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Effect of exercise habit on body composition and body somatotype of staff of Kogi State College of Education (Technical) Kabba

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Abstract
The study investigated effects of exercise habit on body composition and body somatotype of staff of College of Education (Technical), Kabba. Four objectives with their corresponding research questions were posed and null hypotheses were postulated and tested at 0.05 level of significance. The design was cross-sectional survey design, the population for the study consisted of about five hundred and five, a sample size of one hundred and fifty were sampled using simple random sampling techniques of balloting with replacement. Structured questionnaire were used for data collection on exercise habit and anthropometric instruments were used for body measurements. The findings revealed that: both males and females staffs were overweight (mean= 26.7366, SD= 4.57287) (mean= 27.6853, SD= 4.81326), both males and females staff were with normal waist to hip ratio (WHR) (mean= .8546, SD= .05248), males were with normal body fat percent (mean= 14.1090, SD= 4.25180), but females were with abnormal body fat percent (mean= 23.8606, SD= 7.42006). All males were ectomorph (mean= 11.4300, SD=1.17362) while females were ectomorph and mesomorph (mean= 11.7185, SD= .7009), (mean= 14.0105, SD=2.1238). Male exercisers were with normal waist to hip ratio, WHR, while males non exercisers were with abnormal WHR and body fat percent. Female exercisers were with normal waist to hip ratio WHR while non-exercisers were with abnormal, WHR and body fat percent. The findings from the hypothesis revealed that only female BMI and Fat% with (f= 3.613, p=.033<0.05), and (f=27. 862, p=.000< 0.05) were significant determinants of exercise habit.

Keywords: Effects, Exercise, Habit, Body Compositions, and Body Somatotypes

Introduction

The body composition and body somatotype of people all over the world is giving concern to experts and researchers in the field of exercise and health. A lot of people inaccurately assume that they are not in control of their body composition and somatotype. They often adopt unhealthy lifestyle behaviours which are thought to lead to weight gain. On average, workers gain about 1.4-2.3 kg during their first to five years of working, (National, Association of Sport and Physical Education. NASPE, 2004) [25]. Certainly, there are genetics in play to some degree. But many people lean on that, and use it as an excuse for their state of body composition and somatotype. One's body composition is very heavily impacted by what one eats and how one exercises. That means that one can be in control of body composition. Generally, body is made up of lean mass, including muscles and organs, and fat mass, these together are commonly referred to as body composition.

In Nigeria, exercise is done all through education system. Exercise has been integral part of physical education in Nigeria but early emphasis on maintaining optimal physical fitness of the body through varieties of activities during Physical Education in the field, (NASPE, 2004) [25]. Exercise plays tremendous role in emotional development and psychological well-being. Psychological well-being includes positive feeling about body image, improve self-esteem, tangible experiences of competencies and successes, as well as increased self-confidence (Ofili, 2012) [27].

It reduces anxiety from stress and serve as a mood enhancer (WHO, 2002). They stressed that being inactive increases the risk of developing depression or dementia. Overweight is a major public health problem facing regions of the world and its prevalence is also increasing in developing nations (Ofili, 2012) [27].

Exercise may be described as a regular or repeated use of many parts of the body or skill development, physical fitness or improvement in performance. Exercise is defined as any set of movement designed to train or improve a skill (for fitness or competition) (WHO, 2002). According to Ofili (2012) [27] exercise has tremendous potentials to enhance an individual's sense competence. For the purpose of this study, exercise can be defined as any movement of the body or parts of the body which result into skill and fitness development) (Roemmich, 2006) [31]. For the purpose of this research work, exercise is the movement and coordination of body to perform an act which pose influence to the body composition and somatotype.

The effect of exercise on body composition and body somatotype may contribute to the regulation and control BMI hip circumference waist circumference and fat %, by increasing understanding of the actual exercise habit, this study aims to determine the exercise habit, body composition and body somatotype of staff of KSCOE (Tech) Kabba, to ascertain the differences between the body composition and body somatotype of regular exercisers, occasional exercisers and non-exercisers. Exercises are essential part of human life and it comes in different forms and are shaped naturally by individual interest and also by the surrounding physical activities. (Breslow *et al*. 2001; Netto-Oliveira *et al*., 2010) [4].

Body Composition is a physical measurement that provides more specific information about body make-up than body weight alone. Body composition is defined as the proportion of fat and fat free mass (FFM) in the body (Mahenderan *et al*, 2014) [21]. Fat free mass include primarily muscles, bone and water along with some other elements. Fat mass includes fat that is stored as an energy source and fat in the central nervous system, organs, bone marrow and sex tissues, known as essential fat and non-essential fats (Mahenderan *et al*, 2014) [21]. Body composition is one of the five components of health related fitness. It is determined by comparing the body fat mass to its fat-free mass (bone, muscles and other tissues). Body composition is used to describe the percentages of fat, bone, water and muscle in the body (Oyebanji *et al* 2010; Barakatun-Nisak, 2014) [21]. Essential body fat is, necessary to maintain life and productive functions. The percentage of essential body fat for women is greater than that of men, due to the demands of childbearing and other hormonal functions (NASPE, 2004; Oyebanji *et al* 2010) [25]. The percentage of essential fat is 3-5% in men (Deurenberg *et al* 2007) [10]. Storage body fat consists of fat accumulation in adipose tissue, part of which protects internal organs in the chest and abdomen. A number of methods are available for determining body fat percentage, such as measurement with calipers or through the use of body fat hydration monitoring scale (Weststrate, 2007).

Body mass index (BMI) is a measure of weight adjusted for height, calculated as weight in kilograms divided by the square of height in meters (kg/m2) (Barakatun-Nisak, 2014) [21]. Although BMI is often considered an indicator of body fatness, it is a surrogate measure of body fat because it measures excess weight rather than excess fat. A BMI of 25.00 to 29.99 is classified as grade 1 over weight, 30-39.99 grade 2 overweight and BMI of 40 and above grade 3 over weight (Barakatun-Nisak, 2014) [21]. BMI ranging between 25.6 – 29.9 is overweight and 30 and above is obese, depending on the BMI a person may be referred to as slim, overweight or obese. According to World Health Organization (2005) classification of the normal range of Body Mass Index (BMI) is from 18.50-24.99 (Barakatun-Nisak, 2014) [21]. Excessive body weight is associated with various disease conditions particularly cardiovascular diseases, diabetes mellitus and certain types of cancer (Barreira, *et al* 2011) [2]. Computed Tomography (CT) or dual-energy X-ray absorptiometry (DXA), continue to be the gold standard for evaluating the distribution of body fat (Rollins *et al*; 2017; Carter 2005) [6].

Somatotypes vary between population groups as well as during growth in the same population. Apart from genetic factors, other factors that affect somatotype of an individual are age, sex, high altitude, nutrition, physical activity, occupation and socio-economic differences (Singh, 2011). Several studies have been carried out to describe somatotypes during childhood and adolescence. Other investigations analyzed somatotypes in relation to diseases conditions, and the changes observed in somatotype along the lifetime (Carter & Heath, 2005) [6]. Adolescence is the period in which the somatotype exhibits significantly change. When men begin puberty, their somatotype increase in mesomorph and ectomorph but decreases in endomorph, because the amount of subcutaneous fat tissue of the upper and lower limbs and the lower a dorsal region of the thorax is reduced, unlike women, who increase their endomorph (Bayios *et al* 2006) [3].

Ectomorph refers to slim and thin type, signs of slenderness predominate, fragility, week bones and musculature, anterodorsal diameters small, sloped shoulders, a relatively short torso, relatively long limbs, not always a tall figure, a flat a narrow thorax, rounded arms, week thighs and arms, fragile and long fingers, week dry skin, few fat cells, gains muscle mass poorly requires less demanding training, long pauses between series, a high intake of protein and sufficient rest (Teodor *et al*, 2014) [35]. For the purpose of this study, ectomorph is seen as relatively thin, linearity and fragile body of an individual.

Mesomorph is the muscular type with a strong skeleton, sharp musculature relief, broad shoulders and thorax muscular limbs, a firm stomach wall that does not protrude, a massive pelvis, good posture, medium fast energetic expenditure, reacts to strength training with rapid accumulation of muscle mass, (ISAK 2001).

Endomorph connotes the chunky type with a large number of fat cells, rounded shapes, the appearance of softer musculature, anterodorsally diameters and balanced by the frontal diameter, the circumference of the waist is larger than that of the thorax, a large head, a wide face, short neck, rounded features of the shoulders, relatively short and weak limbs and fingers, relatively small feet and hands, relatively small bones, (ISAK, 2001) [16]. Endomorphic type often has good potential for adding muscle, but have difficulty losing fat. Little inactivity can lead to risk of obesity and heart diseases (International Society for the Advancement of

Kinanthropometry ISAK, 2001) [16].

Variables	Frame	Height	Wrist
Ectomorph	Small Frame	< 157cm	<14cm
		157 to 165cm	<15.2cm
		Above 165cm	15.9cm
Mesomorph	Medium Frame	<157cm	14 to 14.6cm
		157 to 165cm	15.2 to 15.9cm
		165 above	15.9 to 16.5cm
Endomorph	Large Frame	<157cm	14.6 to above
		157 to165cm	15.9 above
		165 above	16.5 above
		(Ozener & Duyer, 2008).	

Body Mass Index (BMI) = $\frac{Weight}{Height^2} = \frac{W(kg)}{h^2(m`)}$

Waist to Hip Ratio (WHR) = $\frac{waist\ circumference}{Hip\ circumference} = \frac{W}{h}$

Fat % for male = 0.1051 x (sum of parts of the body measure) + 2.585

Fat % female = 0.1545 x (sum of parts of the body measure) + 3.580

Somatotype = $\frac{waist\ circumference}{Height}$

***Source*:** *values for obesity judgment proposed by WHO, the World Health Organization (2005),* (Ozuner & Duyer, 2008).

Objectives of the study

Specifically, the study seeks to determine

1. Body composition (height, BMI, fat percentage, hip circumference, waist circumference,) of staff of Kogi State College Education (Technical) Kabba;
2. Body somatotype (ectomorph, mesomorph and endomorph) of staff of Kogi State College Education (Technical) Kabba;
3. Effect of exercise on body composition (height, BMI, fat percentage, hip circumference, waist circumference) of staff of Kogi State College Education (Technical) Kabba,
4. Effects of exercise on body somatotype (Ectomorph, mesomorph and endomorph) of staff of Kogi State College Education (Technical) Kabba based on exercise habit.

Methodology

Research Design

The research design that were adopted for this study are cross sectional survey and quasi experimental research design. According to (Breslow *et al* 2001) [4], this design aimed at collecting data and describing it in a systematic manner with the characteristics, feature and facts about a given population.

Population for the study

The population for this research were all the staff (academic and non-academic) of Kogi state College of Education (Technical) Kabba. According to internal memorandum released by staff support services in 2019, there are 505 staff in the college. The academic staff is 88, and the non-academic staff is 417, total of 505 staff.

Sample and Sampling Technique

The sample size for the study consists of 170 staff (academic staff and non-academic staff) of KSCOE (Tech) Kabba. This is in line with the suggestion of Cohen Manion, Morrison, (2011). That, population of 7, 000 and above 5% should be use, for population of 5, 000, 10 per cent should be use, for population of 1, 000, 20 per cent should be use, and population that is less than 1000, 23 to 25per cent should be use.

Research Instruments

Laboratory weighing Scale: Laboratory weighing scale model EF921 Japan, were used to measure body mass in kilogram (Kg); Measuring Tape: The butterfly trade mark 758ae U.S.A, non-elastic tape, graduated in centimeters and were used for measuring hip circumference, waist circumference, wrist circumference, skinfold caliper model HNR-22 Littman's caliper were used to determine the body fat in sites identified in millimeter (mm), wall measuring vertical bar and stadiometer will be used to measure the height.

Reliability and validity of the Instruments

Reliable Laboratory equipment like weighing scale, skinfold caliper measuring tape and measuring ruler in accordance with international society for the advancement of kinanthropometry (ISAK 2001) [16]. Validated Laboratory equipment weighing scale, skinfold caliper measuring tape and measuring ruler in accordance with international society for the advancement of kinanthropometry (ISAK 2001) [16].

Data Collection

Body Mass/Weight were measured using laboratory weighing scale, the measurement was carried out as described by Blakemore (2003). The participants were instructed to drop all personal effects, empty their pocket, wear light clothing and take off their shoes before the measurement in order to avoid wrong reading of measurement. The measurement was taken while the participants stand with arms at the sides, feet positioned closed together, head slightly raised up, and weight evenly distributed across the feet. Each measurement was done thrice and the average were recorded in kilogram (Kg). Height (*M*)2/weight (Kg).

Height were measured using vertical measuring ruler as described by Blakemore (2003). The subjects stand bare footed backing a rigid upright, feet together, arm and shoulder kept relaxed and look forward. A ruler was placed on the vertex of the head to touch the upright at the back. The measurement was carried out three times and means of the three measurements will be recorded to the nearest 0.1cm.

Fat measurement were measured using skinfold caliper, the measurement was carried out as described by Blakemore (2003). Site were identified and the total subcutaneous adipose was firmly held with finger and the caliper were placed to hold the skinfold. The grip should not be so firm as to be painful, place the caliper half inch (-1.25cm) below the pinch sit, be sure the caliper is in the middle of the fold, record the measurement three times in different site and find the average. Subscapular Oblique: fold, just below the bottom tip of the right scapula, Iliac (iliac crest): Slightly oblique fold, just above the right hipbone (crest of ileum); the fold follows the natural diagonal line, Abdominal: Vertical fold 1 inch to the right of the umbilicus, Thigh: Vertical fold at the midline of the right thigh, two thirds the distance from the

middle of the patella (kneecap) to the hip Other sites include, Chest**:** Diagonal fold with long axis directed toward the right nipple; on the anterior axillary fold as high as possible, Biceps**:** Vertical fold at the posterior midline of the right upper arm.

Wrist Circumference measurement were carried out as described by Cocke (2002) [7]. Waist circumference were measured and record to the nearest 1cm which was dividing by the height of the subject to determine the body somatotype. Hip circumference ere measured as described by Campell (1958). This measurement was taken to the nearest 0.1cm around the widest portion of the bottom above the gluteal fold. These was the calculated as the ratio of waist circumference and hip circumference. For both waist and hip, the tape was snug around the body parallel to the floor at the level at which the measurement is made. The tape not pulls tightly to avoid constriction. In accordance to WHO (2002) recommendation, the measurements were in the morning when the subjects had not taken anything solid or liquid as food.

Method for Data Analysis

The data collect was coded, sorted and analyzed with the use of statistical package for social sciences (SPSS), version 20.0 descriptive statistics of means range and standard deviation will be used to analyze the data collected. They were also subjected to one-way analysis of variance (ANOVA) which is used to test the stated hypothesis 0.05 alpha levels.

Results and Discussion

Table 1: Summary of descriptive statistics of Body Composition (BMI, WHR and Fat %) staff of KCOE (Tech), Kabba

Items	N	Mean	Std. Deviation	Decision
Body mass index (kg/m2)				
Male	82	26.7366	4.57287	Overweight
Female	68	27.6853	4.81326	Overweight
Waist to Hip Ratio (cm)				
Male	82	.8548	.05248	Normal
Female	68	.8182	.05588	Normal
Fat Percentage (%)				
Male	82	14.1090	4.25180	Normal
Female	68	23.8606	7.42066	Abnormal

Table 1 shows the male BMI as mean 26.7366 with standard deviation of 4.5728, Hip to Waist Ratio (WHR) mean .8548 with standard deviations of .05248 and Fat Percentage (Fat %) mean 14.1090 with standard deviation of 4.25180. The table further shows that, female BMI as mean 27.6853 with standard deviation of 4.81326, Hip to Waist Ratio (WHR) mean .8182 with standard deviation of .05588, and body Fat Percentage (Fat %) mean 23.8606 with standard deviation of 7.42066. It implies that both male and female are overweight, both male and female are with normal wait to hip ratio, male with normal fat % and female with abnormal fat%.

Table 2: Summary of descriptive statistics of Body somatotype of staff of KCOE (Tech), Kabba

	N	Mean	SD	Decision
Somatotype(cm)	82	11.4300	.78888	Ectomorph
Male	0	11.1535	.84615	Ectomorph
	0	11.3634	1.17362	Ectomorph
Somatotype(cm)	27	14.2105	2.1401	Ectomorph
Female	41	14.0105	2.1238	Mesomorph
	0	11.7182	.70009	Ectomorph

Table 2 shows the staff body somatotype (Ectomorph, Mesomorph and Endomorph) of staff. The mean and standard deviation for male body somatotype are (mean=11.4300, SD=.78888), (mean=11.1535 SD=.84615) and (mean=11.3634, SD=1.17362), The table further show the female body somatotype (Ectomorph, Mesomorph and Endomorph). The mean and standard deviation for female body somatotype are (mean=14.2105, SD=.2.1401), (mean=14.0105, SD=.2.1238) and (mean=11.7182, SD=.70009). It implies that all males are ectomorph, while female are ectomorph and mesomorph.

Table 3: Summary of descriptive statistic of effects of exercise on body composition (BMI, WHR and Fat %) of male staff of KSCOE (Tech), Kabba

Category				
Exercise habit	**N**	**Mean**	**Std. deviation**	**Decision**
Non exercisers	10	**BMI(kg/m2)** 27.4770	4.78665	Overweight
Occasional exercisers	31	26.6266	4.51590	Overweight
Regular exercisers	41	26.6573	4.66233	Overweight
		WHR(cm)		
Non exercisers	10	.8460	.04452	Normal
Occasional exercisers	31	.8590	.04556	Normal
Regular exercisers	41	.8537	.05949	Normal
		Fat%		
Non exercisers	10	16.7080	6.42258	Normal
Occasional exercisers	31	13.2439	3.86857	Normal
Regular exercisers	41	14.1293	3.71925	Normal

Table 3 shows the males body composition (BMI, WHR and Fat %) based on exercise habit. The male non-exerciser's BMI are (mean=27.4770, SD=4.78665), non-exerciser's WHR are (mean=.8460 SD=.04452) and non-exerciser's Fat% are (mean=16.7080 SD=6.42258). Occasional exerciser's BMI are (mean=26.60266, SD=4.51590), occasional exerciser's WHR are (mean=.8590, SD=.04556) and occasional exerciser's Fat% are (mean=13.2439, SD=3.86857). Regular exerciser's BMI are (mean=26.6573, SD=4.66233), regular exerciser's WHR are (mean=.8537, SD=.05949) and regular exerciser's Fat% are (mean=14.1293, SD=3.71925). It implies that all the males' exercisers are overweight, all the male exercisers are with normal WHR and all the males' exercisers are with normal fat%.

Table 4: Summary of descriptive statistic of effects of exercise on body composition (BMI, WHR and Fat %) of female staff of KSCOE (Tech), Kabba

Exercise habit	N	Mean	Std. deviation	Decision
Non exercisers	19	BMI**(kg/m2)** 29.8911	5.49218	Overweight
Occasional exercisers	27	27.5004	4.51822	Overweight
Regular exercisers	22	26/0073	3.92296	Overweight
		WHR(cm)		
Non exercisers	19	.7979	.05912	Normal
Occasional exercisers	27	.8215	.05475	Normal
Regular exercisers	22	.8318	.05170	Normal
		Fat%		
Non exercisers	19	31.8842	2.99332	Abnormal
Occasional exercisers	27	21.0515.	5.30219	Normal
Regular exercisers	22	20.3786	7.21783	Normal

Table 4 shows the female body composition (BMI, WHR and Fat %) based on exercise habit. The non-exerciser's BMI are (mean=29.8911, SD=5.49218), non-exerciser's WHR are (mean=.7979, SD=.05912) and non-exerciser's Fat% are (mean=31.8842, SD=2.99332). Occasional exerciser's BMI are (mean=27.5004, SD=4.51822), occasional exerciser's WHR are (mean=.8215, SD=.05475) and occasional exerciser's Fat% are (mean=21.0515, SD=5.30291). Regular exerciser's BMI are (mean=26.0073, SD=3.92296), regular exerciser's WHR are (mean=.8318, SD=.05170) and regular exerciser's Fat% are (mean=20.3786, SD=7.21783). It implies that all the female exercisers are overweight, all the male exercisers are with normal WHR, occasional and regular exercisers are with normal Fat% while non-exercisers are having abnormal Fat%

Table 5: Summary of descriptive statistic of effects of exercise on body somatotype (Ectomorph, Mesomorph and Endomorph) of staff of KCOE (Tech), Kabba

Items	N	Mean	SD	Decision
Non exercisers	**Male** 10	11.4300	.78888	Ectomorph
occasional exercisers	31	11.1535	.84615	Ectomorph
Regular exercisers	41	11.3634	1.17362	Ectomorph
	Female			
Non exercisers	19	14.2105	2.1401	Mesomorph
occasional exercisers	27	14.0105	2.1238	Mesomorph
Regular exercisers	22	11.7182	.70009	Ectomorph

Table 5 shows the staff body somatotype (Ectomorph, Mesomorph and Endomorph) based on Exercise Habit. The males' non-exerciser's body somatotype (mean=11.4300, SD=.78888), Occasional exercisers (mean=11.1535 SD=.84615) and regular exercisers (mean=11.3634, SD=1.17362). The table further show the females body somatotype based on Exercise Habit. The females' non-exerciser's body somatotype (mean=14.2105, SD=.2.1401), Occasional exercisers (mean=14.0105, SD=.2.1238) and regular exercisers (mean=11.7182, SD=.70009). It implies that, all the male exercisers (non-exercisers, occasional exercisers and regular exercisers) are ectomorph. While females non exercisers are mesomorph, occasional exercisers are mesomorph and the regular exercises are ectomorph.

Table 6: Analysis of Variance (ANOVA) for Body composition of staff of KCOE (Tech), Kabba, based on exercise habit

Body Mass Index (BMI)		Sum of Squares	Df	Mean Square	F	Sig.
Male	Between Groups	6.296	2	3.148	.147	.863
	Within Groups	1687.504	79	21.361		
	Total	1693.800	81			
Female	Between Groups	155.312	2	77.656	3.613	.033
	Within Groups	1396.908	65	21.491		
	Total	1552.220	67			
Waist to hip ratio (WHR)		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Male	Between Groups	.001	2	.001	.246	.782
	Within Groups	.222	79	.003		
	Total	.223	81			
Female	Between Groups	.012	2	.006	2.014	.142
	Within Groups	.197	65	.003		
	Total	.209	67			
Body Fat Percentage (Fat %)		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Fat% male	Between Groups	90.767	2	45.383	2.610	.080
	Within Groups	1373.533	79	17.386		
	Total	1464.300	81			
Fat% female	Fat% Between Groups	1702.979	2	851.489	27.862	.000
	Within Groups	1986.460	65	30.561		
	Total	3689.439	67			

Table 6 shows the male calculated F-value with corresponding P-value for BMI (F=.147, P=.863 > 0.05). Since the P-value was greater than .05 level of significance at 2 and 79 degree of freedom the null hypothesis of no significant deference in Body Max Index based on exercise habit was therefore not rejected. Table further shows the female calculated F-value with their corresponding P-value for BMI (F=3.613, P=.033 < 0.05). Since the P-value was less than .05 level of significance at 2 and 65 degree of freedom the null hypothesis of no significant deference in Body Max Index based on exercise habit was therefore rejected. This implies that the males BMI are not differed according to exercise habits since the p value was greater than 0,05 level of significance while female BMI differed according to exercise habit, since the P-value was less than .05 level of significance

The male P-value with its corresponding P-value for Waist to Hip Ratio (F=.246, P=.782 > 0.05). Since the P values were greater than .05 level of significance at 2 and 67degree of freedom. The null hypothesis of no significant deference in body composition based on exercise habit was therefore not rejected. The table further shows the female P-value with its corresponding P-value for Waist to Hip Ratio (F=2.014, P=.142 > 0.05). Since the P values was greater than .05 level of significance at 2 and 65 degree of freedom. The null hypothesis of no significant deference in Waist to Hip Ratio (WHR) based on exercise habit was therefore not rejected. This implies that both male and female WHR are not difference according to exercise habit since their P-values were greater than .05 level of significance.

The male calculated F-value with the corresponding P-value for Body Fat% (F=2.610, P= .080 > 0.05). Since their P-value were greater than .05 level of significance at 2 and 67 degree of freedom the null hypothesis of no significant deference in Body Fat percentage (Fat%) based on exercise habit was therefore not rejected.

Summary of major findings

The major findings of the study are summarized below:

1. Both males and females are overweight, both male and female are with normal waist to hip ratio (WHR), males are with normal fat % and females are with abnormal fat%. (table 1),
2. All males are ectomorph, while female are ectomorph and mesomorph (mean=14.2105, SD=.2.1401), (mean=14.0105, SD=.2.1238) and (mean=11.7182, SD=.70009). (table 2),
3. All the males' exercisers are overweight, all the males' exercisers are with normal WHR and all the male's exercisers are with normal fat%. (mean=27.4770, SD=4.78665), (mean=.8460 SD=.04452), (mean=16.7080 SD=6.42258). (table 3),
4. All the female exercisers are overweight with normal WHR, occasional and regular exercisers are with normal Fat%, while non-exercisers are having abnormal Fat% (mean=29.8911, SD=5.49218), (mean=.7979, SD=.05912), (mean=31.8842, SD=2.99332), (mean=27.5004, SD=4.51822.), (table 4),
5. All the males' exercisers (non-exercisers, occasional exercisers and regular exercisers) are ectomorph. While female non exercisers are mesomorph, occasional exercisers are mesomorph and the regular exercises are ectomorph. (mean=11.4300, SD=.78888), (mean=11.1535, SD=.84615), (mean=11.3634, SD=1.17362), (mean=14.2105, SD=.2.1401), (mean=14.0105, SD=.2.1238), (mean=11.7182, SD=.70009). (table 5),
6. The male BMI not differed according to exercise habits since the p value was greater than 0,05 level of significance while female BMI differed according to exercise habit, since the P-value were less than .05 level of significance (F=.147, P=.863 > 0.05), (F=3.613, P=.033 < 0.05). (Table 6).

Both male and female WHR are not differed according to exercise habit since their P values were greater than .05 level of significance. (F=.246, P=.782 > 0.05), (F=2.014, P=.142 > 0.05). (Table 6),

the male Body Fat% not differed based on exercise habit since their P-value were greater than .05 level of significance, while the female Body Fat% differed based on exercise habit since the P values were greater than .05 level of significance (F=2.610, P= .080 > 0.05), (F=27.862, P=.000 < 0.05). (Table 6),

7. Both male and female body somatotype are not differed based on exercise habit since their P-values were greater than .05 level of significance. (F=.478, P=.622 > 0.05), (F=1.202, P=.293 > 0.05). (Table 7).

Conclusion

Based on the findings of the study, the following conclusions were made: The majority of the males were regular exercisers while majority of the female were occasional exercisers, the majority of the staff were overweight but not over fat. Majority of the males were ectomorph while majority of the female were mesomorph. The male non exercisers, occasional exercisers and regular exercisers were overweight with moderate WHR and moderate body fat % based on exercise habit. Female non exercisers were obese, some of occasional exercisers were over fat and overweight, regular exercisers were overweight with moderate WHR and moderate Fat % based on exercise habit. Male non exercisers, occasional exercisers and regular exercisers were ectomorph while female non exercisers and occasional exercisers were mesomorph but female regular exercisers were ectomorph.

There was no difference in BMI of male based on exercise habit, while there was difference in BMI of female based on exercise habit. There was no difference in WHR of both male and female based on exercise habit. There was no difference in male Fat % based on exercise habit, while there was difference in female Fat %. There was also no difference in body somatotype of both male and female staff based on exercise habit.

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