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Research Article

Impact of Prolonged Periods Classroom Settings in Increase Intra-Abdominal Fat Area and its Consequence on Posture/Balance Control among Algerian Childhood College Preparatory School

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Abstract

In preschool, classroom activity settings are an important aspect of the learning. Where children are encouraged to learn through play and active learning. While classroom setting is quality of education class room management among our teacher's preparatory school.

Methodology

Our intervention in this comparative study aimed to examine impact of prolonged period's classroom settings in Intra-abdominal fat area and it's consequence on posture/balance control among Algerian childhood preparatory schools. For the purpose, a total of 61 school boys of slimane provinces Naama, municipality Mecheria, Algeria male gender their average age 5±1.52 years distributed into two homogeneous groups, according to them, school attendance (kindergarten School (29 boys) - preschool (32 boys)). Tested by saving tests (Body Fat Percentage-Abdominal Circumference - Modified Bass Test of Dynamic Balance and Standing Balance).

Results

Based on the analysis statistics, we confirm:

- Prolonged periods classroom settings increase physical inactivity which lead to Intra-Abdominal Fat representing big risk posture/balance control in the case of our preschool.
- Preschool posture needs an interactive play method Learning classroom to improve body imbalance as health benefits physical activities.

Discussion and Conclusion

Based on the differences acquired by the research team, we report that prolonged periods classroom settings among preschool increase the body fat related to the intra-abdominal, which owing to the weakness of skeletal muscle fatigue and abnormal pathological alignment. While as a recommendation pedagogy practised, we suggested to our teachers, who work with these children to know that learn through play and active learning increase the balanced posture which requires more energy in the class, seen our children seat more than 8 hours a day, 40 per week, and 160 per month 1440 per year in Algerian primary schools, which represent 83.33% inactive time during their school year.

Keywords: Algerian preparatory schools; Intra-abdominal fat; Posture/Balance control; Prolonged periods classroom settings

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Introduction

Thus, the play in education has been shown to help children adjust to the school setting and to enhance children's learning [1]. Since this theory, the current study was designed to examine the significance of mechanical effects of intra-abdominal on posture/balance control among the Algerian childhood primary schools. Seeing that our teachers emphasise the good classroom settings as a discipline pedagogical aspect of success learning. Whether the high - quality educational programs for children in preschool and kindergarten insist on a play at the centre of the curriculum [2]. While the quality of the class room is an important consideration in child care, as previous studies have shown the impact of classroom setting on poor posture as one of the main causes of back pain [3] qualified as an important issue in the health jobs care, due to the prolonged periods jobs time, which does not allow to change positions frequently [4-6] the case of our school boy, whom seat more than 8 hours a day, 40 per week, and 160 per month 1440 per year in Algerian primary schools, which represent 83.33% inactive time during their preparatory schools. Seeing this situation, our aims in this modest study based on health problem issues as the decreased of energy after more than 25 minutes of settings experience, causing neck and back pain [7] due to fixed sitting posture for long period, leading to static muscular efforts, which results in the seat back and headrest carriage, causing the musculoskeletal disorders related to prolonged periods settings as unhealthy lifestyle according to studies prevalence [8-9].

Based on the indication which underlines that the human spine was not designed to be sat [10] for the number of hours [11], where the major back problems are compounded to long hours of sitting [12] the case of the Algerian school children. From the proofs, our questions in the actual study upon on time good classroom settings as a qualitative pedagogical procedure for classroom discipline [13] vs reduced child play time at school [14] and outside [15]. Where these procedures are not in conformity with the instructions qualitative of educational programs for children in preschool and kindergarten were the play is the centre of the curriculum [2], which has been shown to help children adjust to the school setting and even to enhance their readiness to learn [16].

On its foundations, the current study supports the pedagogical practice which includes activity setting [17] that allow the school kids to be active and release energy before activities that require children to sit still [18]. While to achieve this goal for future analytical studies, in one hand, we exclude the effect of sex and the impact of the standard

of living (nutrition and health) on data, all subjects are youngster male choice of the working class with a good salaried. Where on other, we based on two age schooling difference formations, the College Preparatory School (CPS) as preschool and kindergarten class. Where the contexts and the procedures are consisting in environmental planning learning among the Algerian college preparatory school.

Methods

Protocol

To achieve the goals of this study concerning the evaluating, the impact of long settings periods in the increase of body fat related to intra-abdominal fat area and its consequence on posture/balance control. Our choice is based on two age schooling difference formations, the kindergarten class five - year school boy and girls in Algeria their subject request visual and performing arts (dance, drama or theatre, music, or visual art) as well as learn the number and alphabet, while its classes are kindergarten classes, which allows the child to play and learn in the opposite of the preschool class, which request children to commit taking their places. While to examine this effect we agreed that obese subjects commonly develop marked increases in dyspnoea with postural changes contributes to functional disability to maintaining good posturein the coming years.

Subjects

The subjects were 61 school boys of the brother Slimane provinces Naama, municipality Mecheria, their average age 5±1.52 years distributed into two homogeneous groups based on their school attendance (kindergarten School (29 boys) - preschool (32 boys)). To exclude the effect of sex and the impact of the standard of living (nutrition and health) on data, all subjects are male choice of the working class with a good salaried. None of the subjects had historical of inscrutable visual defects, vertigo, motor paresis or sensory deficits. Subjects were recruited through Soleimani primary school Mecheria municipal, NAAMA education sector. Participation in this study was accompanied by their teacher strictly voluntary to attend experience. Informed consent was obtained, and teacher signed a document.

Testing protocol

Our choice is based on the indication that the children under the age of four generally have good posture and mechanics as elementary school, children develop poor sitting and standing habits, and abnormal posture becomes apparent. Examine posture in a static position allows an unobstructed view of all postures elements. Where the correct posture minimises stress on muscles, bones, and joints while incorrect posture places abnormal stress on these structures [19]. The case of the current study which refers to the indication; after 4 to 6 years of age balance can be quickly be assessed by asking the child to hop on one foot [20] to 5 to 15 years according to [21].

Measurements of standing balance

Objective

To monitor the development of the pupil's ability to maintain a state of equilibrium (balance) in a static position (Figure 1).

Figure 1: Shows the test to evaluate the ability to maintain a state of equilibrium in a static position.

Required resources

To undertake this test, you will require:

- Warm dry location - gym
- Stopwatch
- An assistant
- How to conduct the test
- The pupil stands comfortably on both feet with their hands on their hips
- The pupil lifts the right leg, places the sole of the right foot against the side of the left kneecap and close both eyes
- The assistant gives the command "GO", starts the stopwatch and the pupil raises the heel of the left foot to stand on their toes
- The pupil is to hold this position for as long as possible
- The assistant stops the stopwatch when the pupil's left heel touches the ground or the right foot moves away from the left knee
- The assistance records the time

Modified bass test of dynamic balance

Objective

This multiple hop test requires that 1-inch (2.5 cm) tape squares be laid out in a course as shown in figure 2. The subject is required to jump from square to square, in numbered sequence, using only one leg. The hands should remain on the hips. On landing, the subject remains looking facing straight ahead, without moving the support leg, for five seconds before jumping to the next square.

- Scoring: the result is recorded as either a success or fail. A successful performance consists of hopping to each tape mark without touching the floor with the heel or any other part of the body and holding a static position on each tape mark for five seconds without exposing the tape mark.
- As a modification, we remove five seconds before jumping to the next square. Where a child takes his necessary time to jump to the next square.

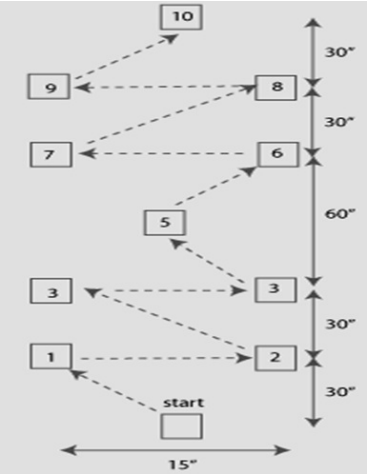

Figure 2: Shows the test to evaluate dynamic balance.

Body fat

Body fat can be estimated from Body Mass Index (BMI) [22] in the current study we used the formula for children [23]:

Child body fat % = (1.51 × BMI) − (0.70 × Age) − (3.6 × sex) + 1.4 [24,25]

Statistical analyses

Data obtained from the tests showed a normal distribution and homogeneity of the total sample, were presented as a mean ± standard deviation, Shapiro-Wilk and Levene test. Independent Tsample t-test was conducted to combine the results obtained from the two groups (Table 1). Whereas the relationship between the two groups was analysed by pearson correlations (r).

Results

The homogeneity in tests was calculated based on Levene Statistic, while the normality was counted base on Shapiro-Wilk which showed no significance in all comparisons table 1.

Through Independent T sample t-test all analysed between Anthropometric variables (Age - Weight - Height) are not significant at $p \leq 0.05$ in the opposite of BFP - WC and both balance tests as string lamb and coordinative posture thought table 2. All correlation between both balance tests and anthropometric variables BFP - Weight - WC is a strong negative.

Through the results in table 1 and table 2 we confirm:

Prolonged periods classroom settings increase the body fat and expansion the waistlinedue to intra-abdominal fat accumulate from physical inactive the case of preschool causing postural deformities and spinal problems [26] as abnormal posture, muscle imbalance [27] and imbalance coordination movement [28] report in balance testing [29,30] in the actual study.

Discussion

The results of the present study showed that the means are for the benefit of preschool groups followed by kindergarten, confirmed by independent T in overweight BFP- WC and lows balance (dynamic and standing), while our results line with norms body fat ratings proposed by Dr. Marilyn P et al., [31] which categories our kindergarten in acceptable weight and the preschool in moderately overweight. Given the Algerian statistics, that boys in the age range of 6-10 years had overweight according to David Crawford [32] and Aaron Benavot et al., in the education system [33], we agree that prolonged periods seating classroom promote the increased of the time of inactive

		N	Mean±SD	Shapiro-Wilk	Sig.	Levene's	Sig	T	Sig
Age	Kindergarten	29	4.36±1.89	0.96	0.68	0.41	0.52	0.72	0.44
	Preschool	32	5.15±1.55						
	Total	89	4.61±1.86						
Weight	Kindergarten	29	22.95±3.03	0.95	0.62	2.48	0.12	-1.32	0.33
	Preschool	32	24.54±2.35						
	Total	89	23.77±2.88						
Height	Kindergarten	29	121.88±1.25	0.97	0.16	0.27	0.60	-1.05	0.29
	Preschool	32	122.20±1.13						
	Total	89	121.69±1.23						
BFP	Kindergarten	29	25.32±2.47	0.96	0.12	1.19	0.64	-3.24	0.00
	Preschool	32	29.86±2.17						
	Total	89	27.10±2.36						
WC	Kindergarten	29	42.66±1.42	0.97	0.36	1.11	0.19	-2.73	0.02
	Preschool	32	49.84±1.37						
	Total	89	47.90±1.11						
Dynamic balance	Kindergarten	29	2.02±0.47	0.96	0.42	1.23	0.22	2.82	0.02
	Preschool	32	2.86±0.17						
	Total	89	2.60±0.36						
Standing balance	Kindergarten	29	3.21±0.35	0.98	0.25	1.03	0.28	2.87	0.00
	Preschool	32	2.84±0.52						
	Total	89	2.69±0.42						

Table 1: Shows the anthropometric characteristics and standing balance variables in sample.

Pearson correlation	Weight	BFP	WC
Dynamic balance	-0.33**	-0.49**	-0.53**
Standing balance	-0.36**	-0.59**	-0.65**
N	61		

Table 2: Shows the correlations between the variables and balance string lamb posture.

**p ≤ 0.01 (bilateral)

physical recognised as an important risk factor for multiple causes of diet and disability the case of this study record in intra-abdominal fat area detected in VC test and BFP due to cholesterol levels, or intra-abdominal fat according to Abdomi Després JP, a land, which records these parameters as risk health factors who need to be considered and studied as an effect of school-based health promotion programs on body composition either [34]. While as a precaution Wener WK [35] seat that the child hood needs to improve muscular strength and flexibility and decreasing body fat from the principle that obesity tendency is better facilitated among class children according to Bryan S Turner et al. [36].

Therefore, abnormalities in alignment can reflect changes in the alignment of one body part to another or in alignment with the center of mass relative to the base of support [37,38], which reduce the stability and, muscle coordination, control of movement, balance, and awareness of body position [39] since the approves, the current study endorse that preschool and young elementary school children need daily activities to exercise their large muscles to help them to develop their fine motor [40] based on physical activity [41] which is a key health and Fitness that toddlers should accumulate at least 30 minutes daily of structured physical activity and preschoolers at least 60 minutes daily and both need at least 60 minutes daily. However, this practice is absent in algerian preparatory schools [42] where our scholar children are spending a lot of time seated at an excessive learning activities, or home learning [43] which affect them shape of muscles, deform them skeleton, and cause abnormal development, whom prohibit the maintenance of them correct posture [44] seen as excess in joint angle/posture according to Allan Menezes [45], that requires sufficient strength and coordination in their torso to keep their bodies in balance accordance to Marc H. Bornstein [46], and the level of muscular tension accord to Craig Williamson [47], and Zerf Mohammed [48].

Through the results and background reference, our results line with evidence:

- Being overweight or obese during these periods (childhood) is a critical development, which affects the balance, movement ability and postural control ability [49], due to excess body weight [50], supported by the spine [51].
- Sitting as quality life style limited mobility, developed abnormal pathological alignment with chronically poor posture [52] in the likelihood of this condition in later years (fatigue, pain, muscular tension and poor muscle tone) [53].

While as a recommendation pedagogy practiced, we suggested to our teachers who work with these children to know that learn through play and active learning increase the balanced posture and weight gain requires more energy in the classroom [54], where the gymnastic as PE activities develop children's strength, balance, speed, suppleness, stamina and core body skills, as well as posture balance and harmony of the body through core muscle, stabilized posture to make the right posture [55,56] which request more than 15-20 min to performing body alignment [57] as practice in preparatory schools [58]. As intervention pedagogic, view our educational system; we subject the activity breaks in the educational setting as a solution, which has actually been shown to increase academic performance and positively affect children's attention in the similar studies [59-61]. Also as teaching method and strategy, we propose the use of role play as active learning method which provides a high degree of student participation and mobility in the classroom [62-63].

Conclusions

Based on obtained data, our findings support our hypothesis, that prolonged periods classroom recognised as an important risk factor for multiple causes of diet and disability related to the limited mobility settings which increased the body fat related to waistline intra-abdominal fat, that influences movement ability and postural control capacity in the likelihood of this condition in later years.While as a recommendation pedagogy practised, we suggested to our teachers, the learn through play and active learning to increase balanced posture energy in the classroom, seen our children seat more than 8 hours a day, 40 per week, and 160 per month 1440 per year in Algerian primary schools, which represent 83.33% inactive time during their school year.

Study Limitations

The small size of our series imposes to continue this study and include more variables. Our results could be more significant with the use of a stabilimeter and clinical evaluation.

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