Journal of Physical Education and Sport ® (JPES), 18(2), Art 143, pp. 966 - 971 2018
online ISSN: 2247 - 806X; p-ISSN: 2247 – 8051; ISSN - L = 2247 - 8051 © JPES

Original Article

Physical education and sports as a tool for formation of students' psychophysiological readiness to their professional work

OLEG KOKUN[1], YEVGENIY IMAS[2], ALINA VOVKOHON[3], VLADIMIR POTOP[4], GEORGIY KOROBEYNIKOV[2], LESIA KOROBEYNIKOVA[2], ALEXANDR GORASHCHENCO[5], ANGELA POLEVAYA-SECARYANU[5]
1 G.S. Kostiuk Institute of Psychology, Kiev, UKRAINE
2 National University of Physical Education and Sport, Kiev, UKRAINE
3 Bila Tserkva National Agrarian University, Bila Tserkva, UKRAINE
4 Ecological University of Bucharest, ROMANIA
5 State University of Physical Education and Sport, Chisinau, MOLDOVA

Published online: June 30, 2018
(Accepted for publication June 12, 2018)
DOI:10.7752/jpes.2018.02143

Abstract:
Problem statement: Formation of students' psychophysiological readiness to their future professional work can be considered as one of the most important tasks of specialist training at universities. Approach: An important part of this is physical education and sports. Purpose: to study students' results in physical education and sports, their attitude to a healthy lifestyle and physical readiness to their professional work. Results: physical activity of the overwhelming majority of students is insufficient. The percentage of smokers and alcohol users among students has been revealed. A number of gender differences have been identified: women-students do less physical exercises and sports than men-students; also women-students perform regular morning exercises less frequently and are less willing to participate in sportive events, but smoke and drink alcoholic beverages significantly less. The women-students have shown worse self-estimation of their working ability dynamics during a day and week, worse self-estimation of their health and a greater number of fatigue signs during university studies. The expressed positive influence of physical exercises and sportactivities on various aspects of students' educational, psychological and social spheres, their working ability and health has been proved. Conclusions: The research is practically important for substantiation of physical education and sports application for formation of students' psychophysiological readiness to their future professional activities.
Key words: psychophysiological readiness, physical fitness, sport activities, university students, gender differences.

Introduction

Formation of students' psychophysiological readiness to future professional work can be considered as one of the most important tasks of specialist training at universities. It is clear that forms of such psychophysiological readiness of future specialists may differ depending on the specifics of their professional work. For example, we have substantiated the following main components of psychophysiological readiness concerning pedagogical work: physical, adaptive, informational and motivational readiness, as well as readiness of the leading cognitive functions (thinking, memory, attention, etc.) necessary for pedagogical work (Korobeynikov,2002; Kokun, 2012).

Students' psychophysiological readiness to professional work is formed, among others, by the means of physical education and sports. It has long been known and confirmed by numerous studies that regular diverse physical activities, including different sets of gymnastic exercises and exercises in various sports, contribute to keep up health, improvement of working ability and a general psychophysiological state (González-Cutre, et al., 2008; Hortigüela, Fernández-Río, et al., 2016; Kirby, et al., 2011). Physical exercises act as unique universal regulators and support a normal course of life processes of an organism. Physical exercises are particularly important for efficient mental work for a long time or under neuro-psychological stresses (Buckworth, et al., 2004; El-Gylany, et al., 2011; Osipov, et al., 2016; Kozina, et al., 2016).

Not only increased attention to physical education, but also its purposeful use in order to form students' psychophysiological readiness to professional work are important due to regular students' overloads casing various health disorders and psychological problems: depression, anxiety, sleep disturbances, emotional disturbances, chronic fatigue, negative somatic symptoms, problems with eating and alcohol (Choi, et al.,, 2005; Hamdan-Mansour, et al., 2014; Lee, et al., 2001; Wadeson, 2002).

Corresponding Author GEORGIY KOROBEYNIKOV., E-mail: k.george.65.w@gmail.com

At formation of students' psychophysiological readiness to professional work, specific features of training organization in a particular university and peculiarities of their future professional work should be taken into account. The results of research on social-psychological and psychological-physiological characteristics of students of a certain university, on peculiarities of their educational activities, academic loads, living conditions, attitudes towards physical education and sports and healthy lifestyles can be of great benefit for assessment of such formation (Korobeĭnikov, 1996; Andrieieva, et al., 2017; Karaca, et al., 2016).

The purpose of the work was to study of the indicators of students' physical and sport activities, their attitudes towards a healthy lifestyle and their physical readiness for professional work.

Material and methods

Participants

748 students of 18-25 years old (486 women and 262 men) participated in the research. They studied at the I to V academic years at four Ukrainian universities (Drahomanov National Pedagogical University, Skovoroda State Pedagogical University in Pereyaslov-Khmelitskyi, Taras Shevchenko National University in Kyiv, Grinchenko Pedagogical University in Kyiv). The studies were conducted with the permissions of the universities' management and the personal consent of the participants.

Measures

For the research, we used the questionnaire developed by us, the method of social frustration diagnosis of Vassermann, the State-Trait Anxiety Inventory of Spielberger, and the Self-Efficacy Scale of R. Schwarzer.

Statistical analysis

For statistical analysis, we used SPSS 22 programming package. The data obtained in research correspond to the normal distribution of studied data. We used mean arithmetic value (M), mean square deviation (SD), frequency distribution, independent-samples t-test and Spearman rank correlation coefficient.

Results

As Tables 1 and 2 show, the vast majority of students have insufficient motor activity (they are engaged in physical exercises and sports activities 3 times or less per week totally up to 4 hours).

Table 1. Students' physical exercises and sports activities per week

Students	n	Doing exercises					M	SD	p ≤
		Not engages	1 time	2 - 3 times	4-5 times	Every day			
Women	486	2%	35%	47%	8%	8%	1,88	0,91	0,001
Men	262	1%	29%	41%	12%	17%	2,18	1,01	
Total	748	2%	33%	45%	10%	10%	1,96	0,94	–

Table 2. Time spent by students for physical exercises and sports activities per week

Students	n	Time					M	SD	p ≤
		-	1 - 2 hours	3 - 4 hours	5 - 6 hours	7 hours and more			
Women	486	2%	40%	33%	13%	12%	3,7	3,6	0,001
Men	262	1%	24%	23%	18%	34%	6,2	5,5	
Total	748	2%	36%	29%	15%	18%	4,4	4,3	–

It has also been determined that women are significantly less engaged in physical exercises and sports activities in comparison with men. Also, they do less regular morning exercises and show less willingness to participate in sporting events (Tables 3 and 4).

Table 3. Regularity of student's morning exercises

Regularity of morning exercise	n	Not do	Rarely	Sometimes	Often	Always	p ≤
Women	486	19%	21%	38%	16%	6%	0,001
Men	262	29%	36%	17%	16%	–	
Total	748	22%	26%	32%	16%	4%	–

Table 4. Students' desire to participate in sporting events

Attitude to participation in sporting events	N	EVADE	Indifferently	With pleasure	p ≤
Women	486	40%	26%	34%	0,01
Men	262	18%	46%	36%	
Total	748	33%	32%	35%	–

The following survey results can be considered as quite revealing:

- About half of the students want to do physical exercises and sports activities more often than they do actually, and only 6% want to do less;
- the vast majority of the students (about 80%) consider engagement in physical exercises and sports as important or very important;
- more than half of the students consider that physical exercises and sports influence positively on their educational achievements;
- as for assessment of the conditions for physical education and sports at their universities, the students have given different answers: about one third considered them bad, half assessed them satisfactory, and 20% assessed them good;
- the vast majority of the students prefer sports games, swimming and tourism.

Our study has also revealed popularity of harmful habits among students that contradict healthy lifestyles (smoking and drinking), the results are almost identical for all four universities. In general, only a quarter of the surveyed students do not drink alcohol at all, two thirds of them drink it occasionally and 10% do it regularly (Table 5).

Table 5. The frequency of alcoholic drinking by students'

Students	n	The frequency of alcohol drinking				p ≤
		Do not drink	rarely	1-2 times a week	once in 1 - 2 days	
Women	486	26%	67%	6%	1%	0,001
Men	262	23%	60%	13%	4%	
Total	748	25%	65%	8%	2%	–

The situation with smoking is relatively better than that with alcoholic beverages - 78% of the students do not smoke at all, and another 8% only 1-3 cigarettes a day (Table 6).

Table 6. The frequency of smoking by students

Students	n	The frequency of smoking				p ≤
		do not smoke	1 - 3 cigarettes	5-15 cigarettes	a box or more	
Women	486	83%	8%	8%	1%	0,001
Men	262	70%	7%	15%	8%	
Total	748	78%	8%	10%	4%	–

Also, it is quite natural that women-students smoke and drink alcohol significantly less than men-students.

The indicators of students' self-estimation of their working ability dynamics during a day and week, their health and signs of fatigue during their study were used as indicators of students' physical readiness to professional work.

It has been established that the most students have enough stable working ability; it is not changed or it is improved during a day and a week (Table 7), which is an important indicator of their physical readiness to professional work.

Table 7. Students' self-estimation of their working ability dynamics

Working ability	Students	n	Worsened	Without changes	Improved	p ≤
During a day	Women	486	43%	42%	15%	0,001
	Men	262	25%	57%	18%	
	total	748	37%	47%	16%	-
During a week	Women	486	36%	49%	15%	0,001
	Men	262	21%	57%	22%	
	total	748	31%	52%	17%	-

We can also see that women have worse self-estimation of their working ability dynamics during a day and a week. Tables 8 and 9 show that women-students tend to estimate worse self their health, they tend to mention more signs of fatigue induced by study at university.

Table 8. Students' self-estimation of their health

Students	n	Health status					
		Very bad	Bad	AVERAGE	Good	Very good	p ≤
Women	486	1%	5%	47%	44%	3%	0,001
Men	262	1%	2%	25%	59%	13%	
Total	748	1%	4%	39%	49%	7%	–

Table 9. Signs of fatigue induced by study at university

Students	n	Number of indicated signs of fatigue								*M*	σ	p ≤
		0	1	2	3	4	5	6	7			
Women	486	5%	22%	26%	22%	14%	6%	3%	2%	2,7	1,46	0,001
Men	262	2%	44%	28%	16%	6%	3%	1%	–	1,96	1,14	
Total	748	4%	30%	26%	21%	12%	5%	2%	1%	2,44	1,4	-

The disturbing fact is that 5% of students described their health as "very bad" or "bad", and 8% mentioned 5 or more signs of fatigue induced by study at university.

The distribution of signs of fatigue induced by study at university shows that the study process causes an approximately identical number of different signs of fatigue (22 - 33%) at students: decreased working ability, nervous tension, indifference, increased irritability, deterioration of attention, mood instability. Only a little less number of students indicated deterioration in health (19%).

A sufficiently large number of reliable correlations between the amount of physical exercises or sports training per week in hours and many indicators of students' psychophysiological readiness to professional work, obtained with the above described methods and questionnaires, confirm that physical education and sports are a significant factor for formation of students' psychophysiological readiness; these correlations are resulted in Table 10.

Table 10. Correlations between indicators of students' psychophysiological readiness to professional work and the amount of physical exercises and sports training (in hours per week)

No	Indicators of students' psychophysiological readiness to professional work	Amount of physical exercises and sports training
1	Self-efficacy level	0.34^{**}
2	Interest in learning	0.28^{**}
3	Self-estimation of health	0.27^{**}
4	Intention to work in a chosen specialty	0.25^{**}
5	Level of social frustration	-0.25^{**}
6	Personal anxiety	-0.23^{*}
7	Number of signs of fatigue induced by studying	-0.21^{*}
8	Improvement of working ability during a day	0.18^{*}
9	Improvement of working ability during a week	0.15^{*}

Notes: ** – correlation is significant at the level of $p \leq 0.001$; * – $p \leq 0.01$.

In particular, there are reliable positive correlations with students' self-efficacy, their interest in learning, self-estimation of their health, intention to work in a chosen specialty, improvement their working ability during a day and a week. And there are negative correlations with such indicators unfavourable for students' psychophysiological readiness to professional work as social frustration and personal anxiety, a number of signs of fatigue causes by studying at university.

Discussion

The performed research has revealed that motor activities of the vast majority of students is inadequate, since they are engaged in physical exercises and sport activities 3 times or less totally up to 4 hours per week. This can be regarded as unfavourable for formation of proper psychophysiological readiness of students to future professional work. Unfortunately, the inadequate level of students' physical activities is fairly widespread, which is noted by researchers from other countries such as Irwin (Irwin, 2007) and Osipov (Osipov, et al., 2016).

The performed research has also revealed that women-students are engaged in physical exercises and sports significantly less than men, perform regular morning exercises less frequently and are less willing to participate in sportive events. Similar significant gender differences in practicing sport activities have been identified in other studies (Campos, et al., 2017; Karaca, et al., 2016).

Particular attention should be paid to those 10% of students who consume regularly alcohol, as regular consumption of alcohol is one of the indicators of students' disadaptation (Kokun, 2012). Also attention should be paid to students characterized by unstable working ability, increased fatigue and a severe negative assessment of their health status, as these facts influence negatively on the success of their learning and future work in the specialty.

We have determined a large number of reliable correlations between the amount of physical exercises and sport training per week in hours and indicators of students' psychophysiological readiness to professional work, which coincides quite closely with the results of other researchers. In particular, the positive correlations between students' physical education and their academic achievement has been established in a number of studies (Alahmed, et al., 2016; Chomitz, et al. 2008; Ní Chróinín, et al., 2013). It has been shown that students

constantly engaged in sports have a better self-estimation of their conditions (Ilnytska, et al., 2016; Silva, et al., 2016), lower social frustration (Sicilia, et al., 2013) and better self-estimation of health (Pavlova, et al. 2017).

Thus, existence of a real positive impact of physical education and sports on various aspects of educational, psychological and social spheres of students, their ability to work and their health can be considered experimentally proven.

Our research may have a practical significance for the scientifically based application of means of physical education and sports in order to form students' psychophysiological readiness to future professional work .

Conclusion

One of the most important tasks of specialist training at universities is formation of psychophysiological readiness to future professional work, here the means of physical education and sports play a leading role.

It has been determined that motor activities of the vast majority of students is inadequate, such way of life is sufficiently widespread and unfavourable for formation of a proper psychophysiological readiness for future professional work. However, at the same time, about half of students want to do physical exercises and sports in a larger amount than they do actually, and the vast majority of students consider engagement in physical exercises and sports as important or very important.

As for students' harmful habits contradicting healthy lifestyles, the research has shown that only a quarter of students do not drink alcohol at all, two-thirds of them drink it rarely and 10% do it regularly. The situation with students' smoking is relatively better: 78% of them do not smoke at all, and another 8% smoke only 1-3 cigarettes a day.

A significant number of gender differences have been identified: women-students do less physical exercises and sports than male students; also women-students perform regular morning exercises less frequently and are less willing to participate in sportive events, but smoke and drink alcoholic beverages significantly less. The women-students have shown worse self-estimation of their working ability dynamics during a day and week, they estimate worse their health and mention a greater number of fatigue signs during university studies.

The expressed positive influence of physical education and sports on various aspects of students' educational, psychological and social spheres, their working ability and health has been proven on the base of a sufficiently large number of reliable correlations between the amount of physical exercises and sports training per week in hours and many indicators of students' psychophysiological readiness to professional work (level self-efficacy, interest in learning, self-estimation of health, intention to work in a chosen specialty, improvement of working ability, etc.).

References

Alahmed, M., Yusof, A., & Shah, P. (2016). Attitude, sports participation and academic performance of undergraduate student-athletes in Saudi Arabia. *Journal of Physical Education and Sport, 16*(3), 1000-1004. DOI:10.7752/jpes.2016.03157.

Andrieieva, O., Hakman, A., Balatska, L., Moseychuk, Y., Vaskan, I., Kljus, O. (2017) Peculiarities of physical activity regimen of 11-14-year-old children during curricular and extracurricular hours. *Journal of Physical Education and Sport, 17*(4), 2422 - 2427. DOI:10.7752/jpes.2017.04269

Buckworth, J., & Niggs, C. (2004). Physical activity, exercise, and sedentary behavior in college students. *Journal of American College Health, 53*(1), 28-34.

Campos, F., Marques, M., Silva, S., Martins, F., Simoes, V., & Franco, S. (2017). Physical self-description and sport participation, by gender, of university students. *Journal of Physical Education and Sport, 17*(1), 207-211. DOI:10.7752/jpes.2017.01031

Choi, M., & Cho, Y. (2005). The effects of life stress, perceived anxiety control, and coping style on anxiety symptoms in college students. *Korean Journal of Clinical Psychology, 24*, 281-298.

Chomitz, V.R., Slining, M.M, McGowan, R.J, Mitchell, S.E, Dawson, G.F, Hacker, K.A. (2008). Is there a relationship between physical fitness and academic achievement? Positive results from public school children in the northeastern United States. *Journal of School Health. 79*(1), 30-37.

González-Cutre, D., Sicilia, A., & Moreno, J.A. (2008). Modelo cognitivo-social de la motivación de logro en educación física. *Psicothema*, *20*(4), 642-651.

El-Gylany, A.H., Badawi, K., El-Khawaga, G., & Awadalla, N. (2011). Physical activity profile of students in Mansoura University, Egypt, *Eastern Mediterranean Health Journal, 17*(8), 694-702.

Hortigüela, D., Fernández-Río, J., & Pérez-Pueyo, A. (2016). Long-term effects of the pedagogical approach on the perceptions of physical education by students and teachers. *Journal of Physical Education and Sport, 16*(4), 1326-1333. DOI:10.7752/jpes.2016.04210

Hamdan-Mansour, A.M., Hamaideh, S.H., Arabiat, D.H., & Azzeghaiby, S.N. (2014). Psychosocial correlates of motivation for academic accomplishment among university students. *Procedia - Social and Behavioral Sciences, 159*, 32-36.

Ilnytska, G., Kozina, Z., Кавatska, O., Kostiukevych, V., Goncharenko, V., Bazilyuk, T., Al-rawashdeh, A.B., (2016) Impact of the combined use of health-improving fitness methods ("Pilates" and "Bodyflex") on

the level of functional and psychophysiological capabilities of students. *Journal of Physical Education and Sport*, *16*(1), 234-240. DOI: 10.7752/jpes.2016.01037

Irwin, J.D. (2007) The prevalence of physical activity maintenance in a 10 sample of university students: a longitudinal study. *Journal of American College Health, 56*(1), 37-42.

Karaca, A., Caglar, E., Delđceoglu, G., & Bđlgđlđ, N. (2016). Physical activity with regard to socio-demographic variables and decisional balance perceptions for exercise among university students. *Journal of Physical Education and Sport, 16*(3), 932-939. DOI:10.7752/jpes.2016.03147

Kirby, J., Levin, K. A., & Inchley, J. (2011). Parental and peer influences on physical activity among Scottish adolescents: A longitudinal study. *Journal of Physical Activity and Health, 8*(6), 785-793.

Kokun, O.M. (2012). Professional orientation and competence of future professionals with a "person-person" occupational type. *Social Welfare. Interdisciplinary Approach, 2*(2), 36-47.

Korobeĭnikov, H.V. (1996) he characteristics of visual information processing in persons of different ages. *Fiziolohichnyi Zhurnal,* 42(1-2), 99-103.

Korobeynikov, G. (2002) Human information processing in different age. *Bratislavske lekarskelisty*, 103(7–8), 244–249.

Kozina, Z.L., Iermakov, S.S., Kuzmin, V.A., Kudryavtsev, M.D., Galimov, G.J. (2016) Change of cortisol and insulin content in blood under influence of special workability recreation system for students with high motor functioning level. *Research Journal of Pharmaceutical, Biological and Chemical Sciences,* 7(2), 1068-1077.

Lee, J., & Graham, A.V. (2001). Students' perception of medical school stress and their evaluation of a wellness elective. *Medical Education, 35*(7), 652–659.

Ní Chróinín, D., & Cosgrave, C. (2013). Implementing Formative Assessment in Primary Physical Education: Teacher Perspectives and Experiences. *Physical Education and Sport Pedagogy, 18*(2), 219-233.

Osipov, A., Vonog, V., Prokhorova, O., & Zhavner, T. (2016). *Students learning in Physical Education in Russia (problems and development perspectives). Journal of Physical Education and Sport. Supplement issue* (1), 668-693. DOI:10.7752/jpes.2016.s1111

Pavlova, I., Vynogradskyi B., Kurchaba, T., & Zikrach, D. (2017). Influence of leisure-time physical activity on quality of life of Ukrainian students. *Journal of Physical Education and Sport, 17*(3), 1000-1004. DOI:10.7752/jpes.2017.03159

Sicilia, A., Ferriz, R., & Sáenz, P. (2013). Validación española de la escala de frustración de las necesidades psicológicas (EFNP) en el ejercicio físico. *Psychology, Society & Education, 5*(1), 1-19.

Silva, S., Vicente, C., Amaro, S., & Campos, F. (2016). Gordura corporal, auto-conceito fisico geral, auto-estima e aparencia fisica em estudantes universitarios. EXEDRA, *Numero Tematico*, 52-63.

Wadeson, K.L. (2002). *Psychological problems and adaptation in a large sample of undergraduates at St. Louis University*. St. Louis, Mo, US: St. Louis Univer