Research Paper Physical Education

Effects of Muscle Aerobics on Leg Explosive Strength

DR. JOGISWAR GOSWAMI | ASST.PROFESSOR/ASST. DIRECTOR AMITY SCHOOL OF PHYSICAL EDUCATION AND SPORTS SCIENCES

ABSTRACT

Now days it is evident from research that physical activity has taken the place of medicine for many major problems related to the human body. Physical activity always put positive effects on health and also to the fitness parameters. If we consciously and judiciously combine various forms of physical workouts we can take greater benefits out of the activities. Muscle Aerobics is one such forms of aerobic workout which not only benefits the functioning of heart and lungs but puts a significant impact on the muscular system of the body. Research done by "Berry", "Garber" and "Blessing" supports these facts. The present study also examined the effects of eight weeks of Muscle Aerobics on leg explosive strength. Here the training programme showed a significant improvement on leg explosive strength of eight and ninth standard school girls. So it was concluded that eight weeks alternate days Muscle Aerobic training programme has a significant role in improving the leg explosive strength of girls.

KEYWORDS

INTRODUCTION

Today's world is known for knowledge explosion and new concept which is well supported by research. It is research which establishes a conceptual idea into a proven fact. In the field of exercise science also many conceptual ideas have been converted into proven principles through research. The main focus of today's society is to stay fit and sustain happiness in life. The present professional and domestic scenario has become very challenging and stressful. It has become essential for everyone to find out a healthy outlet for fitness and relaxation. People have started exercising and going to the gym for fitness. Some exercise programme takes care of the cardio respiratory endurance and some takes care of the muscular strength. But working in a close homogeneous group with music provides a different enjoyment and positive effects on the body systems. If the exercise programme takes care of the strength, endurance, coordination and enjoyment then the exercise programme becomes a holistic programme. Lots of studies have shown that Aerobic training programme has a positive effects on our cardio respiratory endurance. They help to keep our heart and lungs strong and functioning very effective. "Berry" et.al, studied to compare two forms of aerobic dance and treadmill running. They found an effective increase of cardio respiratory fitness in female subjects."Garber" studied that aerobic dance shows improvement in aerobic power by decreasing the heart rate of the subjects with compared to a walk jog training programme.

In this research the main concept is to give a different dimension to the aerobic training programme. If we can add a component of resistance during aerobic workout that will certainly enhance the strength. So many aerobic training programmes have been developed with hand-held weight to provide a resistance during the aerobic workout. These forms of aerobics were known as Weight Aerobics and later known as Muscle Aerobics. "Blessing" et.al, studied the effects of eight weeks of aerobic s with and without hand-held weights to see the physiological effects and effects on body composition. The results were found significant. So, it is observed that along with the cardio respiratory improvements, aerobics done with hand-held weight will show improvements in the body strength also. The present study was also focused to see the effects of Muscle Aerobics on the leg explosive strength of girls.

METHODOLOGY

Thirty girls of eight and ninth standard of ScindiaKanyaVidyalaya Gwalior were taken randomly as the subjects for the present study. Two groups were made as control and experimental group of equal size. The experimental group was given Muscle Aerobic training three days per week alternately for eight weeks. The intensity of the training programme was increased gradually by increasing the intensity of the music used for the work out and also gradually increasing the duration of the main work out session by five minute each week. Hand-held weights of one kg were taken during the aerobic workout session. The training session started with slow stretching and warm-up for 10 minutes followed by the main aerobic workout session for 15 minutes. To conclude the training programme a progressive cooling down session was always conducted for about 10 minutes. The total training programme was fixed for 30 minutes for the first week and there after it was increased by five minutes in the main workout session every week. Vertical jump test was conducted before and after the training programme to collect the pre and post tests data for leg explosive strength. The analysis of data was done by applying the mean difference method (paired t-test) to find out the mean difference of the pre test and post test of the experimental and control group.

FINDINGS

The significance of difference between the pre and post test means of the experimental and control group in vertical jump and their t-ratio are given in table – 1.

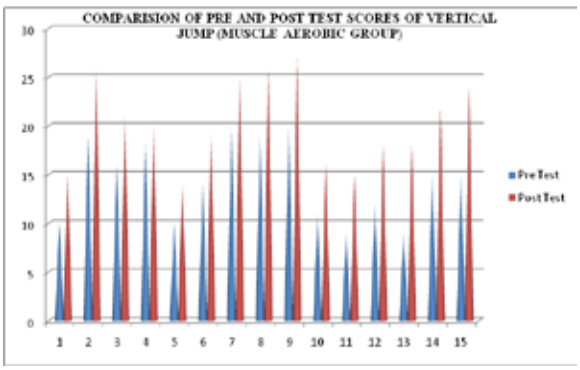
Table- 1
DIFFERENCE BETWEEN PRE-TEST AND POST-TEST MEANS OF EXPERIMENTAL AND CONTROL GROUP IN VERTICAL JUMP

No of subjects	Groups	Pre-Test Means	Post-Test Means	SD Difference	t- value
15	Experimental	14.74	20.4	0.30	5.24
15	Control	12.16	12.93	0.51	0.009

Table-1 shows that the t- ratio between the pre and post test means of the experimental group are found to be significant at .05 level since the calculated t- value of 5.24 is greater than the tabulated t- value of 2.14. The table also reveals that the t- ratio between the pre and post test means of the control group are found to be insignificant since the calculated t- value of .009 is less than the tabulated t- value of 2.14.

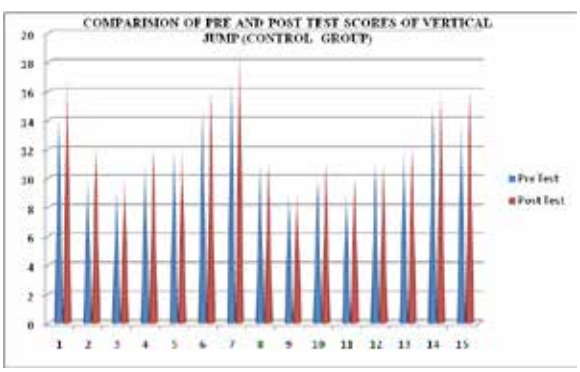
The graphical representation of the scores of the pre and post test for the experimental group is presented in figure -1.

Figure -1



The graphical representation of the scores of the pre and post test for the control group is presented in figure -2.

Figure- 2



DISCUSSION OF THE FINDINGS

It is evident from many research studies that aerobic work-out improves endurance and also helps in improving the body composition. In this study an external element of resistance in the form of hand-held weight was introduced to the subjects during their aerobic training workout. The external hand-held weights provided a resistance to all the body movements while the body moves forward, backward, sideward, up and down. The hand-held weight provided an extra stress on the leg muscles continuously while performing all the aerobic movements throughout. This might have helped in improving the strength of the leg muscles. The systematic load on the muscle has actually improved the aerobic capacity of the body which in turn has put positive effects on the muscular system in improving the explosive strength. The training might have improved the muscle cross section and the myoglobin content in the muscle fibers might also have increased. It is also possible that the oxygen absorption and utilization at the tissue level have improved due to the systematic muscle aerobic training. Thesemight be the important factors which resulted in the significant improvement of the leg explosive strength. The training programme was focused to develop endurance, speed, and strength through variations in the intensity of the music, gradual increase of the time duration and use of hand-held weights. All these factors certainly might have put a positive impact on the functioning of the muscular system which is evident as the leg explosive strength of the subjects was found to be significantly improved. So, we can conclude that aerobic workout with variations like "Muscle Aerobics" is one of the important and significant variations of exercise programme which is effective in improving the leg explosive strength.

REFERENCES

Lourence E. Morehouse and Augustus T. Miller,Physiology of exercise(Saint Louis: The C.V. Mosby Company, 1976), p-81. || Blessing et. al. "The physiological effects of eight weeks of aerobic dance with and without hand held weights."The American Journal of Sports Medicine. 15:15 (1987):508-510 || Berry et. Al. "A comparison between two forms of aerobic dance and treadmill running."Medicine and Science in Sports and Exercise. 24:8 (Aug:1992), p- 946-951. || Carol EningGarbar, "Is aerobic dance an effective alternative to walk jog exercise training?"Completed research in health, physical education and recreation.32:2 (june 1992). |