

Chapter 2

Functional Foods and Cardiac Health

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ABSTRACT

Functional foods containing physiologically-active components, have been reported to confer several health benefits. Longitudinal cohort studies indicate that certain foods and dietary patterns play an important role in primary prevention of numerous disease conditions and this has led to the identification of putative functional foods. Research is necessary to substantiate the potential health benefits of various functional foods for which the diet–health relationships have yet not been scientifically validated. The term ‘functional foods’ may include health/functional health foods, foods fortified with minerals/ vitamins, dietary supplements or even the traditional medicines (Zawistowski, 2014).

INTRODUCTION

Functional foods containing physiologically-active components, have been reported to confer several health benefits. Longitudinal cohort studies indicate that certain foods and dietary patterns play an important role in primary prevention of numerous disease conditions and this has led to the identification of putative functional foods. Research is necessary to substantiate the potential health benefits of various functional foods for which the diet–health relationships have yet not been scientifically validated. The term ‘functional foods’ may include health/functional health foods, foods fortified with minerals/ vitamins, dietary supplements or even the traditional medicines (Zawistowski, 2014).

A food can be regarded as ‘functional’, if beyond nutritional benefits, it demonstrates suitably the beneficial effects on one or more target functions in the body through improvements in health status and overall well-being and/or by reducing the disease risk. Hence, functional foods can be defined as the foods that provide health benefits beyond the basic nutrition. All foods containing one or more substances possessing physiological/biochemical functions for benefitting the human health, are known as functional foods. Functional foods that are marketed with claims to reduce heart disease focus primarily on the risk factors linked to blood cholesterol and homocysteine levels as well as hypertension. The most

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Functional Foods and Cardiac Health

common protective ingredients include dietary fibre, soya, omega-3 fatty acids, phytosterols, phytosteranols and antioxidants. A critical issue in the regulation of functional foods is the identification of the active components responsible for proposed health benefits (Arnoldi, 2005).

Bioactive compounds' present in foods are the extra/non-nutritional constituents occurring in small quantities and appear to accord beneficial health effects.

The American Dietetic Association has prepared a glossary of major basic definitions of functional foods which include chemopreventive agents, designer foods, pharma-foods, phytochemicals, nutraceuticals/nutraceuticals etc.

- *Functional food refers to any food or modified ingredient that can make a beneficial effect beyond that provided by the common nutrients;*
- *Designer foods are the processed foods supplemented with food ingredients, naturally rich in substances that prevent diseases; and this includes genetic engineering of the foods;*
- *Pharma-food is the food or nutrient with potential health or medical use, including prevention and treatment of diseases;*
- *Chemopreventive agents are the nutrient or non-nutrient food components that have been scientifically investigated as potential inhibitors of carcinogenesis;*
- *Phytochemicals are the substances present in fruits and vegetables that can be ingested on daily-basis in appreciable amounts and exhibit a potential to modulate human metabolism by favouring prevention of CVDs, cancer and other diseases;*
- *Nutraceuticals are the substances considered as food or a part of food which offer health or medical benefits, including prevention and treatment of diseases. (Ferrari & Torres, 2003)*

Functional foods, in the form of palatable and ready to use food items, have a huge market due to their health potentials (Arnoldi, 2005).

FUNCTIONAL FOODS AND CVDs

Noncommunicable diseases (NCDs) account for nearly 38 million deaths each year (WHO, n.d.). Cardiovascular disease (CVD) is still a major cause of mortality in western population and is becoming an important cause of morbidity and mortality the world over including the developing countries and the South-east Asian nations where populations are undergoing significant life-style changes. CVD accounting for nearly 20% of global deaths each year comprises disease conditions such as atherosclerosis, hypertension, congestive heart failure, cardiomyopathy, coronary heart disease, hypertrophy, arrhythmias, ventricular fibrillation, ventricular tachycardia, myocardial infarction, and stroke (Kalaria & Dedoussis, 2007).

The major CVD risk factors include smoking, diabetes, insulin resistance, dyslipidemia, obesity and hypertension. Epidemiological studies indicate that after adjustment for various confounding factors, hypertension remains an important risk factor for CVD. On the other hand, clinical intervention trials demonstrate that treatment of hypertension reduces the CVD risk; and the lifestyle intervention studies among mild hypertensives have been found to be effective in reducing the CVD risk (McInnes, 2004).

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