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## Effect of rope climbing on vital capacity of college students

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### Abstract

The purpose of this study was to investigate the effect of Rope climbing on vital capacity of college students. For this study 40 male subject were selected randomly from the colleges of Pusad. The age group of subject was 18 to 25 years. The subject were categorize in to two equal group. One experimental group (Group A n1=20) and one control group (Group B n2=20). It was also ensured that all of them were medically fit and was interested to do the rope climbing to undergo the training for research project. Group A received rope climbing training while group B was treated as a control group. The design of the experiment has been planned in three phases. All the subject of experimental group were exposed to a two month training of rope climbing one hour daily in the morning. The variable vital capacity measured by wet Spiro meter. The training schedule of rope climbing revealed that there was significant improvement in vital capacity of college student.

**Keywords:** Vital capacity, rope climbing

### Introduction

Rope climbing is a sports in which competitors attempt to climb up a suspended vertical rope using only their hands. Rope climbing is a practice regularly at the world police and fire games and is enjoying a resurgence in France. Where competitions are held in shopping centre. Also, enthusiasts in the Czech Republic resurrected the sports in 1993.and hold local and national competitions.

This was an Olympic gymnastics event at one time, but was removed from that venue after 1932 games. In all most all contest, athletes climbed for speed, starting from a seated position on the floor and using only the hands and arms. Kicking the legs in a kind of "stride" was normally permitted. However, at the 1896 Olympic games, competitors were ranked by both time and style (holding and L-position) on a rope so long (15 meters) that some climbers did not reach the top and were therefore excluded. In all succeeding Olympics through the 1932 games, competitors were judged strictly by time of ascent on a shorter rope.

### Purpose of the study

The purpose of the study was to investigate the effect of rope climbing on vital capacity of college student.

### Method and Material

For this study 40 male subject were selected randomly from colleges of Pusad. The age group was ranging from 18 to 25 year. The subject were divided into two equal group. One experimental group (Group A n1=20) and one control group (B n2=20). Both group were medically fit to undergo the test. Some student were also interested to do the rope climbing to develop the strength of arm and also for research project. Those student who were interested for doing rope climbing which were taken in group A and called experimental group. The design of the experiment has been planned in three phases. All the subject of experimental group those who are interested to develop or increase the arm strength with the help of rope climbing were exposed to two month(8 week) training of rope climbing for one hour daily in the morning.

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Phase – I Pre-test  
 Phase – II Rope climbing training.  
 Phase – III Post-test.

**Pre-test – (Phase I)**

All the subject of experimental and control group were exposed to vital capacity measured by wet Spiro meter in Lit/min.

**Treatment stimuli – (Phase II)**

After the completion of pre-test. All the subject of experimental group were exposed to two month (8week) training of rope climbing for one hour daily in the morning. A rope was hang to a tree on a height of 20 feet. Student climbed on the rope with the help of only hands and again came to the ground with the help of hands. No support was taken by legs. A 8 week of scheduled was given to students. For a total period of 8 week researcher himself took a practice of rope climbing with the given schedule for a period of one hour daily.

**Scheduled of Rope Climbing**

Week	Rope climbing (20 feet)
I st week	Hand strength exercise, Practice of rope climbing
II nd week	Hand strength exercise Practice of rope climbing 10 ft
III rd week	Exercise & Practice of rope climbing 15 ft
IV th week	20 ft rope climbing & coming down
V to VIII week	20 ft rope climbing & coming down

**Post-test (phase III)**

Lastly when the rope climbing & coming down scheduled period of 8 week was completed, the Post-test on vital capacity was assessed for all the subject of both the experimental and control groups.

**Result and Discussion**

Result of Scheffe’s Post Hock Test in vital capacity of rope climbing of college student.

Ordered Treatment Means of Vital Capacity (Rope climbing Group Vs Control Group)

**Table 1.1**

Order	Order			
	1	2	3	4
Means (Lit/min)	4.12	6.86	4.21	4.49

Where

- 1= Pre-test score of Rope climbing Group
- 2= Post-test score of Rope climbing Group
- 3= Pre-test score of control group
- 4= Post-test score of control group

**Scheff ‘s Post Hoc Test for Difference Between pairs of ordered means in vital capacity. (Rope climbing Group Vs Control Group)**

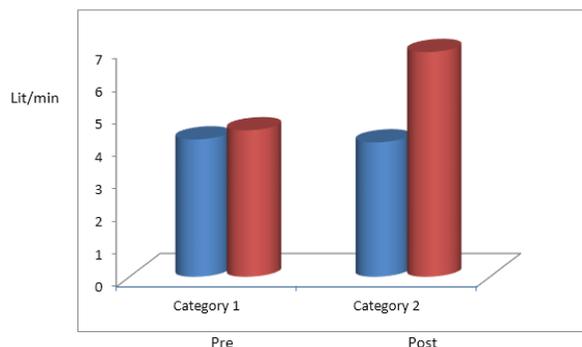
**Table 1.2**

STEPS	3	2	1
4	0.16	0.24*	0.10
3		0.27*	0.09
2			0.32*
1			

Were

- 1= Pre-test score of Rope climbing group
- 2= Post-test score of Rope climbing group
- 3= Pre-test score of control group
- 4= Post-test score of control group

**Rope climbing for improving vital capacity**



Category 1	Control group	4.21	4.49
Category 2	Exp. group	4.12	6.86

Vital capacity test (Lit/Min) the ordered means of “Rope climbing group” (Pre: 1 & Post: 2) and control group (Pre:3 & Post:4) as presented in Table 1.1 were 2.12,6.86,4.21,and 4.49 respectively(wher 1= Pre-test of rope climbing group,2=Post-test of rope climbing group,3=Pre-test of control group, and 4=Post-test of control group)

The statistical significance of Scheff’s Post Hoc test presented in table revealed that

- Control group did not show significant change in vital capacity (CD=0.16,  $P>0.05$ )
- Rope climbing group could show significant improvement (CD=0.32,  $P<0.05$ )in vital capacity
- Rope climbing group showed better result than the “control” in vital capacity (CD=0.24,  $P<0.05$ )

**Conclusion**

This result helps to interpret that the selected rope climbing practice could train the muscles involved in respiration and, there fore regular rope climbing practices might have improve the working ability of these muscle. Thus muscles involve in respiration gradually get stronger, which in turn improve overall vital capacity of the selected college student. Thus, Rope climbing has significant effect in improving vital capacity of college student.

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