



HIGH PROTEIN ALTERNATIVES

The 2000 *Dietary Guidelines for Americans* recognized that a well-planned vegetarian diet is one of many healthy dietary choices. In a 1993 position paper, The American Dietetic Association states that vegetarian diets are healthful and nutritionally adequate when appropriately planned.

Protein is needed by the diet for growth, maintenance and the repair of body tissues. Proteins are made up of a particular sequence of amino acids. There are eight essential amino acids that must be provided through the diet.

Dietary proteins that contribute the essential amino acids in the proper amounts are referred to as *complete proteins, high-quality proteins* or *proteins of high biological value*. Foods such as eggs, milk, milk products and meat, poultry, seafood and soy products are complete proteins.

Incomplete dietary proteins are deficient in one or more essential amino acids. Most plant proteins contain less than the required amount of at least one essential amino acid. The amino acid found in the least amount is referred to as the **limiting amino acid**. The three most limiting amino acids from plant sources are lysine, methionine and tryptophan. Grains tend to be low in lysine and high in methionine. Legumes, with the exception of peanuts, are low in methionine and tryptophan and high in lysine. Nuts and seeds are primarily deficient in lysine.

Reasonably varied plant sources of protein can provide adequate amounts of both the essential and non-essential amino acids, assuming that caloric intake is sufficient to meet energy needs. In the past it was believed that combining complementary proteins in each meal was necessary. Research has proven this wrong. The key is consuming a variety of protein sources throughout the day. In addition, soy protein has been determined to be as adequate as most animal proteins. It can serve as the only source of protein if desired.

There are several types of vegetarian diets, including:

- ▶ Lacto-milk and plant foods
- ▶ Lacto-Ovo-Milk, eggs and plant foods
- ▶ Vegan-Plant foods

All vegetarian diets can be adequate in nutrients; however, the vegan diet requires careful planning to ensure adequate intakes of some vitamins and minerals.

Vitamin B₁₂ does not occur in plant foods – except in fortified foods, such as breakfast cereal, soy beverages or nutritional yeast. Another vitamin of concern is **vitamin D**. Milk is fortified with vitamin D, but there is no practical source of vitamin D in plant foods. Fortified margarines and fortified breakfast cereals can supply some vitamin D. Regular exposure to sunlight will prevent a deficiency. **Riboflavin**, another B vitamin which can be obtained from milk, is also present in ample servings of dark greens,

whole and enriched grains, mushrooms, legumes, nuts and seeds. Nutritional yeast is also a rich source of riboflavin.

Iron may be of concern for all vegetarians. Legumes, whole grains, dried fruits, nuts and seeds are important sources of iron in a vegetarian diet. The iron in these foods are not as easily absorbed by the body as the iron in meat. Vitamin C in fruits and vegetables can triple iron absorption, so the vegetarian should include foods rich in vitamin C. Tannin in tea inhibits iron absorption, so vegetarians should limit tea consumption.

Research is still continuing concerning **zinc**. Vegetarians are advised to eat varied diets that include wheat germ, legumes, nuts, seeds and whole-grain breads leavened with yeast.

Calcium may also be of concern if milk or milk products are not consumed; however, calcium requirement is dependent upon protein intake. The higher the protein intake, the higher is the need for calcium. Most vegetarians have protein intakes that are far less than the typical American, and, therefore, have a lower calcium need. Vegetarians still need to consume good sources of calcium. Good sources of calcium include: stone-ground meal; self-rising flour and meal; some fortified breakfast cereals; some brands of orange juice; legumes; tofu; calcium-fortified soy milk; some nuts (such as almonds); certain seeds (such as sesame seeds); and some vegetables (such as broccoli, collards, kale, mustard greens, turnip greens, okra, rutabaga and Chinese cabbage).

Vegetarians can enjoy a nutritious diet that is low in fat – provided they eat high-fat foods in moderation. The diet is high in fiber and rich in certain vitamins and minerals as

compared to diets which include meat. informed vegetarians:

- ✓ are less likely to be obese;
- ✓ are more likely to have lower blood cholesterol and lower blood pressure
- ✓ are at lower risk of certain kinds of cancer; and
- ✓ have better digestive function and better health in other ways.

Often vegetarianism goes with a healthful lifestyle (no smoking, abstinence from alcohol, less stress, supportive family life, etc.), so it is unlikely that dietary practices alone account for all the aspects of improved health.

Following a few simple guidelines, whether your protein source comes from meat or vegetable sources, can lead to a healthful diet.

Resources:

Duyff, R.L. ADA Food & Nutrition, 1996.

Melina, V. Becoming Vegetarian: The Complete Guide to Adopting a Healthy Vegetarian Diet, 1995.

Messina, M. Dietitian's guide to Vegetarian Diets, 1996.

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