

## Breaks in primary schools and their influence on maintaining and promoting physical fitness and wellness at the level of middle schools

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### Abstract

**Aim:** This research was designed to rate the practical guidance of break-based schools on the levels of physical athletic performance in middle schools. Subjected by similar studies carried out in base schools this research aims at increasing physical activity in other parts of students' lives, advocated in developing nations as benefits meant to improve the school-based physical education system. **Methods:** We recruited three teachers voluntarily involved in this study to carry out our protocol for two months (March-April). The study took place during academic years 2016-2017 in the academic sector of Naama Algeria and included 120 male scholars, aged  $14.15 \pm 1.33$  years. They were divided in three homogenous groups, based on the type of break: group 1/GCB (using conversation games), group 2 / GSPS (using singing games), group 3/ GRP (using role-playing games). Activities were conducted daily, 10 minutes each, twice per day in March and April. Data were collected using the alpha-fitness test battery. A statistical analysis was performed based on the SPSS program, using ANOVA one way, Levene's Statistic, and Person's correlation coefficient in order to analyse the differences between the groups with a significance threshold of  $p < 0.05$ . **Results:** Our outcomes revealed the benefits of the role-playing games during breaks for improving physical performance in middle schools. These results can be used as a recommended strategy that helps increasing physical activity among our scholars.

**Conclusion:** Our results allow us to affirm that Algerian educational programs in middle schools have missed the integration of active breaks, estimated in this study as an additional physical activity for the well-being of our scholars.

**Key words:** breaks, base schools, physical fitness and wellness, middle schools.

### Rezumat

**Scop:** Prezentul studiu și-a propus să aprecieze influența pauzelor active din școlile de bază (primare) asupra performanțelor fizice la nivelul școlilor medii. Pornind de la ideea că în țările în curs de dezvoltare numărul școlilor de bază a crescut, s-a căutat încadrarea activităților fizice și în alte momente ale vieții școlare în vederea îmbunătățirii educației fizice în școală.

**Metode:** Am selectat trei profesori voluntari care au întocmit un protocol pe două luni pentru cei 120 de subiecți de sex masculin cu vârsta medie de  $14.15 \pm 1.33$  ani în perioada 2016-2017, în sectorul Naama Algeria. S-au creat trei eșantioane omogene bazate pe tipul de pauze active, după cum urmează: gr. 1/GCB (folosind jocurile de conversație/dialog), gr. 2 / GSPS (folosind jocurile muzicale), gr. 3/ GRP (folosind jocurile de rol). Activitățile s-au desfășurat zilnic, câte 10 minute, de 2 ori/ zi, în lunile martie și aprilie. A fost aplicată bateria de teste alpha-fitness. Datele au fost prelucrate statistic pe baza programului SPSS, folosind testul ANOVA one way, Levene's statistic, indicele de corelație Pearson, pentru a analiza diferența dintre grupuri la un prag de semnificație de  $p < 0.05$ .

**Rezultate:** Rezultatele obținute scot în evidență beneficiile jocului de rol în timpul pauzelor active în îmbunătățirea performanțelor fizice în rândul elevilor școlilor medii. Aceste pauze active pot deveni o strategie recomandată, care să contribuie la creșterea activității fizice în rândul școlarilor.

**Concluzii:** Rezultatele noastre ne permit să afirmăm că programele educaționale algeriene din școlile medii, au ratat integrarea pauzelor active, estimate în acest studiu ca o activitate fizică suplimentară pentru bunăstarea vieții elevilor noștri.

**Cuvinte cheie:** pauze active, școli de bază, fitness fizic și wellness, școli medii.

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## Introduction

It is important to take preventative measures in adolescence, as there is often a risk of increasing excess fat that correlates with subsequent adiposity.

Admitted by prior studies, efforts need to be made by the health authorities and health-care providers to promote the widespread adoption of an active lifestyle throughout life. Support is needed by professionals worldwide via an additional practice of physical education (PE) lessons, which supports the promotion of physical activity in the education sector to enhance academic performance, and moods (1). Improvements could be achieved through leisure-time physical activity allowed by parents. According to the Algerian studies our educational system reduced the time physical activity to strengthen the academic results (2), considering that the success of their children lies in the academic subjects taught in the educational establishments (3).

Whereas similar studies report the time of physical activity as the primary agent for the human to endure fitness and enjoy health wellbeing, its strengths are embedded, throughout the prompt curriculums of physical education and health education designs, to meet the global fullness of children or youth. Physical activity was analyzed in preventive studies by strategies that can serve to extend the periods of physical activity. We need to support the case of our scholars, as efforts need to be made by our health authorities and healthcare providers to promote the large-scale adoption of an active lifestyle throughout the life course (4). Policymakers should combat obesity, overweight, and compliance to a lifestyle change (5), concomitantly to achieving a healthy weight status (6).

The recommended levels of physical activity, according to the WHO (2010), are of at least 60 minutes per day. However, academic performance comes at the cost of reducing the time of physical activity for children and adolescents. Foundations of Physical Activity and Public Health suggested integrating physical activity into other parts of students' lives (7), as a provision of the PE curriculum (8). This was documented in several studies as bringing multiple benefits related to mental health, as

well as social capital (9). However, it was rejected by others in terms of effectiveness to improve student academic outcomes (10).

Nowadays, PE lessons do not exceed 2 hours per week in Algerian schools (3). This is the opposite of the education system in France with four hours per week (11). This study aims to investigate the time of breaks in base schools, as an additional educative timed game to improve health-related to fitness, in male high school students. This could be a solution that can enhance the Algerian education sectors (12). Support is provided by the literature as complementary strategies for base schools- that may work to enhance the quality of student life (13).

The case of this study, which backs up their investigations on breaks in base schools, integrated different occupations during the 10 minutes of recreation time, group 1/GCB (privilege coffee breaks) - group2 / GBLG (Browse library galleries) - group3/ GW (Walking). The Japanese educational system includes 10- to 20-minute breaks between 45-minute lessons. the Turkish children have 15 minutes to play after every 45 minutes of work. It was reported in the Algerian studies as a missing approach to enhance the Algerian primary educational system (3).

## Methods

### Participants

Research samples were selected in an intentional manner, including three teachers who accepted to engage their classes in this experiment. All courses included 40 students, aged around 14 and 15 years, males, healthy and with good habits, without any medications on a regular basis. We divided the scholars in three homogenous groups based on the type of activity performed during breaks: class1/GCB using conversations games, class 2 / GSPS using singing games and class 3/ GRP (using role-playing games). The study was conducted for 10 minutes daily, twice a day, during March and April, in the academic years 2016-2017, in the educational sector of Naama Algeria. All teachers provided their written consent to ensure the proper conduct of this experiment. Also, the researcher's intervention was limited in

monitoring the process and testing the sample at the end of the trial period.

### Data Collection

The study protocol was based on breaks as a modality listed by the researcher in the concept, not in the content. All participants were controlled by ALPHA-Fitness Test Battery for Teenagers (14). It was admitted as a valued battery test adopted by the European Union to assess the health-related fitness status among adolescents. Similarities were affirmed, as the ideal battery tests (15) for a school environment (16).

The age was obtained in years. Weight was measured in the standing upright position, using electronic scales, with a precision of 100 g. We determined the standing height to the nearest 0.5 cm. BMI was calculated by the ratio of body weight to the square of the height ( $\text{kg}/\text{m}^2$ ) (17). The standing broad jump was recorded based on the longest distance jumped, as the best of three attempts. The 20 m shuttle run test is the level

and number of shuttles reached before they were unable to keep up with the tape recording. The record in the case of this study indicates the level of knowledge of our students based on this test and the number of levels completed for a long time and distance. For a 4x10m shuttle run, we recorded the time to complete the test in seconds to the nearest one decimal place.

### Statistical Analysis

The analysis was based on the data resulting from tests and the data analysis procedures used in this study consisting of the computation of the means, standard deviations, the ANOVA one way, together with a personal correlation with a significance level set at 0.05. All statistical procedures were done using IBM SPSS 21.0.

### Results

Figure 1. Shows the sample achievements pre- vs. post-test presented as mean+/- SD.

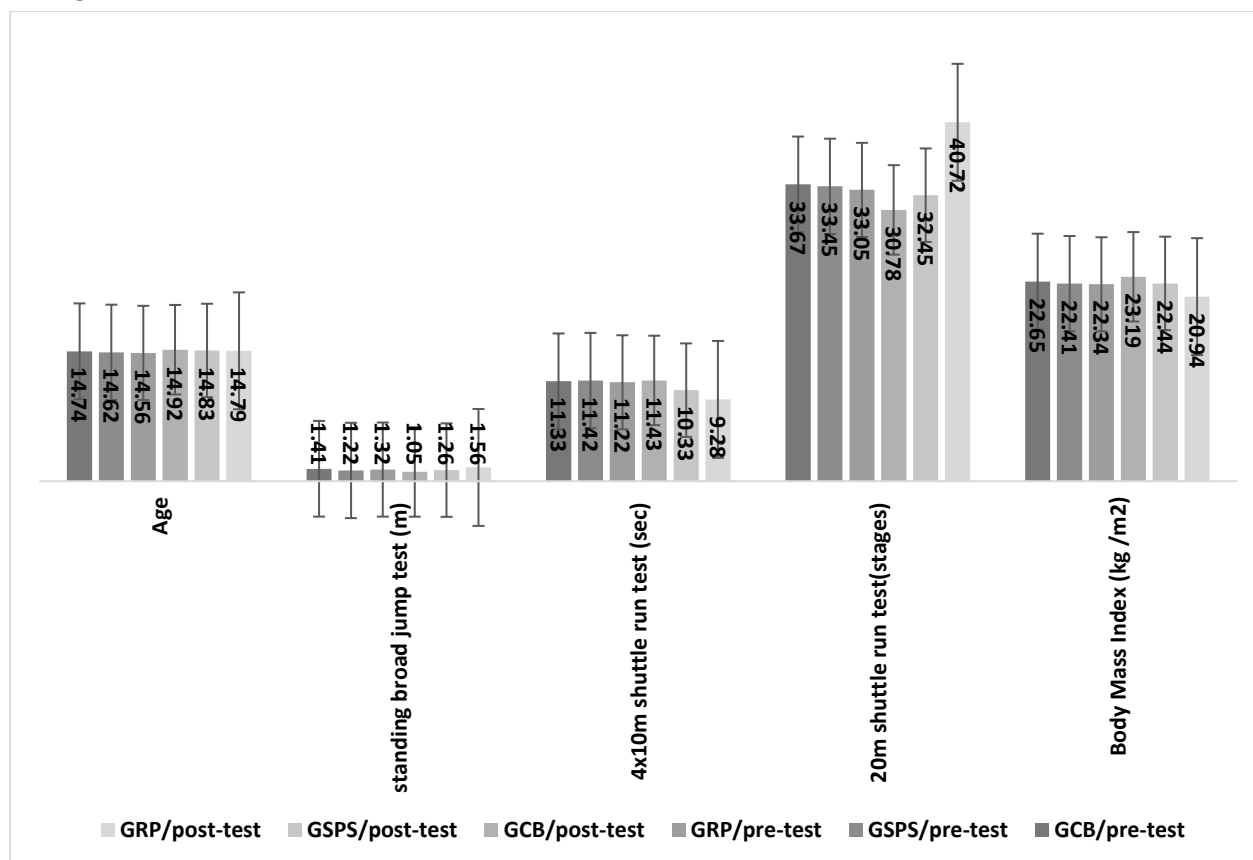


Figure 1. Pre- vs. post-test (mean+/- SD)

The outcomes of this study are presented in Fig 1. Our results placed first class 3/ GRP, using role-playing games during breaks, followed by class 2 / GSPS, using singing games during

breaks, in comparison with class 1 using conversations games.

This was confirmed by the significance of Mean±SD, ANOVA one-way list in Table1.

**Table I.** Subjects achievements pre- vs. post-test

Variables pre-test	Class 3 GRP n=40	Class 2 GSPS n=40	Class 1 GCB n=40	ANOVA	
	Mean±SD			F	P≤0.05
Body Mass Index (kg /m2)	22.34±0.67	22.41±0.11	22.65±0.45	1.66	0.76
20m shuttle run test(stages)	33.05±1.33	33.45±1.23	33.67±1.41	2.22	0.45
4x10m shuttle run test (sec)	11.22±1.22	11.42±1.42	11.33±1.33	2.55	0.23
standing broad jump test (m)	1.32±0.33	1.22±0.42	1.41±0.23	1.46	0.45
Age	14.56±0.23	14.62±0.33	14.74±0.27	1.56	0.65
Variables post-test	Class 3 GRP N=40	Class 2 GSPS N=40	Class 1 GCB N=40	ANOVA	
	Mean±SD			F	P≤0.05
Body Mass Index (kg /m2)	20.94±1.33	23.44±1.42	24.19±1.55	143.45	0.00
20m shuttle run test(stages)	40.72±4.56	32.45±2.76	30.78±1.55	67.89	0.00
4x10m shuttle run test (sec)	9.28±2.32	10.33±1.89	11.43±1.54	24.65	0.00
standing broad jump test (m)	1.56±0.56	1.26±0.44	1.05±0.22	32.23	0.00
Age	14.79±0.54	14.83±0.78	14.92±0.47	2.56	0.67

The case of classroom-based physical activity during breaks is a promising means of increasing children's physical activity levels both inside and outside the classroom (18). Several school-based programs claim to be effective in increasing the quantity of time children spend doing physical activity and fitness (19). This study estimated the benefits of physical activity in class 3 GRP who used "role-playing games" during breaks, recording a decrease in the BMI relative to best athletic performance in the post-test. Similarly, it was admitted as an energy indicator relating to total mass and height, which allows the comparison of athletes in various health or fitness tests (20). It was labelled by preventive studies as resulting into less body fat and into

the most appropriate profile in terms of body conditions so as to realize an optimal performance (12). It definitely acts as a superior agent to enhance the levels of physical fitness in the school environment (21). Also, it is recommended by the World Health Organization's Health Promotes Schools (HPS) as an ideal tool to improve students' physical activity and fitness, lowering their risk of obesity and helping them meet daily activity recommendations (14). This study indicates a correlation between the BMI and the test used in this study, see table II. Also, all Pearson's correlations are stronger when inversely correlated with the physical fitness tests used in the present study.

Pearson Correlation Total sample	SBJ	SR20m	SR4x10m
BMI	-0.79**	-0.78**	0.78**

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**Table II.** Correlations between the dependent variables and independent (post-test)

Evidence guiding the user indicates that children with less BMI have better physical fitness levels present as markers of their lifestyles (22). This study reports them as practices missing in the Algerian Middle School. The study indicated a lower-body power which was inversely related to the strength score (with a handgrip, standing broad jump, and an indicator of muscle

endurance), in adolescents (23). This was confirmed as an effect of body fat associated with the health of adolescents (16). Due to inactive time in schools seen as a negative factor, classes 1 and 2 obtained the best scores. Algerians admit this to be, just like obesity, a pressing health issue among the Algerian scholars (24).

## Discussion

Our results confirmed that all test results are in favour of additional time for practicing sports compared to educational or cultural games. Based on the impact of active games and role playing during breaks, as elements directing the students to achieve an athletic body (25) or an ideal body weight, this study indicates that physical activity is necessary to achieve additional performance (26).

Experts recommend the degree of sports specialization as an important element for attaining the best physical level (27). This experiment based on the reliability and validity of the alpha health-related fitness test battery as a feasible battery test is a reliable tool for assessing health-related physical fitness in children and adolescents (28). A viable strategy for increasing the level of physical activity should be put in place. This study also interprets the levels of BMI concomitantly to physical performance. It confirms (29) that adolescents with fatness have lower levels of fitness than their peers. Researchers in these areas support the fact that the upper body mass index (BMI) influences muscle strength, endurance and cardiorespiratory functions among teenagers (30). This study included reports on - the standing broad jump -20 m shuttle run test -

4x10m shuttle run. The advantages of role-playing games as extracurricular activities seem to enhance the PE Algerian curricula (PEAC). The study acknowledges the benefits of an alternative hypothesis, where more time spent doing moderate physical activities is related to more positive outcomes (31). Scientific reasoning on these topics indicate that it is very vital for teachers, counsellors, and parents to know the overall impact of participating and being involved in moderate or vigorous physical activities, reported as good health fitness practises allowing students to maintain an ideal athletic body composition (32). This study also raises the issue of overweight as a serious health concern in the development of children's musculoskeletal system in terms of muscle strength and body composition (33). Adolescents must focus on their targets of interventions aimed at enhancing habitual PA (34). This study supports the performance of extracurricular sports activities during school breaks for enhancing the quality of student life. This was established in the present study based on the benefits of role-playing games during breaks, as appropriate health-fitness practices for our schools (13).

## Conclusions

Our results support the benefits of role-playing games during breaks, show that a strategy seeking to advance physical activity among Algerian middle-school students would be beneficial. Also, they indicate that classroom-based physical activity during breaks is an effective method to develop children's physical activity levels. Classroom-based physical activity during breaks is an inexpensive method to improve children's physical activity levels. Although criticised, the school-based program

contributes to a significant increase in the time daily spent by children doing physical activities. In conclusion, this is a potential approach that may be adapted in order to intensify the physical activity required to meet the physical activity guideline levels, which would reduce the risks of obesity and promote children's meeting the daily physical activity recommendations. This study was approved by policymakers as essential for lifelong health and wellness in the Algerian curricular-based schools.

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