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EFFECT OF SWISS BALL TRAINING AND AEROBIC TRAINING ON SELECTE PHYSIOLOGICAL VARIAEBLES AMONG SCHOOL GIRLS

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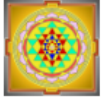
ABSTRACT

The purpose of this study was to find out the effect of Swiss ball training and aerobic training on selected Physiological variables among school girls. Randomly 90 female students were selected from various government schools of Mahabubnagar (Dist) Telangana, India. Were selected as subjects and their ages were ranged from 13 to 15 years. They were divided into three equal groups and each group consisted of 30 subjects. Group-I was swiss ball training, Group-II was aerobic training and group-III was acted as a control group. The selected criterion variables are resting pulse rate and Vo2max were selected and measured by digital B.P Monitor and step test for this study. The data was analyzed by the used to F- ratio. The obtained 'f' ratio was tested for significance at 0.05 level of confidence. The analysis of the data revealed that there was a significant improvement on resting pulse rate and Vo2max by the application of swiss ball training and aerobic training.

Key words: Swiss ball training, Aerobic training, Resting Pulse Rate and Vo2max.



INTRODUCTION

Physical fitness is a state of health and well-being and, more specifically, the ability to perform aspects of sports, occupations and daily activities. Physical fitness is divided into two categories: general fitness (a state of health and well-being) and specific fitness (a task-oriented definition based on the ability to perform specific aspects of sports or occupations). Physical fitness is typically attained through proper nutrition, exercise, and adequate rest.

Previously, fitness was commonly defined as the ability to complete daily activities without becoming fatigued. However, as automation increased leisure time, lifestyle changes following the industrial revolution rendered this definition inadequate. Physical fitness is now thought to be a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypo kinetic diseases, and to respond to emergencies. Breaking free from a sedentary lifestyle and incorporating exercise into your daily routine can have significant benefits. It can increase the amount of blood your heart can pump, lower your resting heart rate, improve your cholesterol, lower your blood pressure, and help you lose weight. Regular exercise can also benefit your mental health by making it easier to manage stress, making you more energetic, making daily chores easier to complete, allowing you to sleep better, and improving your self-image. The best part about these advantages is that they are available to almost anyone who incorporates exercise into his or her daily routine.

Importance of Physiology in Sports

Physiology and Anatomy are two closely related branches of biology which provide the foundation for Exercise Physiology. Anatomy investigates the basic structure of the body and the inter relationships between many body parts. It is the scientific discipline that deals with the processes or functions of living things, or the study of body functions. It allows us to understand and predict the body’s responses to stimuli as well understand how the body maintains conditions within a narrow range of values in the presence of a continually changing environment.

Swiss Ball Training

The Swiss ball, also known as an exercise ball or a gym ball, is a training aid used primarily to stretch and strengthen the body's abdominal, groin, lumbar (lower) back, and upper leg muscles. Building and maintaining core strength, an important stabilizing feature in any sport, is often referred to as the development of these structures. Swiss balls are inflatable and are typically filled to a depth of 80-90 percent. The ball is made of a thick rubberized compound and comes in a variety of sizes. A Swiss ball should be about 2 in (5 cm) above the user's knee from the surface for the best effect.

The Swiss ball allows for a variety of exercises that are based on the user's ability to move with the motion of the ball while performing the exercise, using the ball to both support the body during the movement and to provide resistance to the muscles used in the movement. The traditional Swiss ball exercises engage the abdominal muscles, with corresponding responses from the groin and the lower back stabilizers, the oblique muscles that run parallel to the spine above the pelvis. The athlete, positioned on top of the Swiss ball, can perform crunches (a motion that brings the upper thighs and the sternum [breastbone] toward one another to strengthen the abdominals); twisting crunches, where the upper body twists in opposite

directions during the crunch to extend the muscular effect across the abdomen; and flexion of the thoracic spine, the vertebrae of the mid-back thoracic spine.

Swiss ball movements necessitate a higher level of coordination from the user than traditional floor stretches. The Swiss ball also allows for static stretches (where the target body part is fully extended) as well as more difficult dynamic stretches (where the user directs force into or through the extended joint). While a Swiss ball routine can provide both aerobic and anaerobic benefits depending on the intensity, duration, and frequency of the exercises, it is not a substitute for either type of exercise. The Swiss ball is an excellent addition to existing training programs, such as yoga or Pilates, which promote increased strength and flexibility in a safe and controlled physical setting. (Jennifer Pohlmanand Rodney Searle,2007).

Aerobic Training

Aerobic training involves physical activity that increases your breathing and heart rate to fuel your body with oxygen-rich blood. Aerobic exercise helps strengthen your heart muscle, improves your lung function, and increases circulation and healthy blood flow throughout your body.

METHODOLOGY

For this study, thirty (N=90) among the school girls. Randomly 90 female students were selected from various government schools of Mahabubnagar (Dist) Telangana, India. Were selected as subjects and their ages were ranged from 13 to 15 years. They were divided into three equal groups and each group consisted of 30 subjects. Experimental Groups was given 12 weeks (Duration – 12 weeks, Session – 3 day/week, Duration of one session – One hour) of swiss ball training, aerobic training and control group was not participated any specific training. Experimental Group-I (Swiss Training), Experimental Group-II (Aerobic training) were given to the experimental groups. The subjects were tested in the selected criterion variables resting pulse rate and vo2max were selected and measured digital B.P Monitor and step test test for this study. Before and after the training period the data were collected. The collected data was treated by using F-ratio. The level of confidence was fixed at 0.05 levels.

RESULTS OF THE STUDY

TABLE –I

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ANALYSIS OF COVARIANCE OF EXPERIMENTAL AND CONTROL GROUPS ON RESTING PULSE RATE (Unit in numbers of counts)

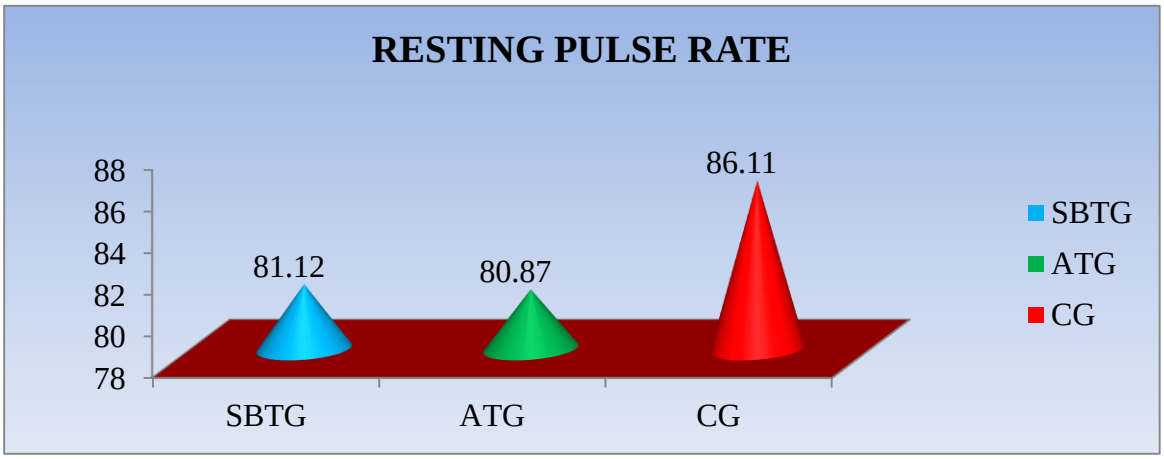
Test	SBTG-I	ATG-II	G3-CG	SV	SS	Df	MS	F-ratio
Pre Test Mean	84.03	83.93	83.57	Between	3.62	2	1.81	0.22
				Within	714.20	87	8.21	
Post Test Mean	81.27	80.93	85.90	Between	462.47	2	213.23	29.48*
				Within	682.43	87	7.84	
Adjusted Post Test Mean	81.12	80.87	86.11	Between	522.41	2	261.20	84.42*
				Within	266.09	86	3.09	

**Significant difference at 0.05level of confidence.*

Table I shows the analysed data on resting pulse rate. The pre-test mean values of the swiss ball training group, aerobic training group & control groups peed scores are 84.03, 83.93 & 83.57 respectively. The 0.22 pre-test F value obtained was less than the 3.10 table value. As a result, the pre-test means importances of swill ball training group, aerobic training group and control group of resting pulse rate prior to the start of the respective treatments were found to be insignificant at 0.05 level of confidence.

The post-test mean of the swill ball training group, aerobic training group and control group scores are 81.27, 80.93 & 85.90, respectively. The obtained f-ratio value 29.48* was greater than the required table value 3.10. For the degrees of freedom 2 and 87, thus, the post-test mean value of resting pulse rate showed significant at 0.05 level of confidence.

THE ADJUSTED POST TEST MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUPS ON RESTING PULSE RATE



The adjusted post-test mean values of swill ball training group, aerobic training group and control group resting pulse rate scores is 81.12, 80.87 & 86.11 respectively. The 84.42*

adjusted post-test F value was obtained greater than the table value. Thus, for the degrees of freedom 2 and 86, the adjusted post-test mean value of resting pulse rate shows important at 0.05 confidence level. Therefore, among the training groups on resting pulse rate, the observed F value of the adjusted post-test mean produced significantly improvements.

TABLE – II

ANALYSIS OF COVARIANCE OF EXPERIMENTAL AND CONTROL GROUPS ON VO2 MAX (Unit in ml.kg-1.min-1)

Test	SBTG-I	ATG-II	CG	SV	SS	Df	MS	F-ratio
Pre Test Mean	43.21	43.03	43.02	Between	0.65	2	0.33	0.60
				Within	47.27	87	0.54	
Post Test Mean	45.52	46.15	41.45	Between	391.35	2	195.68	112.07*
				Within	151.90	87	1.75	
Adjusted Post Test Mean	45.44	46.19	41.49	Between	382.06	2	191.03	127.04*
				Within	129.31	86	1.50	

**Significant difference at 0.05level of confidence.*

Table II shows the analysed data on vo2max. The pre-test mean values of the swill ball training group, aerobic training group and control group flexibility scores are 43.21, 43.03 & 43.02 respectively. The 0.60 pre-test F value was obtained less than the 3.10 table value. As a result, the pre-test means importances of swill ball training group, aerobic training group and control group of vo2max prior to the start of the respective treatments were found to be insignificant at 0.05 level of confidence.

The post-test mean of the swill ball training group, aerobic training group and control group scores are 45.52, 46.15&41.45 respectively. The obtained f-ratio value112.07* was greater than the required table value 3.10. For the degrees of freedom 2 and 87, thus, the post-test mean value of vo2max showed significant improvement at 0.05 level of confidence.

THE ADJUSTED POST TEST MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUPS ON VO2MAX

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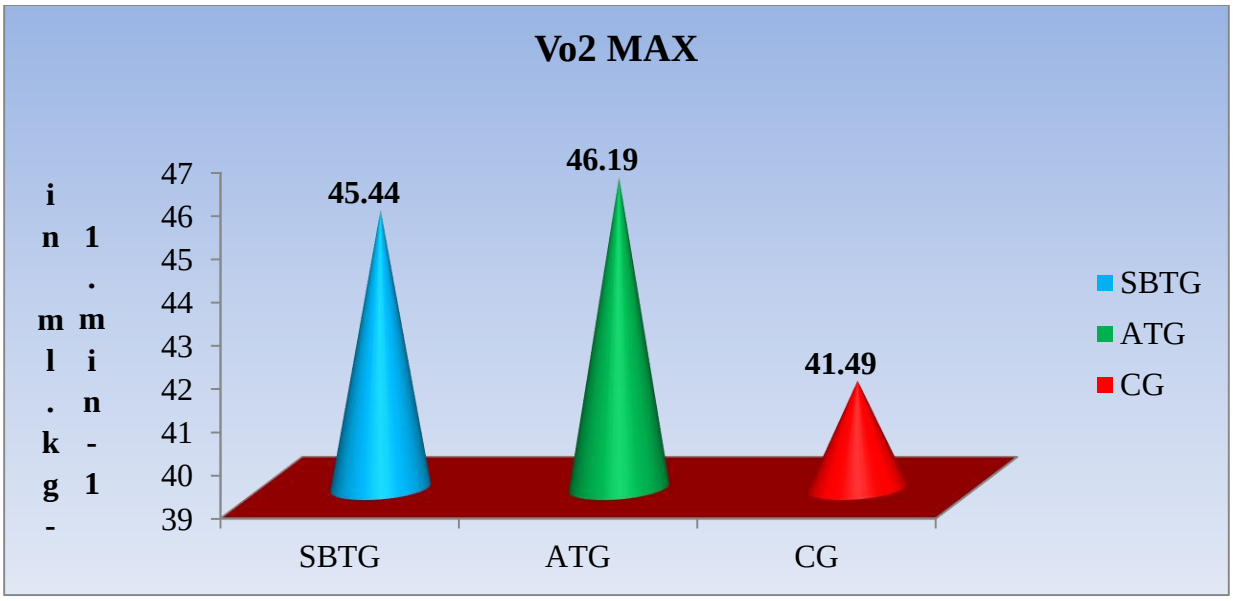

The adjusted post-test mean values of swill ball training group, aerobic training group and control group vo2max scores are 45.44, 46.19 & 41.49 respectively. The 127.04* adjusted post-test F value was obtained greater than the required table value. Thus, for the degrees of freedom 2 and 86, the adjusted post-test mean value of vo2max shows significant at 0.05 confidence level. Therefore, among the training groups on vo2max, the observed F value of the adjusted post-test mean produced significantly improvements.

DISCUSSION ON FINDINGS

The result of the study reveals that the twelve weeks of swiss ball training and aerobic training on selected dependent variables. There was a significant improvement on resting pulse rate through swiss ball training and aerobic training. In experimental groups the obtained f- ratio 29.48 was greater than the table value of 3.10 so it was found to be significant. In control group the obtained' ratio 0.22 was lesser than the table value of 3.10 so it was found to be insignificant. Hence the result indicates that the significant improvement on swiss ball training and aerobic training.

The result of the study reveals that the twelve weeks of swiss ball training and aerobic training on selected dependent variables. There was a significant improvement on vo2max through swiss ball training and aerobic training. In experimental groups the obtained f- ratio 112.07 was greater than the table value of 3.10 so it was found to be significant. In control group the obtained' ratio 0.66 was lesser than the table value of 3.10 so it was found to be insignificant. Hence the result indicates that the significant improvement on swiss ball training and aerobic training.

CONCLUSION

1. It was concluded that there was a significant improvement on resting pulse rate by the application of swiss ball training and aerobic training.

2. It was concluded that there was a significant improvement on vo2max by the application of swiss ball training and aerobic training.

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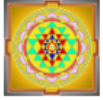

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