

## Effect of Pranayama and Ayurvedic supplements in cardio vascular performance

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### Abstract

Physical exercise and breathing exercise is one of the main bases of health and well-being. This study was taken with the main aim to find out the effect of Pranayama and Terminalia Arjuna, an Ayurvedic Supplement on the cardiovascular system in the field of sports. For this study, 20 subjects were selected for each group at high school level girls who are active players of different type of sports. All the subjects were underwent the treatment for four weeks to assess the cardio vascular efficiency. Two groups were made to evaluate. For this purpose, references from the various classics of Ayurveda were collected and analyzed. To evaluate the effect of Pranayama and Terminalia Arjuna, Cooper VO<sub>2</sub> max test was carried out as a base line test before the course and post test was taken after the completion of the course. As a result, the experimental group showed significantly greater improvement in cardio vascular endurance in comparison to control group.

**Keywords:** pranayama, Ayurveda, cardio vascular endurance, cooper vo<sub>2</sub> max test, high school girls

### Introduction

Physical exercises intensify and build long term health benefits. It is executed for various reasons which includes physical fitness, mental health and efficiency, social moral character, emotional expression and control, appreciation and for professional. Regular physical exercise improves immune system and helps to prevent the diseases. Physical fitness makes an individual to live energetically and improves mental efficiency. It leads to positive effects on brain function.

Prana is the vital force, which spread all over and can be discern in all living and non-living things. It is the principal force of life and consciousness. The breath of life of all individual dissolves into the cosmic breath. Prana is precise than air and it can be defined as the energy that prove within everything in universe. Anulom Vilom technique is breathe deeply with right nostril and then close right nostril and breathe out deeply with left nostril. Do the repetition with alternate nostrils. Keep in mind that breathing should be up to the lungs and not in the stomach

Terminalia arjuna, is commonly known by the name Arjuna. This herb is a substantial heart tonic that is commonly used in various cardiovascular states by traditional Ayurvedic sports medicine. Terminalia Arjuna aids to prevent fibrosis and oxidative damage to the heart; it stimulates the action of anti-oxidant enzymes when heart is under stress; additionally, anti-inflammatory action of Arjuna prevents excessive injury. These activity have a tonic result on the heart tissue, thus foster the healthy function of the heart muscle. Arjuna develops cardiac efficiency i.e. Increased strength of contraction, Improved ejection fraction, Reduced heart rate.

### Selection of subjects

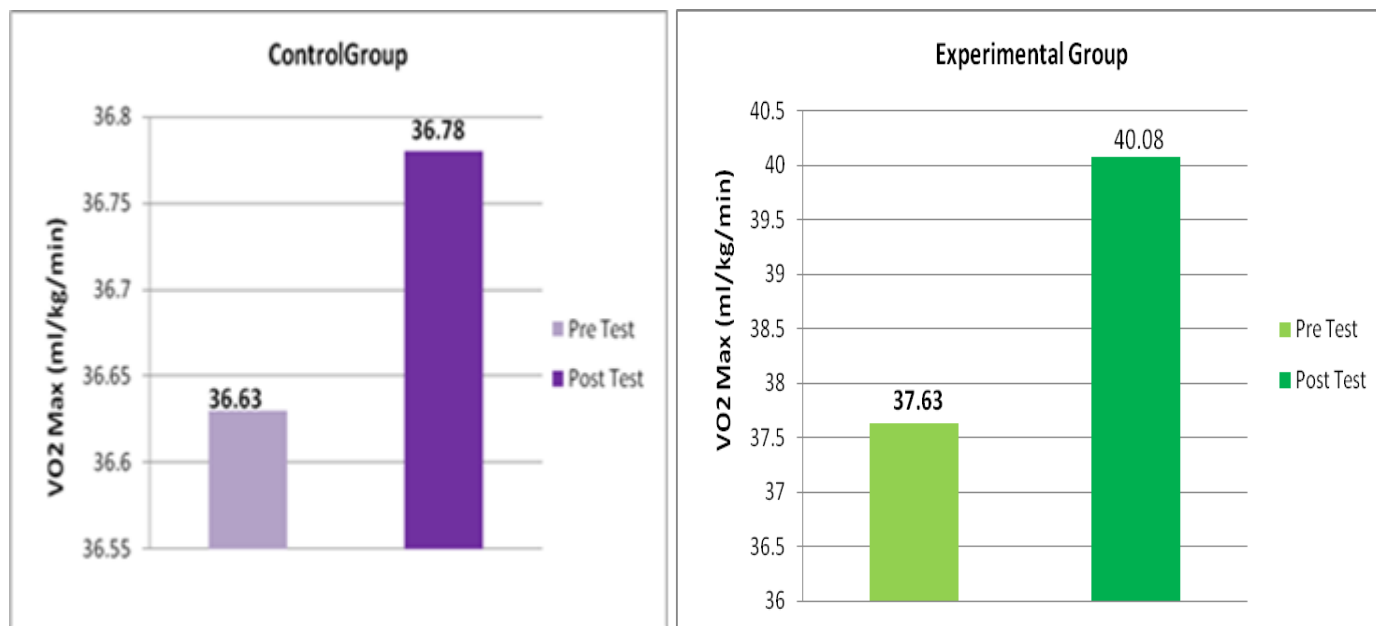
To achieve the purpose of the study, forty players from different sports and games were selected as subjects from high school level girls of MSSD Higher Secondary School, Coimbatore. The age of the selected subjects ranged from 11 – 14 years.

### Experiment design

The subjects was formulated as random group design, consisting of two groups namely Experimental and control group. They were divided into two groups consisting of 20 subjects each. Both the groups underwent Cooper VO<sub>2</sub> max Test for Cardio vascular endurance as a base line test before the experiment. In morning sessions before the regular activities Experimental group received a glass of milk with Terminalia Arjuna bark extract. After 10 to 20 minutes of consuming the milk, subjects were involved in Anulom Vilom Pranayamic Breathing for 10 minutes. Subjects were then participated into regular activities in their respective sports and games. This treatment has undergone for 4 weeks. The control group did not undergo any treatment, but they involved into regular activities in their respective sports and games.

### Results

The Cardio vascular endurance of both the groups was retested at the end of the four week treatment. To test the significant changes made from baseline to post test on both the groups 't' test was applied. The significance of the means of the obtained results was tested at 0.05 level of confidence. The Cardio vascular endurance had improved significantly in experimental group after 4 weeks of treatment comparing to the control group.



**Fig 1:** Bar diagram showing Pretest and Posttest means of Experimental group and Control group on Cardio vascular endurance

### Discussion

The present study revealed that a significant increase in Cardio vascular endurance of 6.5% in experimental group whereas 0.13% in control group. According to Pritesh Dave et.al., an Ayurvedic supplement can have a positive effect on mitochondrial energy production both protect against ATP loss and promote ATP regeneration. The Ayurvedic supplements also influence the nervous system as an anti-anxiety agent and can help with focus and concentration, both which subscribe to muscle enlargement. VO2max improved by 4.9% improvement in efficient energy consumption according to Virender Sodhi (2015) <sup>[4]</sup> with the treatment of Ashwagandha. According to D.P.Thombre *et al.*, (1992) <sup>[5]</sup>, yoga practice for 12 weeks results in significant increase in respiratory pressures & breath holding times.

### Conclusion

Drugs which enhancing the performance is very common in human beings as well as in professional sports and games. Ayurvedic and herbal medicines provide safe and natural alternative which also enhanced a sports performance without any side effects in young school girls. A relationship between modern sports medicine practitioners and Ayurvedic practitioners should be initiated to develop a more natural and effective way of approaching sports medicine. Proper breathing technique specifically improves and intensifies the prana that leads to execute better performance in both endurance and stamina related activities.

### References

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