Role of Dietary Soy Protein in Obesity

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Abstract:

Soy protein is an important component of soybeans and provides an abundant source of dietary protein. Among the dietary proteins, soy protein is considered a complete protein in that it contains ample amounts of all the essential amino acids plus several other macronutrients with a nutritional value roughly equivalent to that of animal protein of high biological value. Soy protein is unique among the plant-based proteins because it is associated with isoflavones, a group of compounds with a variety of biological properties that may potentially benefit human health. An increasing body of literature suggests that soy protein and its isoflavones may have a beneficial role in obesity. Several nutritional intervention studies in animals and humans indicate that consumption of soy protein reduces body weight and fat mass in addition to lowering plasma cholesterol and triglycerides. In animal models of obesity, soy protein ingestion limits or reduces body fat accumulation and improves insulin resistance, the hallmark of human obesity. In obese humans, dietary soy protein also reduces body weight and body fat mass in addition to reducing plasma lipids. Several potential mechanisms whereby soy protein may improve insulin resistance and lower body fat and blood lipids are discussed and include a wide spectrum of biochemical and molecular activities that favorably affect fatty acid metabolism and cholesterol homeostasis. The biologic actions of certain constituents of soy protein, particularly conglycinin, soyasaponins, phospholipids, and isoflavones, that relate to obesity are also discussed. In addition, the potential of soy protein in causing food allergy in humans is briefly discussed.

Key Word:
soy protein, obesity, human studies, animal studies, mechanisms, soy protein allergy

Volume 4, Number 2, - 2007, ISSN 1449-1907