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A Study of the Effect of Rope-Jump Exercise on the Fitness of the College Students

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Abstract – The purpose of the present study was to find out the effects of Rope-Jump exercise on the fitness of the college students and the compare pre-test and post-test scores of the subjects participating in the study. To achieve the purpose thirty students (girls) between the age of (18-25) years were selected from Govt. Degree College Gonda, Aligarh. The subjects were selected using a convenient method. Three fitness tests were conducted pre and post rope-jump exercise training programme. The training programme of the rope-jump exercise was 10 weeks and five days in a week. The three tests were, one-minute sit-ups test, standing broad jump test and 12 minute run/walk test. To determine the significance difference between pre-test and post-test scores't' test was used. There was a positive effect found on the fitness level of college students of rope-jump exercise.

Key Words: Physical Fitness, Rope-Jump, Sit-ups, Standing Broad Jump, 12 Minute Run/Walk.

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INTRODUCTION

Exercise and increased physical activities add year to life and life to years. Health benefits are obtained from increasing the amount of any physical activity conducted. "Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it." **—Pluto**

Physical activity is any movement that uses energy. Exercise is a physical activity that is structured and is done at certain intensity for a certain period of time.

Physical fitness is associated with a person's ability to do work effectively, enjoy leisure time, be healthy, resist hypo-kinetic diseases and emergency situations.

Physical fitness is a state of health and well-being and more specifically, the ability to perform the sports activities, occupations and daily routine activities **(Wikipedia 2018).** Physical fitness is not merely being able to perform certain feats that show one's strength. It is the condition of our body as a whole. Everyone has a different level of complete physical fitness which once reached, rewards you with a more productive and more enjoyable life.

Physical fitness is to the human body what fine tuning is to an engine or instrument. It enables us to perform up to our potential. Fitness can be described as a condition that helps us for a better look, pleasant feel and do our best**.**

Clarke & Clarke (1984) found that physical fitness is not a static factor but one that varies from individual to individual and in the same person from time to time expending on causes. Physical fitness is the most popular and frequently used term in physical education.

According to **Nixon & Cozons (1964),** it was the desire to establish a scientific approach to the development of physical fitness which formed the basis of the first meeting of physical education in 1885 when the profession of physical education originated. General fitness implies the ability of a person to love most effectively with their potentials, which depend upon the physical, mental, emotional, social and spiritual components of fitness which are highly interrelated. The researcher defines physical fitness by a group of five components namely muscular strength, muscular endurance, cardio-respiratory endurance, flexibility and body composition, physical fitness is an essential aspect for every person and to test their fitness.

Jump-roping evolves the muscles in arms and legs, and it also improves cardio-muscular functions and metabolism. The rope is a portable tool and jump-roping exercise takes minimum space. On the other hand rope-jumping is incredibly cheap compared to other sports activities. Researcher has claimed that rope-jumping workout for 15 to 30 minutes daily for two months significantly improves the agility of the teenagers. This study has proven that ten weeks of jump-roping workout is an effective way of improving the fitness level of the students. Also, the results have demonstrated a non-significant improvement in the speed performance with a rate of approximately 30

percent. Generally speaking few researchers have studied the effect of rope-jumping on speed **(Johromi & Gholam, 2015).**

This study aims at improving the fitness of the college students, i.e., Cardio-respiratory endurance, strength and power. As the jump-rope is convenient, it can be implemented as a part of daily physical activities routines. In this study the subjects were selected using the convenient method. The students were appealed by the researcher to participate in rope-jumping programme conducted by researcher. The students who were willing to participate were consider as the subjects. There are many test in physical education to measure the fitness. But in the present study three fitness tests were selected for testing the fitness of the students, i.e., One minute sit-ups test, standing broad jump test and twelve-minute run/walk test. One week practice and training session was provided to the subjects before the test was conducted. After one week the three tests were conducted for the subjects before implementing the jump-roping training programme. After 10 weeks for the experiment (rope-jumping exercise programme) post-test was conducted for the above tests. The tests were taken under the same geographical conditions and time of the pre-test.

The purpose of the present study was to find out the effects of rope-jumping activity on the fitness of the college students. Rope-jumping is a low-cost physical activity; therefore its impact on physical fitness is being studied by the researcher.

OBJECTIVE:

To study the effects of rope-jump exercise programme on the fitness of the college students.

Hypothesis:

There will be significant effect of jump-rope exercise on the fitness level of college students.

METHODOLOGY

Subjects:

30 female college students were selected from Govt. Degree College Gonda, Aligarh for the study. The subjects were selected using convenient method. The age of the subjects was ranged 18 to 25 years.

Variable:

To achieve the purpose of the study the following physical fitness components were selected:

1. Abdominal strength
2. Explosive power of legs
3. Cardio-respiratory endurance.

Administration of Tests:

Sit-ups:

The purpose of the sit-ups is to evaluate abdominal muscular strength and endurance.

Procedure: To assume the starting position, the subject lies on his back with knees flexed, feet on floor, with the heels. The arms are crossed on the chest with the hands on the opposite shoulders. The feet are held by the partner to keep them in touch with the testing surface. The subject by tightening his abdominal muscles, curls to the sitting position. The sit-up is completed when the elbow touch the thighs. To complete the sit-up the students returns to the down position until the mid-back makes contact with the testing surface. The time keeper gives the signal, “Ready go” and the sit-up performance is started on the word “go”. Performance is stopped on the word “stop”. The number of correctly executed sit-ups performance in 60 seconds shall be the score. The number of correctly executed sit-ups completed in 60 seconds were recorded.

Standing Broad Jump:

The purpose of this test is to measure the explosive power of legs.

Procedure: The subject stands behind the line marked on the ground with feet slightly apart. Both foot take off and landing is used, with swinging of the arms and bending of the knees to forward drive. The subject attempts to jump as far as possible landing on both feet without falling backwards. The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Record the longest distance jumped from best of three attempts.

12 Minute Run/Walk:

The purpose of the distance runs is to measure maximal functional capacity and endurance of cardio-respiratory system.

Procedure: Subjects are instructed to run as far as possible in 12 minutes. The students begin on the signal “Ready start”. Subjects continue to run until a whistle is blown at 12 minutes. Walking is permitted but the aim is to cover maximum distance as possible in 12 minutes. In 12 minutes the distance is scored to the nearest 10 yards or 10 meters.

Statistical Analysis:

To assess the pre-test and post-test data of sit-ups, standing broad jump and 12 minutes run/walk of college students mean, standard deviation and ‘t’ Ratio were computed. To find out the effect of rope-jump exercise programme on fitness level of college students ‘t’ test was used at 0.05 level of significance.

Procedure of Experiment:

All subjects went under a specified 10 weeks of rope-jump exercise programme in morning. The duration of the training period was 10 weeks with five days per week. On each day the subjects exercised approximately 20 minutes under the supervision of the investigator. After the completion of training programme post test was conducted. To ensure uniform testing all subjects were testing in same conditions.

RESULT

To find out the significance difference pre-test and post-test scores of physical fitness variables, mean standard deviation and 't' ratio were computed and to find out significance difference between pre-test and post-test scores of the variables 't' test was used at 0.05 level of significance. The findings pertaining to it are presented in Table 1-3.

Table-1

Significant different in Abdominal Strength of College Students between Pre-Test and Post-Test Scores

Test	Mean	S.D.	't' Ratio
Pre-Test	24	6.47	7.295*
Post-Test	29	6.8	

* Significant at 0.05 level't' (0.05) 29 = 2.045

It is observed from Table-1 that the calculated't' (7.295) is more than the tabulated't' (2.045). Hence it may be considered that there was a significant difference found between pre-test and post-test means of abdominal strength of college students.

The scores are also illustrated in Figure-1

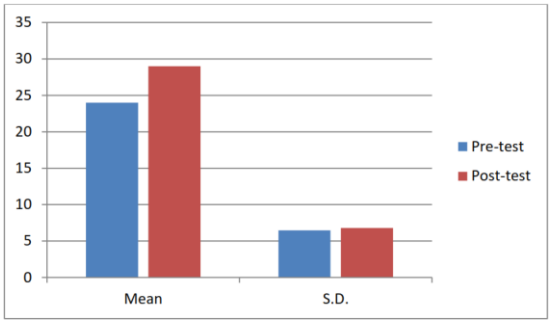

Figure-1

Table-2

Significant Difference in Strength Endurance of College Students between Pre-Test and Post-Test Scores

Test	Mean	S.D.	't' Ratio
Pre-Test	1.57	0.22	4.235*
Post-Test	1.81	0.28	

* Significant at 0.05 level't' (0.05) 29 = 2.045

It is observed from Table-2 that the calculated't' (4.235) is more than the tabulated't' (2.045). Hence it may be considered that there was a significant difference found between pre-test and post-test means of strength endurance of college students.

The scores are also illustrated in Figure-2.

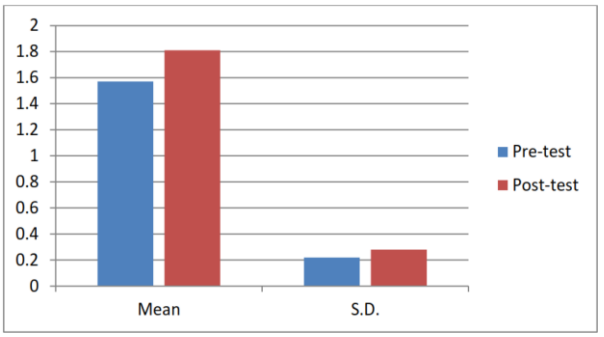

Figure-2

Table-3

Significance Difference in Cardio-Respiratory Endurance of College Students between Pre-Test and Post-Test Scores

Test	Mean	S.D.	't' Ratio
Pre-Test	1334	140.24	9.54*
Post-Test	1388	146.86	

* Significant at 0.05 level't' (0.05) 29 = 2.045

It is observed from Table-3 that the calculated't' (9.54) is more than the tabulated't' (2.045). Hence it may be considered that there was a significant difference found between Pre-Test and Post-Test means of cardio-respiratory endurance of college students.

The scores are also illustrated in Figure-3.

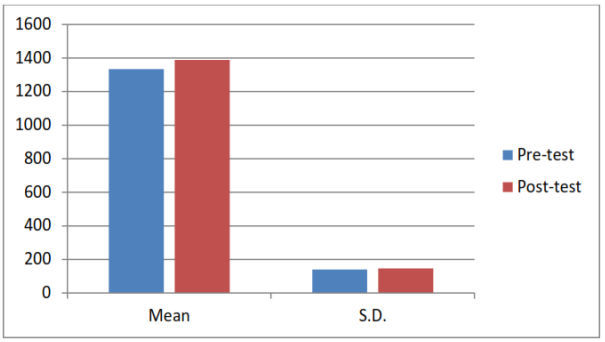

Figure-3

DISCUSSION

The purpose of the study was to find out the effects of rope-jump exercise on the fitness of the college students. A similar study was conducted by **(Partivi, 2013)** in which it was proved that rope-jump helps in improving the cardio-respiratory endurance and agility of the middle school students. Base on the data analyzed and interpreted it has been found that there

is a significant effect of rope-jump exercise on the fitness of college students. The number of laps has increased in the 12 minute run/walk test as compared to the pre-test. The number of correct sit-ups in 60 seconds and the distance covered by the subjects in standing broad jump is also increased as compare to the pre-test.

CONCLUSION

The result showed a positive effect on fitness tests performed by the subjects. There was improvement seen in the performance of the students. The sit-ups, standing broad jump and 12 minute run/walk scores have increased of all the participants. So it may be considered that the rope-jump exercise has shown a positive effect on the cardio-respiratory endurance of the college students and the fitness of the students has improved.

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Abstract –

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INTRODUCTION

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