# ANALYSIS OF EXERCISE HABITS OF FACULTY OF CHEMISTRY AND CHEMICAL TECHNOLOGY UL AND FACULTY FOR COMPUTER AND INFORMATION SIENCE UL STUDENTS: ORGANIZED AND UNORGANIZED PHYSICAL ACTIVITY

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***Abstract:*** *Physical activity plays a crucial role in maintaining physical health, improving mental well-being, and enhancing overall quality of life. Among students, whose daily routines are often burdened with academic obligations, maintaining regular physical activity can be challenging. Decisions regarding how often and in what manner to exercise depend on various factors, including the year of study, time constraints, motivation, and accessibility of organized workouts. This research focuses on three key aspects of physical activity among Faculty of Chemistry and Chemical Technology, University of Ljubljana (FKKT) and Faculty for Computer and Information sience, University of Ljubljana (FRI) students: the type of exercise (organized vs. unorganized), the frequency of weekly exercise, and the students' year of study. The study analyzes how students choose to engage in physical activity at different stages of their studies and which exercise habits are most prevalent. The aim is to understand which types of exercise are the most popular, how the frequency of exercise is related to the year of study, and how students' exercise habits change over time. Data were collected through an online survey distributed to students enrolled in the Physical Education course during the semester. The collected data were processed using SPSS and Microsoft Excel. Through this analysis, we aim to gain insight into potential differences between students from different years and develop recommendations for promoting regular physical activity in the student environment. Findings indicate that students engage in both organized and unorganized exercise at similar rates, with a slight preference for unorganized exercise. Those who opt for unorganized exercise tend to be more physically active, especially those who work out multiple times per week. Senior students are generally more physically active and prefer exercising more frequently, suggesting greater independence and awareness of the importance of physical activity in later years of study. In contrast, first-year students tend to be less active and more likely to choose organized exercise.*
***Key words:*** *physical activity, students, exercise types, exercise frequency, year of study.*

## INTRODUCTION

Regular physical activity is a key factor in promoting long-term health and well-being (Fahey et al., 2004; Železnik & Vidnar, 2013). Physical activity is an essential part of daily life, with its quality largely depending on the amount of movement incorporated into one's lifestyle. Movement contributes to the overall balance of body and mind and serves as an important counterbalance to the challenges posed by a fast-paced lifestyle and numerous work obligations in modern society (Berčič et al., 2002). Current guidelines recommend that adolescents engage in 60 minutes of moderate to intense physical activity daily, while adults should engage in 30 minutes of physical activity five days per week. This helps maintain and improve physical fitness and the musculoskeletal system. Additionally, regular exercise reduces the risk of common illnesses, strengthens the immune system, and alleviates stress and mental strain (Železnik & Vidmar, 2013; Pate et al., 1995).

Students, who are transitioning from adolescence to adulthood, experience many physical and psychological changes that can significantly impact their life experiences (Lalor et al., 2007). Research has shown that intrinsic motivations, such as enjoyment and challenge, are closely linked to participation in sports activities, whereas extrinsic motivations, such as concern for appearance or stress management, have a greater influence on participation in physical activity (Kilpatrick et al., 2005). Furthermore, factors such as interest in activities, social support, a sense of achievement, and self-confidence are recognized as crucial in promoting regular physical activity (Tsai, 2005). In this context, understanding how different motivational factors influence physical activity is important for developing effective strategies to encourage healthy lifestyle habits among students.

Organized exercise can be defined as planned and structured physical activity, typically led by trained professionals and conducted within specific programs or institutions, such as sports clubs or fitness

centers. In contrast, unorganized exercise refers to spontaneous or casual physical activity that is not formally led or structured by a sports professional.

There are also noticeable differences in participation in organized and unorganized sports activities depending on age. Younger individuals are more likely to participate in organized sports activities, while older individuals tend to prefer unorganized forms of exercise. Possible reasons for higher participation in unorganized activities among older individuals include greater flexibility - unorganized activities allow individuals to adjust the intensity and timing of exercise to their needs and capabilities; accessibility - unorganized exercise does not require special equipment or membership in sports clubs, making it more accessible; social aspects - older individuals may prefer activities they can do alone or in small groups, without the formal structure of organized workouts; educational aspect – Due to higher education levels, they are more informed about the importance of physical activity and capable of creating their own workout programs, requiring less guidance in the exercise process (Zurc, 2008).

## RESEARCH OBJECTIVES

The objectives of the research were:

- To determine which type of exercise students prefer—organized or unorganized exercise.
- To examine the relationship between the type of exercise and the frequency of weekly physical activity.
- To identify differences in the type and frequency of exercise between first-year and third-year undergraduate students.
- The following hypotheses were proposed:
- Students prefer unorganized exercise.
- Students who prefer unorganized exercise engage in physical activity more frequently per week than those who participate in organized exercise.
- Third-year students are more likely to engage in unorganized exercise and are more physically active per week compared to first-year students.

## METHODS

### Research participants

The survey participants were undergraduate students enrolled in the elective course Physical Education. The majority (69%) were students from the Faculty of Chemistry and Chemical Technology, while the remaining (31%) were from the Faculty of Computer and Information Science. A total of 63 respondents participated in the study, including 35 male students (54%) and 30 female students (46%).

### Procedure and instruments

Data collection was conducted using a questionnaire consisting of 26 closed-ended questions. For the purposes of this study, data from three specific questions were analyzed, focusing on the choice of exercise type – organized and unorganized, the frequency of weekly exercise and differences between first-year and third-year undergraduate students at FKKT and FRI.

The questionnaire was administered electronically via 1ka in early February 2023. Participants could complete it in their free time, and data collection lasted approximately 14 days. The collected data were first separated from other responses, transferred to Microsoft Excel, and later analyzed using the statistical software IBM SPSS Statistics 20. A frequency and descriptive analysis was conducted for the questions related to the type of exercise (organized vs. unorganized) and the relationship between exercise type and weekly exercise frequency. This relationship was tested using the $\chi^2$ (chi-square) test. Comparisons of exercise type, weekly exercise frequency, and study year were examined using contingency tables.

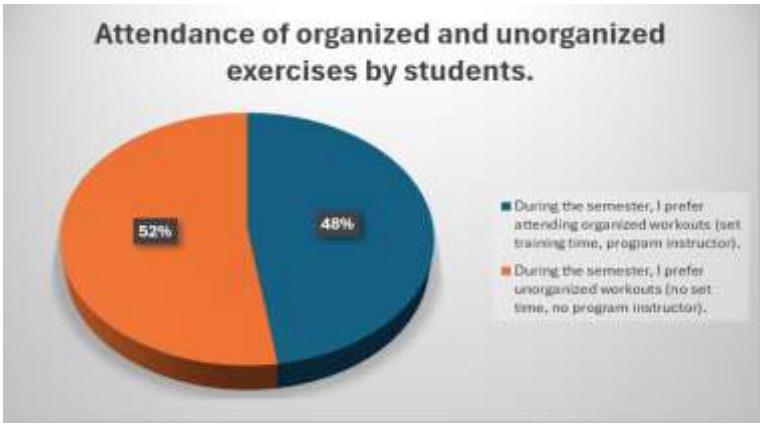
## STATISTICAL DATA ANALYSIS

The collected survey data focused on the type and frequency of weekly exercise, which were also analyzed based on study year (first-year vs. third-year students). The selected questions were treated as

ordinal variables. First, data on exercise type, weekly exercise frequency, and study year were processed using frequency and descriptive analysis and presented in tables. The results were then visually represented with graphs to facilitate comparisons among respondents. The relationship between exercise type and weekly exercise frequency was analyzed using the $\chi^2$ (chi-square) test and contingency tables. All results were evaluated at a 5% level of statistical significance.

**RESULTS**

**Figure 1** Comparison of participation in organized and unorganized exercise by students




In Figure 1, a pie chart presents the frequency and descriptive analysis of data comparing participation in organized and unorganized exercise. The results show that 48% of students choose organized exercise, which includes a set schedule and an instructor, while 52% prefer unorganized exercise, meaning there is no fixed time for the workout, and no instructor is present.

**Figure 2** Analysis of exercise type and weekly exercise frequency

| Type of exercise | | | Frequency | Percentage | Valid percentage | Cumulative percentage |
|---|---|---|---|---|---|---|
| Organized exercise | Valid | Less than once a week | 12 | 40,0 | 40,0 | 40,0 |
| | | 1-2 times a week | 8 | 26,7 | 26,7 | 66,7 |
| | | 3-4 times a week | 5 | 16,7 | 16,7 | 83,3 |
| | | 5 or more times a week | 5 | 16,7 | 16,7 | 100,0 |
| | | Total | 30 | 100,0 | 100,0 | |
| Unorganized exercise | Valid | Less than once a week | 2 | 6,1 | 6,1 | 6,1 |
| | | 1-2 times a week | 16 | 48,5 | 48,5 | 54,5 |
| | | 3-4 times a week | 6 | 18,2 | 18,2 | 72,7 |
| | | 5 or more times a week | 9 | 27,3 | 27,3 | 100,0 |
| | | Total | 33 | 100,0 | 100,0 | |

**Figure 3** *$\chi^2$ test – Relationship between exercise type and weekly exercise frequency*

**Chi-square test**

| | Value | df | Sig. (2-tailed) |
|---|---|---|---|
| Pearson's Chi-square test | 10,925[a] | 3 | ,012 |
| Odds Ratio | 11,750 | 3 | ,008 |
| N of valid cases | 63 | | |

a. 0 cells (0.0%) have an expected count of less than 5. The smallest expected count is 5.24.

In Figure 2, a frequency and descriptive analysis of exercise type and weekly exercise frequency is presented. The results show that organized exercise is more common among less active individuals (less than once per week), specifically in 40% of cases. On the other hand, unorganized exercise is more popular among more active individuals, particularly those who exercise 1–2 times per week (48.5%) and 5 or more times per week (27.3%). This correlation suggests that more active individuals tend to prefer unorganized exercise, whereas less active individuals are more likely to engage in organized exercise, possibly because they receive more motivation and support in a structured setting.

In Figure 3, the $\chi^2$ test results indicate a p-value of 0.012, which is lower than the conventional significance level of 0.05. This allows us to conclude that there is a statistically significant relationship between exercise type (organized/unorganized) and weekly exercise frequency. In other words, the choice of exercise type is not random, but rather linked to how often an individual engages in physical activity.

**Figure 4** Contingency table of exercise type, weekly exercise frequency and study year

**Type of Exercise'Exercise frequency per week * Year of study Crosstabulation**

| Year of study | | Frequency of exercise per week | | | | Total |
|---|---|---|---|---|---|---|
| | | Less than once a week | 1-2 times a week | 3-4 times a week | 5 or more times a week | |
| 1st year | Organized exercise | 6 | 3 | 3 | 4 | 16 |
| | | 37,5% | 18,8% | 18,8% | 25,0% | 100,0% |
| | | 100,0% | 21,4% | 42,9% | 57,1% | 47,1% |
| | | 17,6% | 8,8% | 8,8% | 11,8% | 47,1% |
| | Unorganized exercise | 0 | 11 | 4 | 3 | 18 |
| | | 0,0% | 61,1% | 22,2% | 16,7% | 100,0% |
| | | 0,0% | 78,6% | 57,1% | 42,9% | 52,9% |
| | | 0,0% | 32,4% | 11,8% | 8,8% | 52,9% |
| | | 6 | 14 | 7 | 7 | 34 |
| | | 17,6% | 41,2% | 20,6% | 20,6% | 100,0% |
| | | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | 17,6% | 41,2% | 20,6% | 20,6% | 100,0% |
| 3rd year | Organized exercise | 2 | 2 | 1 | 1 | 6 |
| | | 33,3% | 33,3% | 16,7% | 16,7% | 100,0% |
| | | 100,0% | 50,0% | 100,0% | 20,0% | 50,0% |
| | | 16,7% | 16,7% | 8,3% | 8,3% | 50,0% |
| | Unorganized exercise | 0 | 2 | 0 | 4 | 6 |
| | | 0,0% | 33,3% | 0,0% | 66,7% | 100,0% |
| | | 0,0% | 50,0% | 0,0% | 80,0% | 50,0% |
| | | 0,0% | 16,7% | 0,0% | 33,3% | 50,0% |
| | | 2 | 4 | 1 | 5 | 12 |
| | | 16,7% | 33,3% | 8,3% | 41,7% | 100,0% |
| | | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | 16,7% | 33,3% | 8,3% | 41,7% | 100,0% |
| Total | Organized exercise | 12 | 8 | 5 | 5 | 30 |
| | | 40,0% | 26,7% | 16,7% | 16,7% | 100,0% |
| | | 85,7% | 33,3% | 45,5% | 35,7% | 47,6% |
| | | 19,0% | 12,7% | 7,9% | 7,9% | 47,6% |
| | Unorganized exercise | 2 | 16 | 6 | 9 | 33 |
| | | 6,1% | 48,5% | 18,2% | 27,3% | 100,0% |
| | | 14,3% | 66,7% | 54,5% | 64,3% | 52,4% |
| | | 3,2% | 25,4% | 9,5% | 14,3% | 52,4% |
| | | 14 | 24 | 11 | 14 | 63 |
| | | 22,2% | 38,1% | 17,5% | 22,2% | 100,0% |
| | | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | 22,2% | 38,1% | 17,5% | 22,2% | 100,0% |

After reviewing the contingency table in Figure 4, we can conclude that third-year students are significantly more physically active with unorganized exercise. A large percentage of them exercise 5 or more times a week (66.7%), compared to first-year students (16.7%). First-year students are somewhat more consistent with organized exercise, with 25.0% exercising 5 times a week, but the difference is less pronounced. In the first year, most students exercise 1–2 times per week (41.2%), indicating a predominance of moderate activity. Fewer students are highly active (5 or more times a week). In the third year, the distribution changes – a larger percentage of students (41.7%) exercise 5 or more times a week, indicating greater intensity and frequency of exercise. Overall, we found that third-year students are generally more physically active, with a larger proportion in the group with the most frequent exercise (5 or more times a week), while first-year students tend to engage in moderate frequency of exercise (1–2 times per week).

**DISCUSSION**

Physical activity is crucial for our daily well-being, as the quality of our movement is closely linked to its quantity and incorporation into our everyday lifestyle. Regular physical activity contributes to both physical and mental balance, as it helps overcome stress caused by the fast pace of life and numerous work obligations in the modern world (Berčič et al., 2002).

The study included students from the Faculty of Chemistry and Chemical Engineering and the Faculty of Computer Science and Informatics, who are enrolled in the elective course Physical Education. Although the results cannot be generalized to the entire student population, they offer valuable insights into students from both faculties.

For the first objective of the study, we aimed to determine which type of exercise – organized or unorganized – is more popular among students at the Faculty of Chemistry and Chemical Engineering (FKKT) and the Faculty of Computer Science and Informatics (FRI). It was hypothesized that students would prefer unorganized exercise. The analysis showed that choices between the two types of exercise were almost evenly distributed, with a slight preference for unorganized exercise. This indicates diverse preferences regarding the structure of exercise, which is crucial to consider when designing sports programs for students. Similarly, Majerič (2002) found that during his study, the number of students choosing unorganized physical activities increased, while the percentage of participants in organized exercise remained unchanged.

For the second objective, we wanted to examine the relationship between the type of exercise and weekly frequency of physical activity. It was hypothesized that students who prefer unorganized exercise would be more physically active during the week than those attending organized exercise. The results confirmed that the choice of exercise type (organized or unorganized) is indeed related to the frequency of physical activity. Organized exercise is more common among less active individuals, suggesting that they may need more support and guidance. On the other hand, more active individuals tend to prefer unorganized exercise, especially at higher weekly frequencies (1–2 times or 5+ times a week). Research conducted at the University of Zagreb (Caput-Jugonica & Neljak, 2016, in Berčič, 2016) emphasizes the importance of incorporating regular physical activity among students, as a decrease in physical activity is often observed after high school. Although 63.7% of students participate in systematically guided and planned exercises, the lifestyle of the student population remains too sedentary. The authors highlight that the student period is crucial for fostering positive habits and promoting a healthy lifestyle. Studies (Majerič, 2002; Majerič & Zurc, 2016) have also shown that 79.9% of male students and 76.8% of female students in Slovenia engage in regular physical activity. Most students opt for unorganized forms of exercise, with the majority exercising two to three times per week, reaching a total of 3 to 5 hours of physical activity per week. These results confirm that physical activity is highly important for students in Slovenia.

The third objective of the study was to examine the differences in exercise type and frequency between first-year and third-year undergraduate students. It was hypothesized that third-year students would prefer unorganized exercise and be more active weekly compared to first-year students. The results showed that third-year students are significantly more physically active, with 66.7% exercising 5 or more times per week, compared to 16.7% of first-year students. First-year students tend to be more

consistent with organized exercise (25.0% exercising 5 times a week), but most engage in moderate activity (1–2 times a week, 41.2%). Overall, third-year students are more physically active, while first-year students prefer exercising less frequently. Although Vidovič (2018) reports that first-year students are more physically active than older students, physical activity tends to decrease due to greater study burdens and stress in later years. However, the study "Health of Slovenian Students" (2012) showed that third-year students are more physically active compared to first-year students, being more aware of the importance of physical activity for health and thus more motivated to engage in sports activities.

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# ANALIZA FIZIČKIH AKTIVNOSTI STUDENATA FAKULTETA ZA KEMIJU I KEMIJSKU TEHNOLOGIJU UL I FAKULTETA RAČUNARSKIH NAUKA I INFORMATIKE UL: ORGANIZOVANA I NEORGANIZOVANA FIZIČKA AKTIVNOST

**Jamnik Eva**

***Sažetak:*** *Fizička aktivnost igra ključnu ulogu u održavanju fizičkog zdravlja, poboljšanju psihičkog blagostanja i poboljšanju ukupnog kvaliteta života. Među studentima, čiji je život često opterećen studijskim obavezama, mogu se pojaviti izazovi u održavanju redovne fizičke aktivnosti. Odluke o tome koliko često i na koji način vježbati zavise od različitih faktora, uključujući godinu studija, vremenska ograničenja, motivaciju i dostupnost organiziranog vježbanja. U okviru ovog istraživanja fokusirali smo se na ispitivanje tri ključna aspekta fizičke aktivnosti među studentima Fakulteta za kemiju i kemijsku tehnologiju, Univerzitet u Ljubljani (FKKT) i Fakulteta računarskih nauka i informatike, Univerzitet u Ljubljani (FRI): vrstu vježbanja (organizirano vs. neorganizirano), učestalost vježbanja sedmično i godinu studija. Istraživanje analizira kako se studenti odlučuju za bavljenje fizičkom aktivnošću u različitim fazama studija i koje navike vježbanja su najzastupljenije. Svrha istraživanja je da se shvati koje su metode vježbanja najpopularnije, kakva je veza između godine studija i učestalosti vježbanja te kako se mijenjaju navike studenata tokom studiranja. Podatke smo dobili pomoću anketnog upitnika koji je distribuiran putem interneta studentima i studentima koji su upisani na predmet fizičkog vaspitanja tokom semestra. Podaci su obrađeni u računarskom programu SPSS i Microsoft Excel-u. Cilj nam je da steknemo uvid u potencijalne razlike između studenata različitih godina i izradimo preporuke za promovisanje redovne fizičke aktivnosti u studentskom okruženju. Nalazi pokazuju da učenici ravnopravno biraju između organiziranog i neorganiziranog vježbanja, uz nešto veću prednost neorganiziranog vježbanja. Oni koji se odluče za neorganizirano vježbanje češće će biti fizički aktivni, posebno oni koji vježbaju nekoliko puta sedmično. Učenici viših razreda su fizički aktivniji i preferiraju češće vježbanje, što ukazuje na veću samostalnost i svijest o značaju fizičke aktivnosti u višim razredima, dok su mlađi učenici često manje aktivni i češće biraju organizirano vježbanje.*

***Ključne riječi:*** *fizička aktivnost, studenti, metode vježbanja, učestalost vježbanja, godine studija.*