



Protein, carbohydrate and fat

Protein, carbohydrate and fat are the three main nutrients in food that provide our bodies with energy (KJ/Kcal). They are called macronutrients because we need them in large amounts, and each has a different role to play in keeping us healthy. Many of the carbohydrate, protein and fat containing-foods we eat are also rich in many vitamins and minerals (micronutrients) but these are needed in smaller amounts.

Aim to eat foods which contain some protein, carbohydrate and fat at each of your main meals. Severely restricting any of these major energy sources will affect the quality of your diet and your health.

PROTEIN



Protein provides the building blocks for your body. Every cell in the body is built with protein - our bones, nails, skin, hair, blood, muscles, brain and more. When we eat protein, we provide our body with amino acids which are essential for producing many of our body's enzymes, and signalling molecules such as neurotransmitters and hormones. Enzymes play an important role in nearly all bodily processes including the digestion of food. Neurotransmitters provide a role in brain communication and mood regulation. Amino acids are also needed to make hormones which

help us to use stored energy, giving us plenty of energy to fuel our day and in the regulation of body temperature. If we don't consume enough protein, it can lead to a weakened immune system, limiting our ability to fight infections. It can also cause our muscles (e.g. skeletal muscle, muscles in the digestive system) to be broken down in order to get the amino acids the body needs. Protein is also important for satiety or feelings of fullness and can help us feel satisfied for longer.

Sources of protein: fish, chicken, turkey, beef, lamb, pork, eggs, milk, cheese, yoghurt, tofu, tempeh, soy milk, nuts and legumes (lentils and other dried beans and peas).

CARBOHYDRATES



Carbohydrates are our main source of ready-to-go fuel. They break down into simple sugars, including glucose, which the body uses to give us energy. Glucose is the brain's only source of fuel, if we don't eat enough of this vital macronutrient, side effects such as loss of concentration, irritability and mood fluctuations may occur. If our blood sugar levels get too low, it can also lead to low energy levels, light-headedness, and feelings of nausea. Food cravings and increased hunger can develop as it is our body's way of signalling to us that we are low on fuel and need more food.

Many carbohydrate-rich foods such as wholegrain breads, cereals and potato also contain fibre. Fibre helps to keep our digestive tracts healthy and functioning well, prevents constipation and can assist with balancing the good bacteria found in our digestive system.

Sources of carbohydrate: bread and grain products such as rice, pasta, couscous, barley, breakfast cereals, fruit and fruit juice, milk, yoghurt, potato/sweet potato*, corn*, table sugar and honey. (*Other vegetables such as carrots, broccoli and capsicum contain small amounts of carbohydrate but should not be the only carbohydrate included at a meal as they will not provide sufficient energy).

FATS (INCLUDING OILS)



Fats are often a misunderstood macronutrient. Fat in food provides essential fatty acids required for making hormones, brain cells (50-60% of the brain is composed of fat!) and healthy skin. Fat also helps us absorb vitamins, and helps tell the body when we are full. A very low fat diet will leave you feeling hungry more often. Like protein, it helps to slow down the rate at which your stomach empties, therefore

leaving you more satisfied for longer. Fats also add flavour and texture to food. If our diet is deficient in essential fatty acids, our skin and hair become dry and brittle, our hormones can't function properly, and our brain can miss out on the essential nutrients it requires.

Sources of fat: oil, butter, margarine, avocados, fats in dairy foods, meat, oily fish, nuts, seeds.

Many foods differ in the amount of these macronutrients they contain, and some have a great combination of all three. For example: legumes contain a good amount of both protein and carbohydrate, and dairy products and meats provide both protein and fats.

Remember: Each macronutrient has a specific role in the body, where nutritional balance is key! Many of our foods containing carbohydrate, protein and fat are also rich in a variety of vitamins, minerals and other micronutrients (i.e. antioxidants). With the absence of adequate dietary protein, carbohydrate and fat, the body is then forced to obtain vital nutrients and energy by breaking down muscle.

See an Accredited Practising Dietitian for expert advice on your own specific nutritional requirements.