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## Effect of skipping on VO<sub>2</sub>Max among the females in rural area

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### Abstract

The purpose of the present study is to find out the level of VO<sub>2</sub>MAX and the effect of skipping on VO<sub>2</sub>MAX among the females in rural area. Skipping exercise increases VO<sub>2</sub>MAX. Not surprisingly, exercise skipping across a wide range of intensities is an effective means of increasing VO<sub>2</sub>MAX among the females in rural area. Collectively, the result analysis carried out for the present study suggests that skipping at any intensity of VO<sub>2</sub>MAX improves maximal oxygen uptake in college female students. For this study, forty females of the rural area are selected age ranging twenty six to thirty five years. Twelve week training program conducted. In this training, two sessions are conducted in a day. Results have been reported in pre and post mean VO<sub>2</sub>MAX value. After conducting a training program, the result shows that skipping at any intensity of VO<sub>2</sub>MAX is improves in college females in rural area.

The aim of this study is to examine the effect of twelve week skipping on VO<sub>2</sub>MAX in aging between twenty six to thirty five years old females in rural area. As a result of pre-test and post-test significant differences are found. Skipping training program was the result of having a positive effect on VO<sub>2</sub>MAX among females in rural area. This study concludes that skipping training program develops VO<sub>2</sub>MAX as well as helps to contribute the development of cardio-respiratory fitness in rural area. Forty females, twenty experimental group twenty control groups participated for the present study. Experimental group continued 12 weeks skipping training program with two sessions in a day. VO<sub>2</sub>MAX calculate with the help of online vo2max calculator. VO<sub>2</sub>MAX test measurements were taken before and after twelve week period in both groups. In the statistical analysis means and standard deviation is used in both groups.

**Keywords:** Skipping, VO<sub>2</sub> Max, Females in Rural Area

### Introduction

In rural area, women are experiencing contradictions. On one hand they are vested with the major responsibility of implementation of household chores, child development, taking care of needs and requirements of elderly family members. Rural women normally are required to follow the instructions of the male members. They are less literate less as compared to men. Majority of rural women, not only experience economic poverty, but also information poverty. Women mostly are not skilled in terms of use of machine, in the lower socio-economic level of the society; women are engaged in more hazards manual labor than men. Performing dual roles is not a difficult task for rural women.

However, people living in rural areas often face different challenges from those living in urban areas. Indian women are facing lot of problems. It is a fact that in every society girls and women participate less than boys and men in sports. It is because society has been trained to think to sports in terms of genderness. Rural women have been identified as participating in less in sport and physical activity than their urban counterparts. Sport activities help women to reconnect with the power of their own bodies. Various other benefits include mental well being, independence, peace of mind, increased concentration, fame; discipline and reservation in jobs are the benefits of the sports. In urban area physical activities, sports participation, attending gym is a recent trend but in rural area it is not actually done. Modern lifestyle associated easy access to food, lack of exercise; sedentary lifestyles, calories dense foods, and exercise television viewing contribute to social development.

Physical activity (PA) is important for lifelong health; however, participation is lower in rural compared to metropolitan areas and declines during adolescence, particularly for girls. This decline is related to the number of life transitions that occur during adolescence.

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Physical fitness means one can do everyday tasks without getting too warm out your lungs and hearts send enough oxygen through your body for you to be active. The muscles and bones are strong and good flexibility for things like bending and stretching. Basically physical activity is anything that gets your body moving. Being active one can boost sleep, builds self-esteem and reduces stress. They also help to protect human being from serious health problems like obesity, diabetes and heart trouble. Skipping is very easy and chief to develop fitness. It requires a small area and less time. It may be just a rope but the fact is how one uses this basic tool which can help to keep fit. The benefits of an active lifestyle are well documented. Many of these benefits are also associated with higher levels of cardio respiratory fitness (VO<sub>2</sub>max) which may exert protective effects which are independent of traditional risk factors. It is important to regularly play sports in the balanced and healthy development of children. Additionally, for individuals with low physical fitness, even modest improvements in fitness can have substantial health benefits. However, some individuals may have a limited ability to increase their cardio respiratory fitness in response to endurance exercise training.

There are many individuals who lean towards skipping than running because of the numerous benefits of skipping exercise. It is simple, easy and has a lot of fun, plus one can burn a lot of calories while skipping activity. Skipping exercises improve coordination, balance, agility, rhythm, speed, and especially static or dynamic muscular strength during repetitive or constant performance and these practices may contribute to the development of motor skills. Rope-jump is performed by children as a fun, and it is used by boxers as a type of exercise for heating-up before workouts and as cardio exercises. In addition, rope-jump is preferred by crowded children groups because the rope is carried easily by children, a small place is needed, and it is cheaper to compare with other sports branches. Rope-jump improves muscles in the arms and legs cardiovascular functions and metabolism. It also has positive effects on cardio-circulation, muscle strength, endurance, speed, mobility and flexibility, balance, coordination, vertical jump, timing, rhythm and speed, lean body mass, bone density and skill development. Skipping is one of the best and most effortless approach to shed the additional fat in the body. It helps in improving your heart rate. VO<sub>2</sub>MAX the maximal O<sub>2</sub> consumption rate is a measure of how much O<sub>2</sub> is used during exercise. V for volume, O<sub>2</sub> for oxygen and max for maximum. Maximal oxygen consumption reflects cardio respiratory fitness and endurance capacity in exercise performance. Women also usually have lower HB level than man so their blood is less able to carry O<sub>2</sub> to the tissues. They have less blood volume overall, Small heart and less cardiac output. VO<sub>2</sub>max is the maximum capacity to transport & utilize O<sub>2</sub> during incremental exercise and VO<sub>2</sub>max is the accepted measure of cardio respiratory affiance. VO<sub>2</sub>max in normal active male is 38ml/kg/min and in normal active female are 29ml/kg/min. Previous studies shows significant lower values of mean VO<sub>2</sub>max/kg/min in obese people. During exercise, the increase in metabolism is expressed as the whole-body oxygen uptake that increases with exercise intensity to reach a maximum (VO<sub>2</sub>max).

In general the oxygen Consumption (VO<sub>2</sub>) in humans seems to level off at around six to seven liter oxygen /min and around eighty to ninety ml/min/kg for highly trained athletes.

## VO<sub>2</sub>MAX level chart for women

	Women					
	18-25 yrs old	26-35 yrs old	36-45 yrs old	46-55 yrs old	56-65 yrs old	66 + yrs old
Excellent	>56	>52	>45	>40	>37	>32
Good	47-56	45-52	38-45	34-40	32-37	28-32
Above Avg	42-46	39-44	34-37	31-33	28-31	25-27
Average	38-41	35-38	31-33	27-30	25-27	22-24

## Objectives

1. To find out the VO<sub>2</sub>MAX level of females in rural area.
2. To find out the effect of skipping on VO<sub>2</sub>MAX of females in rural area.

## Hypothesis

There are significant differences of skipping on VO<sub>2</sub>MAX of females in rural area.

## Delimitations

1. The study is delimited to the rural females only
2. The age of the subjects is ranging from twenty five-thirty
3. Twenty females from each group are selected for the study
4. The study is delimited to the Nijampur – Jaitane Tal-Sakri, Dist- Dhule only
5. The study is delimited to the housewife females only.

## Methodology

For the present study, forty female college students were selected as a subject. Twenty experimental groups and twenty control group of age ranging between twenty-thirty years samples are taken for the study. Subjects had to train minimum twelve week, two training sessions was conducted. Results are reported in pre and post mean VO<sub>2</sub>MAX values. The groups are assigned without a certain rule. Skipping technique was taught 'look front when skipping the rope, jump high as much as 4 cm to let the rope pass below your feet, this is not done with heels'.

## Statistical Analyses

For this study, data is analyzed after training program to determine the differences between pre and post measurements of the control and experimental groups. The dependent groups test was performed to detect whether the difference between pre and post measurements of the control and experimental groups. Independent groups determine the average of the pre and post measurements, and to determine whether the difference between these measurements was significant or not.

## Procedure

VO<sub>2</sub>max calculates with the help of online vo2max calculator. This calculator based on Resting Heart Rate. No Physical exertion is required for this VO<sub>2</sub>max calculator. Subjects need to take the resting heart rate for twenty seconds and enter the number of beats that are count, along with their age.

## Online Vo<sub>2</sub>max Calculator

Age

20 seconds Resting Heart Rate: Beats/20 Seconds

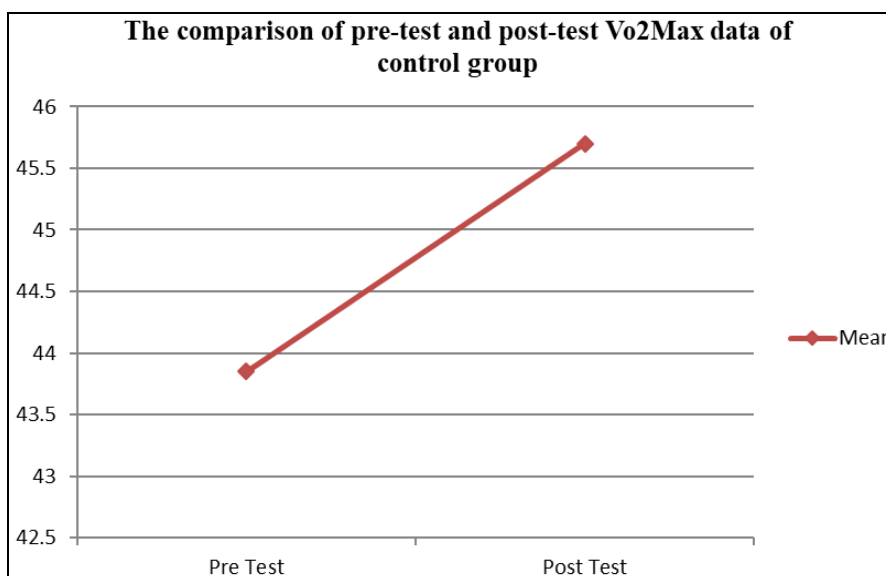
Calculate vo2 Max

**Result**

**Table 1:** The comparison of pre-test and post-test VO2 MAX data of the control group

Group	N	Mean	S.D.
Pre-Test	20	43.85	4.57
Post-Test	20	45.7	4.84

This table shows that when the mean of the pre-test and post-test measurement in the control group were compared, there were statistically significant differences were found. It is determined that mean value was increased. The mean of VO<sub>2</sub>MAX in pre-test was 43.85 and in post-test were 45.7. Difference in VO<sub>2</sub>MAX of pre and post was statistically quiet highly significant.



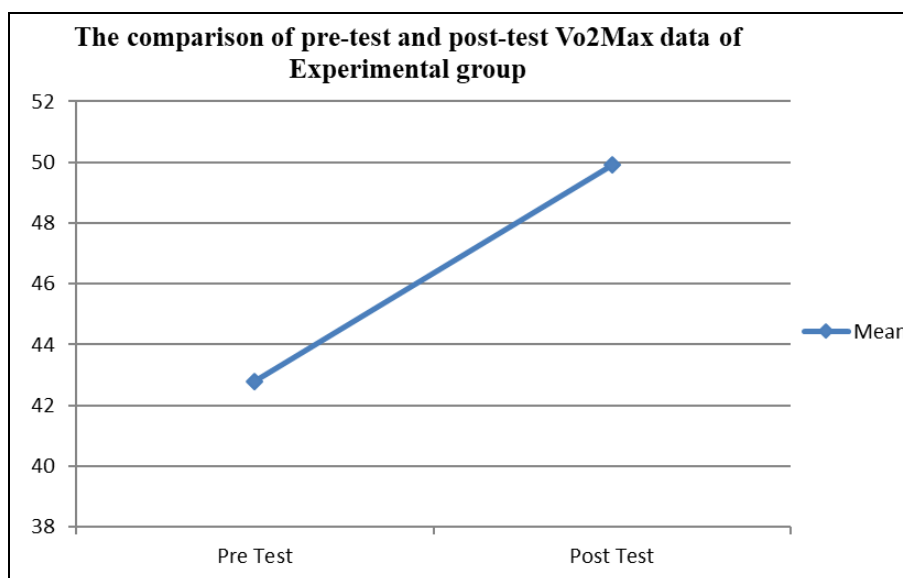
**Fig 1:** The differences of Mean has been graphically present in

**Table 2:** The comparison of pre-test and post-test VO2 MAX data of the Experimental group

Group	N	Mean	S.D.
Pre-Test	20	42.8	4.04
Post-Test	20	49.9	4.26

test measurement in the Experimental group are compared, there are statistically significant differences are found. It is determined that mean value is increased. The mean of VO<sub>2</sub>MAX in pre-test was 42.8 and in post-test were 49.9. Difference in VO<sub>2</sub>MAX of pre and post is statistically highly significant.

This table shows that when the mean of the pre-test and post-

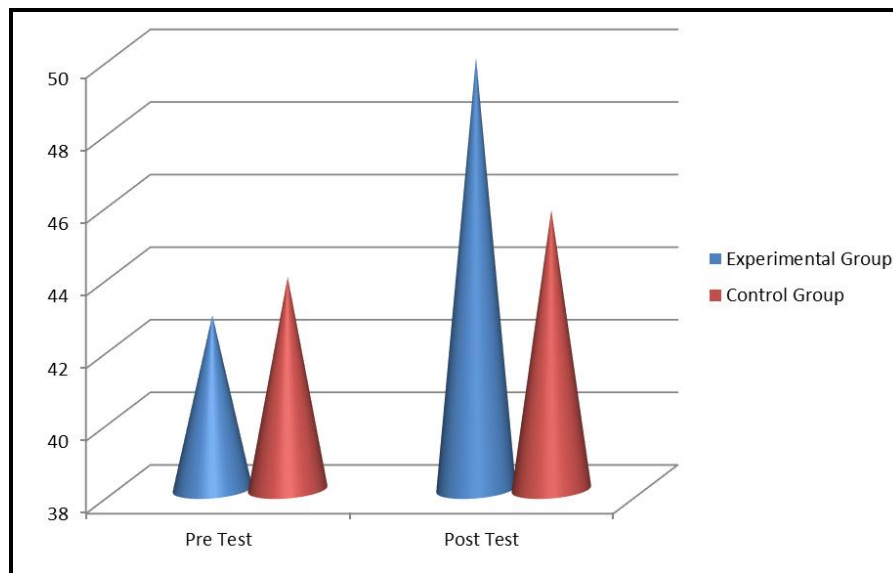


**Fig 2:** The differences of Mean has been graphically present in

**Table 3:** The comparison of Measurement Differences according to the Groups

Group	N	Pre-Test	Post-Test
Experimental Group	20	42.8	49.9
Control Group	20	43.85	45.7

This table shows that Hence it may be inferred that there is significant differences between Control group and Experimental Group. Its indicates that skipping training improves VO<sub>2</sub>MAX.



**Fig 3:** The differences of Control and Experimental groups

### Conclusion

The following conclusion has been drawn by recognizing the limitations of the study and on the basis of finding of the present study,

The analysis of the data of covariance reveals that experimental group is trained by skipping exercise; it also showed significant changes in the VO<sub>2</sub>MAX. Skipping has showed the higher physiological changes in concerned with VO<sub>2</sub>MAX. Experimental group have undergone a systematic training program. Skipping produces higher VO<sub>2</sub>MAX of experimental subjects. Skipping was effective in bringing change in VO<sub>2</sub>MAX. As a result, positive effects are determined on VO<sub>2</sub>MAX after 12 week skipping program.

1. Skipping brings a wide range of fitness.
2. Aside from fitness, It is helpful for weight management benefits, and fun
3. Skipping or rope jumping is a great form of cardio exercise. It increases the heart rate.
4. Jumping rope improves circulation and breathing and enhances lung capacity
5. Rope jumping is a great exercise. Keep the basics in mind. Ease your body into it slowly and keep it steady, but progressive. Skipping as an exercise in different workouts. It is surely have fun and also feel energetic and young at heart.

### Recommendations

The following recommendations and the findings of the present study on the basis of the conclusion.

1. Similar study can be undertaken by selecting urban areas.
2. Similar study can be done by selecting different age groups and sex.
3. This similar study can be conducted by selecting large number of subjects belonging to different areas.

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