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INFLUENCE OF AEROBIC EXERCISE ON BODY FAT PERCENTAGE OF DEAF SCHOOL STUDENTS

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ABSTRACT

Approximately 10-15% of the Indian population has some form of disability, according to the figures derived from the latest study conducted under the National Institutes of Health. Disabilities impede a person's ability to store, process or recall information. They can affect a child's ability to mental retardation, autism, deafness, blindness and ADD/ADHD. The present study was investigated to know the influence of rhythmic exercise on body fat percentage of deaf and dumb school students. Randomly 40 (forty) deaf school going students aged 14-18 years were selected and divided into two equal groups consist of twenty subjects each. Group A underwent rhythmic exercise and group B without any activities as control group. Rhythmic exercise training of one hour per day thrice a week for 8 weeks was given. Pretest and post test were conducted for body fat percentage (Biceps, Triceps, Suprailliac and Subscapula). The data will be collected before and after the experimental treatment. The data obtained from the period of experiment was statistically analyzed with dependent 't' test and Analysis of Covariance (ANCOVA). The level of significance fixed at .05 level of confidence for all the cases.

Keywords: *Aerobic Exercise, Body Fat Percentage, Deaf School students*

INTRODUCTION:

Aerobic exercise, commonly known as "cardio", including running, walking, and swimming, has historically been established as a good way to lose weight. Aerobic, adds up the exercise capability of your body to use fat as a substrate increases and total fat oxidation during. In addition, there is a high correlation between the content within the muscle and insulin resistance. It may be suggested that the body mass increases due to increased blood flow and capillary in skeletal muscle and adipose tissue. Lipolyze triacylglycerol is high, and the transfer of fatty acids from blood to muscle sarcoplasm is high: these are the effects on fat during exercise and these effects support by activation of certain enzymes in the oxidative pathway, supports this process. Aerobic exercise activates lipoprotein lipase and increased lipoprotein lipase (LPL) activity may play an important role in reducing insulin resistance during exercise. (Fenkci S, Sarsan, 2006)

Body composition is considered as one of the most important aspects of health for people of all ages, gender, and ethnic groups. It has been

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well-estimated that aerobic activity can be used as an important component of a comprehensive plan for intervention in reducing weight and lowering the weight, however, there is always this debate that which duration and intensity of exercise would be a stronger stimulus in reducing body fat content. Marra C, Bottaro M, Oliveira RJ, Novaes JS (2005). It seems that aerobic activity (endurance) is one of the best forms of exercise in weight control programs. Changes in body composition are often overlooked in weight control programs. However, reducing the fat mass of body mass loss by maintaining lean body mass, compared to all programs should be the real targets and exercise training appears to be necessary for developing this purpose.

Hearing dysfunction with different degrees is one of the common types of disabilities among people from childhood. Alqoraity (2001) said the deafness disability has a particular importance, because of the importance of the sense of hearing to the individuals and the problems caused by losing it, as a result of losing the basic means of communication between them and members of the community. Rateb (2007) said that the proportion of people who suffer from weak to full hearing loss reached between 4 to 5% of individuals worldwide, this deficit does not mean that disabled hearing person has lost his ability to work and satisfy his psychological and physical needs.

Regular physical activity and physical fitness are especially important in maintaining the health and well being of people of all ages. Research clearly indicates that virtually all individuals, including those with disabilities, can gain health benefits from regular physical activity. The health promotion and disease prevention needs of people with disabilities who have secondary health conditions may be complicated by specific medical aspects of disabilities. People with disabilities may be at greater risk of future problems; e.g., individuals with spinal cord injuries are more likely to have to address pressure sores. For deaf individuals with no or minimal secondary health conditions, there is great potential for effective participation in physical activity programs.

Alkrioti (1995), insist that the hearing–disabled are capable of performing most if not all activities that suit other ordinary people with the same orientation and mental level. It also established by both Canon (2002) and Mahroos (2000), that the hearing–disabled have super power in game play and physical achievement of some motor skills more than their ordinary peers, as they are distinguished from all other disabilities, that their organs are sound and their senses are correct, and will enjoy high fitness with the regular training, if they were guided correctly to reach a level similar to the level of ordinary peers with similar orientation and mental level.

Studies have shown that a hearing impairment is associated with low levels of physical activity in adolescents (Lobenius-Palmér et al., 2018), adults (Loprinzi et al., 2012) and in the elderly (Gispen et al., 2014). The lower adhesion of deaf people to physical exercise possibly due to the difference in language, which makes communication difficult between hearing and nonhearing people, may also influence cardiorespiratory capacity (Gispen et al., 2014; Loprinzi et al., 2012). Some authors have suggested that deaf people have lower cardiorespiratory fitness because the development of their lung volumes and capacities might be compromised due to the lack of stimuli such as speech, singing, or shouting (Żebrowska et al., 2007a; Żebrowska et al., 2007b).

One of the most important parameters to be investigated in deaf athletes with a lack of sensory

input due to loss of hearing ability is the working capacity, which is also defined as physical fitness. The physical fitness of an athlete has many components including the physiological and motor performance. The subcomponents can be listed as the cardio-respiratory endurance, muscle strength, speed, flexibility, agility, balance, reaction time and body composition (Jackson, 2006). These components, at the same time, are also defined as health and sports performance related physical fitness parameters, since they are related to each other. There are numerous physical fitness assessment tests which include components that are not only limited to strength and endurance, but also include speed and agility. These tests help to gather important data for a specific group of population.

Aerobic exercise of relatively low intensity that depends primarily on the aerobic energy generating process with intensity between 60 and 85% of maximum heart rate without rest in between. Step aerobics is performed on an elevated platform or the step for the aerobic outcomes distinguished from other forms of aerobic exercise by its use of an elevated platform (the step).

METHODOLOGY

Selection of Subjects

To achieve the purpose of this present study 40 school students were selected from Florence swainson school, the Deaf campus, Palayamkottai, Tirunelveli district region, Tamil Nadu state, India. School boys were selected randomly as subject and their age group between 14 to 18 years.

Experimental Design

The selected subjects (N=40) were divided into two groups equally and randomly. From this, Experimental Group I underwent Aerobic exercise (aerobics with music and signal) and Group II acted as Control Group (CG). The experimental group was treated with their respective training for one hour per day for three days a week for a period of eight weeks.

SELECTION OF VARIABLES

Independent variable

- Aerobic Exercise

Dependent variable

Body Fat Percentage

SELECTED VARIABLES AND TEST ITEMS

S. No	Variable	Test Item	Unit
1	Body Fat Percentage	Skin fold caliper	Centimeters

STATISTICAL TECHNIQUE

To study the influence of Aerobic exercise group (experimental group) along with control group and to find out the significant mean differences among them, the analysis of covariance (ANCOVA) technique was employed.

ANALYSIS OF THE DATA

The significance of the difference among the means of experimental group was found out by pre-test. The data were analyzed dependent 't' test and analysis of covariance (ANCOVA) technique was used with 0.05 levels as confidence. Analysis was performed using SPSS 20.0 (SPSS Inc Software).

RESULTS AND DISCUSSION

Table 1. Analysis of Covariance for Biceps, Triceps, Suprailliac and Subscapula for Aerobic exercise Group and Control Group

Name of Variables	Group Name	Aerobic Exercise Group	Control Group	'F' Ratio
Biceps	Pre-test Mean μ S. D	16.50 μ 1.43	15.10 μ 1.07	154.68*
	Post-test Mean μ S. D	12.50 μ1.19	15.05 μ 1.05	
	Adj.Post Mean SEM	12.04; 0.19	15.51; 0.19	
Triceps	Pre-test Mean μ S. D	14.95 μ 1.28	16.65 μ 1.27	214.45*
	Post-test Mean μ S. D	11.65 μ 0.88	16.65 μ 1.27	
	Adj.Post Mean SEM	12.22; 0.17	16.08; 0.17	
Suprailliac	Pre-test Mean μ S. D	18.80 μ 0.17	19.20 μ 1.20	237.37*
	Post-test Mean μ S. D	14.85 μ 0.99	19.30 μ 1.30	
	Adj.Post Mean SEM	15.00; 0.19	19.15; 0.19	
Subscapula	Pre-test Mean μ S. D	17.85 μ 0.99	18.20 μ 1.15	246.91*
	Post-test Mean μ S. D	14.35 μ 1.18	18.20 μ 1.15	
	Adj.Post Mean SEM	14.50; 0.16	18.05; 0.16	

*Significant at 0.05 level; Number of subjects in each group is 20

Table – 1 shows that there were significant differences between experimental and control group on all the four sites selected for assessing fat percentage. As the improvement was in favour of experimental group, it can be concluded that involvement in eight weeks of aerobic exercise programme resulted insignificant decrease in the fat percentage of subjects.

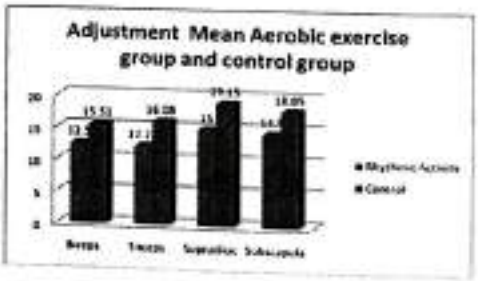

Figure .1 Graphical Representation of Adjustment Mean Aerobic exercise group and control group in Relation to Biceps, Triceps, Suprailliac and Subscapula

CONCLUSION

The experimental study is to provide therapeutic sports and recreational programme for children with deaf as physical abilities. The objective of the study was to incorporate opportunities for the physically challenged children to learn sports, practice and develop the skills independently. The programme also serves as strategic lead for physically challenged to involve in sports and physical exercise.

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