Comparative Study Of The Effect Of Recreational Physical Activities On Body Composition Among Pupils Of Public And Private Primary Schools

A Akodu, M Ibeabuchi N, D Ogunmuyiwa Oluwakemi, S Akinbo

Citation

Abstract
Background/ Objective: Recreational Physical Activities (RPA) in primary schools enhances the cardiorespiratory, neuromuscular, skeletal and metabolic systems of children. RPA is however declining in these institutions, portending a threat to community and public health. Aim: To compare the effect of RPA on body composition among pupils in public and private primary schools in Surulere Local Government area (LGA), Lagos, Nigeria. Methodology: A total of 400 apparently healthy pupils (200 males and 200 females) aged 7-11 years and recruited from 12 randomly selected public and private schools participated in the study. Availability of RPA facilities was documented in the various schools. Anthropometric variables including height, weight, waist and hip circumferences (WC and HC), triceps, subscapular, and calf skin fold thicknesses were also measured. Body mass index (BMI), waist-hip-ratio (WHR), sum of skinfold thickness (SFT) and percentage body fat (%BF) were calculated and used to determine their body composition. Data was summarized using descriptive statistics of mean and standard deviation and analysed using independent t – test and level of significance was set at p< 0.05. Results: There was significant difference in height, weight, WC, HC, BMI, SFT and %BF (p<0.05) between male and female pupils of both public and private schools and no significant difference in WHR (t=-0.15,p=0.88; t=-0.04,p=0.97) between male and female pupils of public and private primary schools respectively in Surulere, Lagos. 66.7% of the public schools had open fields with no RPA facilities, while 83.33% of the private schools had adequate space with well equipped RPA facilities. Conclusion: The pupils in private schools had a greater proportion of overweight and obesity, even though they had better RPA facilities than those in the public schools.

INTRODUCTION
Modern day schools have accepted the challenge of contemporary society to develop the total capacity of each child, so that in adulthood, the child will be equipped with the knowledge, sound thinking processes, physical stamina and emotional maturity to live effectively in an ever changing and highly complex society (Adegun, 2008). Recreational Physical Activities (RPA) in primary schools enhances the cardiorespiratory, neuromuscular, skeletal and metabolic systems of children.

RPA is however declining in these institutions, portending a threat to community and public health, and the “catch-them-young” campaign against cardiovascular and metabolic disorders. Physical activity during childhood is positively related to physical fitness and health, both in adulthood and later in life (Biddle et al, 2004; Blair et al, 2004). Physical Activity is any body movement produced by skeletal muscles resulting in a substantial increase in energy expenditure (Bouchard and Shephard, 1994).

Schools have played a central role in the provision of RPA facilities to children and youth for more than a century through Physical Education (PE) which has been a course of study in schools since the late 1900s (Caspersen et al, 1985). This study was therefore designed to compare the effect of recreational physical activities on body composition among pupils in public and private primary schools in Surulere Local Government area (LGA), Lagos.

MATERIALS AND METHODS

PARTICIPANTS
A total of 400 apparently healthy pupils (200 males and 200 females) aged 7-11 years and recruited from 12 randomly
selected public and private schools in Surulere LGA of Lagos State Nigeria participated in this study.

**PROCEDURE**

Availability of Recreational Physical Activities (RPA) facilities was documented in the various schools. Anthropometric variables including height, weight, triceps (figure 1), subscapular (figure 2), waist and hip circumferences (figure 3 & 4) and calf skin fold thicknesses were measured. Body mass index (BMI), waist-hip-ratio (WHR), sum of skinfold thickness (SFT) and percentage body fat (%BF) were calculated and used to determine their body composition.

**STATISTICAL METHOD**

Data were analyzed using the (SPSS) version 17.0 and summarized using descriptive statistics of Mean and Standard Deviation. The independent t-test was used to compare the variables of the two groups. The designated level of significance was set at P<0.05.

**RESULTS**

The results revealed significant difference in body composition indices of pupils in public and private primary schools in Surulere Local Government, Lagos. 66.7% of the public schools had open fields with no RPA facilities, while 83.33% of the private schools had adequate space with well equipped RPA facilities.

**Figure 1**

Figure 1: Triceps Skinfold Measurement

**Figure 2**

Figure 2: Subscapular Skinfold Measurement

**Figure 3**

Figure 3: Waist Circumference Measurement
The results of this study showed that there were significant
differences in body composition indices among pupils of public and private primary schools. This finding agreed with those of Adeniyi et al., (2007) who reported a difference in the body composition of pupils in public and private primary schools in Tarumi, Kano. Another study of young children found no relationship between their proximity to playgrounds and being overweight (Ana, 2007).

There was a significant difference in height and weight of pupils in public and private primary schools. Body height is affected by hereditary factors, nutrition and socioeconomic factors during the developmental growth phase, while weight is associated with the existing dietary and exercise habits of the individual (Angell-Andersen et al., 2004). According to Bogin et al (1992), it is poor environment that plays a great role in differences in height and weight of children. This could be explained by difference in background of the pupils. This is the factor for the significant difference in BMI values.

The difference in percentage body fat from this study was in agreement with the study of Koutedakis and Bouziatos, (2003), which revealed that pre adolescent children who participated only in physical education (PE) classes had excess body fat compared with their counterparts who were engaged in other extra curricular activities including being engaged in manual labour jobs after school hours, walking to and from school and being involved in holiday and menial jobs. This suggests that the specific PE curriculum does not achieve the required levels of motor and cardiorespiratory fitness with potential effects on children’s health. The difference in percentage body fat could be as a result of difference in lifestyle and socio-economic status of the pupils. Most pupils who attend private schools are usually from affluent homes (high and middle income class) and are probably better fed compared to the students from public schools (low income class).

There was no significant difference in Waist Hip Ratio (WHR) of pupils in public and private primary schools. This could be explained as a result of gender differences. The sex differences in the body fat of children, according to Vizmanos and Martin- Hennerberg (2000) may be explained in the light of physiological, metabolic and social factors and girls tend to develop fat during adolescence due to large hormonal changes. During puberty, males deposit adipose tissue around the upper body (specifically abdominal) while females deposit adipose tissue around the thighs and buttocks. In this study, as expected, due to regional fat deposition, males had significantly higher WHR mean values than females, the male’s mean total WHR in public and private schools was 0.89 ± 0.06cm and 0.89 ± 0.04cm respectively compared to the female’s mean total WHR which was 0.87 ± 0.05cm and 0.85 ± 0.06 cm respectively. The mean values of WHR, which is a measure of regional fat distribution, were consistently lower than 0.9 in females and 1.0 in males, indicating a healthy body fat distribution according to the criteria of Martinez et al., (1994).

CONCLUSION AND RECOMMENDATION

The pupils in private schools had a greater proportion of overweight and obesity, even though they had better RPA facilities than those in the public schools. It is therefore suggested that private school pupils are involved in proper fitness programmes to help in improving their health, thereby reducing their risk of having obesity related disorders. Also, availability of RPA facilities should be enforced as prerequisite for establishment of all primary schools. This may help develop pupils with sound minds in healthy bodies. Physical Education classes should be emphasised more in schools and taught effectively and should be given together with the aid of RPA facilities.

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References

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Author Information

Ashiyat Kehinde Akodu  
Department of Physiotherapy, College of Medicine, University of Lagos

Mike Ibeabuchi N  
Department of Anatomy, College of Medicine, University of Lagos

Deborah Ogunmuyiwa Oluwakemi  
Department of Physiotherapy, College of Medicine, University of Lagos

Samuel R A Akinbo  
Department of Physiotherapy, College of Medicine, University of Lagos