

NUTRITIONAL SERIES

(Number one!)

Protein

Micro-nutrients and macro-nutrients.

Micro nutrients

Micro-nutrients, from “micro” meaning small **are vitamins and minerals**. Vitamins and minerals are vital to the correct functioning of the body. They are vital to health and regulate metabolism. Without having all the required micro-nutrients in place on a daily basis, the body is unable to effectively synthesise protein or metabolise fats.

Macro-nutrients

Macro-nutrients a name derived from “macro” meaning big **are proteins, fats and carbohydrates**, all of which will be dealt with and explained in this series of articles.

What is protein?

A little bit of science

Proteins are a class of nutrients which are composed of amino acids. Amino acids are in themselves composed of smaller molecular chains made of carbon, hydrogen, oxygen and nitrogen atoms.

There are 50,000 different proteins in the body; **everything we are in fact is made of protein, our hair our skin, bone, blood, internal organs, hormones, are all made of protein**. Proteins are the primary component of enzymes, which help facilitate many of the chemical reactions within the body including digestion. **They are also important in the production of hormones like insulin, thyroid hormones, the sex hormones oestrogen and testosterone.**

Each particular protein is made of a different sequence of **amino acids**:

Essential and non-essential. There are altogether 20 different amino acids found in the human body. They are further broken down into two different groups; essential and non-essential. Non essential amino acids can be manufactured in the body itself while **essential amino-acids need to be consumed every day from food and/or supplements**.

Getting the right kind of protein

Nutritionally speaking there are two kinds of protein: complete proteins and incomplete proteins.

Foods that contain all of the essential amino acids are called complete proteins. These foods all come from animal sources and include beef, chicken, fish, eggs and milk products .

Incomplete proteins don't have all of the essential amino acids and come from vegetable sources and include fruits, grains, seeds and nuts. There are various ways to make proteins complete: by combining plant and animal foods; or by combining plant proteins from a variety of cereals and grains. For example, rice and beans; wheat cereal or corn and beans. Vegetarians then have to be careful in combining their sources of protein to ensure obtaining a complete amino acid profile.

Individuals must supply themselves with fresh protein daily from food or supplementation, since proteins are constantly needed to repair wear and tear of the tissues and keep up the protein concentration in the blood.

Protein deficiency

Protein deficiency is a term used to refer to a health condition characterized by insufficient amount of proteins in the body. It is caused due to a restrictive diet, lack of knowledge about high protein foods, malnutrition etc. Protein plays a vital role in human growth, particularly in the development of various parts of our body ranging from hair to muscle. If the body is not provided with the stipulated amount of protein it starts braking down muscle to extract protein to meet its requirements. This can lead to serious health deterioration.

Most common symptoms of protein deficiency include:

- Weakness and excessive muscle loss not fat loss.
- Brittle nails.
- Hair problems, such as hair loss and brittle hair.
- Skin problems, like skin ulcers, dryness, and rashes.
- Sore muscles, leading to weakness and cramps.
- Inability of the body to heal wounds fast.
- Lack of sleep and severe headache.
- Extreme pain in the stomach, accompanied by nausea.

How much protein should we consume a day?

It all depends on age, body size, diet, activity level, and lifestyle.

Recommended daily amount (RDA) ranges from 40-70grams each day. If you are an exerciser, however, your protein needs may increase since physical workouts can rapidly break down muscle protein therefore you may need to increase your protein intake. Please see the chart below

Type of exercise	Daily protein requirements per kg weight (g)
Endurance training	1.2-1.4
Strength and power training	1.4-1.8
Fat-loss training	1.6-2.0
Muscle – gain training	1.8-2.5

* To determine your protein requirements exactly and to obtain more information regarding timing and supplementation please talk to one of the members of staff who will be more than happy to be of assistance.

* Please note protein supplementation is now available from reception.