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Original Research Article

Effects of a Five-Week Anaerobic Exercise on Anthropometric, Motor Performance and Cardiorespiratory Indices of Women in Isiokpo, Rivers State

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Abstract: This research focuses on: "Effects of a five-week anaerobic exercise on anthropometric and motor performance of women in Isiokpo, Rivers State". The aim of the study was to determine the effects of a five-week anaerobic exercise on anthropometric and motor performance variables of women in Isiokpo, Rivers State. The study have five Hypothesis Quasi- Experimental research design was used, an oral interview was used to identify the Women living a sedentary life style out of seventy five woman who volunteered for the study (60) women were selected for the study, the instrument used was a standardized instrument such as sphygmomanometer, dynamometer, skinfold caliper among others, interval training programs was used for the methodology the study has two experimental groups and a control group. A descriptive statistics of mean and standard deviation (SD) for demographic data and inferential statistics of ANCOVA for hypotheses testing. The results of the study indicated that there was significant positive effect of anaerobic exercise on the anthropometric and motor performance of women in both experimental group I and experimental group II; whereas, there were no effect of anaerobic exercise on the performance variables of the subjects in the control group. The study concluded that Women are at risk of having chronic diseases, due to the fact that majority of the women had little or no idea about anaerobic exercises; and thus did not create time to participate in such exercises It was therefore recommended that women living a sedentary lifestyle should be engaged in anaerobic exercise so as to enhance their anthropometric and motor performance to attain optimal health.

Keywords: Anaerobic, exercise, Anthropometric, Sedentary Life, Motor Performance.

INTRODUCTION

Extended periods of inactivity can reduce metabolism, result to cardiovascular diseases and impair the body's ability to control blood sugar levels, regulate blood pressure and breaking down of fat or fat metabolism. Women who are inactive or who adopt sedentary life as a lifestyle are often susceptible to cardiovascular diseases owing to their level of exposure to both modifiable and non-modifiable cardiovascular risk factors such as; age, family history, high level of cholesterol, among others. In addition to the aforementioned cardiovascular risk factors; Arthur and John (2012) stated that; for women, the scenario is often exacerbated with even a normal life process such as pregnancy and menopause can also be seen as a cardiovascular risk factor that exposes most women to developing heart diseases; the effect of menopause in women is far-reaching and more worrisome because it is usually accompanied with an increased age and anxiety.

Sedentary lifestyle often results to a negative impact on the physical and mental well-being of in women but a more active lifestyle which involves in frequent engagement of anaerobic exercise can significantly reduce the chances of chronic health conditions, mental health disorders, and premature death (Park, 2016).

Women who sit for more than ten (10) hours a day with low physical activity have cells that are biologically older by eight years than those who are less sedentary, researchers at University of California San Diego School of Medicine in the United States found elderly women with less than 40 minutes of moderate-to-vigorous physical activity per day have shorter

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telomeres (tiny caps found on the ends of DNA) strands that protect chromosomes from deterioration and progressively shorten with age. As a cell ages, its telomeres naturally shorten and fray, but health and lifestyle factors, such as obesity and smoking, may accelerate that process. Shortened telomeres are linked to cardiovascular disease, diabetes and major cancers cells aging faster with a sedentary lifestyle (Arthur and John, 2012).

2.0 REVIEW OF RELEVANT LITERATURE

2.1 This study focuses on "the Effects of a five-week anaerobic exercise on anthropometric and motor performance of women in Isiokpo, Rivers State". The following are the various headings in which the theoretical /conceptual framework of the literature review were discussed:

The Theory of Use and Disuse or Lamarckism proposed by Jean-Baptiste Lamarck (1744-1829), a French naturalist is applicable to the effective or ineffective usage of muscles. The theory of Use and Disuse states that:

1. The environment makes an organism to have some needs;
2. In order to satisfy these needs, the organism may use an organ;
3. An organ that is much used develops;
4. An organ that is not used degenerates;
5. Characteristics acquired by an organism while satisfying the needs created by the environment are inherited by the offspring.

The theory described above is most important and is used as the framework on which the present research is hinged. A woman's body adapts to meet stresses put upon it. When he/she runs often, the body will adapt as best as it can to running and will likely run farther and faster and more efficiently. If the individual stops running, his or her body will adapt to the new level of lower stress and will eventually lose the ability to run long distances, at great speed or with efficiency. In the same way, muscles grow (hypertrophy) or shrink (atrophy) according to the stresses placed upon them. They tone or get flabby according to the level and type of use.

2.2. Conceptual Framework

2.3 Physical Fitness and Physical Fitness Components

Physical fitness is a body condition in which an individual is able to carry out efficiently all expected daily activities without easily getting tired and without suffering much pain, or being hindered by any part of the body or system .When an individual is fit, it simply means that the individual is healthy and that the body system, such as the cardiac system, the respiratory system and the muscular systems are functioning properly (Wienbergen and Hambrecht, 2013).

The American Association for Health, Physical Education and Recreation (2015) defines physical fitness as that state which characterizes the degree to which an individual is able to function efficiently. Fitness is an individual matter which imply the ability to live within a potentiality, ability to function consistently on morals, social, physical, mental and spiritual aspects of man. The two variables of physical fitness are; Motor related variables and Health related variables.

2.3.1 Motor Related Variables of Physical Fitness

Motor related variables are those associated with full exertion of motor or sport skills. These factors are very important in games and sports as well as to efficient job performance. In mental job, skill performance improves efficiency examples are strength speed, agility, balance, coordination and power.

Strength: strength is defined as the ability of the body or a segment of it to apply force, it is also the amount of force the muscles can produce .It has often been considered as the contractile force of muscle or group of muscles. Strength is dependent upon the force with which each contributing muscle can contract, as the contractile force of the contributing muscle increases strength; it is a factor in several other traits which influence athletic performance. Increased strength result in the ability to apply more force because strength contributes to power and it is also an element in power which is expressed in the given simplified formula; Power = Force x Velocity.

The following hypotheses were tested at 0.05 level of significance:

1. H_{O1}: There is no Significant Difference in the Effect of Anaerobic Exercise on the Weight of women in Isiokpo, Rivers State
2. H_{O2}: There is no significant difference in the effect of the anaerobic exercise on Percent Body Fat of women in Isiokpo, Rivers State
3. H_{O3}: There is no Significant Difference in the Effect of Anaerobic Exercise on the balance of women in Isiokpo, Rivers State
4. H_{O4}: There is no Significant Difference in the Effect of Anaerobic Exercise on the Power of women in Isiokpo, Rivers State
5. H_{O5}: There is no Significant Difference in the Effect of Anaerobic Exercise on the muscular strength of women in Isiokpo, Rivers State

3.0 RESEARCH METHODOLOGY

This research was designed to study the effects of a five-week anaerobic exercise on the anthropometric & motor performance of women in Isiokpo, Rivers State.

In this study, quasi-experimental research design was adopted. The area of study was Isiopko-Alimini, Rivers State, located in Ikwerre L.G.A. in Rivers state; The sample size for this study comprises of sixty (60) women who were living sedentary life style and were selected using judgmental sampling technique out of a total of the first seventy-five (75) women who volunteered as the subjects and were either indigenes or residents in Isiopko-Alimini, Rivers State. An oral interview was used to select the woman living a sedentary life style, a standardized instrument such as Hand dynamometer, grip muscle strength. Interval Timer Clock, Weighting Scale: Stop Watch, Sphygmomanometer, stethoscope was used for the performance variables:

4.0 ANALYSIS AND DISCUSSION

Hypotheses Testing

Table-4.3.2: Hypothesis 1 There is no Significant Difference in the Effect of Anaerobic Exercise on the Weight of Women in Isiokpo, Rivers State (for N = 60)

ANCOVA Tests of Between-Subjects Effects							
Dependent Variable: Posttest							
Source	**Sum of Squares**	**DF**	**Mean Square**	**F**	**P**	**Partial Eta Squared**	**Remarks**
Corrected Model	1284.480[a]	3	428.160	70.582	P < 0.05	0.791	S
Intercept	4.820	1	4.820	.795	P >0.05	0.014	NS
Pretest	1004.246	1	1004.246	165.550	P < 0.05	0.747	S
Group	352.992	2	176.496	29.095	P < 0.05	0.510	S
Error	339.704	56	6.066				
Total	301675.000	60					
Corrected Total	1624.183	59					

a. R Squared = 0.79 (Adjusted R Squared = 0.78)
b. Computed using alpha = 0.05

The Table 4.3.2 shows the ANCOVA Tests between subjects effects, the remark column shows that the various P values and were juxtaposed with the alpha level of 0.05 which was used as the indicator to determine the level of significance of the results obtained while testing the effect of anaerobic exercise on the Weight of women in Isiokpo, Rivers State. The remark column for the group contains either "S" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and statistically significance) or "NS" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was greater than the alpha level of 0.05 and statistically not significant).

The result shows that the groups (Experimental Group I, Experimental Group II and Control Group) contained in the rows (intercept) do not have a statistically significance difference on the body weight (F=0.80, DF=1/56, P<0.05, S). Similarly, in the column (pretest) there was a statistically significance difference on body weight (F=165.55, DF=1/56, P<0.05, S) and also, in the interaction effect (group) there was a statistically significance difference on body weight (F=29.10, DF=2/56, P<0.05, S). Therefore, It was on this basis that the following hypotheses associated with the anthropometric variables of the women which states that; there will be no significant effect of anaerobic exercise on the Weight of women in Isiokpo, Rivers State was rejected whereas the alternate hypotheses of there will be significant effect of anaerobic exercise on the Weight of women in Isiokpo, Rivers State was accepted.

Based on the results, it shows that the anaerobic exercise of Agility test and Margaria test reduced the cardiovascular risk factors of the women by improving both the weight and fitness level of the women who participated in the anaerobic exercises. Also, the result is in harmony with the assertion of Cureton and Warren, (2017) in their outlined enormous benefits of anaerobic exercise such as metabolism activities increase, hemoglobin volume increase, cardiac volume and stroke volume increase and the blood bed readily adaptability to varying demands.

Table-4.3.3: Mean Difference Comparison of the Percent Body Fat of Women Living Sedentary Lifestyle (for N = 60)

Pairwise Mean Comparisons							
Dependent Variable: Posttest Value							
Group (I) For Anaerobic Regimen	Group (J) For Anaerobic Regimen	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference[b]		Remarks
					Lower Bound	Upper Bound	
Experimental Group I	Experimental Group II	-1.87	2.21	P>0.05	-7.33	3.58	NS
	Control Group	-6.53*	2.23	.015	-12.04	-1.02	S
Experimental Group II	Experimental Group I	1.87	2.21	P>0.05	-3.58	7.33	NS
	Control Group	-4.65	2.17	P<0.05	-10.00	0.69	S
Control Group	Experimental Group I	6.53*	2.23	P<0.05	1.02	12.04	S
	Experimental Group II	4.65	2.17	P<0.05	-0.69	10.00	S
Based on estimated marginal means *. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons: Bonferroni.							

The results from the above Table 4.3.3 shows the percent body fat mean difference comparison of the interaction between the Experimental Group I and Experimental Group II (vice versa) had a P value which is greater than the alpha significance level of 0.05 which therefore indicate that there is no significant mean difference between the two groups whereas the interaction involving either the Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa) shows that the P value is less than the alpha significance level of 0.05 thereby indicating that there is a significant mean difference between Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa).

Table-4.3.4: Hypothesis 2: There is no Significant Difference in the Effect of Anaerobic Exercise on the Percent Body Fat of Women in Isiokpo, Rivers State (for N = 60)

ANCOVA Tests of Between-Subjects Effects							
Dependent Variable: Posttest							
Source	**Sum of Squares**	**DF**	**Mean Square**	**F**	**P**	**Partial Eta Squared**	**Remarks**
Corrected Model	3464.436[a]	3	1154.812	24.691	P < 0.05	0.57	S
Intercept	1.101	1	1.101	.024	P < 0.05	0.00	S
Pretest	2369.440	1	2369.440	50.660	P < 0.05	0.48	S
Group	430.697	2	215.348	4.604	P < 0.05	0.14	S
Error	2619.188	56	46.771				
Total	65422.227	60					
Corrected Total	6083.624	59					
a. R Squared = 0.57 (Adjusted R Squared = 0.55) b. Computed using alpha = 0.05							

The ANCOVA Tests between subjects effects were shown in table 4.3.4 above, the remark column shows that the various P values and were place alongside with the alpha level of 0.05 which was also used as an indicator to determine the level of significance of the results obtained while testing the effect of anaerobic exercise on the percent body fat of women in Isiokpo, Rivers State. The remark column for the group was "S" which indicates that the P value of the group that where engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and the result is significant or "NS" which indicates that the P value of the group that where engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and the result is significant.

The result shows that the groups (Experimental Group I, Experimental Group II and Control Group) contained in the rows (intercept) had a statistically significance difference on the percent body fat (F=0.0, DF=1/56, P<0.05, S). Similarly, in the column (pretest) there was a statistically significance difference on Percent Body Fat (F=50.66, DF=1/56, P<0.05, S) and also, in the interaction effect (group) there was a statistically significance difference in percent body fat (F=4.60, DF=2/56, P<0.05, S). Therefore, it was on this basis that the following hypotheses associated with the anthropometric variables of the women which states that; there will be no significant effect of anaerobic exercise on the percent body fat of women in Isiokpo, Rivers State was rejected whereas the alternate hypotheses of there will be significant effect of

anaerobic exercise on the percent body fat of women in Isiokpo, Rivers State was accepted.

The results shows that the anaerobic exercise of Agility test and Margaria test reduced the cardiovascular risk factors of the women by improving both the percent body fat and fitness level of the women who participated in the anaerobic exercises. Also, the result is in harmony with the assertion of Cureton and Warren, (2017) in their outlined enormous benefits of anaerobic exercise such as positive percent body fat, metabolism activities increase, hemoglobin volume increase, cardiac volume and stroke volume increase and the blood bed readily adaptability to varying demands.

Table-4.3.5: Mean Difference Comparison of the Balance of Women Living Sedentary Lifestyle (for N = 60)

Pairwise Mean Comparisons							
Dependent Variable: Posttest Value							
Group (I) For Anaerobic Regimen	Group (J) For Anaerobic Regimen	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference[b]		Remarks
					Lower Bound	Upper Bound	
Experimental Group I	Experimental Group II	0.01	0.15	P > 0.05	-0.36	0.38	NS
	Control Group	4.83*	0.15	P < 0.05	4.46	5.19	S
Experimental Group II	Experimental Group I	-0.01	0.15	P > 0.05	-0.38	0.36	NS
	Control Group	4.81*	0.15	P < 0.05	4.45	5.18	S
Control Group	Experimental Group I	-4.83*	0.15	P < 0.05	-5.19	-4.46	S
	Experimental Group II	-4.81*	0.15	0.00	-5.18	-4.45	S
Based on estimated marginal means *. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons: Bonferroni.							

Table 4.3.5 shows the balance mean comparison difference and the interaction between two groups. The result shows that the P value is greater than the alpha significance level of 0.05 thereby indicating that there is no significant mean difference between the interaction of the Experimental Group I and Experimental Group II (vice versa). Whereas the interaction between the Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa) shows that there is a significant mean difference between the Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa) respectively.

Table-4.3.6: Hypothesis 3: There is no Significant Difference in the Effect of Anaerobic Exercise on the Balance of Women in Isiokpo, Rivers State (for N = 60)

ANCOVA Tests of Between-Subjects Effects							
Dependent Variable: Posttest							
Source	**Sum of Squares**	**DF**	**Mean Square**	**F**	**P**	**Partial Eta Squared**	**Remarks**
Corrected Model	349.65[a]	3	116.55	540.27	P < 0.05	0.97	S
Intercept	45.89	1	45.89	212.72	P < 0.05	0.79	S
Pretest	46.32	1	46.32	214.71	P < 0.05	0.79	S
Group	309.35	2	154.67	716.98	P < 0.05	0.96	S
Error	12.08	56	0.22				
Total	7978.00	60					
Corrected Total	361.73	59					
a. R Squared = 0.97 (Adjusted R Squared = 0.97) b. Computed using alpha = 0.05							

The table 4.3.6 shows the ANCOVA Tests between subjects effects, the remark column shows that the various P values and were juxtaposed with the alpha level of 0.05 which was used as the indicator to determine the level of significance of the results obtained while testing the effect of anaerobic exercise on the balance of women in Isiokpo, Rivers State. The remark column for the group contains either "S" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and statistically significance) or "NS" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was greater than the alpha level of 0.05 and statistically not significant).

The result shows that the groups (Experimental Group I, Experimental Group II and Control Group)

contained in the rows (intercept) do not have a statistically significance difference on the balance (F=212.72, DF=1/56, P<0.05, S). Similarly, in the column (pretest) there was a statistically significance difference on balance (F=214.71, DF=1/56, P<0.05, S) and also, in the interaction effect (group) there was a statistically significance difference in balance (F=716.98, DF=2/56, P<0.05, S). Therefore, It was on this basis that the following hypotheses associated with the motor performance variable of the women which states that; there will be no significant effect of anaerobic exercise on the balance of women in Isiokpo, Rivers State was rejected whereas the alternate hypotheses of there will be significant effect of anaerobic exercise on the balance of women in Isiokpo, Rivers State was accepted.

Based on the results, it shows that the anaerobic exercise of Agility test and Margaria test reduced the cardiovascular risk factors of the women by improving both the balance and fitness level of the women who participated in the anaerobic exercises. Also, the result is in harmony with the assertion of Cureton and Warren, (2017) in their outlined enormous benefits of anaerobic exercise such as balance sustenance, metabolism activities increase, hemoglobin volume increase, cardiac volume and stroke volume increase and the blood bed readily adaptability to varying demands.

Table-4.3.7: Mean Difference Comparison of the Power of Women Living Sedentary Lifestyle (for N = 60)

Pairwise Mean Comparisons							
Dependent Variable: Posttest Value							
Group (I) For Anaerobic Regimen	Group (J) For Anaerobic Regimen	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference[b]		Remarks
					Lower Bound	Upper Bound	
Experimental Group I	Experimental Group II	-0.20	0.21	P > 0.05	-0.71	0.32	NS
	Control Group	3.86*	0.21	P < 0.05	3.35	4.38	S
Experimental Group II	Experimental Group I	0.20	0.21	P > 0.05	-0.32	0.71	NS
	Control Group	4.06*	0.21	P < 0.05	3.55	4.58	S
Control Group	Experimental Group I	-3.86*	0.21	P < 0.05	-4.38	-3.35	S
	Experimental Group II	-4.06*	0.21	0.00	-4.58	-3.55	S
Based on estimated marginal means *. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons: Bonferroni.							

Table 4.3.7 shows the mean comparison of exercise activities for the power performance test of the participants before and after administering the anaerobic test (margaria or agility). The result shows that the P value is greater than the alpha significance level of 0.05 thereby indicating that there is no significant mean difference between the interaction of the Experimental Group I and Experimental Group II (vice versa). Whereas the interaction between the Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa) shows that there is a significant mean difference between the Control Group and Experimental Group I (vice versa) or the Control Group and Experimental Group II (vice versa) respectively.

Table-4.3.8: Hypothesis 4: There is no Significant Difference in the Effect of Anaerobic Exercise on the Power of Women in Isiokpo, Rivers State (for N = 60)

ANCOVA Tests of Between-Subjects Effects							
Dependent Variable: Posttest							
Source	**Sum of Squares**	**DF**	**Mean Square**	**F**	**P**	**Partial Eta Squared**	**Remarks**
Corrected Model	252.68[a]	3	84.23	194.09	P < 0.05	0.91	S
Intercept	43.34	1	43.34	99.87	P < 0.05	0.64	S
Pretest	47.25	1	47.25	108.88	P < 0.05	0.66	S
Group	209.59	2	104.79	241.48	P < 0.05	0.890	S
Error	24.30	56	0.43				
Total	2825.00	60					
Corrected Total	276.98	59					
a. R Squared = 0.91 (Adjusted R Squared = 0.91) b. Computed using alpha = 0.05							

The table 4.3.8 shows the ANCOVA Tests between subjects effects, the remark column shows that the various P values and were juxtaposed with the alpha level of 0.05 which was used as the indicator to determine the level of significance of the results obtained while testing the effect of anaerobic exercise on the power of women in Isiokpo, Rivers State. The remark column for the group contains either "S" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and statistically significance) or "NS" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was greater than the alpha level of 0.05 and statistically not significant).

The result shows that the groups (Experimental Group I, Experimental Group II and Control Group) contained in the rows (intercept) had a statistically significance difference on the power (F=99.87, DF=1/56, P<0.05, S). Similarly, in the column (pretest) there was a statistically significance difference on power (F=108.88, DF=1/56, P<0.05, S) and also, in the interaction effect (group) there was a statistically significance difference on power (F=241.48, DF=2/56, P<0.05, S). Therefore, It was on this basis that the following hypotheses associated with the motor performance variable of the women which states that; there will be no significant effect of anaerobic exercise on the power of women in Isiokpo, Rivers State was rejected whereas the alternate hypotheses of there will be significant effect of anaerobic exercise on the power of women in Isiokpo, Rivers State was accepted.

Based on the results, it shows that the anaerobic exercise of Agility test and Margaria test reduced the cardiovascular risk factors of the women by improving both the power and fitness level of the women who participated in the anaerobic exercises. Also, the result is in harmony with the assertion of Cureton and Warren, (2017) in their outlined enormous benefits of anaerobic exercise such as improved power performance, metabolism activities increase, hemoglobin volume increase, cardiac volume and stroke volume increase and the blood bed readily adaptability to varying demands.

Table-4.3.9: Mean Difference Comparison of the Muscular Strength of Women Living Sedentary Lifestyle (for N = 60)

Pairwise Mean Comparisons							
Dependent Variable: Posttest Value							
Group (I) For Anaerobic Regimen	Group (J) For Anaerobic Regimen	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference[b]		Remarks
					Lower Bound	Upper Bound	
Experimental Group I	Experimental Group II	-4.40*	1.11	P < 0.05	-6.63	-2.17	S
	Control Group	7.71*	1.18	P < 0.05	5.36	10.07	S
Experimental Group II	Experimental Group I	4.40*	1.11	P < 0.05	2.17	6.63	S
	Control Group	12.11*	1.07	P < 0.05	9.96	14.26	S
Control Group	Experimental Group I	-7.71*	1.18	P < 0.05	-10.07	-5.36	S
	Experimental Group II	-12.11*	1.074	P < 0.05	-14.26	-9.96	S
Based on estimated marginal means *. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons: Bonferroni.							

Table 4.3.5 shows the summary of the pretest and posttest muscular strength mean difference comparison of the participants and the interaction among the various groups with one another. The result shows that the interaction between any two of these: Experimental Group I, Experimental Group II and the Control Group in either ways had a P value which is less than the alpha significance level of 0.05 which therefore indicate that there is a significant mean difference comparison for all the interacting Groups.

Table-4.3.10: Hypothesis 5: There is no Significant Difference in the Effect of Anaerobic Exercise on the Muscular Strength of Women in Isiokpo, Rivers State (for N = 60)

ANCOVA Tests of Between-Subjects Effects							
Dependent Variable: Posttest							
Source	Sum of Squares	DF	Mean Square	F	P	Partial Eta Squared	Remarks
Corrected Model	2284.65[a]	3	761.55	67.86	P < 0.05	0.784	S
Intercept	224.18	1	224.18	19.98	P < 0.05	0.263	S
Pretest	1118.45	1	1118.45	99.66	P < 0.05	0.640	S
Group	1437.49	2	718.75	64.04	P < 0.05	0.696	S
Error	628.47	56	11.22				
Total	72191.54	60					
Corrected Total	2913.12	59					
a. R Squared = 0.78(Adjusted R Squared = 0.77) b. Computed using alpha = 0.05							

The Table 4.3.10 shows the ANCOVA Tests between subjects effects, the remark column shows that the various P values and were juxtaposed with the alpha level of 0.05 which was used as the indicator to determine the level of significance of the results obtained while testing the effect of anaerobic exercise on the muscular strength of women in Isiokpo, Rivers State. The remark column for the group contains either "S" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was less than the alpha level of 0.05 and statistically significance) or "NS" (meaning that the P value of the group that was engaged in the anaerobic exercise activities was greater than the alpha level of 0.05 and statistically not significant).

The result shows that the groups (Experimental Group I, Experimental Group II and Control Group) contained in the rows (intercept) had a statistically significance difference on the muscular strength (F=19.98, DF=1/56, P<0.05, S). Similarly, in the column (pretest) there was a statistically significance difference on muscular strength (F=99.66, DF=1/56, P<0.05, S) and also, in the interaction effect (group) there was a statistically significance difference on muscular strength (F=64.04, DF=2/56, P<0.05, S). Therefore, It was on this basis that the following hypotheses associated with the motor performance variables of the women which states that; there will be no significant effect of anaerobic exercise on the muscular strength of women in Isiokpo, Rivers State was rejected whereas the alternate hypotheses of there will be significant effect of anaerobic exercise on the muscular strength of women in Isiokpo, Rivers State was accepted.

Based on the results, it shows that the anaerobic exercise of Agility test and Margaria test reduced the cardiovascular risk factors of the women by improving both the muscular strength and fitness level of the women who participated in the anaerobic exercises. Also, the result is in harmony with the assertion of Cureton and Warren, (2017) in their outlined enormous benefits of anaerobic exercise such as increased muscular strength, metabolism activities increase, hemoglobin volume increase, cardiac volume and stroke volume increase and the blood bed readily adaptability to varying demands.

Table-4.3.11: Mean Difference Comparison of the Cardiovascular Endurance of Women Living Sedentary Lifestyle (for N = 60)

Pairwise Mean Comparisons							
Dependent Variable: Posttest Value							
Group (I) For Anaerobic Regimen	Group (J) For Anaerobic Regimen	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference[b]		Remarks
					Lower Bound	Upper Bound	
Experimental Group I	Experimental Group II	0.00	0.00	P < 0.05	0.00	0.00	S
	Control Group	6.00	0.00	P < 0.05	6.00	6.00	S
Experimental Group II	Experimental Group I	0.00	0.00	P < 0.05	0.00	0.00	S
	Control Group	6.00	0.00	P < 0.05	6.00	6.00	S
Control Group	Experimental Group I	-6.00	0.00	P < 0.05	-6.00	-6.00	S
	Experimental Group II	-6.00	0.00	P < 0.05	-6.00	-6.00	S
Based on estimated marginal means *. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons: Bonferroni.							

Table 4.3.11 shows the summary of the mean comparison difference of the cardiovascular endurance performance. The possible combinations of interaction among the various groups consisting of Experimental Group I and Experimental Group II and Control Group had their P values lesser than the alpha significance level of 0.05 which therefore indicate that there is a significant mean difference among all the possible resultant combinations of the various interacting groups which consist of Experimental Group I and Experimental Group II and Control Group.

CONCLUSIONS

The finding of the study was based on the results from the analysis of the data which was in line with the aim of the study. The researcher concluded that Women are at risk of having chronic diseases, due to the fact that majority of the women had little or no idea about anaerobic exercises; and thus did not create time to participate in such exercises.

RECOMMENDATIONS

Based on the findings the following recommendations were made:

1. The use of anaerobic exercise should be recommended to women living sedentary life style for the reduction of anthropometric variables such as(weight and percent body fat)
2. The use of anaerobic exercise should be recommended to women living sedentary lifestyle s for the improvement of motor performance variables such as (power, balance, cardiovascular endurance and muscular strength).

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