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Yoga: An ancient mind-body therapy for cardiovascular prevention and rehabilitation

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Yoga is an Indian ancient system of life-style having a psycho-somatic-spiritual discipline that helps to achieve a harmony between our mind, body and soul. Similar to the clinical psychology, yoga focuses on intellectual, emotional, social and behavioral aspects of human functioning. Its mind-body techniques relax mind and body, reduce stress and anxiety, and culminate happiness and well-being. Emotional disturbances, stress, anxiety, depression, sedentary life, lack of sleep, unhealthy diet contribute to the development of cardiovascular (CV) disease. Autonomic imbalance/dysfunction, impaired endothelial function/dysfunction and arterial stiffness are the emerging major mechanisms for CV morbidity and mortality. Though autonomic nervous system (ANS) plays a central role in maintaining CV homeostasis, but CV health is controlled and determined by both ANS and endothelial system. It has been shown that endothelial function and ANS are interrelated and involve complex interactions between two systems. Endothelial dysfunction with decreased bioavailability of nitric oxide and ANS imbalance/dysfunction (often co-exist) are the predisposing factors or early indicators and antecedents for the development of CV disease including metabolic syndrome and diabetes. Therefore, enhanced endothelial function and reduced sympathetic activity appears to be protective against CV disease. In this presentation, role of yoga as a mind-body medicine in cardiovascular prevention and rehabilitation (focusing mainly on non-traditional risk factors) will be discussed. We and other researchers have demonstrated that yoga practice can enhance bioavailability of nitric oxide and endothelial function; reduce arterial stiffness; and shift the autonomic balance towards parasympathetic dominance in subjects with CV risk. It reduces heart rate and myocardial work load, and improves diastolic function of heart in elderly individuals. Recently, in another study we observed a restoration of autonomic balance towards parasympathetic dominance and reduction in insulin resistance in non-diabetic and normotensive offspring of type-II diabetic parents, suggesting that regular practice of yoga may prevent the future development of diabetes or CV risk in children of diabetic parents. Oxidative stress being one of the major pathway for reduction of bioavailability of NO and endothelial dysfunction, effect of yoga program on oxidative stress was investigated to understand the mechanism of yoga on CV health. In this study, a significant reduction in oxidative stress and enhancement in antioxidant defense (superoxide dismutase, glutathione) was observed. An ongoing study has shown effectiveness of yoga on cardiac rehabilitation in patients with acute myocardial infarction. Available data shows that yoga is an effective mind-body medicine that can protect the CV system by enhancing endothelial function and optimizing autonomic balance. However, in future yoga based clinical trials are warranted for better understanding of yoga effects and its psychophysiological mechanism on CV health.

Biography

Dr Satish G. Patil is Assistant professor of Human Physiology in BLDE (Deemed to be University) Shri B. M. Patil Medical College, Hospital & Research Centre, India. He is Assistant Director of Central Research Laboratory of BLDE University, India. His field of research interest is "Integrative cardiovascular and yoga psychophysiology". He has published about 21 papers in Medical journals of repute. He has contributed chapters for two books. He has presented research paper/ talk in many scientific meetings such as AHA scientific meeting, Phoenix, USA; European Union Geriatric Medicine Society congress, Venice, Italy; Euro-India International conference, India; Tulane University, New Orleans, US; WHO workshop in Morarji Desai National Institute of Yoga, New Delhi, India etc. He is recipient of Sri Ram Murthy Memorial Award (India); Young Scientist Award (India); Best paper award (Italy).

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