LYME DISEASE
ASSOCIATION OF AUSTRALIA
For Lyme Disease Awareness & Action

Ask the Doctor: A Six Part Series on Lifestyle Recommendations to Look After Your Nervous System

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Part 4: Proteins

The idea of a high protein diet probably has the most acceptance amongst people in general. There are different schools of thought in nutrition regarding the different views on low versus high fat diets and high versus low carb diets. However, most health professionals will not dispute the concept that someone who is sick, will need to pay attention to meeting their protein requirements. Protein is a macronutrient (an energy providing chemical substance that is required by organisms in large amounts). There are three types of macronutrients; fat, carbohydrate and protein. However, protein is the only macronutrient that has standardised reference intake levels.

All cells and tissues contain proteins as key parts of their structure and are essential for growth and repair and also the maintenance of good health. Therefore there is a Reference Nutrient Intake (RNI) value which is set at 0.75g of protein per kilogram of bodyweight per day for adults. This equates to approximately 56g per day for men and 45g per day for women who are aged between 19-50 years. However outside this bracket, there are extra requirements for protein to best meet growth in infants and children and for pregnant and breast feeding women. The amount of protein we need also changes over a lifetime and of course, we may need more depending on physical activity, illness, degeneration and regeneration.

Fats and carbohydrates do not have set intakes of 'grams per kilo of body weight' because they are not considered structural requirements but, more the energy providers. A large proportion of structural proteins will be muscle (43% on average) with significant proportions being present in skin (15%) and blood (16%). Traditionally, dietary values for the energy providers (carbs and fat) often refer to the percentage value of dietary energy that is provided by these (as opposed to needing to meet a minimum).

However, as per my previous articles on fat and carbohydrates, you will see that that I emphasise there is the need for the right fats to best support cellular structure AND energy production. Often people can have too many carbs and too few good fats and protein in their diet. Protein can also provide energy when a diet has lower levels of carbohydrate or fat. Hence, the reason behind high protein and low carbohydrate diets being popular for weight loss.

Of the twenty amino acids needed for proper structural building, there are eight that are called essential amino acids for adults (and nine for children) that the body cannot synthesize for itself. These are histidine, isoleucine, leucine, lysine, methionine (which becomes cysteine), phenylalanine (which becomes tyrosine), threonine, tryptophan, and valine. These essential amino acids must come from our diet. The other twelve can be manufactured within the body. Amino acids are essential for detoxification and cellular energy and repair.

Foods vary in the amount of protein they provide but the main sources include meat, fish, eggs, milk, cheese, grains (e.g. rice, oats, wheat, quinoa), nuts and pulses (beans and lentils). It is important to note that not all protein sources have equal nutritional value. Some sources, such as meat and eggs, are called complete proteins because they contain all nine essential amino

acids. Incomplete proteins (such as in tofu from soy and corn) do not have large enough amounts of all the essential amino acids. This is why those who eat only vegetable proteins will need to pay careful attention to the combination of amino acids in each source so that they make sure they have enough overall.

With the low cost of factory farmed meat and the standard Australian diet, it has become common for people to overeat protein. Eating more protein than your body needs, can interfere with health by causing weight gain, extra body fat, stress on the kidneys, dehydration and leaching of calcium from the bones.

When the other macronutrients (e.g. carbohydrates or fats) are not available for energy, the body has only protein to use for energy. In order for protein to be converted to calories, the kidneys must remove nitrogen from the amino acids to convert them into a usable form of energy. This process called deamonization can overwork the kidneys, which can have some long-lasting detrimental effects and cause chronic dehydration.

Excessive protein can also have a stimulating effect on an important biochemical pathway called the mammalian target of rapamycin (mTOR). This pathway has a significant role in many cancers. When protein intake is reduced to just what the body needs, mTOR remains inhibited, which helps minimize chances of cancer growth. It has been studied and shown that eating a calorie restricted diet can lead to longer lives and less chance of cancer. It is now thought that this difference may be due the protein excess as opposed to simply caloric excess which are both common in our current food economy.

In my estimation, we probably don't need more than 1g of protein per kilogram of lean body mass. This would cover the basic requirement and more for tissue repair but, it will also aim to ensure no excess protein. For most people, this is 40-70 grams of protein a day (about 46 grams a day for women, and 56 grams a day for men). The standard Australian guidelines is 0.75g/ kg for adult women and 0.84g/kg for adult men. However, pregnant women, breast feeding women and elderly people need more at 1g/kg. Other situations where people need more protein includes post-operative periods, infections, febrile conditions, head injuries, burns, liver disease and trauma. These people may need 1.2 to 1.5g protein/ kg body weight. Serious body builders and athletes may need up to 1.5g protein/ kg body weight.

I would suggest that you calculate the amount of protein you eat per day so that you can ensure that you are meeting your basic requirements and you are avoiding excess. By using information from the previous paragraphs, you may wish to consider adjusting this in accordance with the levels of inflammation, tissue repair and tissue regeneration that would be most appropriate to you and the level of physical activity you do. It is preferable to eat smaller amounts of high quality protein sources and not overeat poor quality farmed animals. Grass fed animals have better nutrient profiles compared to feedlot and intensively farmed animals. If eating a vegetarian diet, it is important to ensure the legumes and grains eaten are in balance to provide the correct range of essential amino acids.

In summary, while it has been popular to have high protein diets for weight loss, it is probably much safer to have only a moderate amount of protein, with low starchy carbohydrates, plenty of vegetables and high amounts of good fats.

The following table may be helpful to evaluate and compare good protein sources.

Good Protein Sources.

FOOD SOURCE	PORTION	PROTEIN (GRAMS)
FISH		
Fish, white, steamed	100g	23
Salmon Steamed/poached	100g	28
Tinned Salmon in water	100g	22
Tinned Sardines	100g	21
MEAT.		
Beef/ lean, fillet grilled	100g	32
Beef/ lean, mince	100g	27
Game meat	100g	31
POULTRY.		
Chicken breast, grilled	100g	30
Turkey, breast roasted	100g	29
EGGS		
Whole egg/boiled	2 eggs	12
Egg whites	4 egg whites	14
DAIRY		
Yogurt natural, Greek style	100g	5
Milk, Skim	125ml	4
Cheese, cottage 1% fat	100g	18
OTHER		
Spirulina	10g (1tbls)	5.4
Chickpea, boiled	100g	6
Lentil, boiled	100g	5
Green peas, fresh, boiled	100g	5
Beans, boiled	100g	8
Almonds, natural	50g	10
Sunflower seed, natural	50g	11
Pumpkin seed, natural	50g	12
Quinoa, cooked	100g	4