YOUR GUIDE TO

PROTEIN AND CARBS

PROTEIN

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WHAT IS PROTEIN

Protein is the macronutrient made up of amino acids, 'the building blocks' for our muscles, bones, tissues, organs, hair and nails.

While higher amounts of protein are required for athletes, protein is a necessity for everyone; it's integral for modulating hormones, regulating the metabolism, building enzymes and creating antibodies that are vital for our immunity.

HOW MUCH DO WE NEED?

The body can only store a small pool of amino acids at a time so, we need to replenish them regularly through a protein rich diet. We need to include a source of protein at every meal to stabilise our blood sugar and energy levels and build muscle and healthy bones.

WHERE DO WE GET IT FROM?

LEGUMES

Adzuki beans, broad beans, butter beans, chickpeas, kidney beans, lima beans, lentils, mung beans, peas, tempeh and tofu.

ANIMAL

Dairy (cheese, yoghurt, etc.), eggs, fish (tuna, cod and sardines), meat and poultry.

SEEDS

Chia, flaxseeds, hemp, pumpkin, quinoa, sesame and sunflower.

GRAINS

Amaranth, barley, oats, polenta, rice, rye, spelt and wheat.

PROTEIN ESTIMATIONS

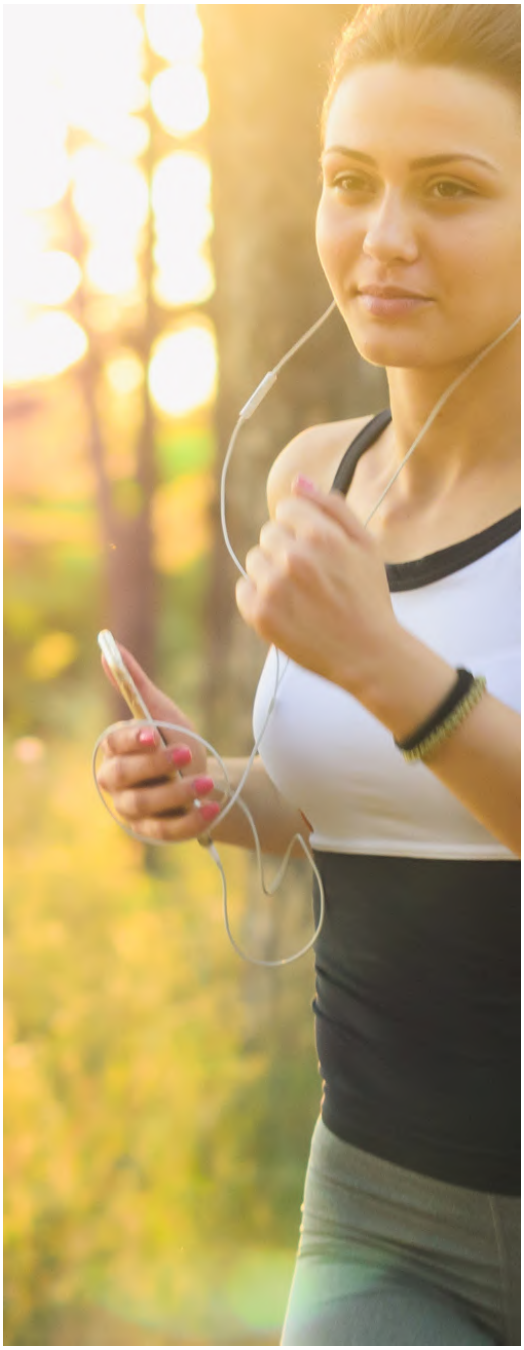
For an inactive person, the estimated intake for protein is 1 grams per kg of body weight per day.

Athletes and those undertaking a lot of training or sport should aim for 1.5-1.8 grams of protein per kg of body weight daily. When trying to increase muscle mass, protein intake can go as high as 2.0 grams per kg of body weight per day, with added training too.

As an example...
a 60-kilogram female undergoing regular training should have approx 1.5g of protein per kg of body weight per day.

To calculate her daily protein requirement, use the following formula:
Weight x 1.5 grams of protein = grams of protein per day.

60kg x 1.5g = 90g of protein per day.



COMPLETE PROTEINS

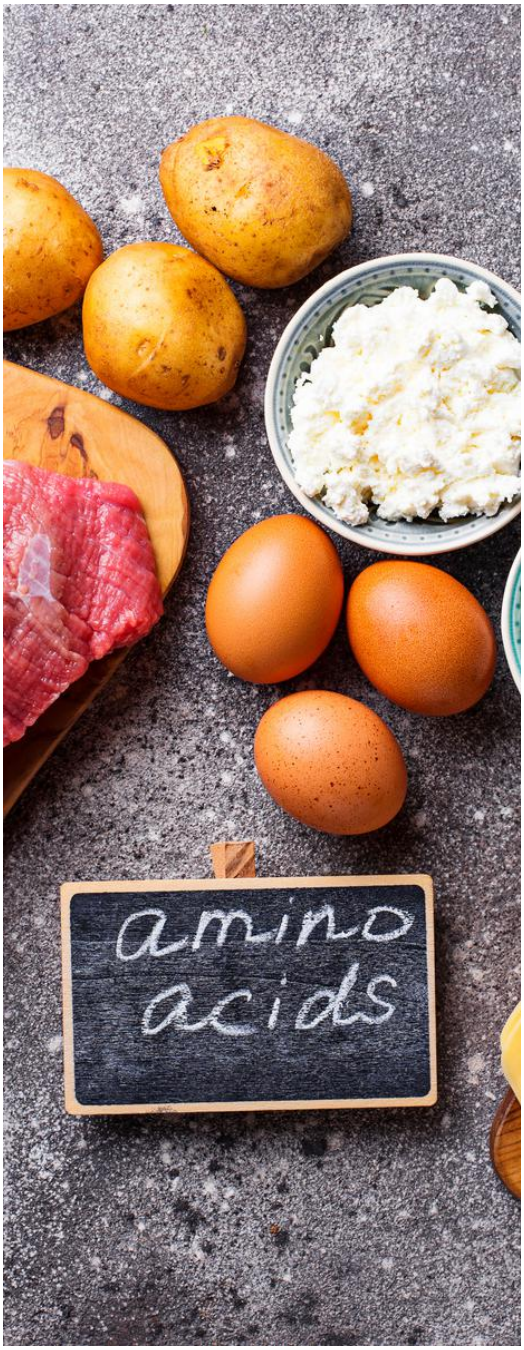
Have you heard of 'essential' and 'non-essential' amino acids? This is where they come into play.

Essential amino acids are the amino acids our bodies cannot produce and must be consumed through the diet. They are arginine, histidine, isoleucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine.

Non-essential amino acids are the ones are bodies can produce. These include alanine, asparagine, aspartic acid, cysteine, glutamic acid, glutamine, glycine, proline, serine and tyrosine.

Foods labelled 'complete proteins' contain all of the essential amino acids.

Complete proteins are available in eggs, fish, milk, cheese, poultry, meat and most protein powders.



VEGAN & VEGETARIAN

Whenever you make a meal, your first thought should be, “where’s my protein”?

There are plenty of sources of plant-based proteins available, such as seeds, nuts, legumes and grains. Most have some of the essential amino acids, however, they don’t usually have all of them. In this case, it’s important to combine a few different protein sources to create a complete protein. While you don’t need to eat all of the essential amino acids in the same meal, ensure you’re consuming all of them in your diet during the day to optimise your intake of amino acids. To create a complete protein meal, combine legumes with grains or seeds, such as beans with rice. Your body will be able to utilise these proteins and turn them into a complete one. Complete plant proteins include quinoa, hemp, hummus (chickpeas and sesame seeds), ABC butter (almonds, brazil and cashew nuts together), porridge and soymilk, and rice and lentils.

PROTEIN POWDER

One of the questions I get asked a lot is about protein powder. Do you need to take it? Which one is best?

As always, I believe food should be your first port of call, but if you struggle to consume enough protein in the day, it can be a great addition to your diet.

While protein powder isn't essential for maintaining muscle, bone health and wellbeing, it can give you the boost you need to fuel your training. I recommend steering clear of protein powders made with whey or soy. Rather, aim for hemp, collagen or a pea and rice combination for your protein hit. Try to keep it as simple as possible, choose one with minimal ingredients and no artificial sweeteners. While protein powder isn't essential for maintaining muscle, bone health and wellbeing, it can give you the boost you need to fuel your training.

PROTEIN EXCESS

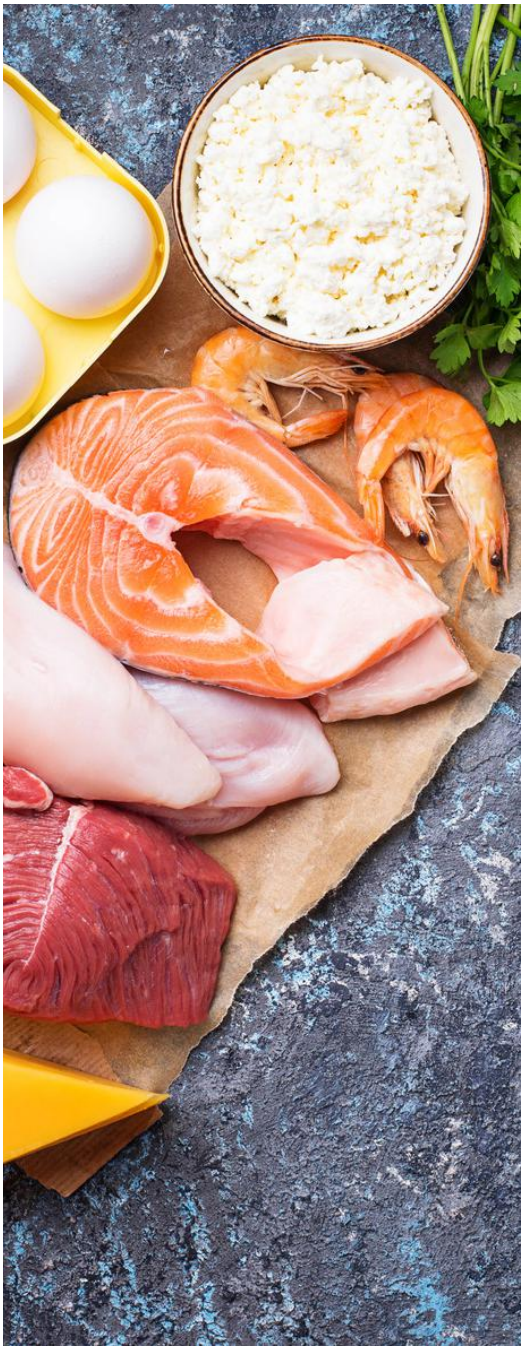
While we do require a certain amount of protein every day, having either an excessive or subpar amount can cause various complications.

Overloading the liver and kidneys, putting more pressure on them to filter out their end products.

Fluid imbalance and constipation. As protein metabolism requires water to process in the body, it can cause constipation and fluid retention.

An increased risk of bone issues as the blood can become acidic with a high-protein diet, leaching calcium from the bones to help alkalise the blood.

Strong body odour as protein is high in nitrogen.



PROTEIN DEFICIENCY

Weakness and an inability to build muscle.

Frequent infections, colds and flus.

Tiredness and lethargy.

Irritability, mood changes and depression as protein is required for the creation of hormones, including our happy hormones!

Tooth decay, allergies and acne.

Poor wound healing, dry and flaky skin.

Fluid retention and diarrhoea.

Bloating and poor digestion.

PROTEIN & FOOD SOURCES

ANIMAL-BASED

Source	*Amount*	*Protein (serve/gram)*
1 egg (raw)	50g	5-6
2 egg whites (raw)	70g	7-8
1 small egg (boiled)	1	4
1 large egg (boiled)	1	7
Anchovies	5	5.8
Bacon	2 slices (thick style)	10-12
Chicken	100g cooked	20-25
Cottage cheese	100g	15-18
Feta cheese	28g	4
Fish	120g	20
Goats cheese (soft/chev)	100 g	18-19
Goats milk	250ml	8
Greek Yoghurt full fat	150 g	11-12
Ground Turkey	85kg	23
Haloumi cheese	30g	6
Lean Beef or Lamb	120g	25
Milk	250ml	8-10
Mozzarella	60 g	11-12
Oysters	50g (raw)	6
Pork	100g	20-22
Ricotta cheese	100g	11
Salmon	100g	25
Snapper / Swordfish	85g	21
Tuna (canned)	100g	25

PROTEIN & FOOD SOURCES

PLANT-BASED

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Source	*Amount*	*Protein (serve/gram)*
Adzuki beans	1 cup	17
Almond butter	1 Tbs	2
Almonds	¼ cup	7
Baked beans	100g	6
Black beans	1 cup	15
Brazil nuts	¼ cup	5
Bread (gluten-free)	1 small slice	3
Bread (sourdough)	1 small slice	3.8
Bread (wholegrain)	1 small slice	3.6
Brown rice	1/2 cup cooked	2.3
Broccoli	1 cup	4
Cannellini beans	100g	17
Cashews	¼ cup	4
Cashew butter	2 tbsp	4-5
Chickpeas	1 cup	15
Flaxseed	¼ cup	5
Hazelnut	¼ cup	5
Hemp seeds	3 tablespoons	11
Hummus	1 tbsp	1.2
Kidney beans	1 cup	15
Lentils	1 cup	18
Macadamias	¼ cup	2
Muesli (not toasted)	100g	11
Muesli (toasted)	100g	9
Pine nuts	¼ cup	4

PROTEIN & FOOD SOURCES

PLANT-BASED *Continued*

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Source	*Amount*	*Protein (serve/gram)*
Peanut	¼ cup	8
Peanut butter	2 tbsp	7-9
Pumpkin seed	¼ cup	7
Quinoa (dry)	85g	12
Quinoa (cooked)	1 cup	5
Rolled oats	100g (2/3 a cup)	11-14
Soymilk	250ml	7 TEIN
Sunflower seeds	¼ cup	8
Tahini	2 tbsp	6
Tempeh	100g	19
Tofu	100 grams	12
Walnuts	¼ cup	5
White rice	1/2 cup cooked	2.1
Whole wheat bread	2 slices	4-6G

Example of a protein-rich day

PLANT-BASED

BREAKFAST: 2/3 cup cooked oats (11-14g), 2 tbsp almond butter (4 g) and ½ cup soya milk (7g) = 21-25g protein

POST-GYM SNACK: protein powder (20g), ¼ cup flaxseeds (5g), ½ cup of frozen blueberries and water = 25g

LUNCH: salad vegetables, 1 cup broccoli (4g), ½ cup cooked quinoa (5g) and 150g tofu (18g) = 27g

DINNER: 1 cup adzuki beans (17), ½ cup cooked brown rice (2.3), salad vegetables and 2 tbsp hummus (2.4g) = 21.7

This equals approx. 94.7g of protein for the day.

Example of a protein-rich day

ANIMAL-BASED

BREAKFAST: 2 large boiled eggs (14g), 1 piece of sourdough toast (3.8g) and ¼ avocado = 17g

POST-GYM SNACK: protein powder (20g), ¼ cup flaxseeds (5g), ½ cup of frozen blueberries and water = 25g

LUNCH: mixed salad vegetables, 100g salmon (25g) and ½ cup cooked brown rice (2.3g) = 27.3g

DINNER: 100g cooked chicken (20-25g), 1 cup of broccoli (4g) and salad = 24-29g

This equals approximately 93.3g of protein

CARBO-HYDRATES

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SIMPLE CARBOHYDRATES

"Nutrient robbers" – supply less nutrients than they need to be utilised, so they 'rob' the body of nutrients to be metabolised.

Provide immediate short term energy.

Include glucose, fructose, sucrose, lactose, maltose.

Sugar (including white, raw and brown), Fruit, Honey, Agave, Alternative sugars, Any sweet syrup, Components of Dairy, White Bread.

Highly refined foods, Breads, Cereal, Biscuits, Noodles, Pasta, White rice, Cakes, Muffins, Pastry.

COMPLEX CARBOHYDRATES

GRAINS & VEGETABLES

Are rich in vitamins and minerals.

Satisfy hunger, provide a feeling of fullness, provide energy and endurance.

Are slowly absorbed by the body allowing constant blood sugar levels.

Are well digested and assimilated (as a whole) into the body.

Promote elimination - are high in fibre and easily excreted from body.

Calm nerves and promote clear thinking.

Allow for beneficial microflora to thrive in our bodies.

Must be cooked, chewed and digested properly to provide the above benefits.

COMPLEX CARBOHYDRATES

STARCHY / WHOLE GRAINS

- Wheat
- Spelt
- Ancient grains
- Rye
- Barley
- Oats
- Rice
- Millet
- Corn
- Buckwheat
- Amaranth
- Quinoa (seed)

NON - STARCHY

All vegetables except a few that are considered starchy such as:

- Sweet corn
- Potato
- Sweet potato
- Pumpkin

FUNCTIONS OF CARBOHYDRATES

Source of 'energy' turns into glucose in our bodies, ultimately giving us energy.

Brain's #1 choice for fuel is glucose (carbohydrates). Without it our bodies feel starved which can lead to mood changes, inability to concentrate and sugar cravings.

Fights Fatigue and prevents people from "hitting the wall". The greater the intensity and duration of activity (exercise) between meals, the greater the demand on the body's stored carbohydrates (glycogen). If glycogen stores are diminished, fatigue sets in.

IDEAL INTAKE OF CARBOHYDRATES

1-5g per kg of body weight per day depending on weekly exercise, with the majority being whole / unrefined complex carbohydrates, vegetables and fruit. Amount needed vary depending on types of exercise and fat loss goals.

Intake needs to be adjusted depending on expected energy output / activity level only a finite amount of carbohydrates can be used as fuel or stored as glycogen, with any left over carbohydrate potentially being stored as fat.

EXCESS CARBOHYDRATES

Trigger the pancreas to release too much insulin which leads to blood sugar levels increasing and then rapidly decreasing leading to fluctuating energy levels. Can be stored as fat for a long-term energy source.

30 GRAMS LOOKS LIKE...

GENERAL CARBOHYDRATES			
Bread	2 slices	Pasta – cooked	¾ cup
Bread roll	1 roll	Rice - cooked	½ cup
Crumpet	1.5	Hot cross bun	1 average
Wheet bix	3	Untoasted muesli	½ cup
Cereal (avg)	½ cup	Cooked oats	1 cup
Rice cakes	4	Pancakes	2 average
Yoghurt – plain full fat	300gm	Fruit yoghurt	200gm
Milk	600ml	Muesli bar	1-2 (read label)
Choc muesli bar	2	Crisp bread	6 biscuits

CONCENTRATED FORM OF CARBOHYDRATES			
Fruit salad	1 cup	Orange/apple/pear	2 medium
Banana	1 large	Grapes	1 cup (12-14)
Dried figs	4 medium	Dried apricots	10 halves
Peach	2 large	Watermelon	3 cups
Sultanas/raisins	1/3 cup (45gm)	Blueberries	1.5 cups
Dates	6 small	Strawberries	3 cups
Dates	3 (large)	Raspberries	2 cups
Kiwi	3	Mango	1 medium
Pineapple	1.5 cups	Avocado	2
Rockmelon/cantelope	2.2 cups	Nectarine	2

CONCENTRATED FORM OF CARBOHYDRATES

Fruit juice	300ml	Cordial	300ml
Soft drink	250-300ml	Sports drink	350-400ml
Jam / honey	2 tbls	Jelly beans	10
Sugar	2 tbls	Honey	2 tbsp
Sports gel	1-1.5 packets	Maple syrup	2 tbsp

PALEO / STARCHY VEGETABLES

Taro root	90 grams	Sweet potato	150 grams
Cassava	80-85 grams	White potato	140 grams
Plantain	100 grams	Beet root	300 grams
Yam	105-110 grams	Carrots (raw)	300 grams
Butternut pumpkin/ squash	300 grams	Spaghetti squash	500 grams

SEEDS & NUTS	VOLUME		CARBS/GRAM
Almonds	1/4 cup	35 grams	6
Almond butter	1 Tbs	16 grams	3.5
Brazil nuts	1/4 cup	35 grams	4.3
Cashews	1/4 cup	35 grams	11
Cashew butter	1 Tbs	16 grams	4.5
Flax / linseed	1/4 cup	45 grams	12.3
Hazelnuts	1/4 cup	30 grams	5.2
Macadamias	1/4 cup	35 grams	4.5
Peanuts	avoid		
Pecans	1/4 cup	27 grams	3.8
Pine nuts	1 Tbs	9 grams	1
Pistachios	1/4 cup	30 grams	8.5
Pumpkin seeds / pepitas	1/4 cup	57 grams	7.6
Sesame seeds	3 Tbs	10 grams	2.4
Sesame butter / tahini	1 Tbs	15 grams	3.2
Sunflower seeds	1 Tbs	8 grams	1.8
Sunflower seed butter	1 Tbs	16 grams	4.4
Walnuts	1/4 cup	30 grams	4

FRUITS	VOLUME		CARBS/GRAM
Apple	1 piece	135 grams	10
Apricot (dried)	1/4 cup	33 grams	20
Banana	1 med	115 grams	25
Blackberries	1/2 cup	75 grams	8
Blueberries	1/2 cup	75 grams	9.5
Cherries	1/2 cup	75 grams	10
Cranberries (raw)	1/2 cup	55 grams	6.7
Dates	1/4 cup	45 grams	33.5
Figs (fresh)	2 pieces	100 grams	19
Grapefruit	1/2 cup	115 grams	12.2
Grapes	1/2 cup	75 grams	14
Grapes (raisins)	1/4 cup	40 grams	32.5
Guava	1 piece	55 grams	8
Kiwi fruit	1 piece	75 grams	11
Lemon	1 piece	110 grams	11
Mandarin orange	1 med	88 grams	11
Mango	1/2 cup	85 grams	14
Melon	1/2 cup	85 grams	6
Melon (water)	1/2 cup	75 grams	5.7
Orange	1 piece	130 grams	15
Papaya	1/2 cup	70 grams	7
Passionfruit	1 piece	18 grams	4.2
Peach	1 med	150 grams	14.3
Pear	1 piece	150 grams	20
Pineapple	1/2 cup	78 grams	10
Plum (large)	1 piece	66 grams	7.5
Pomegranate	1 piece	155 grams	26
Prunes (dried)	2 pieces	17 grams	10.7
Rasberries	1/2 cup	62 grams	7.3
Strawberries	1/2 cup	72 grams	5.5
Tangerine	1 piece	88 grams	11.7

MILK	VOLUME		CARBS/GRAM
Cows milk	1 cup	245ml	12
Lactose free milk	1 cup	245ml	12
Rice milk	1 cup	240ml	25
Soy milk	1 cup	240ml	14
Coconut milk	1 cup	240ml	7
Almond milk	1 cup	240ml	8
Cashew milk	1 cup	240ml	9

VEGETABLES	VOLUME		CARBS/GRAM
Avocado	1/2 cup	115 grams	10
Asparagus	1/2 cup	90 grams	4
Artichoke hearts	1/2 cup	85 grams	10
Brussel sprouts	1/2 cup	80 grams	6
Broccoli	1/2 cup	80 grams	5.5
Beet root	1/2 cup	85 grams	8
Carrots	1/2 cup	80 grams	5.8
Cauliflower	1/2 cup	50 grams	2.6
Cabbage (raw)	1 cup	70 grams	4
Capsicum (bell pepper)	1/2 cup	75 grams	3.5
Cherry tomato	5 pieces	85 grams	3.3
Cucumber	1/4 of	75 grams	2.7
Celery	2 stalks	80 grams	2.4
Chard (swiss)	1 cup	36 grams	1.6
Corn (sweet)	1/2 cup	82 grams	20
Eggplant (cooked)	1/2 cup	50 grams	4.3
Kale (raw)	1 cup	67 grams	6.7
Kim chee	1 cup	150 grams	6
Lentils (boiled)	1/4 cup	50 grams	10
Lettuce	1 cup	55 grams	1.5
Mushrooms	1 cup	85grams	2.8
Onions (raw)	1/2 cup	80 grams	7.5
Onions (red)	1/2 cup	60 grams	5.8
Peas (sugar/snap)	1/2 cup	32 grams	2.4
Pumpkin (cooked)	1/2 cup	125 grams	6
Radicchio	1 cup	40 grams	1.8
Radish	6 pieces	30 grams	1
Sauerkraut	1/2 cup	118 grams	5.1
Seaweed (kelp)	1/2 cup	40 grams	3.8
Seaweed (spirulina)	1/2 cup	8 grams	1.8
Tofu		90 grams	2.2
Spinach (raw)	1 cup	30 grams	1.1
Squash, butternut (cooked)	1/2 cup	100 grams	11
Sweet potato (cooked)	1/2 cup	100 grams	20
Tomato (raw)	1 piece	125 grams	4.8
Zucchini	1/2 cup	90 grams	4

KIRA SUTHERLAND

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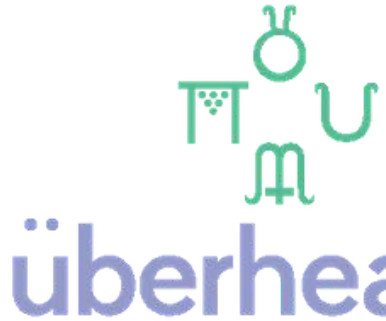
Kira Sutherland is an Australian Naturopath and Sports Nutritionist with more than 20 years in clinical practice.

She is the 2019 winner of the BioCeuticals Integrative Medicine Award for Excellence in clinical practice (Nutrition/Dietetics) and is the current performance nutritionist for the Sydney Marathon and running festival.

Kira divides her time between clients, lecturing at the undergraduate level, and mentoring practitioners of complementary medicine in the application of holistic sports nutrition. Known for her vibrant, straight forward teaching style, Kira's focus is to empower and educate at a level where information can become intrinsic knowledge.

She is a lifelong athlete herself, participating in many endurance sports, thus providing her with a solid foundation of practical experience to add to her academic and clinical background.



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