

## Protein Explained for Vegans & Vegetarians

### Why do we need protein?

Good quality sources of protein are essential for the body to maintain its structural integrity. Not only does eating insufficient protein mean that our body does not have the “building blocks” required for repair and ongoing synthesis of tissues and hormones but it also leads to food cravings and blood sugar instability. Meals that lack protein and are carbohydrate dense can not only play havoc with blood sugar levels but they also do not provide the same level of satiety so you may find yourself overeating or needing to snack more frequently.

Protein is essential for:

- Maintaining structural integrity - ligaments, muscle, tendons, skin, cell membranes
- Growth - including muscle building and repair
- Wound and injury healing
- Producing blood cells, genetic material, digestive enzymes, antibodies and hormones

### How much do you need?

There are many recommended intake guidelines for the average person but so many factors need to be taken into consideration to assess if you are average and if this is an adequate amount for you! In particular, those who regularly participate in sport, particularly high intensity or endurance sports such as fell-running, will have higher protein requirements. This is because high intensity or prolonged activity causes a greater rate of tissue damage and muscle breakdown. For similar reasons, protein requirements are greater after surgery, or following an illness, injury or a fracture. Pregnancy is another situation where more protein is required. The following recommend intakes per kilo of bodyweight can be used by men and women to calculate approximate daily requirements:

- Recommended requirement for adults **0.8 g protein/kg body weight** per day
- Recommended requirement for endurance athletes is **1.2 – 1.4g/kg body weight**

### More about protein

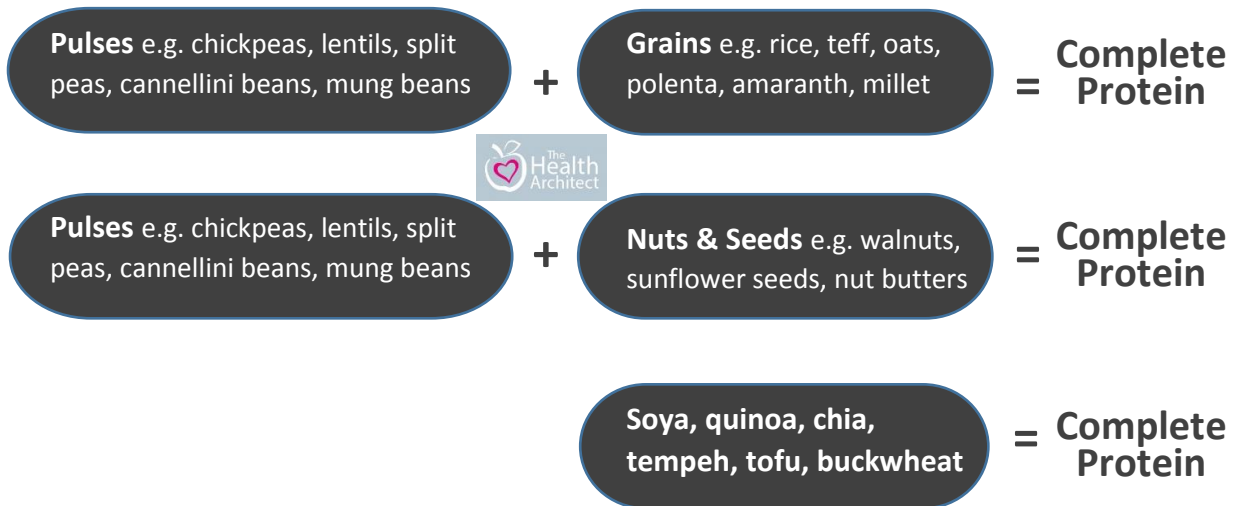
Protein is contained in an incredibly wide variety of foods. Animal products are what most people think of first when considering protein sources. This is probably because animal products contain all the nine essential amino acids (protein “building blocks”). These essential amino acids must be obtained from our diet and so foods containing all nine are termed “complete proteins”. In addition to animal proteins such as meat, fish, eggs, milk and cheese there are plant-based sources of complete proteins including quinoa, chia seeds, hemp seeds, soya beans and soya bean products.

The majority of plant-based protein sources are termed “incomplete proteins” meaning they are missing one or more essential amino acids. Plant protein sources include vegetables, grains, pulses, nuts and seeds; these offer less concentrated sources of protein but they provide additional macro-nutrients such as healthy fats and/or complex carbohydrates alongside the protein. By eating a varied diet that combines various protein containing foods will normally ensure you get all the essential amino acids. Some of the best plant protein sources are shown in the following table.

| <b>Nuts</b> | <b>Seeds</b> | <b>Soya Products</b> | <b>Pulses</b> |
|-------------|--------------|----------------------|---------------|
| Almonds     | Sunflower    | Edamame beans        | Chickpeas     |
| Walnuts     | Pumpkin      | Tofu                 | Lentils       |
| hazelnuts   | Chia         | Tempeh               | Split peas    |
| Cashews     | Buckwheat    | Miso                 | Mung beans    |
| Pecans      | Quinoa       |                      | Hummus        |

### How do you get “complete protein” on a vegan diet?

Many people do not realise that by combining different plant-based protein sources you can create a “complete protein” meal. The diagram below provides a simple illustration of the key combinations that will give you complete protein:



Traditionally, most Indians ate a vegetarian diet and one of their diet staples is dhal bhat; simply cooked lentils served with rice to create a complete protein meal. Here are some further examples of meals from one of my plant-based programmes that use combining to create a complete protein meal:

- hummus with roasted chestnuts & sprouts
- lentils with roasted hazelnuts
- hot’n’ spicy brassicas with cashews and hummus
- cannellini bean and nut protein bombs

To get a better understanding of your protein intake you need to know portion sizes as well as how much available protein there is. The total amount of protein that can be gained from food is given a biological value (BV). A high score indicates a greater percentage of usable protein and will normally indicate that there are high levels of all nine essential amino acids. The usable amount of protein will be determined by the amino acid that has the lowest level – this is called a “rate limiting” amino acid.

The following table compares the protein content of a range of foods:

| <b>Food</b>                                 | <b>Portion Size</b> | <b>Protein</b> | <b>Kcals</b> |
|---|---------------------|----------------|--------------|
| <b>Meat &amp; Fish</b>                      |                     |                |              |
| Chicken Breast - grilled                    | 130 g               | 39 g           | 197          |
| Roast Turkey Slices                         | 130 g               | 43 g           | 198          |
| Mackerel - grilled                          | 150 g               | 31 g           | 359          |
| Salmon – oven baked                         | 180g                | 39g            | 265          |
| Tuna - canned                               | 100 g               | 24 g           | 99           |
| <b>Eggs, Dairy &amp; Dairy Alternatives</b> |                     |                |              |
| Chicken Egg                                 | 60g                 | 7 g            | 99           |
| Cheddar Cheese                              | 25 g                | 6 g            | 104          |
| Milk  | 200ml               | 7g             | 94           |
| Yoghurt                                     | 100g                | 4g             | 116          |
| Soya Milk                                   | 200ml               | 6g             | 78           |
| Almond Milk                                 | 200ml               | 1g             | 26           |
| Firm Tofu                                   | 100g                | 12.6           | 115          |
| <b>Nuts &amp; Seeds</b>                     |                     |                |              |
| Cashew Nuts                                 | 15 g                | 3 g            | 92           |
| Sunflower Seeds                             | 15 g                | 3 g            | 90           |
| Handful of Almonds                          | 15g                 | 3g             | 80           |
| Whole Chestnuts                             | 50g                 | 2g             | 88           |
| Quinoa                                      | 50g                 | 7g             | 175          |
| Chia Seeds                                  | 25g                 | 5g             | 110          |
| Peanut Butter                               | 30g                 | 9g             | 215          |
| <b>Pulses &amp; Gluten Free Grains</b>      |                     |                |              |
| Beluga or Puy Lentils                       | 100g                | 11g            | 146          |
| Green Lentils                               | 100g                | 6.1            | 82           |
| Chickpeas                                   | 100g                | 7.7            | 122          |
| Hummus                                      | 50 g                | 3 g            | 159          |
| Brown Rice                                  | 100g                | 4g             | 155          |
| Oats  | 50g                 | 1g             | 194          |