaining the previous level (V)	Negative changes (-)	Positive changes (+)	Maintaining the previous level (V)	Negative changes (-)
	<b>morphofunctional indicators</b>					
test a	+			+		
test b	+			+		
test c		V			V	
test d	+			+		
test e	+				V	
	<b>indicators of physical development</b>					
test 1	+				V	
test 2		V			V	
test 3	+			+		
test 4	+				V	
test 5		V			V	
test 6	+			+		
test 7			-			-
Total	8	3	1	5	6	1

The conducted SWOT analysis of the effectiveness of use of the fitness program «WAY TO A HEALTHY LIFE» during of distance learning showed a positive impact of the program on the development of morphofunctional and physical indicators of students. The experimental research showed that of the five proposed tests that characterize the level of development of morphofunctional signs of the body, in girls there was an improvement in four and in boys in three indicators. Other morphofunctional indicators remained at the previous level. Of the seven proposed tests that characterize the level of development of different physical qualities, significant positive changes were observed in the performance of four exercises in girls and two exercises in boys, maintaining the level of physical development was observed in performing two exercises in girls and four exercises in boys. Only the performance of endurance exercises of girls and boys showed negative dynamics.

**Discussion / Обговорення.** Physical activity helps to improve the level of well-being, physical and mental health of a person (Sharkey B., Gaskill S., 2013). Chronic deficiency of physical activity becomes a threat to human health and normal physical development. Decreased physical activity of the population of different age categories during the quarantine restrictions COVID-19 is an urgent issue studied by scientists in different countries (Aksay E., 2021; Cheval B. et al., 2021; Mozolev O., 2021; Sfyri E., Tertipi N. et al., 2021). Researchers pay special attention to the physical development of young people as one of the fundamental elements of the further prosperity of the state and the formation of the healthy nation. Topical problems of organizing physical education classes at school during of

distance learning were studied by different groups of scientists (Singh V., Acharya J., Bhutia T., 2021; Susilo Tirta Apriyanto, Hernawan et al., 2021; Webster C.A.; D'Agostino E. et al., 2021). Current problems of organizing physical education classes, conducting individual and group trainings, organizing competitions, mass sports and entertainment events in higher education institutions were covered in the works of (Osipov A., Ratmanskaya T. et al., 2021; Griban G., Nosko M. et al., 2021; Huber B. C., Steffen J. et al., 2020; Rasheed A., Abduljawad R. et al., 2021). All researchers note the emergence of new complications in the conduct of physical culture and sports activities, which negatively affects the possibility of their quality. The lack of fans has a bad effect on the promotion of physical exercises and sports. Limited access to sports facilities reduces the interest and motivation of young people in active sports.

The need for regular physical exercises among the elderly people during the pandemic has been proven in the works of such scientists as (Jiménez-Pavón D., Carbonell-Baeza A., Lavie CJ., 2020). They emphasize that it is much more difficult for elderly people to adapt to new quarantine restrictions. There is a violation of daily life, reduced ability to perform business duties, impaired communication, decreased physical activity, which leads to depression and poor health of the elderly.

Our research was based on the views of scientists who have studied ways to solve the problem of practical conducting of physical education classes in the conditions of distance learning (Filiz B. & Konukman F., 2020; Woods J. A. et al., 2020; Khmara M., Mozolev O., Yashchuk I. et al., 2021).

The results of our research confirmed the results of studies of other groups of scientists on the negative morphofunctional changes that occur in the human body under conditions of limited motor activity during of distance learning (Huber B. C., Steffen J., Schlichtiger J. et al., 2020; Woods J. A. et al., 2020).

After studying the level of physical fitness and functional abilities of students before the quarantine restrictions and after their completion, we obtained data on the impact of the fitness program «WAY TO A HEALTHY LIFE» on the bodies of students. The conducted comparative analysis allowed to investigate the changes that took place in the bodies of students (Sysoeva S., Krystopchuk T., 2013; Mozolev O., Polishchuk O., Kravchuk L et al., 2020). The use of online platforms ZOOM, Google Meet, Viber, Telegram helped to bring the content of education closer to the special needs of students, taking into account their opinions and wishes, which helped to establish feedback between the student and the teacher (Khmara M., Mozolev O., Yashchuk I. et al., 2021).

Our research supplemented and expanded the data of dynamics of morphofunctional and physical changes that occurred in students during of distance learning, under the influence of the fitness program «WAY TO A HEALTHY LIFE». We obtained new data on the effectiveness of the fitness program in accordance with the gender characteristics of students. We identified the strengths and weaknesses of the program, determined areas for improvement. The research broadened the scientific views (Korwin-Szymanowska A., 2017; Chen P., Mao L. et al., 2020; Griban G., Skoruy O. et al., 2020; Mozolev O., 2021) on the need for systematic assessment of the level of functional status, physical fitness and motor activity of students at each stage of learning.

**Conclusions / Висновки.** The structural and functional model of conducting physical education classes for students developed by the authors under the program «WAY TO A HEALTHY LIFE» contributed to the quality organization of classes during of distance learning. The model included the main program, pedagogical and communicative components, which were interconnected and allowed to receive feedback between the student and the teacher. This allowed to take into account the personal aspirations of students and at any time to make changes to the program without violating its integrity.

The experimental research showed that out of five tests that characterize the level of development of morphofunctional signs of the body's activity, in girls there was an improvement in four and in boys in three indicators. Other morphofunctional indicators remained at the previous level. Of the seven proposed tests that characterize the level of development of different physical qualities, significant positive changes were observed in the performance of four exercises in girls and two exercises in boys, maintaining the level of physical development in two exercises in girls and four exercises in boys. Only the performance of endurance exercises in girls and boys showed negative dynamics. The conducted SWOT analysis showed the effectiveness of using the fitness program «WAY TO A HEALTHY LIFE» during of distance learning.

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