The In's and Out's of Vitamins and Minerals

Vitamins and minerals are substances your body needs in small amounts for normal growth, function and health. Together, vitamins and minerals are called micronutrients. Your body can't make most micronutrients, so you must get them from the foods you eat or, in some cases, from supplements. Research shows that a diet rich in vitamins and minerals is linked with prevention of certain diseases such as heart disease and cancer. Whole foods like fruit, vegetables and whole grains provide a complex combination of vitamins, minerals, fiber and other substances that promote health. By consuming a variety of foods from all the food groups, most people can achieve their vitamin and mineral needs. However, if you feel you are unable to reach your vitamin and mineral needs through diet, you may need a supplement. It is important to remember that supplements are used to compliment your diet, not replace it. Avoid taking overdoses of vitamins and minerals and be sure to read the dosage on the label. The best way to compliment your diet is a multivitamin.

Vitamins

Vitamins are needed for a number of bodily functions, which include growth, digestion, mental alertness and resistance to infection. They are needed to help convert carbohydrates, fat and protein into energy. Vitamins are needed only in small doses and are broken into two categories: Water-soluble and fat-soluble.

- **Water-soluble vitamins**
  - Vitamin C , biotin and the seven B-complex vitamins--thiamin (B-1), riboflavin (B-2), niacin (B-3), pantothenic acid (B-5), pyridoxine (B-6), folic acid (B-9) and cobalamin (B-12)
  - Dissolve in water and what is not used by the body is simply excreted in your urine.
- **Fat-soluble vitamins**
  - Vitamins A, D, E, and K
  - Can accumulate and may become toxic in high doses. For example, vitamins E and K affect blood clotting and therefore can interact with certain medications such as Coumadin, which is used as a blood thinner.

Minerals

Minerals are the main components in your teeth and bones, and they serve as building blocks for other cells and enzymes. Minerals also help regulate the balance of fluids in your body and control the movement of nerve impulses. Some minerals also help deliver oxygen to cells and help carry away carbon dioxide. Minerals have two categories: Major minerals and trace minerals.

- **Major minerals.**
  - Calcium, phosphorus, magnesium, sodium, potassium, sulfur and chloride are considered major minerals because adults need them in larger amounts-- more than 250 milligrams (mg) a day.

- **Trace minerals.**
  - Chromium, copper, fluoride, iodine, iron, manganese, molybdenum, selenium and zinc are considered trace minerals because your body needs them in smaller amounts -- fewer than 20 mg a day.

The Benefits of Eating Whole Foods

Whole foods are the best source of vitamins and minerals. It is best to choose foods like fruits, vegetables and whole grains before taking supplements to meet your needs. Not only do whole foods provide us with vitamins and minerals, but also contain high amounts of fiber and phytochemicals. Phytochemicals are mainly found in fruits and vegetables and research shows they may help protect against cancer, heart disease, diabetes and high blood pressure. Many are also good sources of antioxidants — substances that slow down oxidation, a natural process that leads to cell and tissue damage. If you depend on supplements rather than eating a variety of whole foods, you miss the potential benefits of these substances.

Below are two tables describing the vitamin or mineral, the major sources and benefits of each.

Vitamin	Major Source	Benefits
Vitamin A	Liver, milk, cheese, Plant foods that are orange, red and deep green	Essential for night vision, bone development, maintains healthy tissue
Vitamin D	Vitamin D fortified milk and cereals, fatty fish like salmon, tuna, halibut, fish oil, egg yolk, sunlight	Increases absorption of Calcium, bone and tooth health
Vitamin E	Vegetable oils, margarine, green leafy vegetables, wheat germ, whole grain products	Acts as an Antioxidant
Vitamin K	Liver, soy bean oil, Canola oil, spinach, collard greens, kale, lettuce, scallions, cabbage, asparagus, green leafy vegetables	Aids in blood clotting
Vitamin C	Citrus fruits, tomatoes, potatoes, cabbage, green peppers, broccoli, strawberries	Antioxidant, wound healing, aids in iron absorption
Vitamin B12	Liver, beef, pork, poultry, dairy products, eggs	Healthy blood, deficiency may lead to anemia

Vitamin B6	Liver, lean meats, fish, poultry, legumes, bran cereal, dried yeast	Protein metabolism, hemoglobin and red blood cell formation
Niacin (Nicotinic Acid)	Fish, meats, fish, poultry, whole grains, peanuts, legumes	Could help aid in heart disease by blocking free fatty acids, helps to maintain healthy intestinal tract and healthy skin
Folate (Folic Acid)	Green Leafy vegetables, asparagus, broccoli, tomatoes, fruits, liver, dried yeast, enriched breads, pastas and cereals	Prevents birth defects, aids in treatment of anemia
Riboflavin	Milk, cheese, eggs, fish, liver, enriched cereals,	Healthy skin, aids in energy production in cells of our bodies

Mineral	**Source**	**Benefits**
Calcium	Milk, cheese, yogurt, dried peas and beans, almonds,	Healthy bones, heart, and muscles Recommended Daily Intake for men and women is 800-1200 mg
Phosphorus	Protein foods: meat, poultry, fish, eggs, milk, cheese, nuts, ice cream, chocolate, peanut butter,	Bone and teeth formation
Iron	Organ meats, lean meats, poultry, shellfish, dried peas and beans, whole-grain products, green leafy vegetables	Oxygen transport
Fluoride	Milk, egg yolks, drinking water, seafood	Helps form teeth and bones
Magnesium	Avocado, bananas, Milk, yogurt, dried beans (garbanzo beans, lentils, kidney beans), nuts (pumpkin seeds, almonds, cashews, flaxseed), whole grains, tofu, spinach, potato with skin	Protein Synthesis, production and transportation of energy
Zinc	Organ meats, meat, fish, poultry, shellfish, nuts, whole-grain precuts	Energy metabolism, immune function, wound healing, taste and smell
Potassium	Fruits and Vegetables: Bananas, Potatoes, tomatoes, asparagus, Strawberries, Kiwi, Peaches, milk, orange juice	Necessary for building muscle and normal body growth, regulation of acid-base balance in the body (electrolyte balance), proper functioning of nerve cells in the brain and throughout the body