Original Research Article

Effect of yoga on pulse rate and blood pressure

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ABSTRACT

Introduction: Change in the lifestyle, increased in facilities, more consumption of junk food and increased stress has raised chances of cardiovascular diseases. Aerobic exercises, sports and others tend to bring about sympathetic stimulation. But regular practice of yoga increases vagal tone and tends to reduce sympathetic responses. So in this study, we tried to see the effects of yoga on cardiovascular parameters like pulse rate, systolic blood pressure, and diastolic blood pressure.

Materials and Methods: A study was carried out in 50 healthy individuals of age between 30 to 60, irrespective of sex. Their pulse and blood pressure were recorded before and after yoga.

Results: Data were statistically analyzed and we got p-value < 0.001 which indicates a highly significant reduction in pulse rate, systolic blood pressure and diastolic blood pressure in subjects after performing yoga.

Conclusion: Regular practice of yoga bring improvement in cardiovascular function which can be helpful to reduce the chances of cardiovascular diseases.

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1. Introduction

A combination of stress, sedentary lifestyle, obesity, unhealthy food, poverty, ignorance, lack of access to quality care, consuming alcohol and smoking are causes of driving heart disease-related deaths in India. Heart disease has been accounted as India’s most prominent cause of death and has been growing in tandem with a rapid shift in lifestyles brought a bout through India’s rapid industrialization, increased migration to cities and economic growth. Sedentary lifestyles and occupation coupled with high-calorie low nutrient food, consumption of alcohol and tobacco have elevated mortality rate due to cardiovascular diseases.1

Despite of recent advances in pharmacological and device therapy, morbidity and mortality from heart failure remain high.2 Heart failure is associated with altered autonomic function.3 There is markedly elevated sympathetic activity for a prolonged period in heart failure.

Though less well documented, parasympathetic withdrawal is also an important facet of heart failure.4 Elevated blood pressure is a powerful predictor for congestive heart failure and other cardiovascular diseases outcomes.5–7

Regular practice of yoga with modification in lifestyle and dietary habits can bring about a reduction in the incidence of cardiovascular diseases and can be helpful even to control hypertension, diabetes mellitus, and other diseases.8

Yoga is an art and science originated in India thousands of years ago. The word yoga is derived from the Sanskrit word ‘Yuj’ means ‘yoke’ or unite. Yoga is not only physical or mental exercise to be healthy but it is a practice that unites the soul with the universal consciousness or supreme self.

Yoga along with providing physical and mental health, in advanced state makes one experience union of body, mind and internal energy to the universal energy that provides better physical health, mental control, and self-realization.

Yogic exercises are different from aerobics, sports, gymnastics workouts which increase heart rate, achieve cardiovascular workout, leave a person sweat more,
Pranayama which they performed were:

1. Bhasrika pranayama a
2. Kapal Bhati pranayama
3. Anulom V ilom pranayama
4. Bhramari pranayama

Data were analyzed using Microsoft excel. For significance, we did a paired T-test and made P-value.

3. Results

The results were analyzed by Paired 't' test. P-value < 0.05 and < 0.001 was considered significant and highly significant respectively.

From the above table, changes in PR, SBP and DBP are highly significant in our study.

4. Discussion

Change in lifestyle such as increased stress, unhealthy diet, decreased physical activities, more consumption of tobacco or caffeine or alcohol or smoking all caused increased incidences of cardiovascular diseases.

Stress is a major factor responsible for high blood pressure and heart disease. Yoga acts as a natural relaxant that calms the mind and soothes the nervous system reducing our stress response and its harmful effects.

In the present study, we got a significant decrease in resting pulse rate, systolic and diastolic blood pressure. Same findings were recorded in hypertensive diabetic and asthmatic patients too.

Cardiovascular functions are controlled by neural factors as well as others like temperature, hormones, etc. Of these, neural factors primarily concern the autonomic nervous system which plays a major role in maintaining and regulating cardiac functions, e.g. systolic and diastolic blood pressure (SBP and DBP) and heart rate (HR). Imbalances in these lead to cardiovascular disorders such as hypertension, ischemia, infarction, etc.

Yoga by modulating autonomic activity with increased parasympathetic tone and reducing sympathetic tone decreases PR, SBP, and DBP. In the present study, a significant reduction in PR, SBP, and DBP can be due to alteration of autonomic activity with parasympathetic predominance and relatively reduced sympathetic tone. This autonomic modulation in yoga is mediated through alteration of breathing patterns which induces various central and autonomic mechanisms as well as mechanical and hemodynamic adjustments causing both tonic and phasic changes in cardiovascular functioning.

Pranayama is composed of complex breathing that calm body and mind. The main aim of pranayama is to regulate breathing. It acts by making breathing slow and deep. Slow breathing acts by a generalized decrease in the excitatory pathways regulating respiratory and cardiovascular systems. A neural control mechanism is the same for the respiratory and cardiovascular system, so alteration in one system will modify the functioning of the other. Slow and deep breathing inflates lungs to its maximum capacity. This inflation stretches pulmonary...
It has been observed in our study that the regular practice of yoga helps to improve cardiovascular function. When a person follows an active lifestyle, takes healthy food, takes required sleep, does regular exercise and yoga, it will reduce the chances of cardiovascular diseases. Yoga may do it by parasympathetic dominance over the sympathetic system, which will bring improvement in cardiovascular endurance.

5. Conclusion

It has been observed in our study that the regular practice of yoga helps to improve cardiovascular function. When a person follows an active lifestyle, takes healthy food, takes required sleep, does regular exercise and yoga, it will reduce the chances of cardiovascular diseases. Yoga may do it by parasympathetic dominance over the sympathetic system, which will bring improvement in cardiovascular endurance.

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7. Conflicts of Interest

None

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