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Assessment of the efficiency of the application of modern health technologies in the educational process of high schools

Abstract. The health problem of student youth is exacerbated by unfavourable political, social, economic, and environmental factors and is driven by the growing need to maintain students' health. The solution to this problem lies in the idea of creating, substantiating, and implementing innovative health technologies into the educational process of higher education institutions. The study aimed to investigate the features of using hardening in the educational process of a higher education institution as an innovative health technology and to determine its effectiveness. The study involved 50 first-year students of the Faculty of History and Geography at Poltava National Pedagogical University named after V.G. Korolenko, aged 17 to 20 years. It was found that only 37% of students are engaged in regular physical activity. A significant percentage of young people who do not engage in physical education and sports (74%) suffer from minor health deviations in the cardiovascular and respiratory systems, colds, and musculoskeletal disorders; 57% lead a sedentary lifestyle, which leads to weight gain. It was discovered that students recognise the positive impact of hardening on health but do not use hardening methods sufficiently or regularly. The main reasons for the irregular use of hardening activities are a lack of time and insufficient motivation. The effectiveness of the hardening technology was substantiated and experimentally proven, which included, in addition to physical education classes at the university, involving students in health groups, using pool sessions, sauna visits with contrast showers, the duration of which gradually increased, as well as independent activities at home (air baths, mouth rinsing with cool

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water, neck rubbing with a cool towel, walking barefoot). The results can be used in higher education institutions to improve the physical and mental health of student youth, enhance the functional state and adaptive capabilities of the body, increase resistance to diseases, and normalise body weight, thereby contributing to their academic success and overall quality of life

Keywords: health; hardening of the body; physical culture and health technologies; hardening measures; people who get health insurance

INTRODUCTION

A healthy population is important for economic growth, social stability, and national security of the state. Therefore, human health in the leading countries of the world is a basic resource and driving force for the functioning of society. Healthy people are more productive, in demand, and more actively participate in public life. Conversely, poor health can lead to a decrease in the productivity and social activity of the population. In recent years, there has been an alarming trend of deterioration in the health of the younger generation. Environmental pollution, a decrease in the quality of life, exposure to chemicals, bad habits, increasing emotional tension in society, and the military conflict in Ukraine – these factors negatively affect the health of children and adolescents.

At the current stage, the leitmotif of the entire education system is that it is in a state of constant renewal, taking into account the trends of globalisation, informatisation, and digitalisation of all social relations; that is, it requires a transformation of thinking and innovative approaches and actions of each teacher. The New Ukrainian School is faced with the task of revising and updating health-improving methods and technologies for their application. The stated idea can be implemented only through a harmonious combination of the achievements of classical theory and methodology with innovative approaches to increasing the creative activity and social interaction of students during training sessions with the aim of their further implementation in practical activities. Among the main areas of modernisation of the content of education is the creation and introduction of innovative technologies for the prevention and strengthening of the health of participants in the educational process. The use of the concept of “technology” in the field of education and the pedagogical process is due to the wide implementation of the technological approach, which opens up new promising opportunities. The technological approach in education provides for accurate instrumental management of the pedagogical process and guaranteed achievement of defined educational goals. In the context of consideration of issues of the technologisation of the learning process, the statement of O. Pehota (2022) about the psychological and valeological validity and instructiveness of the learning process acquires special value, that is, any technology should be based on the strategic tasks of modern education – namely, increasing the effectiveness of the pedagogical process and ensuring

appropriate conditions for the development of the child’s personality and formation and improvement of her health in innovative educational spaces.

In the conditions of the innovative development of the post-modern society, the question of the practical readiness of future teachers for the implementation of health technologies in the educational process of the higher school became acute. The analysis of recent publications allows to assert that the issue of using innovative technologies for the formation and preservation of health has found its reflection in many educational technologies aimed at the development and improvement of the educational process and the training of specialists for professional activities in various spheres of life in modern society (Radionova & Lohvinova, 2023). Researchers B. Mamurov *et al.* (2020) emphasise the importance of forming a healthy lifestyle and popularising physical culture and sports among young people. This, in their opinion, should be facilitated by the introduction into the educational and professional programs of higher education institutions of measures to popularise a healthy lifestyle and the formation of theoretical knowledge and practical skills of its organisation, ensuring the motor activity of students, as well as increasing the competence of teachers in these matters.

Scientists G. Griban *et al.* (2021) in the course of an experimental study proved that the health of student youth is ensured by the formation of a motivated value attitude to a healthy lifestyle, adequate nutrition, a sufficient level of physical activity and physical education, compliance with sanitary and hygienic norms, the formation of health care skills, and abilities to design a health-forming environment in further professional activity. Scientists G. Griban *et al.* (2023) emphasise the need for the development of innovative competence in the process of methodical and self-educational activities as the basis for the development of individual health-preserving competence of students – future teachers, their orientation towards active physical culture and physical culture and health work.

Of great interest are the works in which the results of the systematised, classified, and generalised innovative experience are presented, which contributes to the wide familiarisation of teachers with educational innovations and their informed choice: the ability to evaluate self-development, self-improvement, learn emotional self-regulation (Mikheienko *et al.*, 2022); the ability to choose effective ways, means, methods, techniques and forms

of motor activity and disease prevention, which should contribute to constant physical improvement, maintaining a healthy lifestyle, self-knowledge, development of physical qualities, formation of special abilities and skills, development of creative potential of students of education (Wintle, 2022). Maintaining the functional state of the body, increasing the level of motor readiness of students is highlighted in the work by K. Pronenko *et al.* (2020); giving up bad habits, maintaining a rational lifestyle (Wang & Bíró, 2021); the use of digital health technologies (Chatterjee *et al.*, 2021). According to the analysis of the scientific literature, modern technologies are mostly aimed at the formation of a culture of health by increasing theoretical awareness, improving their functional state by means of health-improving physical culture, such as dance and strength fitness exercises, updated programs of cyclical sports (health-improving walking and running, swimming), non-traditional types of motor activity and sports (yoga, Pilates, Frisbee, etc.). At the same time, in the system of professional training of pedagogical staff in institutions of higher education, the problem of forming knowledge, skills, and abilities to prevent, preserve, and strengthen the health of both students and future teachers currently needs improvement. Issues of integration into the system of educational and physical culture and health activities with students of various specialties of hardening technology and substantiation of their effectiveness remain outside the attention of modern researchers. The purpose of the study was to analyse the use of health technologies and the effectiveness of their application in the educational process of higher education institutions. Objectives of the study:

1. Carry out an analysis of the use of health-improving methods in the educational process of higher education.
2. To reveal the effectiveness of technologies when using health-improving techniques.
3. To develop recommendations for enhancing the effectiveness of modern wellness technologies in education.

MATERIALS AND METHODS

The study was conducted at the Poltava V.G. Korolenko National Pedagogical University in 2022-2023. 50 students (32 boys and 18 girls) of the first year of the Faculty of History and Geography aged 17 to 20 were examined. A questionnaire was conducted to assess the state of formation of a healthy lifestyle of students of higher education institutions (state of involvement of students in physical culture and sports, state of their physical health - susceptibility to diseases, somatic state). The original online questionnaire was compiled together with the curators and scientific and pedagogical staff of the Faculty of Physical Education and Sports in order to find out the quantitative indicator (in percentage) of applicants who play sports and would like to start body hardening procedures. The online questionnaire, created using the Google Forms tool and taking into account all the requirements for sociological research, consisted of 11 closed and open questions. The online questionnaire contained three thematic blocks of questions:

general information about the participants – age, gender, physical education and sports (block I), information about the state of health of students – the presence of abnormalities in the work of body systems and susceptibility to diseases (block II), knowledge and attitude of applicants to health hardening procedures – knowledge and practical use of hardening agents and motivation for hardening procedures (block III). Applicants were warned about the purpose of the questionnaire and participated in the study voluntarily. A total of 50 questionnaires were processed. A quantitative method was used to calculate respondents' answers. All provisions of the Declaration of Helsinki (2013) were followed during the study.

Data on the level of morbidity among students was clarified with the help of the following analysis of documentary materials (medical cards of students), which were reviewed at the beginning and at the end of the study with the involvement of a medical worker of a higher education institution and allowed to reveal the dynamics of disease cases. The dynamics of anthropometric indicators (height and weight) of students were tested for functional indicators using the Body Mass Index (BMI) method and using a height meter and electronic scales. Body mass index was calculated for each participant according to the formula:

$$BMI = \frac{\text{body mass (kg)}}{(\text{height m})^2}. \quad (1)$$

Determination of normative indicators was carried out in accordance with WHO recommendations (World Health Organisation, 1995). According to the results of the questionnaire and the analysis of documentary materials, a pedagogical experiment was developed and organised regarding the use of health-improving methods and the effectiveness of their technologies in the professional activity of a teacher of a higher education institution. The pedagogical experiment took place in three stages with different orientations and durations. At the first stage, the peculiarities of the organisation of the educational and movement mode were considered and analysed. Based on the analysis and generalisation of psychological-pedagogical and scientific-methodical literature, pedagogical observation, the means and methods that can be used to improve the health and functional state of students were studied. Together with this, the goals and objectives of the research were formulated and specified, and the methods of pedagogical control were determined. At the second stage, the composition of the control and experimental groups was determined. The composition was determined by selecting a group of students, who used to play sports. Each group consisted of 10 people. At the third stage, the author's method of hardening the students of the experimental group was implemented, and its effectiveness was investigated.

In order to conduct a pedagogical experiment based on the theoretical analysis of specialised and scientific-pedagogical literature, a methodology aimed at hardening the body of education seekers. It was used in the experimental

group (hereinafter – EG). The control group (hereinafter – CG) was engaged in the program of the discipline “Physical culture”, consisting of boys and girls. Students of the control group took part only in the mandatory form of physical exercises – physical culture pairs twice a week. Students of the experimental group, in addition to physical culture classes at the university, attended health group classes and used various hardening agents. All students who participated in the study were engaged in physical culture twice a week. In EG, one lesson was replaced by a lesson in the swimming pool. Aquatic activity included recreational swimming and (or) performing physical exercises in water. In addition to EG, at the end of the week, a session in the health group was added, which included a visit to the sauna. The duration of stay in the sauna is 7-10 minutes, followed by a contrast shower. Also during the week they were given recommendations on hardening at home. During the week, students took air baths lasting 10-20 minutes. It is recommended to carry out hardening of the nasopharynx in the form of rinsing the oral cavity with cool water and wiping the throat with a cool towel at home. In addition to the above, walking barefoot in the house was recommended. Every week, the time of acceptance of hardening procedures was added to the experiment. Thus, by the end of the experiment, the duration of water hardening was 20 minutes, the duration of visiting the sauna was 10 minutes, followed by a contrast shower, and the duration was 15 minutes. The duration of air hardening at the end of the experiment was 40 minutes of students being in the fresh air. The data obtained during the experiment were subjected to quantitative and qualitative analysis. Mathematical statistics methods were used to determine the effectiveness of the developed methodology.

RESULTS

For a thorough analysis of the outlined problem, the state of the students' involvement in physical culture and sports, the state of their physical health (susceptibility to diseases, somatic condition) and the dynamics of students' anthropometric indicators were determined. Based on the results of the survey, it was found that out of the number of respondents, the percentage of students engaged in sports was 37%. Among those who do not regularly play sports – 63%, there is a high percentage of colds – 74%, and minor deviations in the work of the cardiovascular and respiratory systems, as well as disorders of the musculoskeletal system. At the same time, there is a percentage of students who suffer from excessive body weight – 57%. Analysing the obtained results, we state that the problematic situation is manifested in the fact that a fairly large percentage of young people suffer from minor deviations in their health from the cardiovascular system, the immune system, this can be said by the fact that a large percentage of them often suffer from cold diseases. Only 20% of respondents are engaged in hardening measures. Out of the total number of respondents, 78% of respondents indicated that they would like to start tempering classes. The students

answered the first question of the third block of the questionnaire “Which factors, in your opinion, are the most important for maintaining health” as follows:

- adherence to the daily schedule – 2%;
- rational attention – 1%;
- full sleep – 5%;
- sufficient exposure to fresh air – 3%;
- healthy hygienic environment – 2%;
- favorable psychological atmosphere – 50%;
- physical education classes – 22%;
- hardening measures – 15%.

To the second question “Do you exercise in the morning?” the following answers were received: 76% of students do morning gymnastics, but irregularly; 20% answered that they do not charge at all, because they do not have time; 4% regularly exercise in the morning. To the third question “Do you agree that hardening is important for health?” all students agree that it is necessary to harden (100%). The following answers were received to the fourth question “Name the health factors of hardening on the human body”: “reduction of the risk of diseases” (35%), “strengthening of immunity” (26%), “increasing resistance to stress” (18%), “improvement of sleep” (12%), “increasing working capacity” (9%). To the fifth question, “Do you carry out hardening procedures”, the applicants answered that it is rare, because there is no time – 96% and only 4% answered that they carry out hardening procedures at home. To the sixth question “How regularly do you spend time in the fresh air?” answered: regularly – 65%, irregularly – 35%. So, based on the obtained results, we can come to a comforting conclusion that students want to engage in tempering, strive to lead a healthy lifestyle, consider tempering activities as one of the important means of a healthy lifestyle, are aware of the positive impact on health, but do not use the means sufficiently and irregularly hardening (morning gymnastics, walks in the fresh air, water treatments) due to lack of time and insufficient motivation.

So, after summarising all the data of the questionnaire, we can come to the disappointing conclusion that it is necessary to strengthen the work on some issues of physical culture and health work: popularisation of hardening among young people, mandatory conducting of morning gymnastics at home, and increasing the arsenal of hardening means. As a result of the analysis of medical data, we conducted a comparative characterisation of the experimental and control groups according to 2 criteria:

- number of cases of diseases;
- the number of absences (missed days) due to illness.

On Figure 1 histograms of the total number of disease cases in the control and experimental groups are shown. As a result of studying the incidence of control and experimental groups, authors found that:

- when comparing indicators of the level of morbidity at the initial stage of the study, the number of cases of morbidity in both groups is almost the same (CG – 20.8% of cases, EG – 19.2%);

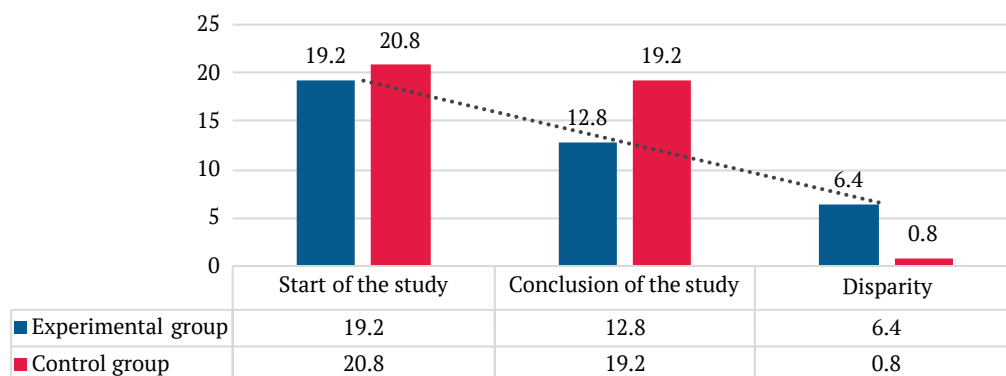


Figure 1. Dynamics of the number of disease cases (blue – control group; red – experimental

Source: compiled by the authors (based on the experimental data obtained)

➤ at the end of the study, a decrease in the number of diseases is observed, but in the experimental group this happens much faster: CG – from 20.8 to 19.2% (-1.6%), EG – from 19.2% to 12.8% (-6.4 %).

➤ comparing the results of missed days due to illness, we also see that: at the initial stage, the percentage of missed days in both groups is almost the same (K.G. – 17.2%, E.G. – 16.5%); and at the end of the study, we again observe a decrease in the number of passes due to illness, in EG the decrease occurred by 2.7%, and in CG - by 0.8%. Also, at the end of the experiment, the morbidity of students decreased significantly and amounted to 46%. According to them and the observations of curators and teachers, students became less likely to suffer from respiratory diseases and to miss classes in the discipline “Physical Culture” less often.

Analysing the obtained results, we state that many of the students lead a sedentary lifestyle, which causes the body to increase body weight. The results obtained during the preliminary testing of functional indicators proved that in the measurements of the “Body mass index” the subjects of both groups were at approximately the same level, which is close to the increased norm for students of the 1st year. After the experiment, the result in the group of girls improved by 7.23%, and in the group of boys by 6.57%. The obtained result is statistically reliable. So, after analyzing the obtained indicators, we trace positive changes, both in the group of girls and in the group of boys.

Hardening is a prolonged process that requires consistency. Based on the results of the conducted study and considering the specifics of student life, recommendations have been substantiated to enhance the effectiveness of modern health-improving technologies within the educational process. To promote students’ well-being, regular physical education and wellness activities are recommended at least three times a week. An individualised approach is essential for implementing innovative wellness technologies, taking into account each student’s health status, physical fitness, and interests. Hardening procedures should be gradually incorporated into physical education classes, with a focus on adaptation; students should acclimate to low or high temperatures progressively, beginning

with brief exposure and gradually increasing both duration and intensity. For maximum effectiveness, a combination of various hardening methods – such as air baths, swimming, sauna use, and contrast showers – should be used, adhering to recommended procedure times. To further increase resistance to illnesses, additional preventive measures are advisable, including rinsing the mouth with cool water, wiping the body down with a cool towel, and walking barefoot indoors. Monitoring and self-monitoring of students’ well-being are crucial to determine optimal health loads and facilitate effective adaptation to hardening procedures. Moreover, informational campaigns highlighting the benefits of a healthy lifestyle and hardening practices should be organised, encouraging students to engage in wellness activities outside of class time and providing them with clear, practical guidance. To assess the effectiveness of these wellness programs, ongoing data collection and analysis of students’ physical condition are recommended. In summary, these recommendations aimed to establish a consistent and individualised approach to health promotion within the student population, integrating hardening practices that are both gradual and varied. By implementing these strategies, educational institutions can significantly contribute to enhancing students’ physical resilience, promoting long-term wellness, and instilling positive health habits.

DISCUSSION

Thus, the obtained results testify to the tendency of elementary school students to understand the value of a healthy lifestyle, the importance of hardening procedures for maintaining and strengthening health, improving work capacity, and at the same time insufficient motivation to systematically use hardening agents in everyday life. Innovation is essential for advancing various sectors, and education is no different. As a result and a driver of progress, innovation systematically develops education as a crucial social institution centred around promoting healthy lifestyles among students. Physical education and wellness technologies are instrumental in this endeavor. The training of teachers for the new Ukrainian school involves not only acquiring professional knowledge but also developing skills to

strengthen and maintain their own health and the health of those around them. According to researchers N. Fedchyshyn *et al.* (2020) physical education plays a key role in this process. So, as future teachers, they should: understand the importance of physical activity for human health; engage in physical education and sports; know and be able to select effective means of disease prevention and improving functional capabilities; and promote an active lifestyle among students and their parents in the community.

Authors agree with the opinion of modern scientists V.V. Cheshikhina *et al.* (2022) and T.O. Loza (2022) that the use of physical culture and health technologies is one of the significant directions of innovative activity of higher education institutions in the field of physical culture and sports in accordance with the modern concept of the system of physical education. An important element of the use of innovative technologies in the work practice of higher education institutions is physical culture and health activities in the field of physical culture in general, which contributes to the effective formation of students' competent attitude to themselves and their bodies, as well as the formation of a motivational sphere, awareness of the need to strengthen health, leading a healthy lifestyle and physical improvement.

The analysis of scientific source M.P. Horobei *et al.* (2016) confirms that hardening as an innovative physical culture and health improvement technique is characterised by a set of useful results of its use, in particular: the achievement of a stable, maximally high level of health and the continuation of an active life activities; improvement of basic life support functions and systems; resistance to a number of diseases and harmful effects of the external environment; improvement of the psycho-emotional state; acquisition of applied motor skills and skills; satisfying the need for movement during active recreation and entertainment; correction of body shape and weight.

The study proved the powerful health-improving effect on the human body of hardening with the use of natural factors and motor activity. In general, modern methods of hardening are divided into two groups – traditional and non-traditional. The basis of traditional methods is a gradual decrease in the temperature of water and air, as a result of which the body gradually adapts to heat and cold. Such methods include: air hardening, solar baths, water hardening methods (general and local), non-traditional methods include methods based on temperature contrast (Vinivitin & Kovalov, 2022). Research by O.V. Lopatyuk & O.V. Zakharova (2022) has confirmed that tempering has a beneficial effect on the entire body of students, in particular, it increases the tone of the nervous system, improves blood circulation and metabolism, and contributes to resistance to diseases. The disadvantages include only non-fulfillment of the principles of tempering, as a result of which various disorders occur in the body. Therefore, during the rehabilitation of young men and women, when carrying out hardening measures, it is worth following the following rules: 1) start hardening after making sure

that the person is completely healthy; 2) procedures must be carried out regularly and systematically; 3) gradually strengthen the effect of hardening procedures; 4) individual approach; 5) contrast hardening: regular application of cold and heat stimuli of different intensity; 6) it is better to start hardening in the warm season; 7) pay attention to the child's wishes; 8) after a break, start hardening measures with initial loads.

Hardening is closely linked to the human body's ability to adapt to its environment. Scientists K.O. Karpova (2020) and S. Ketelhut & R.G. Ketelhut (2020) consider hardening as adaptation, which is achieved by repeated training exposure to this or that hardening factor, because the purpose of hardening is to train the body's protective forces, to develop the ability to quickly adapt to new conditions. All this is aimed at increasing the body's resistance, which ultimately leads to a decrease in the number of colds. The effect of tempering is not only that the body's resistance to respiratory diseases increases, but also that the internal systems of the body are improved during tempering. As a result, the general endurance and working capacity of the body increase, and body weight normalises (Denysovets & Kvak, 2023). It has been confirmed that hardening as a component of health-improving physical culture has a clear focus and specific content. Hardening is carried out in various organisational forms as special procedures or in the everyday life of a person (Shepelenko *et al.*, 2024). At the same time, differences in the organisation of various types of hardening in the educational process of the higher school were determined, which are determined by the temperature conditions and the schedule of hardening procedures, which must be coordinated with the schedule of academic classes and adapted to the conditions of self-seeding classes in health-related physical culture of the students of education. In this context, it is important to note that scientists F. Idris *et al.* (2021) and M.O. Nosko (2022) have proven that a rationally constructed system of educational activities based on health-improving technologies stimulates the biological processes of both individual organs and the organism as a whole, promotes healthy students, increasing their social and academic activity, as well as future professional activity. Confirmed that the effectiveness of hardening procedures largely depends on the correctness of their organisation and execution, when any seemingly small thing matters. It is important to note that, when conducting hardening, it is worth remembering the individual approach and state of health of each student. It is important to remember that any physical culture and health technology includes the setting of goals and tasks that contribute to health and the actual implementation of physical culture and health activities in one form or another. The technology covers not only the implementation of the health program but also certain levels of health and fitness testing, as well as management and administration issues (Hashem *et al.*, 2021).

The authors believe that institutions of higher education should consider the possibility of including tem-

pering procedures in the schedule of training classes, providing these classes with appropriate inventory and equipment. Such a well-thought-out organisation, in our opinion, will contribute to the formation in students of education of the ability to use the theoretical and practical knowledge acquired during training in everyday life, skills to use various means of health-improving activity; independently compose and conduct complexes of morning hygienic gymnastics, organise and conduct classes using health-improving technologies, determine the volume and intensity of physical exertion; use physical exercises in order to preserve and strengthen one's own health and the health of others, prevent diseases, increase mental and physical capacity; use natural and hygienic factors in the process of health training in order to restore the body and prevent premature mental and physical fatigue; to apply physical education tools in order to level the influence of harmful factors of the external environment and professional activity; apply methods of self-monitoring of the state of health, physical development and physical fitness of the body and maintenance of an optimal psychophysical state. This is fully consistent with the strategic directions of training pedagogical personnel to create a health-forming educational environment and the leading role of universities in these transformations (Strategy 2030, 2019). At the same time, at this stage, this process is complicated by insufficient funding for the work of physical culture and health clubs and sections in higher education institutions and the reduction of hours, and in some cases, the exclusion of the discipline "Physical Culture" from the curricula.

CONCLUSIONS

So, hardening is a method of recovery that has a complex effect on the human body with the help of various natural factors, in particular: air, water, sun, low and high temperatures. Hardening procedures are one of the most important components of a healthy lifestyle. The results of the conducted comparative pedagogical experiment proved the effectiveness of the developed method of hardening students of the 1st year of different faculties. But despite this, the regulation of hardening procedures

using sauna combinations with other forms of hardening and taking into account the level of somatic health of young people needs further research. These techniques have been successfully tested in wellness groups and have proven the effectiveness of their influence on the bodies of young people. One of the effective means of introducing the hardening method is the formation of students' motivation to engage in traditional and non-traditional methods of health improvement. It is noted that the use of various hardening methods gives quite effective results. At the same time, fear of procedures and their forced performance do not contribute to a positive effect on the body. It is important to carefully plan and organise training events in such a way that they evoke positive emotions, which, in turn, increases their effectiveness. Non-traditional hardening methods also have the most effective effects. Hardening with the use of natural factors and motor activity has a powerful health-improving effect on the human body. All hardening methods include hardening activities in everyday life and special hardening procedures. However, the authors note the complexity of the organisation of the hardening process in ZVO. It is necessary to find not only effective but also, at the same time, simplified, accessible forms of organisation of hardening the body of the recruiters. There is no unity in views regarding the sequence of application, means, and their duration. This reduces the effectiveness of the introduction of the hardening method into the system of physical culture and health activities with students of various specialties. The prospects for further research in the context of the investigated issues in the development of complex and systemic approaches to the introduction of new types of motor activity into the practice of physical education, as well as in the study of ways to increase the efficiency of the system of training specialists, in particular, the use of innovative health technologies to optimise the process of professional training.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

- [1] Chatterjee, A., Prinz, A., Gerdes, M., & Martinez, S. (2021). Digital interventions on healthy lifestyle management: Systematic review. *Journal of Medical Internet Research*, 23(11), article number e26931. doi: 10.2196/26931.
- [2] Cheshikhina, V.V., Kulakov, V.N., & Filimonova, S.N. (2022). Healthy lifestyle and hardening of the human body. In *Physical culture of children, adolescents, youth, and adult population in the modern world: Proceedings of the III international scientific and practical internet conference: Collection of scientific papers* (pp. 85-87). Uman.
- [3] Declaration of Helsinki. (2013). Retrieved from <https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/>.
- [4] Denysovets, T., & Kvak, O. (2023). Peculiarities of the influence of natural factors on the functional state of the body of school-age children. *Scientific Journal of the Dragomanov Ukrainian State University*, 10(170), 67-72. doi: 10.31392/NPU-nc.series15.2023.10(170).15.
- [5] Fedchyshyn, N., Kvas, O., Sultanova, N., Humenna, I., & Bilavych, H. (2020). *A model of forming the health culture of future physicians using health-saving technologies*. *International Journal of Applied Exercise Physiology*, 9(11), 126-134.

- [6] Griban, G., Kudin, S.F., Zhara, H.I., Kudin, K., Kuzhelnyi, A.F., Mazur, T.V., Nosko, Y.M., & Nosko, O. (2023). Formation and preservation of students' mental health in the process of studying at pedagogical universities. *Acta Balneologica*, 1(173), 55-60. doi: [10.36740/ABAL202301110](https://doi.org/10.36740/ABAL202301110).
- [7] Griban, G., Myroshnychenko, M., Tkachenko, P., Krasnov, V., Karpiuk, R., Mekhed, O., & Shyyan, V. (2021). Psychological and pedagogical determinants of the students' healthy lifestyle formation by means of health and fitness activities. *Wiadomości Lekarskie*, 74(5), 1074-1078. doi: [10.36740/WLek202105105](https://doi.org/10.36740/WLek202105105).
- [8] Hashem, A.A., Dburuo, C.M. & Bugawa, A.M. (2021). Innovation in physical education: Teachers' perspectives on readiness for wearable technology integration. *Computers & Education*, 167, article number 104185. doi: [10.1016/j.compedu.2021.104185](https://doi.org/10.1016/j.compedu.2021.104185).
- [9] Horobei, M.P., Chalyi, O.S., Dobronyzskyi, Ye.O., Kolodiazhna, T.P., & Kuzmenko, M.H. (2016). *Hardening: A significant factor in enhancing student health. Methodological recommendations for students*. Chernihiv: ChNTU.
- [10] Idris, F., Zulkipli, I.N., Abdul-Mumin, K.H., Ahmad, S.R., Mitha, S., Rahman, H.A., & Naing, L. (2021). Academic experiences, physical and mental health impact of COVID-19 pandemic on students and lecturers in health care education. *BMC Medical Education*, 21(1), 1-13. article number 542. doi: [10.1186/s12909-021-02968-2](https://doi.org/10.1186/s12909-021-02968-2).
- [11] Karpova, K.O. (2020). Hardening of the human body. In *Physical education and sports in higher education institutions. Proceedings of the first all-Ukrainian scientific and practical conference* (pp. 99-102). Kharkiv.
- [12] Ketelhut, S., & Ketelhut, R.G. (2020). Type of exercise training and training methods. *Advances in Experimental Medicine and Biology*, 1228, 25-43. doi: [10.1007/978-981-15-1792-1_2](https://doi.org/10.1007/978-981-15-1792-1_2).
- [13] Lopatyuk, O.V., & Zakharova, O.V. (2022). [Hardening as a component of a healthy lifestyle and rehabilitation of students in higher education institutions](#). In *Materials of the international scientific and methodological conference "Physical Education in the Context of Modern Education"* (pp. 58-61). Kyiv: NAU.
- [14] Loza, T.O. (2022). [Justification for the necessity of implementing innovative technologies in the physical education process of university students](#). In *Physical education and sports as a factor of physical and spiritual improvement of the nation*. Riga: "Baltija Publishing".
- [15] Mamurov, B., Mamanazarov, A., Abdullaev, K., Davronov, I., Davronov, N., & Kobiljonov, K. (2020). Acmeological approach to the formation of healthy lifestyle among university students. In *III International scientific congress society of ambient intelligence* (pp. 347-353). Amsterdam: Atlantis Press. doi: [10.2991/aebmr.k.200318.043](https://doi.org/10.2991/aebmr.k.200318.043).
- [16] Mikheienko, O., Liannoi, Y., Tkachenko, A., Zhamardiy, V., Denysovets, T., & Donchenko, V. (2022). Preventive model of formation of health-save competence of student youth with the use of natural physiotherapy. *Acta Balneologica*, 171(5), 433-438. doi: [10.36740/abal202205110](https://doi.org/10.36740/abal202205110).
- [17] Nosko, M.O., Mekhed, O.B., Nosko, Y.M., Bahinska, O.V., Zhara H.I., Griban, G.P., & Holovanova, I.A. (2022). The impact of health-promoting technologies on university students' physical development. *Acta Balneologica*, 64(5), 469-473. doi: [10.36740/ABAL202205116](https://doi.org/10.36740/ABAL202205116).
- [18] Pehota, O. (2002). [Preparing future teachers to implement modern pedagogical technologies](#). *Continuous Professional Education: Theory and Practice*, 2, 97-106.
- [19] Prontenko, K., Griban, G., Bloshchynskyi, I., Melnychuk, I., Popovych, D., Popovych, V., & Novitska, I. (2020). Improvement of students' morpho-functional development and health in the process of sport-oriented physical education. *Wiadomości Lekarskie*, 73(1), 161-168. doi: [10.36740/WLek202001131](https://doi.org/10.36740/WLek202001131).
- [20] Radionova, O.L., & Lohvinova, Ya.O. (2023). Readiness for the formation of students' health-preserving competence as a result of the training of future physical education teachers. *Scientific Journal National Pedagogical Dragomanov University*, 3K(162), 333-337. doi: [10.31392/NPU-nc.series15.2023.3K\(162\).69](https://doi.org/10.31392/NPU-nc.series15.2023.3K(162).69).
- [21] Shepelenko, T., Dorofieieva, T., Hrynko, V., Sapehina, I., & Dovzhenko, S. (2024). Formation of a healthy lifestyle among railway transport specialists in modern educational conditions using the example of hardening. *Grail of Science*, 37, 467-473. doi: [10.36074/grail-of-science.15.03.2024.079](https://doi.org/10.36074/grail-of-science.15.03.2024.079).
- [22] Strategy 2030: Ukraine – learning nation: Key presentation points. (2019). Retrieved from <https://uifuture.org/publications/24943-ukraine-learning-nation/>.
- [23] Vinivitin, O., & Kovalov, V. (2022). [Hygienic foundations of hardening the human body](#). In *Science to production: Collection of abstracts of higher education seekers of the LVI scientific and technical conference, LVII scientific and technical conference of lecturers, postgraduates, and staff "Science at CNTU: Main achievements and development prospects"* (pp. 27-29). Kropyvnytskyi: Central Ukrainian National Technical University.
- [24] Wang, F., & Bíró, É. (2021). Determinants of sleep quality in college students: A literature review. *Explore*, 17(2), 170-177. doi: [10.1016/j.explore.2020.11.003](https://doi.org/10.1016/j.explore.2020.11.003).
- [25] Wintle, J. (2022). Physical education and physical activity promotion: Lifestyle sports as meaningful experiences. *Education Sciences* 12(3), article number 181. doi: [10.3390/educsci12030181](https://doi.org/10.3390/educsci12030181).
- [26] World Health Organisation. (1995). *Physical status: The use of and interpretation of anthropometry, report of a WHO expert committee*. Retrieved from <https://iris.who.int/handle/10665/37003>.

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Оцінка ефективності застосування сучасних оздоровчих технологій в освітньому процесі ЗВО

Анотація. Проблема здоров'я студентської молоді актуалізується в умовах несприятливих політичних, соціальних, економічних та екологічних факторів та зумовлена зростаючою потребою у підтримці здоров'я студентів. Шляхом вирішення означеної проблеми є ідея створення, обґрунтування та впровадження інноваційних оздоровчих технологій в освітній процес закладів вищої освіти. Метою роботи було дослідити особливості використання загартування в освітньому процесі закладу вищої освіти як інноваційної оздоровчої технології та визначити її ефективність. У дослідженні взяли участь 50 студентів першого курсу факультету історії та географії Полтавського національного педагогічного університету імені В.Г. Короленка віком від 17 до 20 років. Встановлено, що до систематичної рухової активності залучено лише 37 % студентів. Значний відсоток молоді, які не займаються фізичною культурою і спортом (74 %) страждає на незначні відхилення в стані здоров'я з боку серцево-судинної, дихальної систем, застудні захворювання, порушення функцій опорно-рухового апарату; 57 % веде малорухливий спосіб життя, що призводить до підвищення маси тіла. З'ясовано, що студенти усвідомлюють позитивний вплив загартування на здоров'я, але недостатньо та нерегулярно використовують засоби гартування. Основними причинами нерегулярного використання гартувальних заходів є брак часу та недостатня вмотивованість. Обґрунтовано та експериментально доведено ефективність технології загартування, що передбачала додатково до занять фізичною культурою в університеті, залучення студентів до занять у групах здоров'я, використання як занять у басейні, відвідування сауни з контрастним душем, тривалість яких поступово збільшувалася, а також самостійних занять вдома (прийом повітряних ванн, полоскань порожнини рота прохолодною водою, обтирання горла прохолодним рушником, ходіння босоніж). Практичне значення результатів полягає в можливості їх використання в закладах вищої освіти для підвищення фізичного та психічного здоров'я студентської молоді, покращення функціонального стану та адаптаційних можливостей організму, опірності до захворювань, нормалізації маси тіла, що сприятиме їхньому успіху в навчанні та загальній якості життя

Ключові слова: здоров'я; загартування організму; фізкультурно-оздоровчі технології; гартувальні заходи; здобувачі ЗВО