



Where to vegan

How to get all your nutritional requirements as a vegetarian

by Treena Hansen

Are you vegetarian or thinking about becoming vegetarian? Are you worried about maintaining a balanced diet in spite of your HIV? As HIV and AIDS-related illness progresses, a person's nutritional requirements may change. You may need to increase your calorie intake and protein intake to help build lean body mass. Evidence shows that deficiencies of vitamins B12, B6, A, and D and of the micronutrients zinc, folic acid, and selenium occur in people living with HIV.

Vegetarian diets

Over 14 million people in North America consider themselves vegetarian. However, vegetarian diets vary. The foods common to all of the following vegetarian diets are fruits, vegetables, nuts, seeds, legumes, and whole grain products.

Vegan excludes milk, all other dairy products, meat, fish, seafood, poultry, and eggs.

Lacto-vegetarian includes milk and other dairy products but excludes meat, fish, seafood, poultry, and eggs.

Ovo-vegetarian includes eggs but excludes milk, all other dairy products, meat, fish, seafood, and poultry.

Lacto-ovo vegetarian includes milk, other dairy products, and eggs but excludes meat, fish, seafood, and poultry.

Pesco-vegetarian includes fish and other seafood but excludes milk, all other dairy products, meat, and poultry.

Semi- or partial vegetarian includes milk, other dairy products, poultry, and fish but excludes red meat.

These are the most common vegetarian diets. Less common vegetarian diets include macrobiotic and fruitarian. The macrobiotic diet includes unrefined/unprocessed grains such as brown rice and smaller amounts of fruits, vegetables, legumes, and sometimes milk and other dairy products. If you choose to follow a macrobiotic diet, do it with great care because nutritional deficiencies can

occur, especially a deficiency of vitamin B12. Fruitarians consume only fruits, nuts, seeds, and berries. This diet is not recommended because it lacks nutrients that are essential to your health.

No matter what dietary choices you make, the main goal is to achieve a daily balanced diet. That sounds easy if you are feeling well and able to eat. Sometimes a person living with HIV may have a poor appetite, AIDS-related wasting syndrome, or other problems associated with antiretroviral medication (elevated cholesterol/triglyceride levels) that require a diet change.

Macronutrients needed for energy

The challenge, then, is to achieve an adequate nutritional intake from a vegetarian diet. Exploring the three macronutrients—carbohydrates, protein, and fat—and how the body uses them helps to explain how to achieve this.

Carbohydrates are the chief source of your body's energy. They are stored as glycogen in the liver and muscles, acting as a small reserve of energy for a short duration. Carbohydrates are the most readily available source of sugar for the brain and are a good source of fibre, too. Symptoms of carbohydrate deficiency include fatigue, constipation (low fibre intake), and lowered resistance to infection.

Sources of carbohydrates include sugar, grains, fruits, and vegetables. Excluding sugar, these foods are high in fibre and can help lower cholesterol and keep your bowels healthy. Sugar has no nutritional value and can affect your triglyceride levels.

The recommended amount of energy from carbohydrate foods is 55% or 275 grams based on a 2000-calorie diet. The percentage of carbohydrates can increase depending on individual needs.

Protein builds and repairs all tissues in the body and produces hormones, enzymes, and antibodies. Symptoms of protein deficiency include lower resistance to infection and growth failure.

If you drink milk and eat milk products, meat, fish, and poultry, it is easy to get enough protein. Non-meat/animal sources of protein include tofu, tempeh, soy beverages, nuts, seeds, nut butters, meat analogues, and grain products such as quinoa and amaranth. Vegetarian sources of protein, which can be less expensive than meat products, are very low in saturated fat and high in both cholesterol-reducing monounsaturated fat (MUFA) and polyunsaturated fat (PUFA).

Protein should supply 15–20% of your total energy, or 75–100 grams per day. The percentage of protein can increase depending on individual needs.

Fat provides a large amount of energy and supplies essential fatty acids that the body itself cannot produce. It helps to absorb fat-soluble vitamins A, D, E, and K. Fat protects and supports the body's major organs and is a structural component of the cell membranes of all major body systems. Besides its physiological functions, fat adds flavour to foods.

Symptoms of fat deficiency include dry, rough, itching skin and poor growth. Signs of fatty acid deficiency include hair loss, hair that's easily plucked, and dry, scaly skin.

If you have to watch your cholesterol, remember that different types of fat exist. Unsaturated fats come from plants, and they include MUFA and PUFA. Sources of MUFA include olive and canola oils. PUFA can be found in sunflower, safflower, peanut, and flaxseed oils. These unsaturated fats help to decrease cholesterol. The other fat, saturated fat, usually comes from animals, but two plant sources high in saturated fat are palm and coconut oils.

The recommended total daily intake of fat is 30% of your total daily energy intake. That would be 67g of fat. If you need to lose weight, keep in mind that fat is high in energy, so try to limit your intake to 3–6 teaspoons of added fat per day. If you need to gain weight, use unlimited amounts of MUFA and PUFA.

Vitamins and minerals

It is equally important to ensure you're getting sufficient vitamins and minerals from a vegetarian diet. Vitamins regulate all body processes and promote growth, health, and life. They enable our bodies to produce and use energy. Vitamins also participate in the formation of blood cells, hormones, neurotransmitters, and genetic material.

Minerals act as important components of many enzymes and form the structural components of the body, such as the bones. They are also involved in muscle development and contraction, blood formation, nerve signals, and body pH regulation.

Table 1 outlines good food sources of vitamins B12, B6, A, and D, and the minerals zinc, folic acid, and selenium.

Eating a variety of protein sources, fruits, vegetables, and whole grain products will help ensure adequate amounts of energy, vitamins, and minerals. All HIV-infected persons should take a multivitamin supplement. In combination with a balanced diet, it will help to reverse the vitamin and mineral deficiencies mentioned above.

Finally, fluids are a vital part of any diet. Water comprises 60% of our body weight. Water helps to transport nutrients, regulate body temperature, and lubricate our joints and digestive tract. It surrounds each cell in our body; without it, the cell would die. You should have at least 8 cups of caffeine-free fluid daily. ⊕



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Table 1: Food Sources of selected nutrients

Nutrient	Protein sources	Calcium sources	Fruits and vegetables	Grain products	Miscellaneous
B12	Chicken, turkey, eggs	Milk, cheese, yogurt, fortified soy & rice beverages			Nutritional yeast
B6	Legumes, chicken, fish		Potatoes with skin, leafy greens, bananas, green peas, avocado, carrots	Whole grains	Nutritional yeast, wheat germ
D		Milk, fortified soy & rice beverages		Fortified cereals	
A	Eggs, fish	Fortified milk, fortified soy & rice beverages, butter, fortified margarine	Dark green & yellow/orange vegetables, tomatoes, peaches, apricots, mangoes, papayas, cantaloupes		
Calcium	Fortified tofu, soy nuts, protein, almonds, textured vegetables	Fortified soy & rice beverages	Fortified orange juice, leafy green vegetables	Fortified instant oatmeal	Black strap molasses
Selenium	Seafood, chicken	Milk, cheese, yogurt		Whole grains	
Zinc	Eggs, shellfish	Cheese, milk, yogurt	Leafy green vegetables, oranges, prunes, strawberries	Whole grains	Wheat germ, chocolate syrup
Folate	Legumes, nuts, peanuts, sunflower seeds		Leafy greens, avocados, asparagus, bananas, strawberries		Nutritional yeast

Whole grains: brown rice, millet, whole wheat couscous, barley, buckwheat, bulgar, rye, oats, whole grain bread and pasta, and fortified cereals.

Vitamin D helps with the absorption of calcium. It can be formed with exposure to the sun for just a few minutes. Remember that wearing sunscreen decreases exposures to the sun, which impairs vitamin D production.

Legumes: soybean, black beans, kidney beans, chickpeas, split peas, and lentils.