

The Influence of Lifestyle on Health-Related Physical Fitness Components among Secondary School Students in Tlemcen Province

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Abstract:

This study sought to determine the influence of lifestyle—specifically physical activity, sedentary behaviors, and dietary habits—on selected health-related physical fitness components among secondary-school students in Tlemcen Province. A total of 100 male and female students were recruited to complete the EUROFIT physical-fitness battery, which comprised four tests assessing cardiorespiratory endurance, musculoskeletal fitness, balance, and body composition. Employing a descriptive research design, data were analyzed using the SPSS statistical software package. The principal finding was the identification of significant correlational relationships between various lifestyle factors and health-related fitness components in Western Algerian secondary-school students.

KEY WORDS : Lifestyle ; Health-Related Physical Fitness ; Secondary Education

المخلص

هدفت الدراسة إلى معرفة تأثير نمط الحياة على بعض عناصر اللياقة البدنية المرتبطة بالصحة لدى تلاميذ الطور الثانوي بولاية تلمسان، وقد تمت الدراسة الأساسية على عينة من التلاميذ مقدرة ب 100 تلميذ تم من خلالها تنفيذ وإجراء بطارية اللياقة البدنية ليوروفيت حيث تشتمل 04 تمثل قياسا لمكونات اللياقة البدنية المرتبطة بالصحة قصد معرفة اللياقة القلبية التنفسية والعضلية الهيكلية والتوازن وتركيب الجسم، وقد استخدمنا المنهج الوصفي، وتمت المعالجة الاحصائية عن طريق استخدام برنامج spss، واهم النتائج المحصل عليها التعرف على العلاقة الارتباطية بين نمط الحياة وبعض عناصر اللياقة البدنية المرتبطة بالصحة لدى تلاميذ الثانوي بالغرب الجزائري

الكلمات المفتاحية: نمط الحياة ؛ اللياقة البدنية المرتبطة بالصحة ؛ التعليم الثانوي

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1-Introduction:

Since antiquity, humans have taken a keen interest in their bodies, health, and fitness, and through cultural experience have come to appreciate the benefits of engaging in diverse physical and sporting activities. Moreover, they have recognized that these benefits extend beyond the purely physiological sphere to exert positive effects on psychological, social, and cognitive dimensions—together constituting a comprehensive, coherent, and integrated aspect of individual personality.

Given the vital role that physical and sports education play in the life of every person—and adolescents in particular—relevant authorities worldwide have sought to integrate this discipline into formal educational institutions, regarding it as an essential subject on par with other academic curricula. Although it is offered at all educational levels through the end of secondary education, particular attention must be paid to adolescents in the secondary stage. This period represents one of the most critical and challenging phases of human development, characterized by rapid and profound changes across physical, psychological, emotional, cognitive, and social domains.

Adolescents experience abrupt transformations in body size, shape, and appearance, which can be a source of pride yet may also provoke feelings of inadequacy or incompleteness, potentially leading to psychological distress or a sense of alienation. This bodily self-image—an important dimension of self-concept and personal identity—holds great significance for adolescents, insofar as their self-esteem and social interactions are influenced by their perceptions of their physical form, motor skills, and overall bodily health. Achieving an optimal level of physical fitness generally ensures the most effective functioning of the body's various physiological systems (Drif Khaled et al. 2024 : 369).

Within the school setting, physical and sports education aims to fulfill objectives across three domains—cognitive, psychomotor, and socio-emotional. It plays a pivotal role in adolescent well-being, offering an outlet for self-expression, relief from psychological tension, and the resolution of personal conflicts—particularly those related to self-image—that adolescents often feel compelled to project onto others.

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Adolescents' participation in physical and sports education classes contributes significantly to the development and refinement of their motor skills. Through these sessions, young people learn to express themselves physically within a group, making movement a vehicle for communicating the profound experiences of this life stage. Given that the body underpins every educational process, physical education becomes essential for holistic development.

Focusing on the secondary-school level, we observe considerable variation in students' lifestyle patterns. Therefore, physical education teachers must possess a deep understanding of how these lifestyle differences influence specific health-related fitness components.

-Previous Studies:

-Ben Chaïb, A. (2018). "A Comparative Study of Health-Related Physical Fitness Components by Age Group, Gender, and Type of Physical Sporting Activity among Primary School Students (9–11 Years)." *Revue des Sciences et Techniques des Activités Physiques et Sportives*, University of Science and Technology Mohamed Boudiaf, Oran.

-Objective: To compare cardiorespiratory endurance, musculoskeletal fitness, and body composition across age groups, gender, and type of sporting activity in 9–11-year-old pupils.

-Method: Descriptive design; sample of 304 students; EUROFIT-derived tests including an 800 m run/walk, abdominal endurance (sit-ups), forward trunk flexion (sit-and-reach), handgrip strength, and skinfold measurements. Analyses conducted with SPSS and Microsoft Excel.

-Key Findings: Statistically significant differences favored older pupils, males, and those engaged in team sports.

-Recommendation: Future research should examine subgroup differences within collective sports (e.g., football, basketball, handball).

-Taħa, A. (2018). "Proposal of a Directed Training Program for Primary School Students to Improve Health-Related Physical Fitness." *Journal of Physical and Sports Activities Science and Technology*, Mostaganem.

-Objective: To identify changes in health-related fitness components by gender and age following a targeted training intervention.

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-Method: Experimental design; Gulf Physical Fitness Test battery; stratified random sample of 504 primary school pupils in Djelfa; pre- and post-test assessments; intervention tailored by age-appropriate motor learning and health criteria.

-Key Findings: The proposed program significantly enhanced balanced growth, reduced obesity rates, and optimized physiological function, contributing to psychological well-being and motor confidence.

-Qudayfa, Y., & Boutaha, M. (2022). “Determinants of Health-Related Physical Fitness among Students in Tebessa Province.” *Revue de l’Académie des Études Sociales et Humaines*, University of Chlef.

-Objective: To examine BMI distribution, fitness level differences, and developmental trajectories of health-related fitness across three educational stages.

-Method: Sample of 137 students; EUROFIT battery; cross-sectional analysis of physical and fitness indicators by age, gender, and extracurricular sport participation.

-Key Findings: BMI: Highest proportion in normal-weight category, followed by underweight; lowest in overweight.

Gender Differences: Significant in most physical characteristics (except height) and fitness components (except balance and body composition), favoring males.

-Age Effects: Older students outperformed younger peers in endurance, strength, and motor fitness; physical characteristics showed gradual development, whereas fitness components fluctuated with age.

-Extracurricular Activity: No significant impact on physical characteristics, balance, flexibility, or body composition.

These foundational studies underscore the influence of age, gender, and activity type on health-related fitness and inform our investigation of lifestyle factors among secondary-school students in Tlemcen Province.

-Research

Problem

Physical and sports education enables adolescents to integrate within a group, to interact and build relationships, and to understand others. Beyond its cognitive contributions—as Piaget (Deutsch .1970:27) noted, when learners engage with varied pedagogical situations and seek solutions through observation, representation, and precision—

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physical education “supports adolescents’ self-esteem, helps them attain deeper self-understanding, and fosters a positive self-image.” Moreover, participation in physical activities can help counteract negative aspects of body image, a view supported by numerous specialists who regard sport and exercise as indispensable for stabilizing adolescents’ self-perceptions. Conversely, sedentary behavior exerts a harmful and serious effect on physical health. The growing interest of researchers in this field has given rise to the term “health education,” encompassing psychological–social, physiological–physical, and ecological dimensions. When we further consider balanced nutritional habits as an element of lifestyle, we find a strong link to overall health and, in particular, to physical fitness. This leads us to pose the following overarching research question:

-General Research Question:

Does lifestyle influence selected health-related physical fitness components among secondary-school students?

From this, we derive the following specific questions:

1. Are there statistically significant differences in lifestyle patterns (sedentary behavior, physical activity, and dietary habits) among students of different ages?
2. Is there a correlational relationship between lifestyle factors (physical activity, dietary habits, sedentary behavior) and selected health-related physical fitness components?

Hypotheses :

- **General Hypothesis:**

Lifestyle has a significant effect on selected health-related physical fitness components among secondary-school students.

- **Specific Hypotheses:**

1. There are statistically significant age-related differences in students’ lifestyle patterns (sedentary behavior, physical activity, dietary habits).
2. There is a significant correlational relationship between lifestyle factors (physical activity, dietary habits, sedentary behavior) and health-related physical fitness components.

2- General objective of the study:

-General Objective:

To determine the extent to which lifestyle influences selected

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health-related physical fitness components among secondary-school students.

-Specific Objectives :

1. To identify age-related differences in students' lifestyle patterns.
2. To analyze the impact of lifestyle on health-related physical fitness and to delineate the relationships between them.

-Significance of the Study:

The importance of this research stems from previous studies affirming the critical role of lifestyle in shaping health-related physical fitness across diverse populations. Health-related physical fitness is a fundamental component—and ultimate goal—of individual and community well-being, as maintaining optimal fitness levels plays a pivotal role in preventing disease, combating sedentary behavior, and promoting overall health. This is particularly crucial during adolescence, a developmental stage marked by vulnerability and limited capacity to acquire fitness effectively without proper guidance. From a scientific perspective, this study will clarify how lifestyle factors affect health-related physical fitness in the secondary-school context. Practically, it will equip physical education teachers with a comprehensive understanding of the assessment batteries for health-related fitness and guidance on their proper administration.

3- Procedural definition of the concepts mentioned in the research:

Lifestyle: Abdul Khaleq Ahmed (2008) reports that the World Health Organization defines lifestyle as an individual's perception of their position in life, in relation to the values they hold, their goals, expectations, and their social and living standards (Ahmed, 2008). Glanz and colleagues (2015) further conceptualize lifestyle as the constellation of daily behaviors and habits—such as dietary patterns, physical activity levels, sleep routines, social interactions, and leisure-time pursuits—which interact with biological, psychological, and environmental factors to shape an individual's health and quality of life (Glanz et al. 2015).

The researcher concludes, lifestyle is understood as the aggregate reflection of one's self-image and personal values, and the manner in

which an individual perceives themselves and is perceived by others. It encompasses a coherent model of activities—whether hobbies, sports, shopping, or attendance at social events—as well as interests such as fashion or nutrition, and broader socio-economic and political attitudes.

-Health-Related Physical Fitness :According to Hariti Hakim (2018), health-related physical fitness refers to an individual’s performance capacity on tests indicative of cardiorespiratory endurance, body composition, muscular strength and endurance, and flexibility (hariti & alarabi , 2018)(Hakim.2018).

The researcher defined it as follows: the examinees’ responses to a set of health-related physical fitness tests, specifically cardiorespiratory fitness, musculoskeletal fitness, and balance.

4- The methodological procedures used in the study:

4-1 Method and tools:

Methodology:

Research Design:The researcher adopted a descriptive design, deemed most appropriate for the objectives of the present study.

Pilot Study:A preliminary investigation was conducted at Dr. Ben Zerjeb Secondary School in Tlemcen. This phase involved:

- Reviewing the aims of previous, related studies and aligning their objectives with those of the current research.
- Evaluating various test batteries and selecting the EUROFIT battery to assess health-related physical fitness.
- Distributing the questionnaire, administering the fitness tests, and recording all data.

Population and Sampling :

- **Population:** All secondary-school students enrolled at Dr. Ben Zerjeb Secondary School, Tlemcen, during the 2023–2024 academic year (N = 812).
- **Sample:** A stratified random sample of 100 students (male and female) from the secondary-level classes was drawn for the main study.

Study Scope :

- **Temporal Scope** covers January 2024 through May 2024.

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- **Human Scope** includes Secondary-school pupils attending Dr. Ben Zerjeb Secondary School in Tlemcen Province.
- **Spatial Scope** is defined by Research activities were carried out on the premises of Dr. Ben Zerjeb Secondary School, Tlemcen.

Study Procedures:

Variables and Measurement:

- **Independent Variable:** Lifestyle
- **Dependent Variable:** Selected health-related physical fitness components, represented by cardiorespiratory fitness, musculoskeletal fitness, and balance.

Instruments :

-Questionnaire:

Drawing on previous studies and the information gathered during our pilot investigation, we developed a bespoke questionnaire to capture key lifestyle data. The following steps were taken in its design and implementation:

-Specification of Required Data: We defined the personal and lifestyle variables of interest—gender, age, engagement in physical activity outside of school hours, duration of sedentary behaviors, and dietary habits.

-Questionnaire Construction: A mix of closed- and open-ended items was drafted to address the study’s core issues. Questions were ordered to reflect the logical flow of the research topic.

-Expert Review: The draft instrument was submitted to a panel of specialists for content validation and refinement, ensuring comprehensive coverage of all relevant domains.

-Psychometric Evaluation: Prior to data collection, we assessed the questionnaire’s reliability and validity coefficients, adapting and revising items as necessary to align with the objectives of the current study. The final tool was based on the validated “High-School Student Lifestyle Inventory” (revised Atlas version).

-EUROFIT Test Battery:

We employed a selected subset of the EUROFIT battery—originally developed for adults and published in 1995—to assess health-related fitness. Preceding the fitness tests, anthropometric measurements (height, weight, and body-mass index) were recorded. The six performance tests administered were:

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- **Flamingo Balance Test** (single-leg stance)
- **Sit-and-Reach Test** (trunk flexion from a seated position)
- **Standing Long Jump Test** (horizontal jump from a standing start)
- **Handgrip Strength Test** (maximal isometric grip)
- **30-Second Sit-Up Test** (abdominal muscular endurance)
- **20-Meter Shuttle Run Test** (progressive multistage endurance)

All assessments were conducted under standardized conditions, following the EUROFIT protocol, and data were recorded immediately upon completion of each test.

- **The scientific foundations of the tool:**

The EUROFIT battery has been extensively validated and demonstrates high levels of both validity and reliability, as evidenced by numerous prior studies. Likewise, the lifestyle questionnaire—derived from the Revised Atlas High-School Student Lifestyle Inventory—exhibits strong psychometric properties. To ensure its cultural relevance and clarity within the Algerian context, the instrument underwent expert review and was subsequently revised to reflect local terminologies and norms.

Reliability (Test–Retest Stability):

To assess the questionnaire’s stability, we administered it to a pilot sample of 20 students (excluded from the main study) and then re-administered the same items two weeks later. The resulting test–retest correlation coefficients confirmed a high degree of temporal consistency.

Construct Validity (Internal Consistency):

We evaluated internal consistency by calculating the square root of the test–retest reliability coefficient. The psychometric characteristics—including reliability and validity indices—for each questionnaire subscale are summarized in Table 1.

Table N°1: Psychometric Properties of the Study Questionnaire

Dimension	Test–Retest Reliability (r)	Internal Consistency ($\sqrt{r}$)
Physical activity	0.85	0.92
Sedentary Activities	0.88	0.94
Dietary Habits	0.87	0.91

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Overall Questionnaire	0.86	0.92
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From Table 1, the test–retest reliability coefficients for the individual scales and for the questionnaire as a whole range from 0.85 to 0.88, while internal consistency (construct validity) values fall between 0.92 and 0.94. These results indicate that our instrument possesses both high reliability and strong validity.

Statistical Analyses:

Data were analyzed using the SPSS for Social Sciences software package, recognized for its robustness in research of this type. The following statistical procedures were employed:

- Calculation of arithmetic means
- Calculation of standard deviations
- One-way analysis of variance (ANOVA)
- Pearson’s correlation coefficient
- Independent-samples Student’s t-test

4-2 Presentation and Analysis of Results:

Table N°2: Post-hoc (Scheffé) Comparisons of Running/Jogging Frequency by Age Group

Comparison	Mean Difference	p-value
17–18 vs 15–16	1.4	0.03*
17–18 vs 19–20	1.2	0.30
15–16 vs 19–20	–0.1	0.90
19–20 vs 15–16	36.07	0.10
15–16 vs 17–18	–6.2	0.80
19–20 vs 17–18	–1.2	0.30

*Significant at $\alpha = 0.05$

Analysis:

A one-way ANOVA, followed by Scheffé’s post-hoc test, was conducted to explore age-related differences in the self-reported frequency of running or jogging. As shown in Table 2, the only statistically significant comparison occurred between the 15–16 and 17–18 age groups (mean difference = 1.4, $p = 0.03$), indicating that students aged 17–18 reported engaging in running/jogging more frequently than those aged 15–16. All other pairwise differences failed to reach significance ($p > 0.05$), suggesting that running/jogging

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frequency does not differ appreciably between the 15–16 and 19–20 groups, nor between the 17–18 and 19–20 groups.

The post-hoc analysis revealed a statistically significant difference in running/jogging frequency between the 17–18 and 15–16 age groups ($p=0.03$), indicating that 17–18-year-olds engage in this physical activity more frequently than their 15–16-year-old peers. No significant differences were observed between either the 17–18 or 15–16 groups and the 19–20 age group ($p>0.05$), suggesting comparable running/jogging frequencies for students aged 19–20.

Table N°3:Age-Group Comparisons for Sedentary Activities

Sedentary Activity	F-value	p-value	Significance
Sitting in front of a screen on school days	0.2	0.80	Not significant
Daily screen time on weekends	0.3	0.60	Not significant
Average daily screen time	0.05	0.60	Not significant
Time spent sitting and talking with friends	2.3	0.12	Not significant
Time spent studying at home	8.1	0.22	Not significant
Sleep duration on school days	0.5	0.80	Not significant
Sleep duration on weekends	0.8	0.40	Not significant
Average sleep duration	0.6	0.70	Not significant
Total sedentary-activity score	0.6	0.10	Not significant

Analysis:

A one-way ANOVA was conducted to assess whether various sedentary-behavior measures differ by age group (15–20 years). As shown in Table 3, none of the individual sedentary-activity variables—including screen time on school days and weekends, social sitting time, study time, sleep patterns, or the composite sedentary-activity score—revealed statistically significant differences across age groups (all $p>0.05$). This indicates that students aged 15 through 20 engage in similar levels of sedentary behavior, with no age-related variation detected.

Table N°4:Age-Group Comparisons for Dietary Habits

Dietary Habit	F-value	p-value	Significance
Breakfast at home	0.1	0.80	Not significant
Consumption of sugary drinks	0.8	0.40	Not significant

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Vegetable intake	1.5	0.20	Not significant
Fruit-consumption days	0.2	0.70	Not significant
Milk and dairy consumption	0.2	0.70	Not significant
Fast-food consumption	0.8	0.40	Not significant
Fried potatoes and chips consumption	0.3	0.70	Not significant
Sweets and pastries consumption	0.1	0.80	Not significant
Red and white meat consumption	0.05	0.90	Not significant
Fish-consumption days	0.3	0.60	Not significant

Analysis:

A one-way ANOVA was conducted to determine whether dietary-habit frequencies differ across age groups (15–20 years). As shown in Table 4, none of the examined dietary variables demonstrated statistically significant age-related differences (all $p > 0.05$). This indicates that breakfast habits, beverage choices, fruit and vegetable intake, dairy and protein consumption, as well as fast-food and snack behaviors, remain consistent among students aged 15 through 20.

Table N°5:Correlations Between Weekly Physical-Activity Durations and Health-Related Fitness Components

Fitness Component	Walking Duration		Running Duration		Cycling Duration		Swimming Duration	
	r	p-value	r	p-value	r	p-value	r	p-value
Cardiorespiratory Endurance	0.06	0.40	0.20	0.01*	0.10	0.20	0.06	0.50
Musculoskeletal Fitness	0.05	0.50	0.04	0.50	0.02	0.70	−0.10	0.20
Balance	−0.05	0.50	−0.04	0.60	−0.10	0.10	−0.14	0.10
Overall Health-Related Fitness	0.006	0.90	0.06	0.40	−0.10	0.10	−0.10	0.10

*Significant at $\alpha = 0.05$

Analysis:

-Cardiorespiratory Endurance: Weekly running duration shows a small but statistically significant positive correlation with cardiorespiratory endurance ($r = 0.20$, $p = 0.01$), indicating that students who run more frequently tend to exhibit better aerobic capacity.

-Musculoskeletal Fitness & Balance: No aspect of weekly physical-activity duration reached significance in relation to either musculoskeletal strength/endurance or balance (all $p > 0.05$), suggesting these fitness domains are not strongly linked with walking, running, cycling, or swimming volumes in this sample.

-Overall Health-Related Fitness: There were no significant associations between any activity type and the composite health-related fitness score (all $p > 0.05$), indicating that singular activity durations alone may not predict generalized fitness levels.

Table N°6:Correlations Between Weekly Physical-Activity Durations and Health-Related Fitness

Fitness Component	Exercise Duration(r, p)	Chores Duration(r, p)	Daily Activity Duration(r, p)	Weekly Total Activity Duration(r, p)
Cardiorespirat ory Endurance	0.20, 0.02*	−0.10, 0.20	0.10, 0.10	0.20, 0.01*
Musculoskeleta l Fitness	0.10, 0.80	−0.08, 0.30	0.07, 0.40	0.10, 0.20
Balance	−0.03, 0.60	0.03, 0.70	0.06, 0.40	−0.10, 0.10
Overall Health-Related Fitness	0.03, 0.60	−0.01, 0.80	0.05, 0.50	−0.01, 0.80

* $p < 0.05$

Analysis: a series of Pearson correlations revealed several weak but statistically significant positive associations at $\alpha = 0.05$:

1. Weekly Running/Exercise Duration:

-Positively correlated with cardiorespiratory endurance ($r = 0.20$, $p = 0.02$) and with the weekly total activity duration measure ($r = 0.20$,

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p=0.01). This suggests that students who dedicate more time to structured exercise each week attain higher maximal aerobic speed and greater VO₂ max.

-Weekly Cycling Duration:Weakly but significantly correlated with flexibility (r=0.10, p=0.05). Increased cycling time appears to be associated with modest improvements in musculoskeletal flexibility.

-Total Weekly Physical-Activity Duration:Similarly, total time spent in all physical activities during the week showed a positive correlation with cardiorespiratory endurance (r=0.20, p=0.01), underscoring the cumulative benefit of various activity types on aerobic capacity.

No significant relationships were found between any activity- duration measures and either musculoskeletal strength/endurance, balance, or the composite health-related fitness index. Overall, while certain weekly activity durations (particularly running/exercise and total activity) relate to aerobic fitness and flexibility, weekly physical-activity volume alone does not predict broader health-related fitness levels among these secondary-school students.

Table N° 7:Correlations Between Sedentary Activities and Health-Related Fitness

Fitness Component	Screen Time (r, p)	Chatting Time(r, p)	Study Time(r, p)	Sleep Duration (r, p)	Total Sedentary Score(r, p)
Cardiorespiratory Endurance	0.12, 0.19	*0.25, 0.005 **	0.01, 0.95	0.01, 0.92	*0.18, 0.047 **
Musculoskeletal Fitness	0.12, 0.20	*0.21, 0.017 **	– 0.18, 0.04*	0.11, 0.24	0.13, 0.14
Balance	0.01, 0.94	–0.13, 0.14	0.06, 0.48	0.04, 0.66	–0.01, 0.89
Overall Health-Related Fitness	0.02, 0.85	0.05, 0.61	0.15, 0.10	0.08, 0.40	0.13, 0.14

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**p < 0.05*

Analysis :

-Chatting Time & Cardiorespiratory Endurance: A weak but significant positive correlation ($r=0.25$, $p=0.005$) suggests that students who spend more time conversing with friends exhibit better aerobic capacity, possibly reflecting the psychosocial benefits of social engagement.

-Total Sedentary Score & Cardiorespiratory Endurance: A weak positive correlation ($r=0.18$, $p=0.047$) indicates that higher overall sedentary behavior is unexpectedly associated with slightly better endurance; this may reflect confounding factors such as active recovery behaviors or sample characteristics.

-Chatting Time & Musculoskeletal Fitness: A weak positive relationship ($r=0.21$, $p=0.017$) suggests that social sitting periods correlate with modest gains in muscular strength/endurance—perhaps due to active breaks interspersed with conversation.

-Study Time & Musculoskeletal Fitness: A weak negative correlation ($r=-0.18$, $p=0.04$) indicates that longer home study periods are associated with lower musculoskeletal fitness, reflecting the detriments of prolonged static posture on muscle performance.

-No Significant Associations: Balance and the composite health-related fitness score showed no significant relationships with any sedentary-activity measures (all $p > 0.05$). Overall, specific sedentary behaviors—especially time spent talking with peers and studying—are modestly related to certain fitness domains, underscoring the nuanced impact of different inactivity patterns on adolescent health.

Table N°8: Correlations Between Weekly Dietary Habits and Health-Related Fitness

Fitness Component	Breakfast(r, p)	Sugary Drinks(r, p)	Vegetables(r, p)	Fruits (r, p)	Dairy(r, p)
Cardiorespiratory Endurance	0.10, 0.05*	– 0.01, 0.80	*0.20, 0.01**	0.05, 0.50	*0.20, 0.02**
Musculoskeletal Fitness	0.10, 0.09	– 0.10, 0.2	0.05, 0.50	– 0.04, 0.	*0.20, 0.0**

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		0		60	
Balance	0.03, 0.60	– 0.06, 0.4 0	0.10, 0.20	– 0.08, 0. 30	– 0.09, 0.30
Overall Health-Relat ed Fitness	–0.01, 0.80	– 0.10, 0.2 0	*0.10, 0.04 **	0.02, 0. 70	– 0.09, 0.30

* $p < 0.05$

Analysis :

-Breakfast Consumption: A weak positive correlation with cardiorespiratory endurance ($r = 0.10$, $p = 0.05$), suggesting regular breakfast may modestly support aerobic capacity.

-Vegetable Intake: Positively associated with both cardiorespiratory endurance ($r = 0.20$, $p = 0.01$) and the composite fitness score ($r = 0.10$, $p = 0.04$), indicating that higher vegetable consumption links with better overall fitness.

-Dairy Consumption: Shows a significant positive correlation with cardiorespiratory endurance ($r = 0.20$, $p = 0.02$) and musculoskeletal fitness ($r = 0.20$, $p < 0.001$), reflecting the role of dairy in supporting both aerobic performance and muscle strength/endurance.

-Sugary Drinks & Fruits: No significant relationships with any fitness components.

-Balance: Remained unrelated to all dietary variables in this sample.

These findings underscore that among dietary habits, regular breakfast, vegetable, and dairy consumption are modestly—but significantly—linked to improved fitness markers, whereas other habits show no clear association.

interpretation of Dietary Habits and Health-Related Fitness Correlations :

The analysis revealed a statistically significant but weak positive correlation ($p < 0.05$) between the frequency of vegetable consumption and both cardiorespiratory fitness and overall health-related physical fitness. Similarly, regular intake of milk and dairy products was positively associated with improved cardiorespiratory and musculoskeletal fitness. Conversely, a weak negative correlation

was observed between the frequency of dairy consumption and flexibility, suggesting that reduced dairy intake may be linked to decreased flexibility levels.

A weak negative correlation was found between the number of days of consuming fried potatoes and chips and musculoskeletal fitness at a significance level of 0.05.

4-3 Discussion and interpretation of the results:

Discussion of Study Results in Light of the First Sub-question:

The hypothesis suggests the existence of statistically significant differences at the significance level $p < 0.05$ in physical activities, sedentary behaviors, and dietary habits according to the age variable. Based on the previous results, significant statistical differences were observed in physical activity, specifically in the frequency of running or jogging, favoring the 17–18 age group over the 15–16 age group. No significant differences were found between the 17–18 and 19–20 age groups. These findings are consistent with those of Ben Chaib Ahmed (2018) and Kdifa Yahia (2022), as for sedentary behaviors, the results indicate no statistically significant differences among students based on age. All age groups from 15 to 20 years old showed no significant differences at the level of $p < 0.05$, regarding dietary habits, the results revealed no statistically significant differences in lifestyle among students of different age groups (15–20 years) at the significance level $p < 0.05$.

-Discussion of Study Results in Light of the Second Sub-question: -Weekly Physical Activity and Its Relationship with Health- related Physical Fitness:

The results indicate a weak positive correlation between weekly running duration and cardiorespiratory fitness. Given that cardiorespiratory fitness is primarily composed of maximal aerobic speed and maximal oxygen consumption, this implies that the longer the weekly running duration, the better the maximal aerobic capacity and oxygen uptake.

A weak inverse correlation was found between weekly cycling duration and flexibility, suggesting that increased cycling duration may improve flexibility.

There is also a weak positive correlation between weekly sports participation and cardiorespiratory fitness, which highlights the

importance of allocating sufficient time for physical activity to promote cardiorespiratory health.

Furthermore, a weak positive correlation was found between weekly physical activity duration and cardiorespiratory fitness, indicating that regardless of the type or purpose of the physical activity, engaging in any physical exercise contributes positively. However, no significant correlations were found between other physical activities and the remaining components of health-related physical fitness. In our study, lifestyle in terms of weekly physical activity showed no overall correlation with health-related physical fitness. These findings align with Taha Al-Atari (2018), but differ from Kdifa Yahia (2022) concerning balance, where no statistically significant differences were found in our study.

Sedentary Behaviors and Their Relationship with Health-related Physical Fitness:

The results demonstrate a weak positive correlation between the duration of social interaction (talking with friends) and cardiorespiratory fitness. This may be attributed to the psychological comfort that individuals feel when socially engaged, highlighting the importance of maintaining social connections and avoiding isolation.

There is also a weak positive correlation between the overall sedentary behavior index and cardiorespiratory fitness, indicating that increased sedentary behavior may negatively impact cardiorespiratory health.

Additionally, a weak positive correlation was found between the duration of social interaction and musculoskeletal fitness.

Conversely, a weak inverse correlation exists between time spent correlation was observed between studying at home and musculoskeletal fitness.

Similarly, a weak inverse time spent in social interaction and motor fitness.

An inverse relationship was also found between time spent studying and motor fitness. That is, the more time spent studying (which involves remaining stationary), the less physical movement is observed—partially contradicting the findings of Kdifa Yahia (2022), who reported significant differences in motor fitness.

Dietary Habits and Their Relationship with Health-related Physical Fitness:

The results also revealed a weak positive correlation at the 0.05 significance level between the number of days of vegetable

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consumption and both cardiorespiratory fitness and overall health-related physical fitness.

A weak positive correlation was found between the frequency of milk and dairy product consumption and both cardiorespiratory and musculoskeletal fitness.

Finally, a weak negative correlation was observed between the number of days of consuming milk and dairy products and flexibility—suggesting that lower frequency in dairy consumption may be associated with reduced flexibility.

Moreover, a weak negative correlation was identified between the number of days of consuming fried potatoes and chips and musculoskeletal fitness at the 0.05 significance level.

Conclusion:

This study examined the relationship between lifestyle and health-related physical fitness among secondary school students in the Wilaya of Tlemcen. Lifestyle components—namely physical activity, sedentary behavior, and dietary habits—were analyzed in relation to health-related physical fitness. The study aimed to determine the degree of correlation between each component of lifestyle and aspects of physical fitness, while also addressing sub-questions that explored statistically significant differences among sample members based on age and physical condition.

The findings revealed weak yet positive correlations between lifestyle factors and components of health-related physical fitness across most aspects of the study. This suggests that lifestyle indeed plays a role in shaping physical fitness, highlighting the importance of promoting an active lifestyle among adolescents. This includes regular engagement in physical activities, minimizing sedentary behaviors, and emphasizing healthy dietary habits that contribute to overall physical well-being.

The results obtained are of notable significance as they enhance our understanding of the dimensions of lifestyle and their impact on health in general and physical fitness in particular.

Key recommendations highlight the importance of precisely assessing students' out-of-school behaviors, considering environmental and cultural factors, providing measurement tools, supporting field research, and systematically monitoring students' health throughout

their educational development to foster optimal physical and psychological well-being.

-References used in the research:

- Al-Arabi, Mohamed & Hritti, Hakim. (2018). "Health Awareness and Its Relationship with Health-Related Physical Fitness". *Journal of Sciences and Practices of Physical, Sports, and Artistic Activities*, Vol. 07, No. 03, pp. 01–10.
- Abdel Khaleq, Ahmed. (2008). *The Arabic Version of the WHO Quality of Life Index*. Volume 18, No. 2
- Attari, Taha. (2013). "Proposed Training Program Aimed at Primary School Pupils to Improve Health-Related Physical Fitness." *Journal of Science and Technology of Physical and Sports Activities, Mostaganem*, Vol. 15, No. 01.
- ben derf khaled ;sabane med ;zitouni abdelkader (2024) "Assessment of cardiorespiratory fitness in male primary school students (8-10 years old)". *The excellence Journal in Sciences Techniques Of Physical Activity And Sports*. Vol. 09, No. 02, pp. 368–386.
- Ben Chaib, Ahmed. (2018). "A Comparative Study of Health-Related Physical Fitness Elements According to Age Group, Gender, and Type of Physical Sports Activity Among Primary School Pupils Aged 09–11 Years". *Journal of Science and Techniques of Physical and Sports Activities, University of Science and Technology Mohamed Boudiaf, Oran*, Vol. 04, No. 02, pp. 88–10.
- Deutsch (h.) .(1970). problème de l'adolescence. payot, 1^{ère} édition. . p 27.
- Glanz, K., Rimer, B. K., & Viswanath, K. (2015). *Health Behavior: Theory, Research, and Practice* (4th ed.). Jossey-Bass.
- Kadhifa, Yahia & Bouteh, Mohamed. (2022). "Determinants of Health-Related Physical Fitness among Students in the Wilaya of Tebessa." *Al-Academia Journal of Social and Human Studies*, Vol. 14, No. 06, pp. 220–231.