7057 - VEGETABLE PROTEIN

What is protein?

Protein is essential to human health. Our bodies—hair, muscles, fingernails, and so on—contain mostly protein. The building blocks of protein are chemical structures called amino acids that combine in different combinations to make specific types of protein. For example the way that the 26 letters of our alphabet serve to form millions of different words, the 20 amino acids serve to form different proteins. However, the human body cannot make all of the 20 amino acids on its own. Some amino acids need to be acquired through eating protein rich foods. These are called **essential amino acids**. Proteins from animal sources (meat, eggs, fish or diary) provide all of the essential amino acids and are therefore referred to as **complete proteins**. Other proteins from legumes, nuts, seeds, vegetables and whole grains are incomplete proteins because they do not contain all the essential amino acids. Incomplete proteins can be combined to make complete proteins for proper use in the body.

What does protein do for you?
- Provides the building materials for bone, muscles, ligaments
- Makes Antibodies: major components of the immune system
- Makes Enzymes: which facilitate energy production, fuel storage, and retrieval
- Synthesizes Hormones: especially those involved with energy utilization
- Maintenance of fluid and electrolyte balance: to remain alive, cells must contain a constant amount of fluid. Too much can cause them to rupture; too little makes them unable to function
- Assists in acid/base balance within the body
- Synthesis of important molecules that carry oxygen in the blood

NON-MEAT PROTEIN SOURCES

LEGUMES: Garbanzo beans, kidney beans, lentils, lima beans, navy beans, *soybeans*, split peas.

Legumes are an excellent source of many B vitamins, iron, calcium, and other minerals, making them exceptionally nutritious. On average, a cup of cooked legumes contains about thirty percent of the Daily Values for both protein and iron. Like meats, though, legumes do not offer every nutrient, and they do not make a complete meal by themselves. They contain no Vitamin A, C or B12, and their balance of amino acids can be much improved by using grains and other vegetables with them.

Soybeans: The quality of soy proteins can be compared to meat proteins. One cup of cooked soybeans contains as much protein as 100g of cooked meat, chicken or fish. Even though soy is a little higher in fat than other legumes, it's the good fat (mono and poly-unsaturated fats including omega-3 fatty acids). Soy is also an excellent source of minerals including calcium, iron and zinc.

- Eating a source of vitamin C (citrus fruits, red peppers, strawberries and broccoli) with plant proteins is recommended to help the absorption of iron from plants.

Effects of Soy on Health: the chemical makeup of soy and soy's effect on health has been investigated over the past 20 years. Here are some of the findings:

Heart Health: the addition of soy rich foods can be helpful to lower certain blood fats, improve vascular function and help control blood pressure.

Menopause: a soy intake of between 2 and 3 servings of soy foods daily may help reduce perimenopausal symptoms. One serving is 250 ml of soy beverage, 125ml cooked soybeans or 100g tofu.

Breast Cancer: to help prevent breast cancer, soy foods should be eaten starting during childhood or adolescence. Starting to eat soy products during adulthood does not appear to prevent breast cancer. For breast cancer survivors, soy remains a healthy food to add protein, fibre, and variety. Soy supplements in the form of pills, powders and isolate components of soy foods are not recommended. (Source: Dietitians of Canada, 2008)

PROTEIN CAN ALSO BE FOUND IN:

Grains: barley, brown rice, buckwheat, millet, oatmeal, rye, wheat germ, wheat, wild rice

Vegetables: artichokes, beets, broccoli, Brussels sprouts, cabbage, cauliflower, cucumbers, eggplant, green peas, green pepper, kale, lettuce, mushrooms, onions, potatoes, spinach, tomatoes, turnip, watercress, yams, zucchini

Fruits: apple, banana, cantaloupe, grape, grapefruit, honeydew melon, orange, papaya, peach, pear, pineapple, strawberry, tangerine, watermelon.

Nuts and Seeds: Almonds, Cashews, Filberts, Hemp Seeds, Peanuts, Pumpkin seeds, Sesame seeds, Sunflower seeds, Walnuts (black)

Although protein is found in all of the above sources, alone, they do not provide all of the essential amino acids. Therefore, to create a complete protein, these sources should be combined during meals to ensure all the essential amino acids are consumed.
Below are some examples of mixing different non-meat protein sources to make a complete protein.

Food Item	Protein (g)
Pasta Dinner 1 ½ cup pasta 1 cup of vegetables 2 tbs parmesean cheese Protein Total	11 2 4 17g
Beans and Rice 1 Cup of Rice 1 Cup of Beans Protein Total	4 16 20g