

Chapter 5

Roles of Nutraceuticals and Functional Food in Prevention of Cardiovascular Disease: Sustaining Health

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ABSTRACT

The chapter provides an overview of cardiovascular disease, a major cause of mortality worldwide. It relates economic and social impacts to the disease, especially in developing countries. One of the approaches to addressing this challenge is increasing awareness within society, through implementation of education programs. It is important for society to understand the types and roles of the risk factors leading to cardiovascular disease. Emphasis is on the role of functional food and nutraceuticals as dietary sources that could prevent development of cardiovascular disease. The chapter highlights roles of nutraceuticals and functional food sources from medical plants, seeds, berries, and tropical fruits in lowering risk factors. Key findings from trials conducted in Asia, China, Europe, and America provide supporting evidence for the importance of functional food to health, and its potential for modifying the level of risk factors related to cardiovascular diseases.

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INTRODUCTION

Noncommunicable disease is on the public health agenda of the World Health Organization (WHO). The healthcare burden has been rising due to various diseases primarily related to lifestyle and dietary habits. According to the World Health Organization, cardiovascular disease is the major cause of disability and premature throughout the world (WHO, 2007). Addressing behavioral risk factors, such as tobacco use, unhealthy diet and obesity, physical inactivity, and harmful use of alcohol, can prevent most cardiovascular diseases, using population-wide strategies (Mendis, Puska, & Norrving, 2011). The percentage of premature death from cardiovascular diseases (CVDs) range from 4% in high income countries and 42% in low-income countries, indicating differences between countries and populations. Halting premature deaths from CVDs and other noncommunicable diseases will require global solidarity and broad alliances that go beyond national, cultural and ethnic boundaries (Mendis, Shanthi, Puska, Pekka, & Norrving, 2011). As a preventive measure against contracting the disease later in life, individuals must understand the root causes of cardiovascular disease. Increased knowledge sharing and dissemination programs on the importance of nutraceuticals in treating and preventing disease should be in place in schools and communities. In the long term, this would assist in reducing the economic burden due to increasing healthcare costs of noncommunicable diseases. Over the last 35 years, a trend toward use of natural products has increased worldwide (Newman & Cragg, 2007). Discovery of the various health benefits of natural compounds has led to their use in clinical applications, supported by emerging reports on the medicinal benefits of plant-derived products (Alves-Silva, Monica, Carla, Ligia, & Henrique, 2016; Guo, Gan, Haist, Rajapurohitam, Zeidan, Faruq, & Karmazyn, 2011; Hu, Koon, Chan, Lau, & Fung, 2012). They indicate the need for greater emphasis on exploring the healing qualities of nutraceutical and functional food products deemed safe for consumption, and with minimal adverse effects (Alam, Subhan, Rahman, Uddin, Reza, & Sarker, 2014; Alam, Kauter, & Brown, 2013; Ashraful, Kathleen & Lindsay, 2013; Kristen, Lehrke, Buss, Mereles, Steen, Ehlermann, . . . Katus, 2012; Sobenin, Pryanishnikov, Kunnova, Rabinovich, Martirosyan, & Orekhov, 2010). Increase in society's awareness could prevent diseases due to modifiable risk factors. Priority must be given to fostering healthy dietary practices in younger generations. Prevention occurs by inculcating knowledge and developing daily practices that focus on healthy food selection. This could lead to modification of lifestyle, long-term outcomes of which lead to achieving the goal of sustainable health.

In addition, this chapter gives an overview of cardiovascular disease prevalence, discussing multiple risk factors to provide a better understanding of how they cause

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