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Physical Literacy Awareness Among Gen Z: A Cross-Sectional Pilot Study

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Abstarct- Background: "Stop scrolling, start moving." Fitness awareness has increased since COVID-19; however, screen time has also risen (Aleksandra Kołota, 2021). The World Health Organization (WHO) reports that over 80% of school-age children and adolescents worldwide do not meet the recommended levels of physical activity. Many Gen Z individuals may still lack adequate understanding of the long-term benefits of being physically active (Diena Dwidienawati, 2025). **Objective:** To assess the level of physical literacy awareness among Gen Z, particularly regarding the physical-health, mental-health and social benefits of physical activity, and to examine their participation patterns. **Methods:** A cross-sectional survey was conducted using a structured Google Form to collect information about physical activity participation, awareness of its physical, mental-health and social benefits, barriers to participation and lifestyle patterns. The survey link was shared with approximately 700 students, of whom 436 voluntarily completed the questionnaire. Personal identifiable information was not made mandatory. The collected responses were analysed using descriptive statistics, including frequencies and percentages, to identify participation patterns and awareness levels. **Results and Conclusion:** The study was conducted on 436 respondents (54.13% females, 45.87% males). Of the total, 36.93% were 'physically active' participants in the study, and 63.07% were completely 'physically inactive'. Of the active respondents 70.19%, 82.61% and 85.09% respectively were knowledgeable about the physical, mental and social benefits of participating in physical activity compared to 73.82%, 84.73% and 86.18% of the inactive participants respectively. Additionally, 63.64% of the inactive participants reported they lost interest in academic/study activities as well as playing/spending time with their family members at least once in a while. This loss of interest was the major reason for lack of participation in physical activities. From the above findings we may conclude that awareness of the benefits of participation in physical activities does not necessarily motivate individuals to participate in such activities.

Keywords: Physical activity, mental health, social skills, physical literacy, Gen Z

I. Introduction

Physical activity boosts both physical and mental health and helps you socialize. In particular, during your teenage and young adult years, participation in such activities has been found to build your social skills and overall sense of well-being. Recently however, we have seen a trend of young people gravitating towards a more sedentary and digital lifestyle to the point where it has significantly reduced their participation in outdoor activities.

Those born between the late 1990s to the early 2010s are members of Generation Z and for most of them, continuous evolution and advancement in technology has been the norm throughout their lives. Though these advances in technology have been of great benefit to

children and adolescents to aid and complement their learning and entertainment, we are worried they could be negatively impacting their level of physical activity. We recommend that to promote the health and overall well-being of children and young people, we should incorporate a variety of physically active activities to meet the social and emotional needs of the participants as well.

Although there is more media coverage of people leading healthier, more active lifestyles, this doesn't mean the level of physical activity of youth has increased. There are many reasons as to why a person may be participating less in physical activities (i.e. level of interest, availability of facilities, family situation, level of financial means, injuries, preference for more sedentary activities, etc.). Regarding Gen Z, in particular, we should look even more closely into this to determine the root causes of this lack of participation in physical activity. Currently, numerous of the school aged children and adolescents have been reported by the World Health Organization to be insufficiently physically active. Other recent studies in this area should also be of interest (e.g. Aleksandra Kołota, 2021; Diena Dwidienawati, 2025).

While there has been an increase in the positive media portrayal of healthy and active lifestyles, we have not seen an increase in youth participation in physical activities. There are multiple factors that can impact participation including level of interest, available facilities/resources, financial situation, family situation, injuries, and preference for sedentary activities (e.g. using the computer/watching TV). In the case of Gen Z however, we should be especially concerned with this trend as we know the many positive impacts of leading a healthy and active lifestyle. As reported by the World Health Organization, the majority of school age children and adolescents are not getting enough physical activity. We also have a number of recently published studies on physical activity of youth (e.g. Aleksandra Kołota, 2021; Diena Dwidienawati, 2025).

II. Review Of Literature

Guthold et al. (2020) published a study in The Lancet Child and Adolescent Health entitled 'Global trends in insufficient physical activity among adolescents'. The study included 1.6 million participants (aged 11-17 years) from 146 countries assessed through 298 different surveys. Using these data they counted the number of adolescents meeting the requirements of physical activity for their age and found that across the globe approximately 81% of this age group were not sufficiently physically active. Of this group, girls (84.7%) were less physically active than boys (77.6%). Based on these results we recommend implementing various interventions to increase levels of physical activity among this age group, in particular among girls.

Martins et al. (2021) recently published an updated systematic review in the International Journal of Environmental Research and Public Health on 'Adolescents' perspectives on the barriers and facilitators of physical activity.' In this review they included 30 qualitative studies comprising of approximately 1,250 adolescents between the ages of 13-18 from 13 different countries. From these studies they identified 5 major factors influencing adolescents' participation in physical activity, these including: individual factors, environmental and/or societal factors, the nature of the physical activity, and lifestyle factors. Some of the most important factors influencing participation, as also identified in this review, were adolescents' motivation and self confidence level to participate as well as their enjoyment of the activity being undertaken, along with their level of family/support and/or peer group facilitation and/or eperculence as well as the accessibility of sports/activity facilities to them.

Ferreira Silva et al. (2022) conducted a systematic review, 'Barriers to high school and university students' physical activity', published in PLOS ONE. They also examined the various factors which limit high school and university students from participating in physical activities. They included 59 studies in their review with a total of 38,319

participants, of which 22,908 were high school students and 15,411 were university students. Of the participants, the main factors which restricted them from participating in physical activities were lack of time and/or motivation as well as availability of appropriate physical activity facilities.

Grauduszus et al. (2023) published a scoping review titled 'Definitions and assessments of physical literacy among children and youth' in the journal BMC Public Health. In this review they summarized different definitions and methods used to assess physical literacy in children and adolescents. They analyzed 40 studies and identified 23 distinct assessment methods. According to their findings we should also consider other affective and cognitive factors (i.e. attitudes, beliefs and/or preferences of individuals) in addition to physical component of physical literacy when assessing individuals' overall level of physical literacy to encourage long-term participation in physical activities.

Ruiz-Ranz and Asín-Izquierdo (2025) recently published a review in Sports Medicine and Health Science, entitled 'Physical activity, exercise and mental health of healthy adolescents: A review of the last 5 years'. In this review they assessed the impact of various physical activity interventions to improve mental health of individuals aged 10-19 years. Ten studies were included in the review, with a total of 23,681 participants. From the available evidence they suggest that various forms of physical activities have the potential to positively impact mental wellbeing of adolescents (e.g. self-esteem, emotional intelligence and anxiety) however more robust research in this area is warranted.

1. Objectives Of The Study

The main objectives of the study are:

- To assess levels of awareness of Gen Z with respect to physical health benefits of doing physical activities.
- To describe participants' previous and current level of involvement in different sports and physical activities.
- To determine the main reasons which have prevented participants from being physically active.
- To determine participants' level of interest in studying/playing with members of their family in the absence of their participation in physical activities.
- To assess participants' screen time and the circumstances surrounding their participation in physical activities.
- To assess participants' gender along with their current level of participation in physical activities and their overall understanding of the benefits associated with physical activities.

III. Research Methodology

1. Research Design

The current study employs a quantitative, cross-sectional design to evaluate physical literacy of Gen Z as well as their participation in physical activity. Using the cross-sectional design we were able to gather data from participants at a specific point in time and subsequently evaluate their awareness and involvement in this regard.

2. Study Population And Sample Size

We conducted the study with participants from Gen Z. To do this we sent out an online questionnaire via Google Forms to roughly 700 students. Of these, 436 participants completed the questionnaire. Participants were between the ages of 17 and 26 years. The final sample consisted of 236 females (54.13%) and 200 males (45.87%) participants.

3. Sampling Technique

A non-probability voluntary responsiveness sampling technique was employed to conduct the present pilot study in order to evaluate the level of awareness and/or participation of physical literacy among the respondents.

4. Sources Of Data

The study primarily used primary data collected through a questionnaire created using Google Forms. To develop this questionnaire we included items to measure respondents' demographic characteristics as well as their participation in physical activity, their knowledge of the benefits of physical activity, and the barriers that prevent them from participating in physical activity as well as their daily screen time activities. We also considered some secondary information to develop the questionnaire to capture other concepts associated with physical literacy.

5. Data Collection Instrument

The questionnaire consisted of separate awareness question sets for active respondents and for those respondents with no current participation. This allowed us to evaluate awareness levels for each of the two groups.

6. Data Analysis And Statistical Tools

We analyzed the responses from 436 participants using descriptive and inferential statistics. To present the respondent demographics as well as their levels of awareness and barriers to using the intervention, along with their use of the screen, we utilized frequencies and percentages. For the analysis of the hypotheses, we employed the Pearson Chi-Square Test of Independence to evaluate the relationship between the relevant categorical variables. In the first hypothesis, we determined the relationship between participants' current physical activity level and their awareness of the various health (mental and social) benefits of physical activity. In the second hypothesis, we determined the relationship between participants' gender and current level of physical activity.

7. Scope And Limitations Of The Study

The study is restricted to the 436 participants who voluntarily completed the online questionnaire and therefore should not be considered representative of the Gen Z population as a whole. Furthermore, given the nature of the study design, we cannot determine causality. Therefore, the results should be interpreted with caution. Moreover, to classify respondents as 'active' vs. 'inactive', we have largely relied on each individual's own subjective judgement of their level of participation in physical activity.

IV. Analysis And Interpretation

1. Demographic Profile Of The Respondents

Table 1: Gender-wise distribution of respondents

Gender	Frequency (n)	Percentage (%)
Female	236	54.13
Male	200	45.87
Total	436	100.00

54.13% of our sample consisted of females (n=236), while 45.87% of the sample was made up of males (n=200). Thus, in our sample we had more females than males.

Table 2: Age-wise distribution of respondents

Age (years)	Frequency (n)	Percentage (%)
17	56	12.84
18	118	27.06
19	109	25.00
20	99	22.71
21	25	5.73
22	14	3.21
23	5	1.15
24	3	0.69
25	5	1.15
26	2	0.46
Total	436	100.00

Respondents' ages ranged from 17 to 26 years with the most number of respondents (118; 27.06%) falling in the age group of 18 years, followed by 19 years (109; 25%) in the sample.

2. Patterns Of Physical Activity Participation Among Gen Z

Table 3: Physical activity participation history of respondents

Participation history	Frequency (n)	Percentage (%)
I have been playing since my childhood	145	33.26
Not played during childhood however playing now	16	3.67
I used to play during Childhood however I am NOT playing now	226	51.83
Have never played	49	11.24
Total	436	100.00

33.26% (or 145 people) of the respondents have reported playing the game since childhood, whereas 3.67% (or 16 people) have started playing after childhood. Additionally, 51.83% (or 226 people) have previously played the game during their childhood but have now stopped playing, and 11.24% (or 49 people) have never played the game at all.

Table 4: Overall classification of respondents by current physical activity participation

Physical activity status	Frequency (n)	Percentage (%)
Physically active/current participation	161	36.93
Inactive/no current participation	275	63.07
Total	436	100.00

Note: The active/current group combines respondents playing since childhood and those who started playing more recently. The inactive group combines those who stopped playing and those who had never played.

Of the 436 respondents, 161 (36.93%) were classified as physically active/current participants and 275 (63.07%) as inactive/no-current participants as mentioned in the abstract approximately 37% and 63% respectively.

3. Awareness Of The Physical, Mental Health And Social Benefits Of Physical Activity

Table 5: Awareness of the benefits of physical activity according to activity status

Awareness domain	Active Yes n (%)	Active No n (%)	Inactive Yes n (%)	Inactive No n (%)
Physical-health benefits	113 (70.19%)	48 (29.81%)	203 (73.82%)	72 (26.18%)
Mental-health and emotional well-being benefits	133 (82.61%)	28 (17.39%)	233 (84.73%)	42 (15.27%)
Social skills benefits	137 (85.09%)	24 (14.91%)	237 (86.18%)	38 (13.82%)

Note: The first awareness-question set in the spreadsheet applies to the 161 active/current respondents; the second set (questions ending in '2') applies to the 275 inactive/no-current respondents. Of the currently active participants, 70.19% have knowledge of the physical health benefits, 82.61% have knowledge of the mental health benefits and 85.09% have knowledge of the social benefits of the program. Of the currently inactive participants, 73.82% have knowledge of the physical health benefits, 84.73% have knowledge of the mental health benefits and 86.18% have knowledge of the social benefits of the program. In both active and inactive participants, the level of awareness was similar for each of the three benefits of the program.

Table 6: Awareness of physical, mental-health and social benefits among physically active respondents

Awareness domain	Aware (Yes) n	Aware (%)	Not aware (No) n	Not aware (%)
Physical-health benefits	113	70.19	48	29.81
Mental-health and emotional well-being benefits	133	82.61	28	17.39
Social skills benefits	137	85.09	24	14.91

The active/current respondents were most aware of the social benefits (85.09%) of physical activity, followed by the mental (82.61%) and then the physical (70.19%) benefits, respectively. These results are similar to those presented in the abstract of this study.

Table 7: Awareness of physical, mental-health and social benefits among inactive respondents

Awareness domain	Aware (Yes) n	Aware (%)	Not aware (No) n	Not aware (%)
Physical-health benefits	203	73.82	72	26.18
Mental-health and emotional well-being benefits	233	84.73	42	15.27
Social skills benefits	237	86.18	38	13.82

We found that even with inactive/no-current participants there was a high level of awareness of the benefits of the program. Among these participants 73.82% were aware of the physical health benefits, 84.73% of the mental health benefits and 86.18% of the social benefits of

the program. Therefore we may conclude that simply creating awareness of the benefits of the program may not be adequate to increase participation of users of the program.

Self-reported Patterns of Reduced Interest Among Inactive Respondents

Table 8: Frequency of reduced interest in studying, playing or spending time with family among inactive respondents

Response	Frequency (n)	Percentage (%)
Never	49	17.82
Rarely	51	18.55
Sometimes	114	41.45
Often	11	4.00
Always	50	18.18
Total	275	100.00

Out of the 275 inactive respondents, 50 (18.18%) selected Always, 11 (4.00%) selected Often and 114 (41.45%) selected Sometimes. Therefore, a total of 175 (63.64%) respondents reported experiencing reduced interest at least sometimes. Additionally, 51 (18.55%) of the respondents selected Rarely and 49 (17.82%) selected Never.

Table 9. Inactive respondents reporting reduced interest at least sometimes

Response grouping	Frequency (n)	Percentage (%)
Sometimes/Often/Always	175	63.64
Rarely/Never	100	36.36
Total	275	100.00

Note: The grouping combines Sometimes, Often and Always as ‘at least sometimes’; Rarely and Never are grouped separately.

Almost two-thirds (63.64%) of inactive respondents admitted to sometimes feeling less interested in studying/playing/spending time with their family and therefore support the approximate 64% statistic mentioned in the abstract. However, we shouldn’t interpret this to mean that these respondents have mental health/social disconnection issues since we don’t have enough information to substantiate any of those conclusions.

Barriers to Physical Activity Participation Among Inactive Respondents

Table 10: Commonly reported barriers to physical activity among inactive respondents

Barrier	Respondents mentioning barrier (n)	Percentage of inactive group (%)
Not interested in playing	134	48.73
Prefer indoor screen-based activities	41	14.91
Financial issues / need to work	40	14.55
Lack of facilities	37	13.45
Family does not allow participation	24	8.73
Lack of opportunities/recognition	24	8.73
Injury	23	8.36

Note: Responses were coded by searching for each barrier phrase in the recorded response. Respondents could mention more than one barrier; therefore, percentages are not expected to total 100%.

The most common reason given for not taking part in physical activity was lack of interest (48.73% of respondents, 134 in total). The next most common reasons were preference for indoor screen based activities (14.91% of respondents, 41 in total), financial issues/need to work during free time (14.55% of respondents, 40 in total) and absence of adequate facilities (13.45% of respondents, 37 in total). Family restrictions as well as lack of opportunities/recognition for playing were mentioned by 24 (8.73%) respondents each, and injury was mentioned by 23 (8.36%) respondents. As respondents were allowed to give more than one reason for not taking part in physical activity during the survey, the overall percentage of respondents does not add up to 100%.

Daily Screen-time Patterns Among Gen Z

Table 11: Daily screen-use duration among respondents

Daily screen-use duration	Frequency (n)	Percentage (%)
Not at all	17	3.90
Just 1hr to 2hr	158	36.24
Just 2 hr to 4hr	114	26.15
Just 4 hr to 6hr	86	19.72
Just 6 hr to 8 hr	43	9.86
More than 10 hr	18	4.13
Total	436	100.00

Note: The questionnaire's response options do not include a separate eight-to-ten-hour category.

The largest number of respondents (36.24%) reported using screens for 1-2 hours per day, with the next two groups reporting 2-4 hours (26.15%) and 4-6 hours (19.72%) per day respectively. "An additional 61 respondents (13.99%) reported using screens for 6 or more hours per day when the 6-8 hour responses are combined with those reporting 10 or more hours per day."

4. Hypothesis Testing

To assess the relationship between the variables of interest in this study, the Pearson Chi-Square Test of Independence was carried out at the 5% level of significance ($\alpha = 0.05$) to determine if there was any association between participants' level of awareness of the benefits of physical activity and their participation in physical activity, based on their demographic characteristics.

5. For Hypothesis 1, We Postulated The Null Hypothesis As Follows

Null Hypothesis (H_{01}): There is no association between Gen Z participants' level of awareness of the benefits (both physical and mental) of physical activity and their participation in physical activity.

Alternative Hypothesis (H_{11}): There is an association between Gen Z participants' level of awareness of the benefits (both physical and mental) of physical activity and their participation in physical activity.

To examine the relationship between the variables of interest in this study we applied the Pearson Chi-Square Test and conducted the analysis at the 5% level of significance. For Hypothesis 1, we proposed the null hypothesis as follows: There is no association between Gen Z participants' level of awareness of the physical and mental benefits of physical activity and their participation in physical activity (H_0). The alternative hypothesis is therefore that there is some level of association between the above stated (H_1).

Table 12: Chi-Square Test Showing the Association Between Physical Activity Status and Awareness of Its Benefits

Awareness domain	Chi-Square value (χ^2)	df	p-value	Result
Physical-health benefits	0.671	1	0.413	Not Significant
Mental-health benefits	0.338	1	0.561	Not Significant
Social benefits	0.099	1	0.753	Not Significant

There was no significant association with the Pearson Chi Square test to determine the level of participation in physical activity with the 3 categories of benefits. Thus we failed to reject the null hypothesis. For each of the 3 categories (physical, mental and social benefits of physical activity) we got a p-value of 0.413, 0.561 and 0.753 respectively.

Although we found a relatively good level of awareness of these benefits with the survey respondents (both active and inactive), this awareness did not help participants determine their level of participation in physical activity. With this level of awareness of the potential benefits of being physically active we may speculate that most of the participants in the study would benefit from being physically active, however this awareness did not affect their level of physical activity participation.

Based on these findings we fail to reject the null hypothesis H_{01}.

6. Hypothesis 2: Association Between Gender And Physical Activity Participation

Null Hypothesis (H_{02}): There is no significant association between gender and current physical activity participation among the Gen Z population.

Alternative Hypothesis (H_{12}): There is a significant association between gender and current physical activity participation among the Gen Z population.

Table 13: Gender-wise Association with Current Physical Activity Participation

Gender	Active/Current n (%)	Inactive/No Current Participation n (%)	Total
Female	62 (26.27%)	174 (73.73%)	236
Male	99 (49.50%)	101 (50.50%)	200
Total	161	275	436

Statistical Test Results:

Statistical measure	Value
Pearson Chi-Square (χ^2)	25.080
Degrees of freedom (df)	1
p-value	< 0.001
Cramér's V	0.240
Level of significance	0.05
Result	Significant

The Pearson Chi-Square test showed a statistically significant association between gender and participants' level of physical activity ($\chi2 = 25.080$, df = 1, $p < 0.001$). Of the male participants, 49.50% were classified as active/current participants in physical activity,

compared to 26.27% of female participants. Conversely, 73.73% of female participants did not currently participate in physical activity compared to 50.50% of the male participants.

Given the p-value of <0.05 we reject the null hypothesis. According to Cramer's V the magnitude of association between gender and level of current participation in physical activity is 0.240. Therefore we conclude that in the sample frame we are interested in, there is a significant difference in level of participation of physical activity based on gender.

Decision: The null hypothesis (H02) is therefore rejected indicating there is a statistically significant association of gender with current level of participation in physical activity.

From the above findings we can also conclude that level of awareness of the various benefits (both mental and physical) of participating in physical activity among the respondents was not dependent on the level of participation of the individuals in the study.

V. Conclsuion

We assessed the physical literacy of individuals within Gen Z and evaluated their participation in physical activity in order to determine the positive effects of physical activity on their overall (physical, mental and social) health. Seventy-seven percent of our participants were between the ages of 17 and 26 (436 participants in total), with 54.13% of them being females and 45.87% being males. Of the total participants in this study, only 36.93% were currently active participants while 63.07% had no recent participation in any physical activity. Although some of the participants had previously (i.e. during their childhood) and/or recently engaged in various sports activities, the rest of them have completely removed themselves from any physical activity. Of the participants who have taken part in some kind of physical activity in the last year, 85.09% and 82.61% of them were able to identify at least one mental and social benefit, respectively, of that activity and 70.19% of them identified at least one of the physical benefits of that activity. The proportions of non-active participants who were also able to identify at least one social, mental and/or physical benefit of physical activity were 86.18%, 84.73% and 73.82%, respectively.

We conducted a Pearson Chi-Square test to evaluate the association between participants' level of physical activity with their knowledge of the benefits of physical activity (both for their physical health and mental health). We found no significant association. However, based on our sample of participants, the majority of the males (49.50%) and females (26.27%) were physically active ($\chi 2 = 25.08$, $p<.001$). Of the participants that reported being inactive (36.36%) they also reported having little to no interest in interacting with their family members (i.e. playing/talking with them, etc.). There were several reasons participants gave as to why they were inactive (i.e. participating in sedentary activity) including preferring to engage in screen based activities (48.73%), lack of means/facilities (i.e. financial reasons), and/or previous injury. Additionally, 36.24% of the participants spent 1-2 hours/day, and 26.15% spent 2-4 hours/day using screen based activities and 13.99% spent 6 or more hours/day using screen based activities.

The participants in this study have very little awareness of the positive impact of physical activity on health, and demonstrate very little participation in physical activities. To improve the participants' level of physical literacy we need to implement changes in the environment to provide and/or build the necessary facilities in combination with offering various physical activities. For example, we recently offered a workshop to the students to raise their awareness of some of the components of a healthy and active lifestyle. However, we will first need to assess this workshop to evaluate the impact of the activity. Overall, to gain more in-depth understanding of the level of physical activity and associated knowledge of the participants in this age group, we encourage additional research.

References

1. Ahmed, M. D., Ho, W. K. Y., Al-Haramlah, A., Mataruna-Dos-Santos, L. J., & Monacis, L. (2020). Motivation to participate in physical activity and sports: Age transition and gender differences among India's adolescents. Cogent Psychology, 7(1), 1798633. https://doi.org/10.1080/23311908.2020.1798633
2. Dwidienawati, D., Pradipto, Y., Indrawati, L., & Gandasari, D. (2025). Internal and external factors influencing Gen Z wellbeing. BMC Public Health, 25, Article 1584. https://doi.org/10.1186/s12889-025-22124-5
3. Ferreira Silva, R. M., Mendonça, C. R., Azevedo, V. D., Memon, A. R., Noll, P. R. E. S., & Noll, M. (2022). Barriers to high school and university students' physical activity: A systematic review. PLOS ONE, 17(4), e0265913. https://doi.org/10.1371/journal.pone.0265913
4. González-Cutre, D., et al. (2025). Assessment of perceived physical literacy and its relationship with 24-hour movement guidelines in adolescents: The ENERGYCO study. International Journal of Environmental Research and Public Health, 22(2), https://doi.org/10.3390/ijerph22020194
5. Grauduszus, M., Wessely, S., Klaudius, M., & Joisten, C. (2023). Definitions and assessments of physical literacy among children and youth: A scoping review. BMC Public Health, 23, Article 1746. https://doi.org/10.1186/s12889-023-16680-x
6. Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1.6 million participants. The Lancet Child & Adolescent Health, 4(1), 23– https://doi.org/10.1016/S2352-4642(19)30323-2
7. Haug, E., Castillo, I., Samdal, O., & Smith, O. R. F. (2023). Body-related concerns and participation in physical education among adolescent students: The mediating role of motivation. Frontiers in Psychology, 14, 1266740. https://doi.org/10.3389/fpsyg.2023.1266740
8. Karchynskaya, V., et al. (2024). Barriers and enablers for sufficient moderate-to-vigorous physical activity: The perspective of adolescents. PLOS ONE, 19(2), e0296736. https://doi.org/10.1371/journal.pone.0296736
9. Kołota, A., & Głąbska, D. (2021). COVID-19 pandemic and remote education contributes to improved nutritional behaviors and increased screen time in a Polish population-based sample of primary school adolescents: Diet and Activity of Youth during COVID-19 (DAY- Study. Nutrients, 13(5), 1596. https://doi.org/10.3390/nu13051596
10. Martins, J., Costa, J., Sarmento, H., Marques, A., Farias, C., Onofre, M., & González Valeiro, M. (2021). Adolescents' perspectives on the barriers and facilitators of physical activity: An updated systematic review of qualitative studies. International Journal of Environmental Research and Public Health, 18(9), 4954. https://doi.org/10.3390/ijerph18094954
11. Ruiz-Ranz, E., & Asín-Izquierdo, I. (2025). Physical activity, exercise, and mental health of healthy adolescents: A review of the last 5 years. Sports Medicine and Health Science, 7(3), 161– https://doi.org/10.1016/j.smhs.2024.10.003
12. Terra, L. F., Teixeira de Rezende, L. M., Ferreira Silva, R. M., da Costa, W. P., Miñana-Signes, V., Noll, M., & Silva, P. R. E. (2025). Interventions on barriers to the participation of adolescents in physical activity: A systematic review. International Journal of Environmental Research and Public Health, 22(6), https://doi.org/10.3390/ijerph22060881