Chapter 22
Psychophysiological Rationale for Use of Yoga in Heart Disease

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ABSTRACT

Cardiovascular diseases (CVD) are the leading cause of death and disability worldwide. The main reason for increase of CVD is considered to be unhealthy lifestyle consistent of high fat, refined diet, psychosocial stress, lack of exercise and tobacco. In spite of several recent advances in the management of CVD the incidence is rapidly increasing specially in the developing countries and their economic burden is huge. There is a need for new cost effective and safe strategy to control this growing epidemic of CVD. Yoga may be such an alternative for controlling CVD. Several research studies suggest that yoga may be promising technique for primary and secondary prevention of CVD and these will be reviewed briefly in this chapter.

INTRODUCTION

Cardiovascular diseases (CVD) are the leading cause of death and disability worldwide accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030. According to WHO 293 million disability adjusted life years (DALYs) were lost due to CVD in 2008 accounting for 11% of all DALYs lost (Mendis, Puska, & Norrving, (2011)). Whereas CVD mortality is decreasing in several high-income countries, many low and middle income countries have seen alarming increase in the CVD death rates especially India and China. The disease progresses in a malignant phase in these countries and occurs at relatively younger age and results in huge economic burden. India had to spend as much as 243 billion dollars from 2005 to 2015 for heart disease, stroke and diabetes (Tunstall-Pedoe, 2006). Although there has been tremendous progress in the understanding, management and prevention of cardiovascular diseases in the recent past, the implementation of these recommenda-

DOI: 10.4018/978-1-5225-7039-4.ch022

tions remains unsatisfactory especially in the low and middle income countries and CVD continues to accelerate. Therefore, there is a need for cost effective alternative and complimentary therapies. Yoga may be one such strategy to prevent CVD because it has been demonstrated in numerous studies that yoga has several cardioprotective effects (Raub, 2002; Manchanda & Madan, 2014; Jayasinghe, 2004; Kanmanthareddy, Madan, Manchanda, & Lakkireddy, 2016).

PSYCHOPHYSIOLOGICAL RATIONALE

The main reason for increase in the cardiovascular epidemic is considered to be unheatlthy lifestyle consisting of psychosocial stress, unhealthy diet, smoking and lack of physical activity. Recently it has been shown that psychosocial stress is an important risk factor for causation of CVD (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Vitaliano et al., 2002 Sharma & Manchanda, 2011). Various psychosocial stresses like depression, anxiety, type D personality, job stress, life events, low socioeconomic status, social isolation all have been shown to be related to causation of CVD and they also worsen the prognosis in a patient with established heart disease (Sharma & Manchanda 2011; Lichtman et al., 2014). Various mechanisms like increase in the sympathetic tone, oxidative stress, inflammation, neuroendocrine and coagulation factors etc. have been postulated to cause CVD (Innes, Bourguignon, & Taylor, 2005).

There is strong evidence that yoga can reduce depression, anxiety and psychosocial stress and leads to improvement in both cardiovascular response and recovery from stress (Tunstall-Pedoe, 2006; Mezzacappa, Kelsey, Katkin & Sloan, 2001; Michalsen et al., 2005; Latha & Kaliappan, 1991; Roth & Stanley, 2002). The postulated mechanism of improvement of stress has been that yoga may reduce allostatic load in the stress response system so that optimal homeostasis is restored. Yoga improves the imbalance of ANS with increase in parasympathetic and decrease in sympathetoadrenal system and

Figure 1. Psychophysiology of yoga in heart disease – possible mechanisms
(modified from Innes et al., 2005)