



BALANCING ENERGY IN AND ENERGY OUT

What are kilojoules (kj) or calories?

Energy is measured in kilojoules (kj) or calories, so when we refer to 'energy in' we actually mean 'kilojoules in' (the kilojoules in the food we have eaten). Maintaining a healthy weight range is important for minimising the risk of many lifestyle diseases such as heart disease, some cancers and type 2 diabetes. The best way to maintain a healthy weight is to match the energy you consume from food with the energy that your body uses up.

The average amount of kilojoules required daily is represented in the following table:

Age	Male	Female
12-15 years	10 500 kj	9 000 kj
16-18 years	12 500 kj	9 500 kj
Adults up to 60 years	11 000 kj	9 000 kj
Adults over 60 years	9 000 kj	8 250 kj

Source: NHMRC, Canberra. These figures represent average requirements for the Australian population. Actual energy needs for individuals will vary considerably depending on activity levels, body composition, state of health, age, weight and height.

Energy in = Energy out

To maintain body weight you need to aim for your energy intake to equal your energy output. The amount of energy an individual requires each day depends on how active that person is, and whether or not the body is still growing (i.e. children and adolescents).

The human body is designed for movement and activity, with a need for occasional, regular stops for refuelling and relaxation.

'ENERGY IN' comes from the food you consume and is provided by the protein, carbohydrate and fat in the foods that you eat and drink. These nutrients deliver energy in varying amounts. Fat is the most concentrated source of energy, followed by protein and carbohydrate. Alcohol also provides energy but is not really considered a food as it does not provide the body with any extra nutrients – instead,

consuming alcohol increases the amount of vitamins and minerals that the body requires.

The amount of energy delivered by the nutrients in food is as follows:

- Carbohydrates - 16 kj per gram
- Protein - 17 kj per gram
- Fat - 37 kj per gram
- Alcohol - 27 kj per gram

'**ENERGY OUT**' refers to the amount of kilojoules burnt up by the body by 'staying alive' (which includes factors such as digestion, heart beat, breathing, etc) and by being active. For individuals, the level of energy expended daily depends on age, stage of growth and development, and usual daily activity levels.

Energy Storage

What happens if you take in more energy than you need? The answer is simple - excess kilojoules will be stored as body fat.

The Best Energy Source

The body prefers to use carbohydrate for energy to fuel muscles and the brain. If there is insufficient carbohydrate provided in the food that you eat, your body will use fat for energy, and then, as a last resort, protein. Fat and alcohol have almost twice the energy content of carbohydrate and protein - it makes sense to consume these in moderation.