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PHYSICAL ACTIVITY OF STUDENTS AT HIGHER EDUCATIONAL INSTITUTIONS WITH KINESIOLOGY AND HEALTH MAJORS IN THE SETTING OF COVID-19 PANDEMIC

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Abstract. *The purpose of this study was to discover the peculiarities of students' physical activities that study at higher educational institutions with kinesiology and health majors in the setting of COVID-19 pandemic. In order to accomplish it, an online survey was conducted among a total of 236 students of Lviv State University of Physical Culture named after Ivan Boberskyj. With its help, we were able to determine both domestic and organized physical activity levels' self-assessments of the sample group before and during the quarantine restrictions. The majority of the students evaluated their physical activity levels as "excellent" and "good". No significant changes among the physical activity assessments were not tracked during the quarantine restrictions. We established that 59% of the study group had regularly visited gyms before the pandemic breakout and 12% of the students systematic did home exercises. The remainder of active students (26%) exercised seldom. Before the pandemic, only 3% of the participants had not engaged themselves into organized physical activities. We observed an overall studentship physical activity decrease in terms of instances and intensity during the quarantine limitations. The forms of physical activities were substantially changed. Thus, the students began to stroll more often, as well as train alone or with online-coaches. Cardio and muscle strengthening remained dominant among activities both before and after the quarantine. After the quarantine restriction weakening, half of the study group re-embarked on gym training. 28% of the students continued exercising the same way they did during the quarantine. 12% of the respondents exercised on their owns. 7% of the participants did not*

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return to training. With the respect to the results of this study, we can infer that Ukrainiastudents prefer group exercises where they can interact with either coach or other participant of the training sessions, as well as modern technologies cannot fully fulfill their needs of physical activity.
Keywords: *physical activity, students, COVID-19 pandemic.*

Introduction

In the latest years, in light of educational process intensification at Ukrainian higher educational institutions, it has been observed there is a tendency to decreased physical activity among students, which, in turn, negatively impacts both their physical and emotional states (Zavydivska, Rymar, & Malanchuk, 2015; Solovei, Rymar, Yaroshyk, & Sorokolit, 2017; Sorokolit & Kukhar, 2019; Yaroshyk, Malanchyk, & Solovei, 2020). The everyday life activities and lifestyle of mankind, in general, have been significantly altered since the COVID-19 quarantine restrictions were established to prevent the virus spread (Tison, Avram, Kuhar, Abreau, Marcus, Pletcher, & Olgin, 2020; Ding, del Pozo Cruz, Green, & Bauman, 2020; Malatska et al., 2020). Therefore, it is important to monitor student hood's physical activity levels as a measure of health preservation, virus resistance as well as to avert hypodynamia in the pandemic setting.

The purpose of this study was to determine the specifics of students' physical activities during the COVID-10 pandemic who study at higher educational institutions with Kinesiology and Health majors.

Methods

In order to assess the impact of quarantine restriction on physical activity, we conducted a survey among the students of Lviv Ivan Boberskiy State University of Physical Culture. The survey was online with the help of Google Forms. The questionaire contained 25 enquiries aimed at determination of student's physical activity peculiarities before the pandemic outbreak as well as during the quarantine restrictions. 236 participants took part in the conducted survey. The vast majority of the respondents live in the city (75%), the rest (25%) live in the rural area. Among the participating group, the most significant subgroup was of third-year students (61%), and then of second-year students (25%). The rest were in their fourth year of tuition (11%) and the fifth year (3%). Slightly more than half of the participants were the students of the faculty of Physical Culture and Sport – 54%, and the second largest group represented the faculty of Pedagogics (36%). The Physical Therapy and Ergotherapy majors accounted for only 10% of the respondents. 67% of the experiment group stated they had combined work and tuition. 30% of the students declared their work

requires high physical activity levels. 26% of the survey participants have jobs associated with average-level physical activity, and only 6% of the response group members have low-level physical activity work. 5% of the students work at the offices, with no physical activity whatsoever. On average, students spent up to 19 hours per week at their jobs.

Results

Human's physical activity has a wide variety of manifestations. The two most popular forms of activities are domestic and organized physical activity. We assume that the quarantine restrictions should have caused quantitative and qualitative changes in their structuring and durations.

Thus, as the result of the conducted study before the quarantine outbreak, 41% of the students assessed their household physical activity at 5 points, 35% of the respondents – at 4 points, 20% - at 3 points, 3% - at 2 points, and 1% at 1 point. The pre-quarantine organized physical activity scored 5 points by 36% of the students, 4 points by 33% of the participants, 3 points – by 19% of the study group members, 2 points – by 5% of the participants and 1 point among 7% of the students.

Table 1 ***Self-Assessment of Students' Physical Activity before and during Quarantine***

Assessment of physical activity, points	Before quarantine, %		During the strictest phase of quarantine*, %	
	Household Phys. Activity	Organized Phys. Activity	Household Phys. Activity	Organized Phys. Activity
5	41	36	38	34
4	35	33	34	34
3	20	19	21	20
2	3	5	6	6
1	1	7	1	6

n=236

*the strictest phase of quarantine in Ukraine lasted from 6 April until 20 May 2020

Had analyzed the table results, we observed that little to no changes were seen in the assessments of their physical activity levels during the strictest phase of quarantine restrictions. We presume that is due to the contingent of the experiment participants. Primarily, those students were Physical Culture and Sports majors as well as Pedagogics majors, and they all regularly exercised their sports of choice, and worked as coaches or instructors. Apparently, their regimes of physical activities are rationally organized, and all of them systematically

exercise physically intensive workouts out of habit. Therefore, the quarantine restrictions have just slightly impacted their everyday physical activity levels.

With the respect to the obtained survey results, we found out that 59% of the students regularly visited gym (or some sports group, swimming pool, stadium, etc.) before the pandemic as well as that 12% of the participants trained on their own. 13% of the respondents stated they seldom visited gym (or some sports group, swimming pool, stadium, etc.), other 13% rarely engaged in training sessions all alone. Only 3% of the study group members had not been involved in any organized physical activity before the study was conducted [Figure 1].

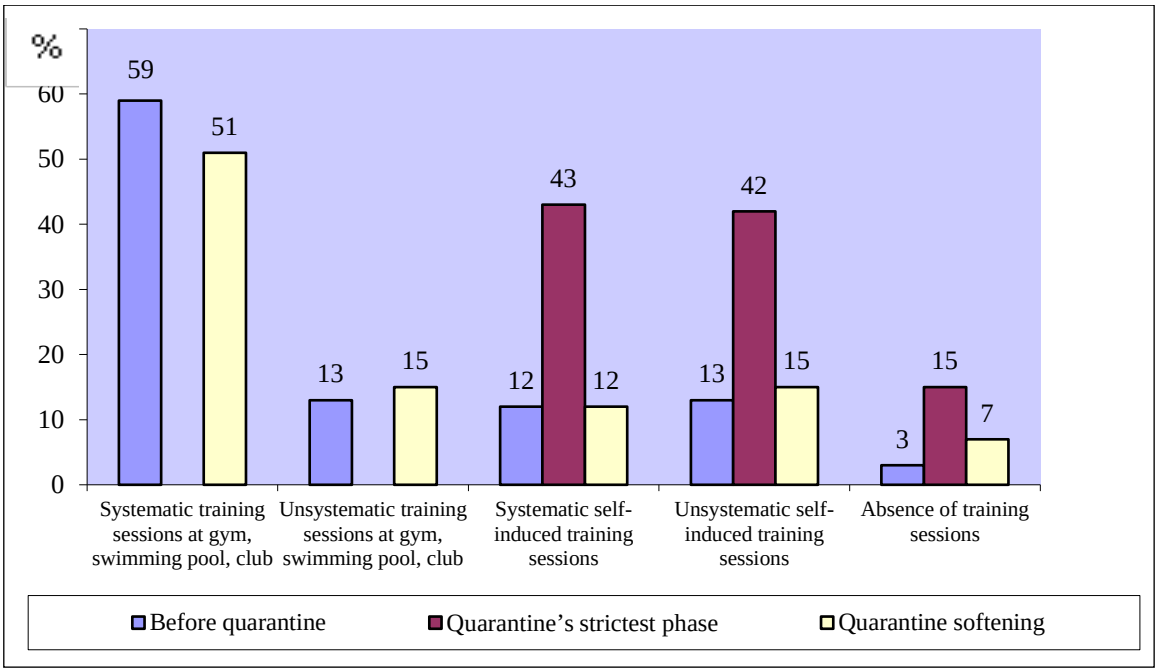

Figure 1 ***Involvement of Students in Physical Activity before and during Quarantine (%)***

Two of the most popular physical activity forms before the pandemic outbreak among students were weight lifting (44%) and cardio-trainings (37%). Swimming pool exercising and dancing exercises / stretching were popular only among 5% and 4% of the students, respectively. On average, the study group members spent about 3 days with organized physical activity (27%), 4 days – 14%, 5 days – 22%, 6 days – 22% of the respondents. Before the pandemic breakout, the students spent from 1 to 2 hours in organized physical activity a day (37%), from 2 to 3 hours a day – 24% of the participants, from 30 mins to 1 hour – 20%, from 3 to 4 hours – 9%, below 30 minutes a day – 4% of the experiment group members, and above 4 hours – only 2% of the respondents. The data pieces we were able to gather testify that the students of Lviv Ivan Boberskiy State University of Physical Culture had great physical activity levels before the pandemic outburst.

According to the responses during the pandemic, for 41% of the students nothing changed with the respect to their physical activities. 21% of the participants declared they experienced a slight decrease in their physical activity levels, and they only had to switch from one particular type of physical activity to another one. However, for 19% of the study group members, the pandemic negatively influenced their activity levels. 7% of the participants experienced a positive impact on their activity during the pandemic period. Among the most wide-spread influencing factors during the pandemic mentioned by the participants were: "I started training on my own" (34%), "My fitness center got closed (sport group, gym, swimming pool, etc." accounted for 34% of the responses, "I started strolling more often" (22%), "I started jogging" (14%), "I could not leave my house to go exercise" (8%), "I began training with an online coach" (6%).

Resting on the students' replies to the survey, 43% of the experiment participants regularly engaged in organized physical activity during the strictest phase of the quarantine. Seldom, 42% of the students got involved in physical exercising. Only 15% of the students did not participate in any organized physical activity session. The students mainly exercised at their homes – 41%, outdoors and at the stadiums – 32%, at the sports grounds – 20%. The dominant forms of physical activities were cardio-trainings (44%) and strength training (33%). The vast majority of the survey participants trained alone during the strictest phase of quarantine – 81%, and only 9% of them were involved in online coaching sessions. Half of the experiment group members began to utilize digital and online resources for physical activity – exercise videos from YouTube channels or fitness applications. On average, the students spent about 3 days (22%) being engaged into organized physical activity, 4 days – 14% of the respondents, 5 days a week – 25%, and 6 days per week – 12 % of the students.

During a day, at the times of the strictest phase of the quarantine, the study group members spent from 30 minutes to 1 hour involved into organized physical activity – 36%, from 1 to 2 hours – 32%, from 2 to 3 hours – 11%, less than 30 minutes a day – 9%, from 3 to 4 hours – 4%, and only 1% of the respondents had more than 4 hours of organized physical activities during a day. The obtained results testify that the overall physical activity engagement has decreased during the strictest phase of the quarantine restrictions. The intensity of the training sessions got softer too. According to the student responses, in 65% of the cases, their physical activities did not significantly influence their breathing rhythms and pulse. Only 28% of the students got themselves involved in high-intensity physical training sessions.

According to the survey results, 36% of the students began to pay more attention to their states of health. The rest of the respondents affirmed that they

had cared for their health even before the pandemic outbreak, and thus, they simply continued their everyday routines during the quarantine.

The majority of the experiment group members did not experience any weight changes during the quarantine – 50% of the responses stated it. 21% of the students faced weight gain. 17% of the participants encountered body weight loss. We presume that body weight parameter fluctuations should have been caused by nutrition habit changes or worsening of sleep quality. Considering the responses of our participants, only 32% of them experienced nutrition changes, the rest continued to eat as they had done before the pandemic. Only 20% of the students adhered to healthy nutrition principles during the quarantine. 42% of the experiment group members stated they had experienced sleep worsening, which included long time to fall asleep, insomnia, and perceptions of not enough sleep.

After the quarantine restrictions had gotten softened, half of the study participants turned back to gym training (sports group, swimming pool, etc.). 28% of the students continued to train as they had done during the strictest phase of the quarantine. 12% of the study group members exercised on their own after the softening of the quarantine regime. We observed similar results during the analysis of pre-quarantine responses of the students (Figure 1). Only 2% of the students got involved more into online training sessions. 7% of the respondents did not engage in any physical activity after the quarantine softening.

With the respect to the results of this study, we can infer that Ukrainian students prefer group exercises where they can interact with either coach or other participants of the training sessions, as well as modern technologies cannot fully fulfill their needs of physical activity. This speculation is supported with ample evidence observed among the student responses regarding their habits of being involved in physical training even during the quarantine. Thus, 54% of the respondents declared that they acquired the habit of being systematically physically active during the quarantine. 23% of the students stated they did not obtain the habit of being physically active, and the rest of the experiment group members were hesitant to decide what group they would belong to. Among the negatively influencing factors resulting into the not-acquired habit of being physically active, the most popular ones were a) alternation of everyday life activities, b) excessive relaxation in the new vital settings, c) significant decrease in in-human communications with coaches and friends, and d) decreased overall ability to work after overcoming the illness.

Conclusions and Discussion

The conducted study provided us with ample evidence to determine some of the peculiarities of Ukrainian students who study at higher educational institutions with Kinesiology and Health majors in the pandemic setting:

1. Before the pandemic outbreak, most of the students assessed their physical activity levels as "excellent" and "good". 71% of the participants regularly engaged in physical training, 26% of the students did it seldom and only 3% of them never involved themselves in organized physical activities. Among the most popular forms of activities were cardio-trainings and strength exercises. Primarily, the training sessions lasted from 1 to 3 hours a day. The amount of training sessions per week averaged from 3 to 6 times a week. Half of the respondents declared that they paid enough attention to the state of their health, adhered to healthy nutrition and did not experience any issues with sleep quality before the pandemic breakout.

2. Since the quarantine restrictions were established, 41% of the students had stated that their physical activity was not impacted by the quarantine. Insignificant influence was remarked by 21% of the participants. Positive effect and negative effect of the quarantine was perceived by 7% and 19% of the studentship members participated in the survey, respectively. During the strictest phase of quarantine, 43% of the students continued to take part in organized physical activities as they had done before it. However, the forms of physical activities were considerably altered as well as the locations they were performed at. The students noted they preferred to train on their own at homes or outdoors. Only 9% of the students incorporated digital solutions to get involved into physical activities (online coaching sessions or online resources). The overall intensity and training exercise amounts during physical activity sessions had decreased. Most of the participants favoured mild physical activity levels that lasted from 30 minutes to 2 hours, 3-4 times per week, on average. The percentage of inactive students had increased to 15% during the strictest phase of the quarantine restrictions, who did not engage in any physical activity at all. During this phase, the students experienced body weight fluctuations as well as worsened sleep quality conditions.

3. After the quarantine restrictions had been softened, the physical activity levels of the participants returned almost to its original levels as they had been before the pandemic. However, a big group of students did not turn back to systematic training after the quarantine (7%). Before the pandemic, there had been only 3% of such students. The experiment group members declared that among the most wide-spread limiting factors that emerged during the restrictions and did not induce systematic physical activity were a) alternation of everyday life activities, b) excessive relaxation in the new vital settings, c) absence of systematic training sessions; d) significant decrease in in-human communications with coaches and friends, and e) decreased overall ability to work after overcoming the illness.

With the results that we were able to obtain, we can see the similarities that arise during other conducted studies in the majority of the countries (Ding et al.,

2020; Tison et al., 2020). The overall interest in alternative physical exercising had risen since the strictest phase of the quarantine restrictions among most of the citizens across the globe, although, the physical activity levels had decreased since the pandemic. After the quarantine limitations had gotten softer, most of the population began to return to organized physical activities. The most significant surges of activity were observed in Great Britain and Australia where outdoor physical activities were supported by the local governments (Ding et al., 2020).

With the respect to the fact that quarantine restrictions are still present in Ukraine, it is important to continue monitoring physical activity of the population in the pandemic setting. In the future, we plan to conduct a study aimed at discovery of physical activity peculiarities of the students who study at higher educational institutions that do not offer Kinesiology and Health major programs and to compare the results with the current study.

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