Role of Protein

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Protein is needed in a healthy diet.

Protein is needed to rebuild body tissues such as muscles and organs. The typical American diet provides plenty of protein -- more than the RDA in most instances. The RDA represents the minimum amount of protein needed to fulfill protein needs in 97.5% of the population. This value is equal to 0.8 g of protein per kg body weight per day. The average mixed American diet provides from one to two times the RDA for protein. You might think, then, based on this that protein deficiency is unlikely in the U.S. . However, the RDA for protein has been derived from research studies performed on healthy individuals. Growing children, pregnant and lactating women, the elderly, and anyone undergoing severe stress (trauma, hospitalization, surgery), disease or disability need more protein.

Muscles are built from protein. Unlike fat cells for fat and muscle or liver for glucose, there is no place in the body to store protein. We need to consume enough protein to allow our muscles to be healthy and perform work.

Animal and plant or vegetable foods are the two major protein sources. Animal protein foods include meat, poultry, fish, dairy products and eggs and are said to be of high biological value. That is, they contain all nine essential amino acids that can not be synthesized in the body (histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine).

Plant protein sources, although good for certain essential amino acids, do not always offer all nine essential amino acids in a single given food. For example, legumes lack methionine, while grains lack lysine. What is needed are complementary proteins, various protein food sources that, eaten together, enable a person to meet the standards of a high biologic protein diet.

If vegans eat a variety of plant foods -- cereals, nuts, seeds, grains and legumes -- they'll be fine. They don't have to eat all these food items at a given meal. However, they should consume most or all of them during the course of the day to insure a well balanced protein diet of high biological value.

The typical American diet is already providing plenty of protein. There is no value in adding even more protein to that amount, since protein cannot be stored in the body and the excess is eliminated in urine and feces.

When people start consuming too much protein (over 2.0 g/kg/d), the extra protein can become a stressful stimulus for the kidney. This is even more of a concern as we get older and our organs are less efficient and effective.

Very high levels of dietary protein have also been correlated with increased urinary calcium excretion. The loss of calcium through urine could potentially be harmful for bone turnover, with the added risk of osteoporosis. Finally, protein requires vitamin B6 in order to be metabolized and ultimately utilized in the body. Very high levels of dietary protein increase the requirement for this B vitamin.

There are many high protein/high fat/extremely low carb diets currently being promoted for weight loss and diabetic glucose control. Mainstream medical opinion is these diets put diabetics at greater risk for kidney damage.

A search engine search will render many results similar to the following.

Below you will find statements from a few of many different sources expressing current thought on proteins in the diet. you may access the full article by clicking on the links provided.

Why is a low protein diet necessary?

Protein is needed for growth, upkeep and repair of all parts of your body. Protein comes from the food you eat. When your body digests it, a waste product called urea is produced. If the kidneys are not working well, urea can build up in the bloodstream and may cause loss of appetite and fatigue. Eating a low-protein diet will reduce the workload on the kidneys so that the remaining healthy part of the kidney does not have to work so hard. There are two main sources of protein:

http://www.kidney.org/atoz/atozItem.cfm?id=89

National kidney foundation

People with reduced kidney function need to be aware that some parts of a normal diet may speed their kidney failure.

Protein. Protein is important to your body. It helps your body repair muscles and fight disease. Protein comes mostly from meat. As discussed in an earlier section, healthy kidneys take wastes out of the blood but leave protein. Impaired kidneys may fail to separate the protein from the wastes.
Some doctors tell their kidney patients to limit the amount of protein they eat so that the kidneys have less work to do. But you cannot avoid protein entirely. You may need to work with a dietitian to find the right food plan.

Cholesterol. Another problem that may be associated with kidney failure is too much cholesterol (koh-LES-tuh-rawl) in your blood. High levels of cholesterol may result from a high-fat diet. Cholesterol can build up on the inside walls of your blood vessels. The buildup makes pumping blood through the vessels harder for your heart and can cause heart attacks and strokes.
http://kidney.niddk.nih.gov/kudiseases/pubs/yourkidneys/
National Institute of Health

By restricting carbohydrates drastically to a mere fraction of that found in the typical American diet, the body goes into a different

metabolic state called ketosis, whereby it burns its own fat for fuel. Normally the body burns carbohydrates for fuel -- this is the main source of fuel for your brain, heart and many other organs. A person in ketosis is getting energy from ketones, little carbon fragments that are the fuel created by the breakdown of fat stores. When the body is in ketosis, you tend to feel less hungry, and thus you're likely to eat less than you might otherwise. However, ketosis can also cause health problems, such as kidney failure…………………..

What Are the Health Risks Associated With High Protein, Low Carb Diets?

High protein diets can cause a number of health problems, including:

Kidney failure. Consuming too much protein puts a strain on the kidneys, which can make a person susceptible to kidney disease.

High cholesterol. It is well known that high protein diets (consisting of red meat, whole dairy products, and other high fat foods) are linked to high cholesterol. Studies have linked high cholesterol levels to an increased risk of developing heart disease and cancer.

Osteoporosis and kidney stones. High protein diets have also been shown to cause people to excrete more calcium than normal through their urine. Over a prolonged period of time, this can increase a person's risk of osteoporosis and kidney stones.

Cancer. One of the reasons high protein diets increase the risks of certain health problems is because of the avoidance of carbohydrate-containing foods and the vitamins, minerals, fiber and anti-oxidants they contain. It is therefore important to obtain your protein from a diet rich in whole grains, fruits and vegetables. Not only are your needs for protein being met, but you are also helping to reduce your risk of developing cancer.

Unhealthy metabolic state (ketosis). Low carb diets can cause your body to go into a dangerous metabolic state called ketosis since your body burns fat instead of glucose for energy. During

ketosis, the body forms substances known as ketones, which can cause organs to fail and result in gout, kidney stones, or kidney failure. Ketones can also dull a person's appetite, cause nausea and bad breath. Ketosis is prevented by eating at least 100 grams of carbohydrates a day.

http://www.webmd.com/content/article/46/2731_1666

WebMD Medical Reference in collaboration with The Cleveland Clinic

Protein cannot be stored and needs to be replenished daily. Muscle wasting can occur if protein intake is inadequate as it may be needed for more important body functions. However, most people eat more than they need in terms of protein. The train of though that strength athletes followed is that the more material you supply the body the more it will build. That is not true. The body will only use the precise amount of protein it needs. The rest will be excreted in the urine and excess amount may even cause liver and kidney strain. It can also cause an increase in calcium loss in the urine as well as dehydration.

http://healthfitness.com.au/diet/nutrition/protein-proteins.htm

Question

When I enter 35% for my protein intake in your Healthy Body Calculator, I get an error message that 35% is too high. I am a weightlifter and this is not 'unreasonable'. Please fix this or find a way to enter whatever values we would like. I like your page and would like to keep using it.

Answer

Actually, protein intakes above 20% are not recommended based on current research, even for weight lifters. High protein intakes stress your kidneys and do not result in greater muscle gain.

http://www.dietitian.com/protein.html

high protein to repair kidney

Protein. Before you were on dialysis,
your doctor may have told you to follow a low-protein diet to preserve kidney function. But now you have different nutritional priorities.
Most people on dialysis are encouraged to eat as much high-quality protein as they can. Protein helps you keep muscle and repair tissue, but protein breaks down into urea (blood urea nitrogen, or BUN) in your body. Some sources of protein, called high-quality proteins, produce less waste than others. High-quality proteins come from meat, fish, poultry, and eggs. Getting most of your protein from these sources can reduce the amount of urea in your blood.

http://kidney.niddk.nih.gov/kudiseases/pubs/hemodialysis/