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CLASSROOM PHYSICAL ACTIVITY BREAKS TIME SEAT REPLACEMENTS AND THEIR IMPACT ON CHILDREN`S DAILY SUFFCIENT PHYSICAL ACTIVITY OUTCOMES

*This study discusses the effect of Classroom Physical Activity Breaks (ABC-PA) time seat replacements and their impact on children's daily sufficient physical activity outcomes. Experimented in present below the recommended 3*5min (ABC-PA), apply for every two hours and 6*5min (ABC-PA) involved for every one-hour static classroom setting. Controlled by a group without no ABC-PA per day. Using Fitness-Gram battery tests components as a valid field method to evaluate physical fitness in school-aged children. Founded on studying dings and statistical applied. Our results reported that ABC-PA-5min for every one-hour are more physically than ABC-PA with 5min for every two-hour static classroom setting. Vindicated in this study owed to their total dynamic standing disks per day more apt to raise energy expenditure and sitting time classroom adjustments.*

Keywords: *primary schools, children, physical activity, exercise time and frequency, active break program.*

Introduction

Research approves Active Breaks Classroom-Based Physical Activity programs (ABC-PA) as a time-efficient, feasible and appealing approach [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Ama19" 1].

Subjected in similar studies to be integrated at least 3*5-min of moderate-intensity physical activities into their classroom routines, daily2]. However, some modifications in terms of their essential alternative frequency, intensity and time implications. Studies have explored general perceptions of active break strategies, reporting that active breaks that were short (e.g. < 5-min) and quick and easy to implement would be more likely to be adopted in daily practice [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Aga18" 3]. Challenging further research to inspect factors associated with their efficacy intervention fidelity and feasibility 4]. The case of this study appraised by time seat replacements as an important factor in decrease sedentary behaviour. Defined as an act requiring low levels of energy expenditure while a person is sitting or lying [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Hen17" 5]. Tested in the present above two-time models, a group with the recommended 3*5min (ABC-PA), apply for every two hours and 6*5min (ABC-PA) involved for every one-hour static classroom setting, be controlled by a group without no ABC-PA per day.

To judge the efficacy and potential of time seat replacements, all results of samples pre-test and post-test were compared with a control group with no ABC-PA. Using Fitness-Gram battery as a comprehensive assessment of school health policies and public health applications 6]. Elaborated by the Cooper Institute under five components of health-related fitness: aerobic endurance, muscular strength and muscular endurance, flexibility, and body composition. Calculated based on health-fitness standards specified from their age and gender designed to promote physical activity with the vision of improving the efficiency and effectiveness of school-based physical education [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Ken16" 7].

Admit by similarities as the usual complete test battery practises in many countries to prevent the non-communicable diseases arising from an unhealthy lifestyle (Jacqueline, et al., 2014). Implemented in the present to estimate the impact of time seat replacements on children's daily sufficient physical activity outcomes. Clarify by Hills, et al., (2015) as the ideal model with a more bodily classroom activity, more energy expenditure and sitting time classroom adjustments4].

MATERIALS AND METHODS

Advised this academic study as the first Algerian pilot research among our primary schools. His appointment aims to test the effect of time seat replacements and their impact on children's daily sufficient physical activity outcomes.

Hypothesis in this study below two times reset postural models, group with the recommended (ABC-PA), apply for every two hours and 6*5min (ABC-PA) involved for every one-hour static classroom setting controlled by a group without no ABC-PA per day. All groups with ABC-PA apply the same program be integrated toward four-week using video-based physical activity for the academic years (2017-2018). Set in Figure 1 as a program and Figure 2 as ABC-PA time-seat protocol practises in the present study.

The only role of teachers, who voluntarily accepted to be engaged in this experience, was the applications of the video-based physical activity. Appropriated for their students by respecting model content and encouragements of their students to repeats their proposed daily base-physical-activity proposed.

Participants

The samples included 4 teachers and 5-grade class levels. Represent a total of 135 children (74 girls and 61 boys), 45 in each class. All participants provide their written consent to attend the study. Their characteristics before experiment beginning, are shown in Table 1. The ethics committee Physical Education Institute, University of Abdel Hamid Ibn Badis Mostaganem provided its approval under the code '45/IEPS/2017'.

Table 1. Present characteristics of samples in the pre-test.

Variables	Total n = 135	ABC-PA-5min*6 n = 45	ABC-PA- 5min*3 n =45	without n=45
Age (years)	10.31 ± 0.55	10.11 ±0.72	10.52 ±0.49	10.22 ±0.84
F at p≤ 0.05	F= 79.58	p=0.25		
B.H (cm)	142 ± 5.21	144.02 ±1.79	143.95 ±1.56	143.93 ±2.22
F at p≤ 0.05	F=120.58	p=0.32		
B.W (kg)	36.50 ±4.72	36.46 ±4.52	36.91 ±3.37	36.85 ±3.65
F at p≤ 0.05	F=550	p=0.45		
Male	61	20	19	22
F at p≤ 0.05	F=73.18	p=0.56		
Female	74	25	26	23
F at p≤ 0.05	F=94.41	p=0.23		
Grade level	All class 5 grade level			

Procedures

We based on Fitness Gram battery test. Recently identified as a significant battery to assess health-related fitness [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Coo17" 6]. Using their five components, aerobic capacity (VO2max). Body Composition (BMI). Muscular strength (Upper body – M.S.U.B – and lower body – M.S.L.B). Abdominal endurance (E.A) and flexibility (F. L. B).

• (VO2max): We based on the reduced Cooper test. The child runs or walks around a marked rectangle measuring 9 × 18 m (the size of a volleyball field) for 6 minutes. Both running and walking are allowed. The test item score remains the distance traversed in 6 minutes (measured in meters).

• (BMI): we based on body mass index (calculated from height and weight).

• Muscular strength upper and lower body, endurance Abdominal and flexed trunk:

- (M.S.U.B): we based on pushing a medicine ball (1kg) with two hands as far as possible. The starting position is with the feet parallel to each other and shoulder-width apart, with the ball held against the chest. Test item score (better of two attempts) keeps the distance achieved (measured in meters).

-: we based on the Vertical Jump Test. The student jumped vertically as high possible. Using both arms and legs to assist in projecting the body upwards.

- we based on tests sit and reach to measure lower back and hamstring muscle flexibility. The score is recorded to the nearest centimetre or half-inch. As the distance reaches by the hand.

- (E.A): we based on Abdominal Curl-Sit Up endurance tests typically conducted over one minute and measure the maximum numbers of correctly performed sit-ups in that time.

Instruments. The programs were implicated toward four-week. Using the push, pull, squat, standing chair Single-leg balance, flexibility, self-myofascial release and static stretching as a complimentary PA program6]. Recommend by the National Academy of Sports Medicine [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Mic08" 8]as easy workouts that involve only 2–4 sets or higher repetition schemes (12–20 repetitions).

All samples were educated and evaluated individually. Each test item was clarified and demonstrated before the child started. Tested before and after the realisations of the active break programs proposed for each sample. Practice by experimental groups been prepared based on video exercises. Set in **Figure 1** as content and **Figure 2** as complimentary time ABC-PA modalities proposed. For the progress of participants, we based on Max's child repetitions to improve cardiopulmonary fitness and reduce their sitting static desk time (Jacqueline, et al., 2014).

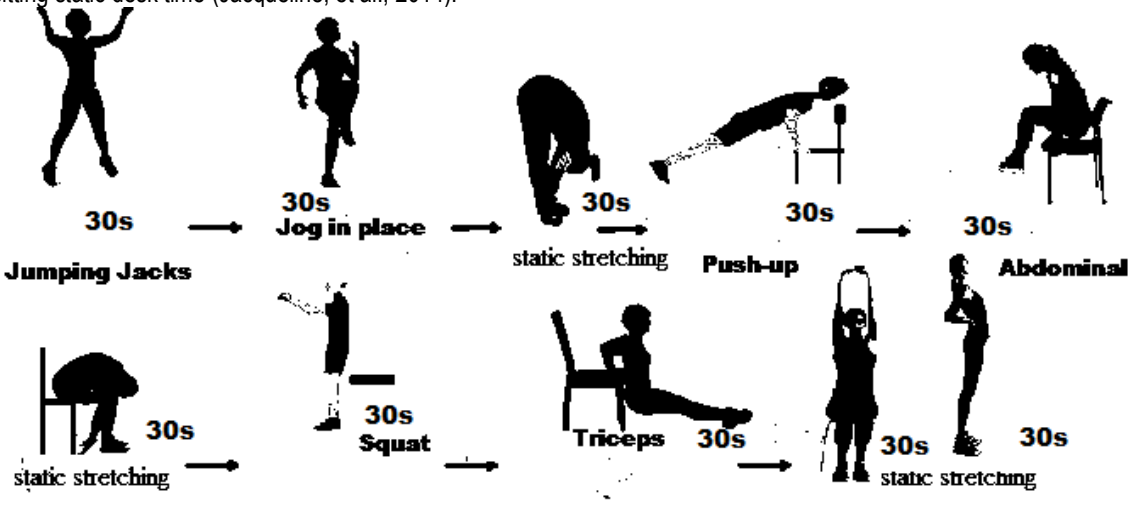

Figure 1. Present content ABC-PA program apply

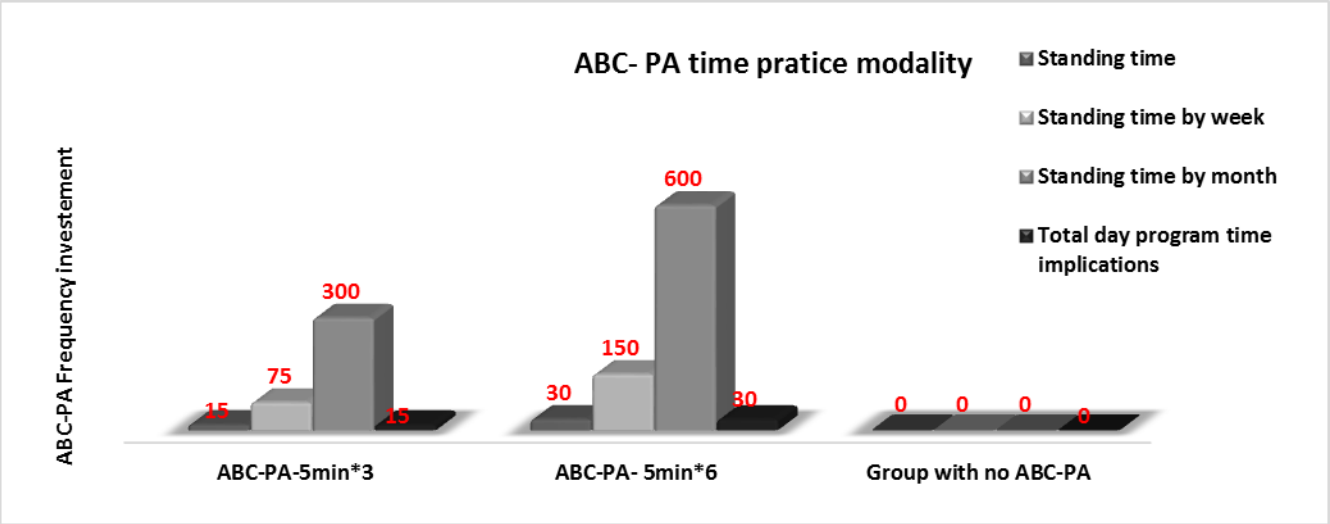

Figure 2. Present complimentary time seat blew ABC-PA modalities proposed.

Statistical Analysis

The collected data were tabulated and statistically analysed using IBM SPSS Statistics 16.01 (Armonk, NY, USA). Computing arithmetic average (X), standard deviation (SD), person correlations (r), ANOVA One-Way and LSD as the sample's entire multiple comparison tests. The results were considered significant at p ≤0.05.

Results. Our samples are homogeneous in all pre-test **Tables 1 and Table 2**. Support by the insignificance of ANOVA one way in the pre-test. The inverse of post-test records for the advantage of active break programs compared to control group results.

Table 2. Present the pre-and post-test physical fitness samples results.

Variables			ABC-PA-5min*6	ABC-PA- 5min*3	Without ABC-PA
VO2max	Pre-test	X.SD	42.28 ±4.55	43.49 ±4.78	43.24 ±5.22
	Post-test		44.98±2.32	44.69±3.03	42.94±1.67
F at p≤ 0.05	Pre-test	F=54.22	p=0.43		
	Post-Test	F=6.04	p=0.00		
BMI	Pre-test	X.SD	22.55 ± 1.55	21.88 ±2.45	22.44 ±1.47
	Post-test		21.32 ±1.88	21.48±1.44	22.65 ±3.09
F at p≤ 0.05	Pre-test	F =19.22	p=0.64		
	Post-Test	F= 7.46	p=0.00		
M.S.U. B	Pre-test	X.SD	2.42 ±2.35	2.44 ±3.42	2.40 ±3.42
	Post-test		2.94 ±1.35	2.78 ±1.42	2.40 ±1.42
F at p≤ 0.05	Pre-test	F=22	p=0.46		
	Post-Test	F= 7.26	p=0.00		
M.S.L. B	Pre-test	X.SD	11.92 ±2.55	11.81 ±3.02	11.78 ±3.22
	Post-test		15.75 ±2.03	14.52±2.17	12.09 ±2.08
F at p≤ 0.05	Pre-test	F=75	p=0.41		
	Post-Test	F= 8.26	p=0.00		
E. A	Pre-test	X.SD	8.88 ±3.33	7.89 ±2.98	7.98 ±4.22
	Post-test		14.58 ±5.48	13.99±2.78	9.02 ±3.43
F at p≤ 0.05	Pre-test	F=12.2	p=0.56		
	Post-Test	F= 7.27	p=0.00		
F. L. B	Pre-test	X.SD	14.55 ±2.58	13.99 ±2.78	14.72 ±3.42
	Post-Test		17.05 ±1.45	16.09±1.65	14.04 ±1.52
F at p≤ 0.05	Pre-test	F= 122	p=0.85		

Post-Test F=6.48 p=0.00

Note: Body Composition (BMI)/Muscular strength Upper body (M.S.U.B)/Muscular strength lower body (M.S.L.B)/Flexibility (F. l. B)/Endurance Abdominal (E.A).

Confirmed by Fitness Gram battery test in the benefits of active breaks program with more time seat replacements. Recording the higher scored than recommended 3*5min and the control group in the post-tests. Explained in this study due to complementary time ABC-PA practised, enumerated in **Figure 2**. Establish by clear inverse significant correlations between the active-standing time involves and classroom inactive time chair sitting, outlined in **Table 3**. Admit by LSD post-test **Table 4** in the interest of ABC-PA-5min for every one-hour static seat. Revealed in this study as decisive factors in structuring the feasible and potential effectiveness primary School Active Break Program, able to enhance schooled bodies global mobility with the required standing discs sitting adjustments.

Table 3. Present the Pearson correlation between voluntary time standing and classroom static sitting.

Pearson Correlation		ABC-PA- 5min*3	Without ABC-PA	ABC-PA-5min*6
Day	N=	0.82**	-0.84**	0.98**
Week	45	0.74**	-0.81**	0.96**
Month		0.78**	-0.80**	0.92**

Note: P-value set at P≤0.05 affirmed by SPSS at 0.01 **

Table 4. Show the Multiple Comparisons built on the models used and the voluntary time standing implied.

Dependent Variable	(I)	(J)	Mean Difference (I-J)	≤0.05
Daily	ABC-PA-5min*6	ABC-PA- 5min*3	4.22**	.00
		Without ABC-PA	8.38**	.00
Week	ABC-PA-5min*6	ABC-PA- 5min*3	4.04**	.00
		Without ABC-PA	7.58**	.00
Month	ABC-PA-5min*6	ABC-PA- 5min*3	4.32**	.00
		Without ABC-PA	7.98**	.00

Note: *The mean difference is significant at the 0.05 level.

Discussion. Considering the results archived by the control group in the post-test. Our findings highlight the efficacy of all the ABC-PA modalities proposed. Admit as the ideal strategies to promote meaningful classroom routine bodily activity9]. Accounts in similarities as beneficial time-efficient physical activity strategies that increase children's daily physical activity during school hours [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Ama19" 1]. Proclaim by physical Algerian studies as requested strategies to enhance primary school's daily health-related fitness10]. Upkeep by Krause, et al., as strategies methods to decrease the time children. Spend in this inactivity setting associated with a wide range of health problems [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Kra14" 11]. Including the decline in functional capacities related to skeletal muscle capacity (cardiorespiratory endurance, strength, flexibility, muscular endurance, reaction movement time and balance)12]. Elucidated by Algerian studies due to per day sitting at classrooms, which surpasses 6 hours [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Moh172" 13]. Documented by preventives studies as inactive time classroom at high-factor risks for no communicable health risk diseases14]. Strongly correlated with obesity and overweight among our children [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Moh19" 15].

Advocated in this study by the components of Fitness-Gram battery test. In the interest of 6*5min (ABC-PA) involved for every one-hour static classroom setting flow by the recommended 3*5min (ABC-PA), apply for every two hours and limited results achieved by the control group.

Admit in this study as a decisive recommended factor to structure the prominent primary school activities-break programs. Claimed by Sousa-Sá et al. (2020) owed to the numbers of breaks frequency time, where their amplifications increase energy expenditure and interrupting sitting time16].

Tolerated in this study by the total standing disks per day as a key factor able to increase children's daily physical activity more than the recommended 3*5min [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Hil15" 4].

Claimed by Farzane, et al., (2018) via the replacement of sitting with standing as one of several recommendations to decrease sedentary time and increase the daily energy expenditure to prevent weight gain in the long term17].

Reports via this study as a policy that demonstrates a positive impact on classroom time standing disks, overall energy expenditure, and cardio-metabolic outcomes [HYPERLINK "file:///D:\\конференція\\листопад_2020\\статті\\Zerf.docx" \l "Man19" 18].

Practical applications. Support studied design, the objective of the study and statistical applied. Our outcomes confirmed that ABC-PA-5min for every one-hour are more physically than ABC-PA with 5min for every two-hour static classroom setting. Vindicated in this study owed to their total dynamic standing disks per day more apt to raise energy expenditure and sitting time

classroom adjustments

Acknowledgements. The results confirmed that total time standing in the classroom is one of several recommendations to structure the feasibility and the feasible and efficacy primary school Active Break Program. Its dynamic duration and intensification can decrease sedentary classroom routine sitting time and increase daily energy expenditure.

Conflicts of Interest

The author declares there is no conflict of interest.

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