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1/10You should get a minimum of 10% of your daily calories from protein. (For a target of grams, multiply your weight in pounds by 0.36.) And you want it from a variety of sources throughout the day: A 6-ounce container of low-fat Greek yogurt for breakfast has about 17 grams; a serving of skinless chicken breast at lunch has about 25 grams; and a cup of black beans at dinner, about 15 grams. Your body breaks down and reuses the protein in many ways.2/10One of the most common signs that you're not getting enough protein is swelling (also called edema), especially in your abdomen, legs, feet, and hands. A possible explanation: The proteins that circulate in your blood -- albumin, in particular -- help keep fluid from building up in your tissues. But many things can cause edema, so be sure to check with your doctor in case it's more serious.3/10Your brain uses chemicals called neurotransmitters to relay information between cells. Many of these neurotransmitters are made of amino acids, which are the building blocks of protein. So a lack of protein in your diet could mean your body can't make enough of those neurotransmitters, and that would change how your brain works. With low levels of dopamine and serotonin, for example, you may feel depressed or overly aggressive.4/10These are made up of proteins like elastin, collagen, and keratin. When your body can't make them, you could have brittle or thinning hair, dry and flaky skin, and deep ridges on your fingernails. Your diet isn't the only possible cause, of course, but it's something to consider.5/10Research shows that just a week of not eating enough protein can affect the muscles responsible for your posture and movement, especially if you're 55 or older. And over time, a lack of protein can make you lose muscle mass, which in turn cuts your strength, makes it harder to keep your balance, and slows your metabolism. It can also lead to anemia, when your cells don't get enough oxygen, which makes you tired.6/10This one might seem obvious. Protein fuels you. It's one of three sources of calories, along with carbs and fats. If you want to eat a lot of the time even though you have regular meals, you may need more protein. Studies have found that eating foods with protein helps you feel fuller throughout the day.7/10People who are low on protein often find their cuts and scrapes take longer to get better. The same seems to be true of sprains and other exercise-related mishaps. It could be another effect of your body not making enough collagen. It's found in connective tissues as well as your skin. To make blood clot, you need proteins, too.8/10Amino acids in your blood help your immune system make antibodies that activate white blood cells to fight off viruses, bacteria, and toxins. You need protein to digest and absorb other nutrients that keep you healthy. There's also evidence that protein can change the levels of disease-fighting "good" bacteria in your gut.9/10Most Americans get plenty of protein. People who don't get enough usually have an overall poor diet. Elderly people and people with cancer may have trouble eating as much protein as they need. Severe malnutrition from lack of protein is called kwashiorkor. It's more common in developing countries, especially with children, or after a natural disaster.10/10If you exercise regularly and eat a balanced diet, you're probably fine. But serious athletes with strenuous training schedules do need more protein -- about twice as much as the average person, or roughly 0.5-1 gram of protein for every pound of body weight each day. Don't overdo it though. Too much protein can also cause problems. High protein low fat foods can be good for muscle building and possible weight loss. Choose a variety of plant and animal sources, such as white-fleshed fish, egg whites, and beans, for best results and balanced nutrition.Protein is an essential component of healthy nutrition. Beyond its essential roles in building and maintaining muscle and tissues in your body and helping regulate many body processes, protein also helps promote satiety (fullness) and may aid in weight management.Fortunately, there are a variety of lean animal and plant sources of protein that can help you meet your quota.According to the Dietary Guidelines for Americans 2020-2025, the protein Reference Daily Intake (RDI) for an adult who eats 2,000 calories a day is about 5.5 ounces (oz) per day or 10-35% of total calorie intake. Here are 13 lean protein foods to consider.Most white-fleshed fish are quite lean and excellent protein sources, providing less than 3 g of fat, 20–25 g of protein, and 85–130 calories per 3.5 oz (100 g) plain, cooked serving.These white fish generally have only about 25% as many omega-3 fatty acids as higher fat, higher calorie, darker-fleshed fish such as coho and sockeye salmon. Therefore, it’s a good idea to eat both types of fish.SummaryWhite-fleshed fish such as cod and halibut are excellent sources of hunger-satisfying protein with little fat and relatively few calories, but other types of fish, such as salmon, have higher amounts of healthy omega-3 fats. If you’re looking for the least calories and fat, opt for nonfat Greek yogurt, which has less than 2 grams of fat per 156-gram serving, or for low fat plain Greek yogurt, which has about 10 g of protein, depending on the brand. By opting for plain yogurt, you skip the unnecessary sweeteners and can add your own fruit.Learn more about Greek yogurt vs regular yogurt.SummaryPlain nonfat or low fat Greek yogurt contains about twice as much protein per serving as regular yogurt. It also contains much less sugar.Dry beans, peas, and lentils, also called pulses, are a subgroup of legumes. They average 20-25 g of protein per 1/2 cup (100 g) cooked serving, depending on the type.A 2021 review explains that eating legumes can have a positive effect on a variety of health markers, including reducing cholesterol, improving the body’s glucose management, protecting blood vessels, and reducing inflammation.Notably, pulses are low in a few essential amino acids, the building blocks of protein in your body. However, by eating other plant protein sources over the course of a day, such as whole grains and nuts, you can fill in those gaps.Learn more about the benefits of legumes.SummaryBeans, peas, and lentils are good sources of lean protein. They’re also high in fiber and may help lower your cholesterol if you eat them regularly.Skip dark meat cuts such as drumsticks and thighs to get the leanest meat. White meat includes the breasts, breast tenderloins (tenders), and wings.If you’re looking to limit calories and fat, try to avoid the skin — 3.5 oz (100 g) of roasted chicken breast with skin has 200 calories and 8 g of fat, while the same amount of skinless roasted chicken breast has around 161 calories and 3.5 g of fat.You can remove the skin either before or after cooking — the fat savings are virtually the same either way. Learn more about the benefits of eating chicken.SummaryWhite meat chicken and turkey, particularly the breasts, are rich in protein and low in fat if you remove the skin either before or after cooking.Learn more about the benefits of cottage cheese.SummaryLow fat cottage cheese is an excellent source of protein and is becoming even more convenient with the increased availability of single-serving containers. It’s also a good source of calcium.If you’re not 100% sold on tofu, edamame, and tempeh are two other whole-food sources of soy that are high in protein and relatively low in calories and fat.Note that about 94% of soybeans produced in the United States are genetically modified (GM). If you prefer to avoid GM foods, you can buy organic tofu — organic foods cannot be genetically modified.Learn more about tofu vs tempeh.SummaryTofu is a good source of plant protein that provides adequate amounts of all the essential amino acids and is very versatile in recipes.Lean cuts of beef are those with less than 10 g of total fat and no more than 4.5 g of saturated fat per 3.5 oz (100 g) cooked serving.When it comes to ground beef, opt for something that’s at least 90% lean. A 4 oz (113 g) cooked hamburger patty made with 95% ground beef has 155 calories, 5.6 g of total fat (including 2.4 g of saturated fat), and 24 g of protein.What’s more, a serving of lean beef is an excellent source of several B vitamins, zinc, and selenium.Learn more about how to select lean beef.SummaryLean beef is generally signaled by the word “loin” or “round.” If buying ground beef, try to find something that’s at least 90% lean. Lean beef is an excellent source of protein and also packs B vitamins, zinc, and selenium.The natural oil in peanut butter is heart-healthy but can pack a lot of calories. Just 3.5 oz (100 g) of regular peanut butter has about 500-600 calories, 50 g of fat, along with 24 g of protein.A lower-calorie option is unsweetened powdered peanut butter. The same serving has just 375 calories and 8 g of fat, but 33 g of protein.Learn how to use powdered peanut butter.SummaryPowdered peanut butter is a convenient protein source that has just a fraction of the calories and fat of regular peanut butter.Whether you drink it, cook with it, or add it to cereal, low fat milk is an easy way to get protein.That said, some research suggests that drinking whole milk may not increase heart disease risk, as was once thought, and may even help with weight management.If you aren’t sure which dairy milk option is best for you, especially if you’re already living with high cholesterol or heart disease, talk it over with a doctor or a registered dietitian. SummaryLow fat milk is a good source of protein and can save you a significant amount of fat and calories compared with whole milk, especially if you consume it often.Lean cuts include pork tenderloin, pork (loin) chops, and pork top loin or sirloin roasts. Pork tenderloin, the leanest cut, has 109 calories, 21 g of protein, and about 2.7 g of fat per 3.5 oz (100 g) cooked serving.Like lean beef, lean pork is also an excellent source of several B vitamins and selenium and a good source of zinc. Learn more about eating pork.SummaryYou can find lean pork by looking for the word “loin” or “chop.” Even so, be sure to cut off excess fat on the meat if you’re trying to limit fat and calories. Pork is also rich in B vitamins, selenium, and zinc.If you’re looking for a lot of protein for fewer calories, frozen unbreaded shrimp are a convenient option. A 3 oz (85 g) serving has 110 calories, 22 g of protein, and 2 g of fat.Though the same serving also has 150 milligrams (mg) of cholesterol, scientists have found that consuming cholesterol as part of a nutritious diet generally has little impact on the heart health of people who are not currently living with heart disease or high cholesterol.However, the high amount of sodium often added to shrimp during processing may be of concern for some people. Learn more about eating shrimp.SummaryUnbreaded frozen shrimp are a convenient, low fat, high protein food. Read nutrition labels when shopping to avoid products with high sodium content.You can eat whole eggs (cholesterol and all) as part of a heart-healthy diet, but if you’re looking for something a little lighter, you can use just the whites.You can also buy powdered egg whites and egg white protein powders with minimal or no additives. These products are pasteurized, so you don’t have to cook them to ensure food safety.SummaryHalf the protein in eggs comes from the whites, but the whites contain only trace amounts of fat and less than a quarter of the calories of whole eggs.This gives bison a healthier fat profile, including 3–4 times more anti-inflammatory omega-3 fats, particularly alpha-linolenic acid, which means consuming bison may yield some health benefits compared to other red meats. SummaryBison is leaner than beef and has a healthier, less inflammatory fat profile.Foods that are high in protein but don’t have a lot of calories or fat include legumes, low-fat dairy, as well as lean meats, fish, or plant proteins like tofu, or quinoa, which has around 8 grams of protein and only 2.5 g of fat in 1 cooked cup.Fish and beans have the least amount of calories per 100 g while also containing 8-28 g of protein depending on the food. A balanced, nutritious diet will include enough protein to fulfill the 150 g recommendation. Lean animal proteins include white-fleshed fish, skinless poultry, and cuts of red meat such as loin and round. Low fat dairy products, like cottage cheese, yogurt, and milk are also good sources of protein. Plant proteins like beans, tofu, and powdered peanut butter offer ample protein too.»MORE:Learn how to lose weight the healthy way, the Wellos™ wayWellos is owned by RVO Health. By clicking on this link, we may receive a commission. Learn more.Protein is essential for a healthy diet, helping to build muscle and tissue, regulate bodily processes, satiate, and manage weight.Making sure you get enough protein in your diet is important. That said, everyone’s health histories and nutritional needs are different, so it’s important to consult a doctor or registered dietitian before making big changes to your diet.Healthline has strict sourcing guidelines and relies on peer-reviewed studies, academic research institutions, and medical journals and associations. We only use quality, credible sources to ensure content accuracy and integrity. You can learn more about how we ensure our content is accurate and current by reading our editorial policy.Blesso CN, et al. (2018). Dietary cholesterol, serum lipids, and heart disease: are eggs working for or against you? B, et al. (2017). Short communication: Production of cottage cheese fortified with vitamin D. K. (n.d.). Q: Is bison a healthier choice than beef? guidelines for American 2020-2025. (2020). S, et al. (2018). Effect of whole milk compared with skimmed milk on fasting blood lipids in healthy adults: a 3-week randomized crossover study. crops in the U.S. (2022). 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FoodData Central. does "lean" and "extra lean" beef mean on a nutrition label? (n.d.). ••s the dish with whitefish? (2019). food is the richest in Omega-3? (n.d.). Everywhere you turn, you’ll find advice on what to eat and what not to eat. But when it comes to protein, if you don’t get enough, you might notice a change in how your body functions. “We find most adults are not quite getting enough protein,” says Michael Garcia, MD, a UCLA Health clinical nutritionist. “The tough part is that the amount of protein needed can vary depending on the individual. And it’s not always easy to measure how much protein we're getting.” But arm yourself with the right information — how much protein you need, the best sources of protein and how to know if you’re not getting enough — and you’ll be able to balance your diet. Why is protein important? Your body contains more than 10,000 different proteins. Proteins exist in every body part, from your hair to your bones. They help make and repair cells, which are critical for growth and development. Proteins are made up of a combination of molecules called amino acids — your body needs 20 different amino acids to function correctly. It can produce 11 of them, but it must get the final nine — called essential amino acids — from the protein you eat. And because the body cannot store amino acids, you need to replenish them regularly. How much protein should you eat per day? Experts recommend a daily intake of at least 0.36 grams of protein per pound of body weight (0.8 grams per kg). That’s 43 grams per day for someone weighing 120 pounds, 54 grams daily if you weigh 150 pounds and 72 grams per day if you weigh 200 pounds. But protein needs vary depending on age, activity level and overall health. When you eat that protein also matters — the protein your body needs must be spread throughout the day. “We’re able to store certain nutrients, but we can't do the same thing with protein,” Dr. Garcia says. “And our bodies can only use so much protein in a sitting and a day.” The amount of protein to eat at each sitting isn’t the same for everyone. But Dr. Garcia generally recommends about 25 to 30 grams per meal. Consult your primary care physician (PCP) to determine your individual protein needs. What happens if you don’t eat enough protein? The recommended amount of daily protein is a good guide for most healthy people. Eating that amount, however, doesn’t always mean you’re getting what you need. Age is a perfect example. Our bodies do not use protein as efficiently to build and maintain muscle as we age. “If we give a teenager 4 ounces of protein, they’ll be more efficient at building muscle with that protein than someone who’s 50, 60 and older,” Dr. Garcia says. “The recommended amount is really the absolute minimum we need to not fall into a deficient state.” The problem is that you won’t necessarily notice early signs that your protein intake is low, says Dr. Garcia. If it continues to be low for a long time, though, you may see signs of deficiency — which could have serious health effects. Signs of a protein deficiency Common signs that your body is extremely low on protein include: Brittle hair and nails, often the first sign of deficiency Feeling weak or hungry, since protein supplies energy and satisfies the appetite Getting sick often without protein to boost the immune system Mood changes or trouble thinking due to fluctuating blood sugar and protein’s effect on the brain’s neurotransmitters (which regulate mood) Muscle weakness, since amino acids are essential for building muscle mass Stress fractures when bone tissue doesn’t have the protein it needs If your PCP is concerned, they may run blood tests for additional evaluation. They’ll use the results with other information about your health, lifestyle and diet to determine overall nutritional status. How to get more protein A healthy and balanced diet typically provides all the amino acids your body needs, but that means eating protein with each meal and snack. Complete proteins — which contain all nine essential amino acids in equal amounts — provide the most bang for your buck. Most complete proteins come from animal sources (beef, poultry, eggs, dairy), but some plant-based proteins are also complete, such as: Buckwheat Hempseed Quinoa Soy “You always want to think about the quality of the protein you’re getting,” Dr. Garcia says. “There is a benefit to eating a complete protein from the actual food source, but mixing in some non-complete protein sources is not bad.” Look for easy ways to add or substitute complete proteins into what you already eat. Switch rice for quinoa, include edamame in salads, or add hempseed or Greek yogurt to smoothies. “Do a quick (internet) search, and you’ll see all the options,” Dr. Garcia says. “Find what works with your tastes. And while variety is good, it’s not necessary when you eat quality, complete proteins. Consistently getting complete protein is the goal.” If you’re concerned about your diet or the amount of protein you get, reach out to a clinical nutrition specialist or your primary care physician. Variety of fruit Image Credit: DAJ/amana images/Getty Images Protein is a macronutrient. Unlike a "micronutrient," the body needs it in larger amounts. It is utilized for muscle growth, cell regeneration and to promote a healthy immune system. When it is digested in the body, a waste product called "urea" gets produced. When the kidneys are not functioning properly, urea can build up in the system and cause fatigue and a loss of appetite. To help remedy this problem, you can eat specific foods to lower your protein levels. Meats are a complete protein, meaning they have all the essential amino acids present that are crucial for functioning. Being that they are complete, they should be eaten, but not in huge amounts. For example, meats can be sliced thinly, then placed on a sandwich that is piled high with vegetables. Examples of these meats are roast beef, turkey, ham and chicken. Eggs are another food that is high in protein. To lower your levels, eliminate the yolks and have just the egg whites. There is also an egg replacer you can get in powdered form that has virtually no protein at all and can be used in baked goods (see Resources). Fruits are high in water content; they have a lot of fiber, and they are also chocked full of vitamins and nutrients. One thing they are not high in is protein, and they can be eaten to lower your levels. Some examples are apples, bananas, grapes, pears, peaches, pineapples and figs. Vegetables are along the same lines as fruits. They are high in water content and fiber, and they have phytonutrients in them. Some vegetables are higher in protein than others, such as broccoli, cauliflower and baby spinach. Low protein vegetables include kale, collards, carrots, squash, sprouts, celery, cucumbers, tomatoes and all forms of lettuce. Whole grains are high in fiber, and they have preventive properties when it comes to avoiding cancer. They are also high in B vtamins, and they have a moderate amount of protein. Some examples are oatmeal, oat bran, wheat bran, all forms of rice and barley. Breads and cereals are also made from grains. The whole wheat and whole grain versions will be higher in protein than white bread and refined cereals. To lower your protein levels, stick with white bread, white bagels, white pizza crusts and refined cereals. Pasta is another type of grain that comes from semolina wheat. Eat the varieties that are not whole wheat or whole grain so you take in less protein. A low protein diet may benefit people with kidney-related disorders, such as kidney disease or phenylketonuria. The diet may include replacing some meat with vegetables and grains.When a person eats protein, the body produces a compound called urea. If the kidneys are not functioning well, urea can build up in the blood, and cause fatigue and a loss of appetite.By making key changes, a person can develop a satisfying and diverse low protein diet plan that works for them.This article lists some of the best foods to eat and avoid when limiting protein intake. It also discusses the benefits and risks associated with a low protein diet. Share on PinterestWestend61/Getty ImagesReplacing some meat with vegetables and grains is an effective way to reduce protein intake. Vegetables and grains should form the main body of meals, with a supplementary protein source.A person following a low protein diet can get most of their calories from the foods below, which are relatively low in protein.The following are examples of low protein foods and drinks:Many other types of food and drinks are low in protein, and a person should use moderation when incorporating them into the diet. Some of these foods include:sugartea and coffee, without dairy milksorbetmargarineOn a low protein diet, people should eat foods that contain moderate amounts of protein sparingly. Examples include:breadcrackersbreakfast cerealspastaoatscornriceLow protein versions of many of these products are available online or in grocery stores.Protein is an essential nutrient, so even people on a low-protein diet need to consume a certain amount of protein to stay healthy. However, high protein foods should make up only a small part of the daily caloric intake.Anyone on a low protein diet should limit or avoid the consumption of the following:meatpoultryfisheggsdairy, including milk, cream, and cheesebeans, peas, and lentilssoy foods, such as tofu and tempehseeds and nuts, such as sunflower seeds, peanuts, and almondsPlant-based dairy alternatives often contain less protein. Learn more about foods high in protein.Some people cannot tolerate high levels of protein. If the body cannot process protein or its waste, these substances build up and cause symptoms ranging from nausea and vomiting to brain damage.For these people, following a low protein diet will reduce the risk of negative health effects.A doctor may recommend a low protein diet for the following conditions:Chronic kidney disease (CKD): By reducing protein intake, people with CKD who are not on dialysis can reduce stress on their kidneys and prevent the buildup of urea in the bloodstream. A 2018 review of 17 studies reports that very low protein intake may slow down the progression of advanced kidney failure.Diabetic neuropathy: A 2019 article found that a low protein diet may improve diabetic neuropathy. However, 2018 research suggests that there is no significant association between a low protein diet and renal function improvement in people with diabetic neuropathy. More research is necessary.Phenylketonuria (PKU): PKU is a rare disorder that occurs when the body does not produce the enzyme needed to break down an amino acid called phenylalanine. Amino acids are the building blocks of protein. The main treatment for PKU is a lifelong low protein diet. Homocystinuria: Homocystinuria is an inherited disorder that affects the body’s ability to process methionine, another amino acid. A buildup of methionine causes problems with vision and bone health. A low protein diet can help treat the condition.Authors of a 2016 review of research suggest that a low protein diet may also provide some benefits for people without kidney problems. They report that in middle-aged, but not older, adults, restricting protein intake may reduce the risk of:cancerdiabetesheart diseaseSome 2018 research indicates that a diet low in protein and high in carbohydrates may help protect brain health and reduce cognitive decline. However, the scientists conducted this research only in mice and cannot be sure of the effects on humans.A person can contact their doctor for more information about the benefits of protein and how much protein they should aim for each day based on their individual circumstances. When following a low protein diet, it can be helpful to think of vegetables and grains as the main components of a meal. A person should consider meat, pulses, and soy products to be side dishes or condiments.Examples of satisfying low protein meals include:a sandwich with very thinly sliced meat and lots of vegetables, such as cucumber and lettucelow protein rice with vegetables and a small portion of meat, tofu, or shellfishlow protein pasta with tomato paste and roasted vegetablesa burrito, made with a low protein tortilla, vegetables, salsa, and homemade guacamolevegetable curry with low protein ricehomemade vegetable soupLow protein snacks include:fresh fruitraw vegetable sticks with salsa or homemade guacamolehomemade muffins, made with a low protein baking mixa fruit smoothie made with water or a low protein dairy alternative, such as rice milkhomemade fruit juice popsiclesHere are some other strategies for keeping protein levels low without compromising on flavor:Use unsweetened rice milk or another low protein milk substitute in recipes that call for dairy milk.Bulk up soups with small amounts of rice or pasta.Increase the vegetable content while decreasing the meat content in recipes. For example, diced mushrooms can be a good meat alternative when cooking spaghetti.Add a small amount of egg to salads to make them more filling.Top meals with a little Parmesan cheese to increase the flavor without adding too much protein.Make a meal more filling by adding some healthful fats.When grocery shopping, always check labels carefully for protein contents and ingredients.As protein is vital for health, it is important to consult a doctor or dietitian before restricting protein consumption to below 10% of the daily calorie intake.Typically, people should only restrict their protein intake to this extent when a doctor advises them to do so.Following a low protein diet requires careful planning. Otherwise, it could lead to nutritional deficiencies and other health issues, including muscle loss and poor immune function.Also, protein restriction is not suitable for everyone. For example, older adults may need extra protein, due to the muscle wastage associated with advancing age.A person on a low protein diet may need to take certain supplements to stay healthy. Vitamin B12, for example, is only present in animal products and fortified foods.Discuss the use of supplements with a doctor or dietitian before beginning a low protein diet. The doctor may also recommend regular follow-up appointments when following a low protein diet.People with kidney-related health conditions, such as CKD, may need to follow a low protein diet. The diet involves restricting the intake of high protein foods and focusing on eating plenty of fruits, vegetables, and healthful fats.Doctors do not usually recommend a low protein diet for people without health conditions because it can lead to nutritional deficiencies and other health issues.Anyone considering a low protein diet should consult their doctor first. The doctor can advise on how much protein to aim for based on individual circumstances. DiabetesNutrition / DietObesity / Weight Loss / FitnessUrology / Nephrology A low-protein diet involves eating more fruits, vegetables, and grains while consuming fewer animal products. This eating plan is sometimes recommended for people with certain health conditions, like kidney or liver disease. While a low-protein diet can improve health outcomes for some, it can also cause nutritional deficiencies. That’s why you should always talk with a medical professional before severely restricting your protein intake. This article discusses everything you need to know about the benefits and risks of a low-protein diet. As its name implies, a low-protein diet involves avoiding protein food sources. Protein is an essential macronutrient your body needs to perform many vital functions. Experts recommend that 10%-35% of your daily calories should come from protein. A low-protein diet restricts your protein intake to less than this amount. A low-protein diet can offer better health outcomes, but most benefits apply to people with specific medical conditions. For example, restricting protein can put less strain on your kidneys and liver, which can be helpful if you have kidney dysfunction or liver disease. People with certain genetic disorders that affect protein metabolism may also benefit from a low-protein diet. Some research suggests that a low-protein diet may help the general population. One review found that a protein restriction lessens the risk of cancer, diabetes, and heart disease in middle-aged people. Additionally, animal research shows that a low-protein diet may help protect the brain and lessen the risk of cognitive decline. Limiting the amount of protein you consume may lead to a protein deficiency, which can cause side effects such as: Muscle loss Vitamin or nutrient deficiencies Poor immune function Anemia (low red blood cell count) Hair loss Reduced bone density Swelling Stunted growth (in children) You should only consider following a low-protein diet if your healthcare provider advises you to do so. This diet may be right for you if you have certain medical conditions. Kidney disease is a condition in which the kidneys are damaged and have trouble filtering blood. Reducing the amount of protein you consume can help lighten the workload of your kidneys so they can function better. A low-protein diet may postpone kidney failure and delay the need for dialysis (a treatment that helps your body remove fluid and waste from your blood when the kidneys are no longer working properly). Diabetic nephropathy is kidney damage caused by diabetes. Research suggests a low-protein diet may improve symptoms of diabetic nephropathy. Some people with liver disease can benefit from eating a low-protein diet. Restricting protein limits the build-up of toxic waste products and relieves your liver from working too hard. Phenylketonuria (PKU) is a rare, inherited disorder that causes an amino acid known as phenylalanine to build up in the body. For people with PKU, eating foods high in protein can worsen these effects. Healthcare providers typically recommend long-term avoiding high protein foods if you have phenylketonuria. Homocystinuria is another inherited disorder. With homocystinuria, a person’s body has trouble processing an amino acid called methionine. Treatment for this disorder typically involves following a low-protein diet. If you aim to limit protein, you should generally include lots of vegetables, fruits, and whole grains in your diet. Some low-protein foods you may want to include in your diet are: Most vegetables, except corn, potatoes, sweet potatoes, and yams (which should be eaten in limited quantities)Most fruits, except for oranges, bananas, and plantains (which should be eaten in limited quantities)Healthy fats, such as olive oilHerbs and spicesUnique low-protein products, like wheat starch bread or low-protein baking mixMany condiments and sauces Rice, breads, baked goods, and cereals can be consumed in limited quantities. While meat might seem like the most obvious protein-rich food, there are many more you may have to avoid if you are trying to limit your intake. Some high-protein foods to avoid are: Meats and meat products Poultry Fish and all types of seafood Dairy products, including milk, eggs, cream, yogurt, cheese, and ice cream Legumes, such as peas, lentils, or beans Nuts and nut butters Seeds Staying healthy on a low-protein diet may take some work on your part. Try eating as many healthy foods as possible to ensure you get vital nutrients. You may need to take certain vitamins or supplements to get enough. For example, a low-protein diet can lead to a vitamin B-12 deficiency, so you might have to take this vitamin daily. If you're having trouble meeting your daily caloric needs, you may also want to increase the amount of healthy fats you consume. Be sure to stay hydrated by drinking plenty of water throughout the day. A low-protein diet may benefit certain people with specific medical issues, such as liver or kidney disease. This diet encourages limiting foods like meat and beans while eating more vegetables, fruits, and grains. However, it’s not usually a good option for healthy people. Limiting protein can lead to vitamin deficiencies and other side effects. If you need to go on a low-protein diet, it is important to discuss your nutritional needs with your healthcare provider. Protein is a crucial macronutrient that plays a vital role in nearly every function of the body, from building and repairing tissues to producing enzymes, hormones, and other essential chemicals. Despite its importance, many people may not consume enough protein, leading to a deficiency that can have widespread effects on health. Identifying the signs of protein deficiency early on is essential for taking corrective action and ensuring that your body gets the nutrients it needs to function optimally. This article will explore 15 signs of protein deficiency in detail and provide guidance on what foods to eat to address the issue effectively. Protein deficiency occurs when your intake of protein is insufficient to meet your body’s needs. While severe protein deficiency, known as kwashiorkor, is rare in developed countries, mild to moderate protein deficiency can still occur and may contribute to various health problems. Protein deficiency can result from inadequate dietary intake, poor absorption, or increased protein requirements due to factors like illness, pregnancy, or intense physical activity. Without enough protein, your body may struggle to maintain its essential functions, leading to a wide array of symptoms that can impact everything from muscle strength to immune function. Protein is made up of amino acids, which are the building blocks of the body. These amino acids are involved in critical processes such as: Building and repairing muscles, bones, skin, and other tissues. Producing enzymes and hormones that regulate bodily functions. Supporting the immune system. Maintaining fluid balance and pH levels in the body. Providing energy, particularly when carbohydrates and fats are in short supply. When your body doesn’t get enough protein, it can’t perform these functions effectively, which can lead to a range of health issues. Recognizing the signs of protein deficiency and taking steps to address them is crucial for maintaining overall health and well-being. Muscle weakness and wasting (also known as sarcopenia) are among the most common signs of protein deficiency. Protein is essential for muscle maintenance and growth. When your body doesn’t get enough protein, it starts breaking down muscle tissue to meet its protein needs, leading to muscle loss and decreased strength. This process is especially concerning for older adults, who are already at risk of losing muscle mass due to aging. Without adequate protein, the body’s ability to repair and build muscle is compromised, resulting in muscle atrophy and a noticeable decrease in physical strength. Over time, this can lead to significant muscle wasting, reduced mobility, and an increased risk of falls and fractures. Lean Meats: Chicken, turkey, and lean cuts of beef or pork are excellent sources of high-quality protein. These options provide the essential amino acids needed for muscle repair and growth, helping to counteract the effects of protein deficiency. Fish: Salmon, tuna, and cod are rich in protein and also provide healthy omega-3 fatty acids, which have anti-inflammatory properties that support muscle health. Omega-3s can also help improve muscle function and reduce the loss of muscle mass during periods of inactivity. Legumes: Lentils, chickpeas, and black beans offer plant-based protein and are also high in fiber, which supports digestive health. These foods are particularly beneficial for those following a vegetarian or vegan diet, providing a substantial amount of protein while also delivering important vitamins and minerals. Edema, or swelling in the hands, feet, and abdomen, can be a sign of protein deficiency. Protein helps maintain the balance of fluids in your body by keeping them in your blood vessels. When your protein intake is insufficient, your body’s ability to regulate fluid balance is compromised. As a result, fluids can leak into surrounding tissues, leading to swelling. This condition is often more pronounced in areas where gravity causes fluid to pool, such as the lower legs, ankles, and feet. Edema can also affect the abdominal area, leading to a bloated or distended appearance. In severe cases, protein deficiency-related edema can be a sign of a serious underlying health issue, such as kwashiorkor. Eggs: Eggs are a complete protein source, meaning they contain all essential amino acids. They are also rich in vitamins and minerals that support overall health, making them an excellent choice for addressing protein deficiency and related symptoms like edema. Greek Yogurt: Rich in protein and low in fat, Greek yogurt is a great option for maintaining fluid balance. It also contains probiotics, which can help improve gut health and support digestion, further contributing to overall well-being. Cottage Cheese: Cottage cheese provides a high amount of protein and is low in calories. It is also rich in calcium, which can support bone health and help prevent osteoporosis, a condition that can be exacerbated by protein deficiency. Protein is essential for maintaining energy levels. Without enough protein, your body may struggle to carry out its daily functions, leading to feelings of fatigue and low energy. This can be particularly noticeable if you’re physically active or under stress, as your body’s protein needs increase during these times. When protein intake is insufficient, your body may start to break down muscle tissue to meet its energy needs, leading to further muscle loss and a decrease in overall strength and endurance. Additionally, protein deficiency can impair the function of neurotransmitters, which play a key role in regulating energy levels and mood. Quinoa: A complete protein source, quinoa is also rich in complex carbohydrates, which provide sustained energy. Unlike simple carbohydrates, which can cause rapid spikes and crashes in blood sugar levels, quinoa’s slow-digesting carbs help maintain steady energy levels throughout the day. Tofu: Tofu is a versatile, plant-based protein that can be added to a variety of dishes. It is also a good source of iron and calcium, which are important for maintaining energy levels and supporting overall health. Nuts and Seeds: Almonds, chia seeds, and pumpkin seeds are high in protein and healthy fats that support energy production. They also provide essential nutrients like magnesium and zinc, which play a role in energy metabolism and immune function. Hair is primarily made of a protein called keratin. If your body isn’t getting enough protein, it may prioritize essential functions over hair production, leading to thinning hair or hair loss. This is because the body will divert available protein to more critical functions, such as repairing tissues and producing enzymes and hormones. As a result, hair growth may slow down or stop altogether, leading to hair that is thin, brittle, and prone to breakage. In severe cases of protein deficiency, hair may fall out in large quantities, resulting in noticeable thinning or bald patches. Lean Beef: Rich in protein, iron, and zinc, which are all essential for healthy hair growth. Iron is particularly important for delivering oxygen to hair follicles, while zinc supports the production of proteins needed for hair growth and repair. Salmon: High in protein and omega-3 fatty acids, salmon supports scalp health and hair strength. Omega-3s help reduce inflammation in the scalp, which can promote healthier hair growth and reduce the risk of hair loss. Legumes: Beans and lentils provide plant-based protein along with iron and biotin, which promote hair health. Biotin, in particular, is a B-vitamin that plays a crucial role in hair growth and the overall health of the scalp. Just like hair, nails are made of keratin, a protein that gives them strength and resilience. A lack of protein can lead to brittle, weak nails that break or split easily. Without sufficient protein, your body may struggle to produce enough keratin, resulting in nails that are thin, fragile, and prone to cracking. In severe cases of protein deficiency, white bands or spots may appear on the nails, indicating a lack of nutrients needed for healthy nail growth. Brittle nails can also be a sign of other nutritional deficiencies, such as low levels of iron or zinc, which are often associated with inadequate protein intake. Eggs: Provide a high amount of protein and biotin, which is important for nail strength. Biotin helps stimulate the production of keratin, promoting stronger and healthier nails. Spinach: Rich in protein and iron, spinach supports healthy nail growth. Iron is crucial for transporting oxygen to the cells that produce nails, while the protein content helps build and maintain nail structure. Gelatin: Made from collagen, gelatin can help strengthen nails when consumed regularly. Collagen is a protein that provides structural support to nails, helping them grow longer and stronger over time. Protein is crucial for a healthy immune system. Antibodies, which fight off infections, are made of protein. A deficiency in protein can weaken your immune response, making you more susceptible to infections and illnesses. Without enough protein, your body may struggle to produce enough antibodies and other immune cells to effectively combat pathogens. This can lead to an increased frequency of colds, flu, and other infections. In severe cases of protein deficiency, the immune system may become so compromised that even minor infections can become serious health threats. Chicken: Particularly chicken breast, which is high in protein and low in fat. Chicken is also rich in B-vitamins and minerals that support immune function, making it an excellent choice for maintaining a healthy immune system. Turkey: Another lean protein that’s excellent for immune health. Turkey is also a good source of tryptophan, an amino acid that helps regulate mood and sleep, both of which are important for immune health. Shellfish: Such as shrimp, crab, and oysters, which are rich in zinc and protein, both of which support the immune system. Zinc is particularly important for the production and activation of immune cells, while the protein content helps build and repair tissues. Protein is needed for the repair and regeneration of tissues. Without adequate protein, your body may struggle to heal wounds, leading to prolonged healing times and an increased risk of infection. Protein plays a crucial role in the formation of new tissues and the repair of damaged ones. When protein intake is insufficient, the body’s ability to produce collagen and other important proteins needed for wound healing is compromised. This can result in wounds that heal slowly or not at all, increasing the risk of complications such as infections, scarring, and chronic wounds. Fish: Rich in protein and omega-3 fatty acids, which support tissue repair and reduce inflammation. Omega-3s help modulate the body’s inflammatory response, promoting faster and more effective wound healing. Chicken Broth: Provides easily digestible protein and essential minerals that aid in healing. Chicken broth is also rich in collagen, which is important for wound healing and tissue repair. Milk: High in protein and calcium, milk supports tissue repair and bone health. Calcium is particularly important for bone healing, while the protein content helps build and repair muscle tissue. Protein is essential for producing neurotransmitters, which regulate mood and mental health. A lack of protein can disrupt the balance of these chemicals, leading to mood swings, irritability, anxiety, and even depression. Neurotransmitters such as serotonin, dopamine, and norepinephrine are made from amino acids, the building blocks of protein. When protein intake is insufficient, the production of these neurotransmitters may be impaired, leading to imbalances that affect mood and mental health. Over time, this can result in symptoms such as persistent sadness, irritability, and difficulty coping with stress. Turkey: Contains tryptophan, an amino acid that helps produce serotonin, a neurotransmitter that regulates mood. Tryptophan is also important for producing melatonin, a hormone that regulates sleep, which is closely linked to mood and mental health. Cottage Cheese: High in protein and rich in tryptophan, which can boost mood and mental health. Cottage cheese is also a good source of calcium, which plays a role in neurotransmitter release and muscle function. Chia Seeds: Provide protein and omega-3 fatty acids, which support brain health. Omega-3s are particularly important for reducing inflammation in the brain and supporting the function of neurotransmitters. Protein is vital for maintaining bone health, as it makes up a significant portion of bone mass. A deficiency can lead to decreased bone density, increasing the risk of fractures and osteoporosis. Protein plays a key role in the formation of collagen, which provides the structural framework for bones. Without enough protein, the body may struggle to maintain bone strength and density, leading to brittle bones that are more susceptible to fractures. Additionally, protein deficiency can impair the absorption of calcium and other minerals that are essential for bone health. Dairy Products: Milk, cheese, and yogurt are rich in both protein and calcium, which are essential for strong bones. Calcium is crucial for bone mineralization, while protein helps maintain the structural integrity of bone tissue. Soy Products: Tofu and soy milk provide plant-based protein and are often fortified with calcium. Soy also cont