# POWERFUL PROTEINS

## Summary

We need proteins to grow and repair our bodies. We use them to make everything from skin, muscle and hair, to antibodies, hormones and enzymes. We even use them for energy. There's about 8 kg of protein in a 50-kg child.

The building blocks of proteins are called amino acids. Humans can make all except nine of them in their bodies. However, we get a most of our protein and all the amino acids we can't make ourselves from eating plants and animals. Human diets usually contain about 15% to 25% protein.

Good protein sources include lean meat, poultry, dairy foods, legumes, nuts, seeds and wholegrains. Plant foods may not contain all the amino acids we need, and their proteins can be harder to break down. If we don't eat animal foods, we may need to eat more plants and a good mix of them to make sure we get all the protein and amino acids we need.

## What are proteins?

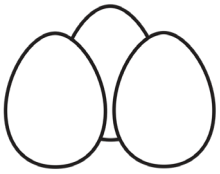
Proteins are a group of substances that are made up of different combinations of 20 amino acids. We can make most amino acids in our bodies - but there are nine we cannot make and must get from our food. We call them essential amino acids (EAAs) and they include the amino acids leucine, lysine, and tryptophan.

## What do proteins do?

We can use proteins for energy (they release the same amount as carbohydrates) for our body's cells. However, their main role is as building blocks, helping us to grow and repair our bodies. We use proteins to make everything from muscle and hair to hormones, enzymes and antibodies. Proteins are constantly being broken down recycled and re-made in our bodies. When we're growing quickly as children and teens we're making proteins faster than we're recycling them - so it's very important to make sure we're getting enough protein (and all the EAAs) in our diet.

## Where do we get them from naturally?

We can get protein from both plant and animal foods. Good sources include lean meat, poultry, seafood, eggs, milk and dairy products, legumes, tofu, nuts, seeds and wholegrains. The main protein sources for children under 14 in NZ are bread, milk, poultry and meats. Animal proteins (including dairy) contain all the EAAs but often cost more to buy than plant ones. Plant foods may lack - or have only limited amounts of - some EAAs and their proteins are also less easy to take in than animal ones, so we need to eat more of them. Vegetarians or vegans can usually get enough protein by eating a range of plant foods.

## Check out Harold's Food Analyser to see how much protein is in your favourite foods.

## What could you eat to meet your recommended daily protein intake?

## How does the protein content of some common foods compare?

| Food - and serve size | Protein (g/100 g or 100 mL) | Protein (g/per serve) |
|---|---|---|
| Grilled chicken breast, 107 g<br>Beef fillet steak, 173 g fried<br>Lamb mid-loin chop, 50 g raw<br>Chicken McNuggets, 6 nuggets | 31.2<br>29.3<br>20<br>14.5 | 33.4<br>50.6<br>10.0<br>13.1 |
| Tofu - firm, stir fried - 100 g<br>Canned kidney beans in brine, drained - 100 g<br>Canned chickpeas in brine, drained - 100 g | 17.9<br>7.2<br>7.2 | 17.9<br>7.2<br>7.2 |
| Cheddar cheese, 2-cm cube (8 g)<br>Calci-trim yellow top (0.2% fat) fortified milk, 250 mL cup<br>Standard blue top milk (3.3% fat), 1 cup | 24.6<br>5.9<br>3.3 | 2.0<br>14.8<br>8.5 |
| Hoki fillet, 159-g pan fried<br>Tinned plain tuna in oil, brine or water, 100 g<br>Canned salmon in spring water, 210 g tin | 21.7<br>19-27<br>23.1 | 34.5<br>19-27<br>48.5 |
| Nutrigrain, fortified breakfast cereal - 1 cup<br>Special K breakfast cereal - 1 cup<br>All Bran breakfast cereal - 1 cup<br>Weet-Bix - 2 bix | 22.4<br>18.4<br>13.6<br>12.5 | 8.2<br>7.6<br>10.7<br>4.2 |
| Wholegrain-style bread (Yarrows/Burgen) - 2 slices<br>Wheatmeal sandwich bread - 2 slices<br>White sandwich bread - 2 slices | 11-13<br>10.5<br>9.1 | 9.8<br>6.4<br>5.8 |
| Almonds, unsalted and dry roasted, 10 almonds<br>One egg, size 6, boiled<br>Pasta, egg and wheat flour, boiled - 1 cup<br>Rice, Basmati, boiled - 1 cup<br>Potato, boiled - 1 medium potato | 22.1<br>12.2<br>5.8<br>3.1<br>1.7 | 2.6<br>6.5<br>6.9<br>5.1<br>2.2 |
| Source: The Concise New Zealand Food Tables, 12th edition 2016 (2017), Food Composition Database, or product information panels. g = gram, mL = millilitre. | | |

## Can we have too much or too little protein?

What we need varies with our age, sex, weight, and how active we are. Athletes may need to increase the amount they eat while training. A range of international studies have found that human diets naturally consist of between 10% and 25% protein (about 15% is most common). Most guidelines recommend aiming for 15% to 25%. A very high protein diet (more than about 30% protein) may not be good for us in the long term – and could cause weight gain and kidney problems. But people on very low protein diets – often in developing countries – may have trouble growing and staying well because of the key role proteins play.

## Are we getting enough protein?

The NZ Ministry of Health reckons most New Zealanders are meeting their daily protein needs. It recommends most 9- to 13-year-olds get 35 g (girls) to 40 g a day (boys) from a variety of sources, increasing to 45 to 65 g in 14- to 18-year-olds: that's nearly 1 g protein for every kg that we weigh. In NZ, manufacturers use a DI (daily intake) value of 50 g protein to calculate (adult) %DI values on packaging.

Studies have shown that people eating a low protein diet and/or lots of highly processed foods (which contain a lower proportion of protein) can end up overeating carbohydrates or fats to get the all protein they need. This can have bad effects on their health and weight.

# USEFUL LINKS

Choice.com., 1 May 2015. "Breakfast Cereal Reviews" and Retrieved from: https://www.choice.com.au/food-and-drink/bread-cereal-and-grains/cereal-and-muesli/articles/breakfast-cereal-review and https://www.choice.com.au/babies-and-kids/feeding-children/making-healthy-choices/articles/kids-breakfast-cereal-review 29 August 2017.
Food and energy: it's a balancing act Life Education Factsheet.

# REFERENCES

LIFE EDUCATION
Learning with Harold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