The Effects Of Exercise On Weight Among School Children In Amai Ukwuani, Delta State Nigeria

Abstract

The study was carried out to determine the effect of exercise on the body among primary school pupils in Amai. Fifty school pupils were selected from Gods will school for the study. Twenty-five of the pupils engaged in exercise (jogging of 400 meters) for 10 consecutive days. While the remaining twenty-five pupils did not exercise. The weights of the pupils were taken for the 10 days. The result showed that at the end of day 5, majority of the pupils who exercised reduced weight by at least 1kg and at the end of day 10, no pupils added an extra kg of weight. The mean weight lost by the pupils who exercised was 3.04kg. the result also showed that all the pupils who did not exercise kept on adding weight from Day1 till the Day 10. The mean weight gained by pupils who did not exercise was 3.44kg. However, the body mass index of the pupils indicated that none was overweight or obese. This study has shown that regular physical exercise is an important way of controlling weight. Physical exercise should be a part of the curriculum in all schools as childhood obesity is becoming rampant and an issue of global concern due to its health hazards.

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Introduction

Physical exercise is any bodily activity that enhance or maintains physical fitness and overall health and wellness (Patnaik *et al.*, 2010). Exercise is performed for various reasons including strengthening muscles and cardiovascular system, honing athletic skills, right loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent diseases of affluence'' such as heart disease, cardiovascular disease, type 2 diabetes and obesity. (Kotian *et al.*, 2010). It also improves mental health, helps prevent depression and helps to promote or maintain positive self-esteem and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self-esteem. (Bharati *et al*, 2008).

Physical exercises are generally grouped into three types, depending on the overall effect they have on the human body (Takken *et al*., 2012).

Aerobic exercise is any physical activity that uses large muscle groups and causes your body to use more oxygen than it would while resting. The goal of aerobic exercise is to increase cardiovascular endurance. (Taşkın *et al*., 2018). Examples of aerobic exercise include cycling, swimming, brisk walking, skipping rope, rowing,

hiking, playing tennis, continuous training and long slow distance training (Amed *et al.*, 2012).

Anaerobic exercise is also called strength or resistance training and can form, strengthen, and tone your muscles, as well as improve bone strength, balance and coordination. Examples of strength mores are push ups, lungs and bicep curls using dunbbells.

Anaerobic exercise also includes weight training, functional training, eccentric training, interval training, sprinting and high-intensity interval training increase short-term muscle strength (Farris *et al.*, 2011).

Flexibility exercises stretch and lengthen your muscles. Activities such as stretching help to improve joint flexibility and keep muscles limber. The goal is to improve the range of motion which can reduce the chance of injury (CDC, 2000).This research was aimed to determine the effect of exercise on weight and to ascertain if exercise can be used to reduce weight amongst school children in Amai.

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MATERIALS AND METHOD

Study Area

Amai is an autonomous community situated in Ukwuani Local Government Area of Delta State, Nigeria; which lies in longitude 6˚12''E-6˚32''E and latitudes 5˚20''N-6˚3''N. Amai comprises of the following villages: Amai-Nge, Ishikaguma, Umuosele, Umuekum and Umubu. The indigenous language is Ukwuani which is an igbo dialect. The major occupation of the inhabitants is farming. However, of recent some have taking to trading and white collar jobs (Dietz *et al.*, 2012).

This modest but upcoming town was the headquarters of Ukwuani District council in the colonial days. A town of five villages, it is fast growing into a modern urban center. It was one of the first town that adopted the modern ruler monarchy in replacement of the Okpalauku clan Head. It is currently home to Novena University, a phenomenon that has spiralled the population of the town and facilitated its development.

Collection of Data

God's will Nursery and primary school Amai was used for the study. Fifty(50) school children were selected at random. Twenty-five (25) of the children engaged in the jogging exercise and ran a distance of 400 meters each day, while the other twenty-five children did not participate in the exercise and formed the group for the

control experiment. The weight of each of the participants was taken and recorded daily. The height of the participants was also taken and recorded.

Measurement of Weight

The weight of the children was measured using a mechanical personal scale. The modal is CAMRY 1S0-9001:2008. Their weight was recorded in kilogram (kg).

To measure the weight accurately, the following steps were taken:

- The scale was placed on a firm floor.
- The child removed all shoes and heavy clothing such as sweaters.
- The child stood with both feet in the centre of the scale.
- The weight of the child was taken and recorded to the nearest decimal fraction.

Measurement of Height

The height of the children was measured using a meter rule. The meter rule was graduated in centimetres. To measure the height accurately the following steps were taken:

- The child's shoes, bulky clothing hair ornaments and upbraided hair that interfere with the measurement were removed.
- The height was measured on floor that is not carpeted and against a flat surface (wall). The child stood with feet flat together and against the wall. Legs were straight, arms were at sides and shoulders were level.
- The child was looking straight ahead and the line of sight was parallel with the floor.
- The measurement was taken while the child stood with head, shoulders, buttocks and heels touching the flat surface (wall).
- A flat head piece lowered until it firmly touched the crown of the head.
- The measurer's eyes were at the same level with the head piece.
- Where the bottom of the head piece met the wall, there t a metal tape was used to measure from the base on the floor to the marked measurement on wall to get the height measurement.
- The height was accurately recorded to the nearest 0.1 centimetre.

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CALCULATION OF BODY MASS INDEX

The body mass index, BMI of the children was calculated as follows:

Body mass index, BMI= $\frac{m}{h^2}$

Where, m= weight in kilogram

h= height in meters

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RESULTS

Table I: Pupils who participated in the exercise (jogging)

{ Weight (kg) }

Serial No. of pupil	Height (M)	Body mass index BMI (kg/m²)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Weight Lost (kg)
1	1.31	16.89	29	30	29	28	27	29	28	27	27	26	3
2	1.36	15.13	28	30	29	28	27	27	27	26	26	26	2
3	1.36	14.05	26	26	26	25	25	24	23	23	23	22	4
4	1.50	21.33	48	48	48	47	47	50	47	45	45	45	3
5	1.29	15.02	25	25	25	24	24	24	24	24	24	24	1
6	1.38	18.90	36	38	38	37	36	36	35	34	34	34	2
7	1.38	14.17	27	26	26	25	24	24	22	22	22	22	5
8	1.29	15.02	25	25	25	25	25	25	24	24	24	24	1
9	1.29	16.82	28	28	27	26	25	24	23	24	24	23	5
10	1.30	1.73	23	23	23	23	22	22	22	23	20	20	3
11	1.36	14.59	27	27	27	26	25	25	24	23	23	22	4
12	1.39	13.97	27	27	27	26	26	26	25	25	24	24	3
13	1.32	16.06	28	28	28	25	25	26	25	24	24	24	4
14	1.42	14.78	32	32	31	30	30	29	28	27	27	27	5
15	1.34	16.15	29	28	28	28	27	27	26	25	25	24	5
16	1.31	15.73	27	27	26	25	25	26	25	24	24	24	3
17	1.29	13.22	22	22	26	25	24	24	23	22	23	22	0
18	1.25	15.36	24	24	24	23	23	22	22	21	21	21	3
19	1.35	15.52	30	30	29	28	28	28	27	27	27	26	4

20	1.39	15.52	30	36	29	29	29	28	28	27	27	26	4
21	1.26	14.49	23	23	22	23	22	24	24	23	23	23	0
22	1.29	13.22	22	22	22	21	20	20	20	20	20	20	2
23	1.26	15.11	24	24	24	23	23	24	23	22	22	21	3
24	1.31	13.40	23	23	22	21	20	22	21	20	20	20	3
25	1.24	16.25	25	25	24	24	24	23	22	22	22	21	4

The total weight lost by the pupils = 76kg

Total number of pupils who exercised = 25

Mean weight lost by the pupils = $\frac{\text{total weight lost by the pupils}}{\text{Total number of pupils who exercised}}$

$= \frac{76\text{kg}}{25}$

$= 3.04\text{kg}$

Table I represents the pupils who participated in the exercise (jogging), their height, body mass index and weight for the days the experiment lasted.

It was observed that the end day 5, majority of the pupils who were engaged in the exercise had their weight reduced by at least 1kg. It was also observed that only two pupils with serial number 17 and 21 maintained their initial weight at the end of day 10.

However, it was observed that at the end of day 10 no pupil added an extra kilogram of weight to the initial weight of day 1. The mean weight lost by the pupils who engaged in the exercise was 3.04kg. The body mass index of the pupils indicated that none was overweight or obese.

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Table 2: Pupils who did not participate in the exercise (control group)

{ weight in kg }

Serial No. of pupil	Height (M)	Body mass index BMI (kg/m^2)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Weight Lost (kg)
1	1.26	12.60	20	20	22	22	22	23	23	24	24	24	4
2	1.28	12.21	22	23	23	24	24	25	25	25	25	25	3
3	1.26	14.49	23	23	24	25	26	26	26	26	26	26	3
4	1.35	10.97	27	27	28	28	29	30	36	35	35	35	8
5	1.33	13.59	24	24	25	26	27	28	29	29	29	29	5
6	1.33	11.87	21	22	23	24	25	26	26	27	27	26	5
7	1.33	13.56	24	24	24	26	25	25	25	26	26	25	1
8	1.40	11.75	23	34	35	36	36	36	37	37	35	35	2
9	1.22	14.10	29	22	22	22	23	26	26	27	27	27	6
10	1.35	15.91	29	30	36	31	31	31	31	32	32	32	3
11	1.18	21.54	30	21	21	22	22	22	22	23	23	23	3
12	1.23	15.20	23	23	23	24	24	23	23	23	23	23	0
13	1.22	13.43	20	20	20	20	21	22	21	22	22	22	2
14	1.36	14.59	27	28	28	29	29	29	29	28	28	28	1
15	1.16	14.61	19	20	20	21	22	23	24	25	28	28	9
16	1.22	13.43	20	20	20	20	20	21	21	22	22	22	2
17	1.39	15.52	30	30	30	31	32	32	32	33	32	31	1
18	1.29	12.61	21	22	23	23	23	24	25	26	26	25	4
19	1.30	13.60	23	23	24	25	26	23	24	25	25	26	3
20	1.26	15.74	25	27	27	28	28	27	28	29	29	29	4
21	1.30	14.79	25	26	27	28	28	29	29	29	29	28	3
22	1.25	14.08	22	23	24	25	25	25	25	26	26	26	4
23	1.35	13.71	25	29	30	31	31	30	31	32	31	31	6
24	1.20	15.97	23	24	25	26	26	27	28	29	29	29	6
25	1.26	20.78	33	33	34	34	35	35	35	36	36	36	3

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Total weight gained by the pupils = 86kg

Total number of pupils = 25

Mean weight gained by the pupils = $\frac{\text{Total weight gained by the pupils}}{\text{Total number of pupils}}$

$= \frac{86\text{kg}}{25}$

= 3.44kg

Table 2 represents the pupils who were in the control experiment group who did not participate in the exercise, their height, body mass index and weight for the days the experiment lasted.

It was observed that all the pupils in the control experiment group, did not participate in the exercise and kept on adding weight from the day 1 till the day 10. The mean weight gained by the pupils who did not engage in the exercise was 3.44kg.

The body mass index of the pupils indicated that none was overweight or obese.

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DISCUSSION

The result presented in Table 1 showed that exercise has an effect on the body weight. At day 5, majority of the pupils had reduced in weight by at least 1 kilogram. At day 10, no pupil in Table 1 gained an extra weight.

This is in line with the work of (Kotian *et al.,* 2010) who states that the main treatment for obesity consists of dieting and physical exercise. Also Alleyne, (1998)

stated that childhood obesity is a growing global concern and physical exercise may help to decrease some of the effects of childhood and adult obesity.

The result in table 2 showed that the pupils who did not participate in the physical exercise did not lose any weight instead the majority of them gained weight, except a pupil. This indicates, that lack of physical exercise can cause an individual to gain weight or become obese.

Similarly, Atlantis *et al*., (2016) states that a sedentary lifestyle plays a significant role in obesity. Childhood overweight and obesity continue to be a public health problem worldwide. However, it has been shown that it can be prevented and treated through regular physical exercise. The results show positive effects on weight and Body Mass Index between the exercise and control groups.

However, the exercise group obtained significant changes, demonstrating that a structured physical exercise program positively affects weight, speed, and jumping. Similar studies such as the one developed by Saris *et al.,* (2003) conclude that a program of moderate-intensity physical exercise twice a week in overweight children presents changes in weight, height, and body self-image. Likewise Donnelly (2000) found that a regular physical exercise program for overweight children is effective, without dietary interventions, in reducing weight gain and BMI.

The findings show a numerical difference between the test and control results regarding the Body Mass Index variable. The current study's findings are consistent with Peters (2010) who observed that a physical activity program carried out during recess in school children produces improvements in BMI values and physical condition in children. Like Peters (2010) who report that there is increasing evidence that school interventions containing a physical activity component can be effective in helping to reduce BMI in children.

Authors such as Pagotto *et al.,* (2008) , affirm that the most effective physical activity program in overweight and obese adolescents is the one that combines aerobic and anaerobic exercises.

CONCLUSION

Regular exercise is an important way of weight loss. It helps to control weight by using excess calories that otherwise would be stored as fat as well as boosting the metabolism and lowering insulin level. Physical activity also helps prevent many diseases and improve the overall health of the body. Regular physical activity can also improve mood and the way one feels about oneself. Exercise is likely to reduced depression and anxiety and helps one to better manage stress. It is a natural and expensive antidepressant.

It does not matter what type of physical activity one performs – sports, planned exercise, household chores, yard work, or work-related tasks. There should be federally reimbursed meal programs in schools, limiting direct junk food marketing to children, and decreasing access to sugar sweetened beverages in schools.

When constructing urban environments, efforts should be made to increase access to parks and to develop pedestrian routes.

Physical exercise should be a part of the curriculum in all school.

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