Soyfoods - A Source of High Quality Protein

ENSA Scientific Advisory Committee Position Paper

Introduction

Protein is an important nutrient needed for the growth and repair of all body cells including organs, muscles, tissues, skin and hair. It's also required for hormones, enzymes and bodily fluids such as blood.

All proteins are made up of chains of amino acids. Amino acids are the building blocks of protein. Our body requires 20 amino acids to function properly and of these 9 are considered 'essential', or 'indispensable', as they cannot be made by the body. These must be supplied in the diet. The other amino acids are non-essential as they can be produced in the body.

How much protein should we eat?

Adults are recommended to eat 0.8g of protein/kg body weight a day, although generally in the West we eat more than this. Studies have found that even people who eat very little or no dairy and meat still have an adequate intake of protein. However there are certain populations who may not meet this recommended amount e.g. adolescent girls and the elderly. It's also been suggested that this amount may not be high enough for some groups, such as older adults, although this is a subject of debate.

Types of protein

Dietary protein can be classified according to the types of amino acids present. Protein found in animal foods such as meat, poultry, eggs, fish and dairy products contain all the essential amino acids. Generally proteins in plant foods such as beans, lentils, nuts, seeds and grains, while containing many amino acids, don't contain all the essential ones. The exception to this is soya. Soya is one of the few sources of plant protein that contains all the essential amino acids, in amounts needed by the human body, and so its quality is considered similar to that of animal protein such as milk, meat and egg.

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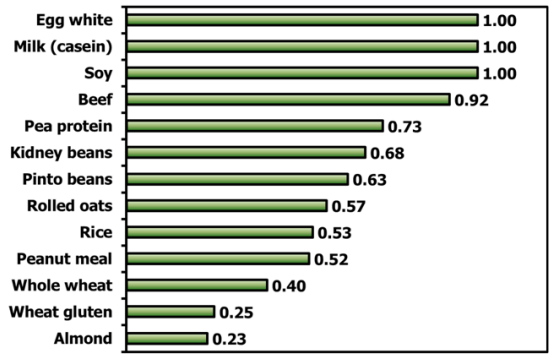
Protein quality

The quality of dietary protein is determined by two factors – the types of amino acids present in the food protein and how well this protein is digested. For many years the protein digestibility corrected amino acid score (PDCAAS) has been used to assess the protein quality in a food. This focuses on the amount of essential amino acids present in the protein, and how this compares to our requirements for these amino acids, as well as how easily the protein is digested. Food proteins are scored according to these factors, with a maximum score of one indicating the highest quality protein.

Recently it's been suggested there should be a move away from PDCAAS to another method, the digestible indispensable amino acid score (DIAAS). The DIAAS uses a different method and is considered a more accurate measure of the actual digestibility of the individual amino acids. However it's likely PDCAAS will still be used by regulatory bodies for a few more years as currently DIAAS is only available for a few proteins and there are also issues regarding the methods for measuring digestibility.

Quality of soya protein

Figure 1. Protein Digestibility Correct Amino Acid Scores for Selected Proteins



The PDCAAS method ranks soya as a high quality protein. Unlike most plant proteins, depending on the food source, soya protein gets a score ranging from 0.9 to 1.0, the highest possible score, similar to that of meat and milk proteins (see Figure 1).

While the DIAAS value for soya protein maybe slightly lower than the PDCAAS value, soya protein will still have a DIAAS of approximately 0.9 and so is still considered a high quality protein.

Additional benefits of soya protein

The benefits of soya protein go further than just providing essential amino acids. Research suggests that various types of protein may have a role in maintaining good health, particularly heart and bone health. In the case of soya protein, studies have

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found soya protein lowers blood cholesterol and may also lower blood pressure, two important risk factors for cardiovascular disease.

In addition soyfoods provide more than just protein. Soya is low in saturated fat and contains healthy unsaturated fats making it an ideal alternative to animal products. Replacing animal based products with plant-based foods has important implications to both our health and the environment.

In Summary

- Protein is an essential nutrient needed for many important functions in the body.
- Generally in the West we get enough protein in our diet, although certain groups may not meet the recommended amount.
- Amino acids are the building blocks of protein – some of these amino acids cannot be produced by the body and must be supplied in the diet (essential) whereas others are considered non-essential as they can be made in the body.
- The quality of dietary protein has traditionally been assessed using the PDCAAS method, a measure of a protein's ability to provide adequate levels of essential amino acids for human needs, although a newer method, DIAAS, is now being discussed.
- Soya is one of the few plant proteins to be recognised as a high quality protein and is considered similar to that of meat and milk protein.
- As well as providing important amino acids, soya protein has been shown to help lower blood pressure and blood cholesterol, important risk factors for cardiovascular disease.
- Being a source of high quality protein, low in saturated fat and containing healthy unsaturated fats, soyfoods are excellent foods to include in a healthy balanced diet.

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About ENSA

Established in January 2003, the ENSA represents the interests of natural soyfood manufacturers in Europe. The term "natural" refers to the production process used by ENSA members to produce food using whole soybeans. Soy food products from ENSA members are produced without any use of GM (genetically modified) material or GM beans.

ENSA is an association of internationally operating companies, ranging from large corporations to small, family-owned businesses with an annual turnover of €0.7 billion. Since its establishment in 2003, ENSA has been raising awareness about the role of soy and a plant-based diet in moving towards more sustainable food production and consumption patterns.

For more information about ENSA, please visit www.ensa-eu.org or contact the Secretariat.

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