“Impact of Yogic Exercise on Cardio Vascular Function on Selected College Students of High Altitude”

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Abstract

The purpose of the study was to study the impact of yogic exercise on cardio vascular exercises on selected college students of high altitude. The research was conducted on college students of high altitude (Shimla, Himachal University Affiliated Colleges) for their cardiovascular function [Blood Pressure (BP), VO2 Max (TLC) and Pulse Rate (PR)] in respect to yogic exercise.

Total 139 students were randomly selected from Himachal University colleges in Shimla. The study was conducted in three phases. The subjects were indentified in the first phase of research program then further in next phase they were physiologically tested and yogic exercise battery were operated in different time frame. Though the environmental conditions, fitness of participants, their socioeconomic conditions etc. were kept in abeyance as matter of limitation of the study, moreover the ratio between male and female were also treated as insignificant for the said research program. The interesting aspect of the research was the involvement of even faculty members of respective institute, though their physiological and physical data is not the part of the research and data analysis.

The entire subjects were treated with three months yogic exercise. The entire lots of students were again evaluated physiologically [(Cardiovascular measurement: Blood Pressure (BP), VO2 Max (TLC) and Pulse Rate (PR)] with standard equipments. The educators were trained and explained to the level of acclimatization of their understanding. The researcher took all possible precautions to prevent any error or injury to the participants. The participants were not only motivated personally by the scholars but also took voluntary consent of them.

The statistical analyses of the variance (PR, BP (SBP & DBP) and TLC) were done. The result reveals that there was a significant difference in TLC; whereas there was no significant difference in PR.

For BP statistical analysis suggests no significant difference were formed. Result showed that the BP of the participants were more inclined towards normal standard BP i.e. 120-80 mmHg.

Key Words: Yogic Exercise, Cardiovascular Function, College Students, High Altitude
Everyone wants a better body; a healthier, more toned and more flexible body, for the longest time. Many people lose sight of the ultimate purpose of exercise, which is to improve overall health and fitness. They become lost in the mindless patterns of gym and habitually grind out set after set in strain-full workouts. While it’s important to build strength and increase muscle tone that is simply enough. The human body is meant for all kinds of movements with overall performance measured in more than just pounds lifted or miles travelled. The most popular ancient but most modern known as safest workout is ‘Yogic Exercise’.

Kolasinski, Garfinkel, Tsai, Matz, Dyke, & Schumacher (2006) yoga practice a "good workout"? That's the basic orientation of this article, which provides some very interesting statistics about oxygen consumption and heart rate during a basic 30-minute hatha yoga routine of supine, sitting, and standing poses. Researchers at Texas State University compared the metabolic demands of this yoga practice to resting in a chair and walking on a treadmill at 3.5 miles per hour. Participants were 26 women (19-40 years old). Not surprisingly, the yoga practice required greater oxygen consumption and a higher heart rate than resting in a chair, but perhaps surprisingly to some, yoga required significantly less oxygen consumption and a lower heart rate than walking. Researchers concluded that a basic yoga practice of varied poses is "a very light intensity" form of exercise, and "may be too low to provide a training stimulus for improving cardiovascular fitness". Researchers also stated that "these data demonstrate that hatha yoga may have little, if any, cardiovascular benefit."

Madanmohan, Udupa, K., Bhavanani, A.B., Shatapathy, C.C. & Sahai, A. (2004) This study reports the effects of yoga training on cardiovascular response to exercise and the time course of recovery after the exercise. Cardiovascular response to exercise was determined by the Harvard step test using a platform of 45 cm height. The subjects were asked to step up and down the platform at a rate of 30/min for a total duration of 5 min or until fatigue, whichever was earlier. Heart rate (HR) and blood pressure response to exercise were measured in the supine position before exercise and at 1, 2, 3, 4, 5, 7 and 10 minutes after the exercise. Exercise produced a significant increase in HR, systolic pressure and a significant decrease in diastolic pressure. After
two months of yoga training, exercise-induced changes in these parameters were significantly reduced.

Bera, T. K. & Rajapurkar, M. V. (1993). Forty male high school students, age 12-15 yrs, participated in a study on yoga in relation to body composition, cardiovascular endurance and anaerobic power. The Ss were assigned to a yoga group and control group. Body composition, cardiovascular endurance and anaerobic power were measured. The results revealed a significant improvement in ideal body weight, body density, cardiovascular endurance and anaerobic power following yoga.

Schell, F. J., Allolio, B., & Schonecke, O. W. (1994) Heart rate, blood pressure, and the hormones cortisol, prolactin and growth hormone were measured in a yoga group and a control group of young female volunteers reading in a comfortable position during the experimental period. The yoga group had decreased heart rate during yoga. The yoga group had higher scores on life satisfaction and lower scores on excitability, aggressiveness, openness, emotionality and somatic complaints and coping with stress and mood by the end of the experiment. The yoga group also had higher scores on high spirits and extravertedness.

Murugesan R., Govindarajulu, N., & Bera, TK. (2000). Thirty three hypertensives, were assessed on systolic and diastolic blood pressure, pulse rate and body weight. The subjects were randomly assigned to three groups: a yoga group, a group who received medical treatment by the physician and a control group. Yoga was offered in the morning and in the evening for 1 hr/session for 11-weeks. Medical treatment comprised drug intake every day for the experimental period. The result of pre-post test revealed that both the treatment stimuli (i.e., yoga and drug) were effective in controlling the measures of hypertension.

Birkel D. A. & Edgren L. (2000). To determine the effects of yoga postures and breathing exercises on vital capacity, researchers measured vital capacity using the Spiro pet spirometer. Vital capacity determinants were taken near the beginning and end of two 17-week semesters. 89 men and 198 women were taught yoga poses, breathing techniques, and relaxation in two 50-minute class meetings for 15 weeks. The study showed a significant improvement in vital capacity across all categories over time.
Bagga and Gandhi (1983) the authors studied a group of eighteen people who were equally divided into a TM, Shavasana (relaxing while lying on one’s back), or control group. After twelve weeks of practicing, the TM and Shavasana groups showed significant declines in systolic blood pressure as high as 10 mmHg, whereas the control group demonstrated no decline.

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Methodology

Total 139 students were randomly selected from Himachal University colleges in Shimla. The study was conducted in three phases. The subjects were identified in the first phase of research program then further in next phase they were physiologically tested and yogic exercise battery were operated in different time frame. Though the environmental conditions, fitness of participants, their socioeconomic conditions etc. were kept in abeyance as matter of limitation of the study, moreover the ratio between male and female were also treated as insignificant for the said research program. The interesting aspect of the research was the involvement of even faculty members of respective institute, though their physiological and physical data is not the part of the research and data analysis.

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Result

The statistical analyses of the variance (PR, BP (SBP & DBP) and TLC) were done. The result reveals that there was a significant difference in TLC; whereas there was no significant difference in PR.

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Conclusion

Yogic Exercise Battery was designed and operated in different time frame and physiological parameters were measured. The effect of yogic exercises battery was motivational and generated interest in youth. There was significant difference in TLC, no significant difference in PR whereas BP of participants was more towards normal standard.

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