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ORIGINAL ARTICLE

ROPE SKIPPING ENHANCES THE MUSCULAR LEG ENDURANCE OF MALE ATHLETES

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Abstract:

The present investigation was conducted to determine the effect of rope skipping on muscular leg endurance of male athletes. Thirty male athletes were selected as subjects for the present study. They were classified into two groups, group 'A' was designated as an experimental group, while 'B' was designated as a control group. 15 students were acted as an experimental group and 15 were acted as a control group. The training was assigned to experimental group only. The training was given for 6 weeks, five days a week to the experimental group. The volume of the work was gradually increased from 5 minutes to 15 minutes. Data were taken at the beginning and at the conclusion of an experimental period. Paired 't' test was applied between pre – test and post – test means of both group in order to find out the group improvement in experimental and control group. The level of significance was set at 0.05 levels. It is concluded that rope skipping improves the Muscular Leg Endurance.

KEYWORDS:

Muscular Leg Endurance, rope skipping, physical fitness.

INTRODUCTION:

Endurance means many different things to athletes. For some it is the ability to continue working at top speed for as long as possible, for others it is simply a matter of how long or how much distance can be covered in a given time. When it comes to strength training, however, muscular endurance refers to a specific kind of endurance that describes to the ability of a muscle, or group of muscles, to sustain repeated contractions against a resistance for an extended period of time. Muscular endurance is one of the components of muscular fitness, along with muscular strength and power. An example of muscular endurance is how many times you can do a full squat, a sit up, or how many times you can do a bicep curl with a light-to-moderate weight before breaking form. It is used as a term related to how many repetitions of a single exercise you can do without needed to stop and rest.

The specific type of muscular endurance used during cardiovascular fitness activities such as running, swimming or cycling is usually called cardiovascular endurance or cardiorespiratory endurance and should be discussed separately from the strength training

definition. Endurance training for these specific types of physical activities builds the energy systems of the body, the muscle fibers, and capillaries that can sustain long periods of exercise, such as running a marathon or cycling a 100-miler.

Modern day Physical Education is concerned with the development of the individual to as hear his innate motor potentialities as possible. Many physical educators also consider the development of desired characteristics of individual personality structure as an important outcome of physical education. The relationship of selected factors of personality to levels of motor ability should be great importance to the profession. Regular training without having any break is always emphasized as an essential ingredient for the athletes. One of the basic laws of biology is that the fundamental efficiency of an organism improves when it is used and regressed with disuse. Accordingly it follows that if the human machine is to be kept in good working order some regular exercise is necessary.

To be a good sportsmen one has to develop various qualities within him. A sportsman should have speed, strength, stability, suppleness, endurance and skill (personal skill, rhythm handling object etc.). There are various ways to develop each and every component separately at all levels. This proneness can be developed up to the optional level through planned systemic and continuous training programmes.

Skipping with rope provides a good means for exercising the whole body and thus promoting general fitness of the body. In addition to strengthen leg and arm muscles, skipping also helps in improving cardio-respiratory efficiency. Rope jumping is aerobic if done at a slow or moderate pace, but is anaerobic if done vigorously. One study shows that typical exercises jumps very briskly and for this reason, cannot maintain the jumping continuously. Even those who are highly trained or who jumps at a moderate pace find it difficult to continue this exercise long enough to build cardiovascular fitness because of leg fatigue, high hart rate, or loss of interest in the activity. To be most effective, a continuous routine involving several different

jump steps should be used in combination with other forms of exercise, for e.g. rope jumping could be a part of a continuous callisthenic program or a dance aerobic routine.

Out of the available literature it is evident that there are so many methods for improving Muscular Leg Endurance and general fitness. Each method has their merits and demerits. Rope skipping is also one of the methods which will be helpful for the improvement of Muscular Leg Endurance. It requires fewer places and people can do it in privacy, it will be helpful for sportsmen and general people.

MATERIALS AND METHODS

Selection of subjects:

30 male athletes from Pt. R.S.U. Raipur served as subjects for the present study. The age of the subjects ranged between 17 – 25 years. The subjects were divided into two groups, 15 subjects were acted as an experimental group while 15 acted as a control group.

ADMINISTRATION OF THE TEST

Half Squat Jump Test

Objective: To measure the endurance of the muscles of the legs.
Age level: 17 to 25 years.
Sex: Male

EQUIPMENT AND MATERIALS:

Adjustable bench, chair, fold up mats, or anything that can be stacked to measure to the lower patella (knee cap) level of the knees.

DIRECTIONS:

a. Adjust the seat level of bench, chair or whatever is available to lower patella level.
b. Face about and clasp your hands behind your head and step one foot slightly ahead of the others.
c. Squat down until seat touches the surface of the seat level and jump upward extending the legs

(knee straight) and switch the position of the feet. Repeat for as many repetitions as necessary.
Scoring: One point scored for each correct repetition.

ADDITIONAL POINTERS:
a. If the performer stops to rest, the score is terminated at that point.
b. The feet must come off the floor on each jump and the legs must be extended.
c. The performer's buttocks touch the horizontal seat level on each repetition to be scored.

Adminstration of the Training Programme & Collection of Data

To know the effect of rope skipping on Muscular Leg Endurance of athletes of physical education, Pt. R.S.U. Raipur, the training imparted to all the students by researcher himself. The training was given five days in a week for the experimental group and no training was given to control group. The pre and post test data was collected by the research scholar at the beginning and end of the training programme respectively. In training, the rope skipping group was asked to do the skipping with different exercise for e.g. with two legs simple jump, alternate leg jumping, high knee action jumping with slow and fast combination. The time period of rope skipping was gradually increased with rest time in first two weeks and then continuously rope skipping for 15 minutes every day without any rest.

In order to find the effects of rope skipping on muscular leg endurance of male athletes, one tailed 't' test was applied. For testing hypothesis the level of significance was set at 0.05 level.

RESULT OF THE STUDY

Table – 1
One tailed 't' ratio of Experimental and Control Group for Half Squat Jump Test

Group	N	Pre – Test Mean	Post – Test Mean	DM	SE_D	't' ratio
Experimental Group (A)	15	53.53	72.93	19.40	3.13	-6.20
Control Group (B)	15	49.93	50.87	-0.93	1.13	-0.82

*Significant at 0.05 level
'*t*' value required to be significant at 14 *df* = 1.76

Table–1 clearly revealed that experimental group improved significantly at 0.05 level yielding 't' values of - 6.20. The needed 't' value for significance at 0.05 levels with 14 df for one tailed test is 1.76.

Table–1 also revealed that control group did not show any significant improvement in the test component of Half Squat Jump Test at 0.05 level yielding 't' values of - 0.82. The needed 't' value for significance at 0.05 levels with 14 df for one tailed test is 1.76.

The graphical representation of pre and post test means of experimental and control group are presented in Figure – 1.

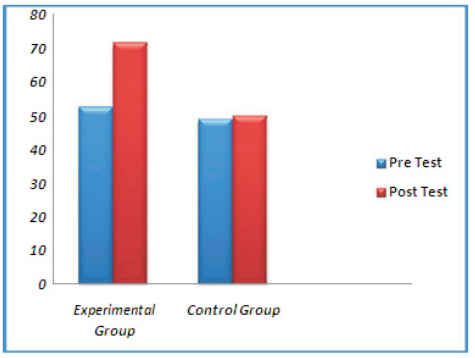

Figure – 1. Graphical representation of Half Squat Jump Test between pre and post Test means among the Experimental and Control Groups

DISCUSSION OF FINDINGS

The analysis of data revealed that experimental group trained by rope skipping showed significant gains in muscular leg endurance where control group did not showed significant improvement and it might be lacking of the specific training for the improvement of such variable by conditioning programme in physical education course.

The findings are supported by the study conducted by Bandopadhyay on effect of rope skipping on selected physical and physiological variables and the result showed that after an eight weeks training, the speed, Leg muscle, power, cardiovascular efficiency was significantly improved. Boucher studied the comparison of rope skipping and jogging as method of improving cardiovascular efficiency. The result showed that daily 10 minutes programme of rope skipping improved cardiovascular efficiency significantly than that of jogging.

Powel studied the effects of rope skipping for five to ten weeks period. The results showed that there was greater leg and knee strength, increased calf size, better jumping ability, greater agility and flexibility, broader shoulder and deeper chest and improved heart response, after training. These all studies support the result of the present study.

CONCLUSION

In conclusion, result of the present study provides evidence that two months of rope skipping may positively affect performance of the muscular leg endurance of male athletes.

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