

# PHOSPHORUS

## THE EXCITATORY, FIERY MINERAL

Phosphorus is a fascinating mineral, and a very important one in nutritional balancing science. It is called a macro-mineral because our bodies contain a lot of it. Other macro-minerals are calcium, magnesium sodium, potassium and sulfur.

Phosphorus may be called the excitatory or high-energy mineral. Phosphorus is fiery. It is the only non-radioactive element that is not stable when in an atomic or singular form. Phosphorus is an essential mineral in the human body. It is also one of the most anabolic of all the minerals. It is needed to build up new body tissue.

The hair phosphorus level is an important reading on a hair mineral analysis. It tells us about a person's energy level, tissue regeneration, vitality. When it is high, it may indicate a form of mental development or a celebration pattern

### **SOURCES OF PHOSPHORUS**

Phosphorus is found in all protein foods, along with nitrogen and sulfur. These three elements are the foundation of amino acids and proteins that play a critical role in human and animal health. Plants are more built from carbohydrates and sugars, while animal bodies are built from proteins. This is why low protein diets can be problematic for many people.

The human being needs concentrated proteins every day. Those who follow low protein diets are foolish. Some people don't want to bother with protein as it is more costly and must be prepared or cooked, compared to starches and sugars like breads, rice, pasta and fruits. This is always a mistake but it take many years to realize it since it can be camouflaged as many different body symptoms.

Foods rich in high-quality phosphorus include meats, eggs, cheese and milk. Other sources that are lesser quality include nuts, seeds and beans.

### **HARMFUL PHOSPHORUS COMPOUNDS**

Not all phosphorus compounds are healthful. For example, many raw grains are high in phytates, which are harmful phosphorus compounds. Cooking, fermenting and special methods of food preparation, such as adding yeast to bread dough and adding lime to corn, were developed to reduce the high phytate content of grain foods.

This is another reason to refrain from eating raw grains. These include granola and soaked grains. Cooking or fermenting the grains eliminates the phytates.

## **FUNCTIONS OF PHOSPHORUS**

1. Bone health. About 85% of your body's phosphorus is in the bone structure, where it interacts with calcium to form the hard part of the bones.
2. Energy production. This is its most important role. ATP or adenosine triphosphate is the high-energy molecule that is used as the "refined fuel" for many body purposes.
3. Growth and development. Phosphates are extremely important for growth of the body.
4. The nervous system. The human nervous system is dependent on phosphorus compounds, especially those found in meats and eggs. For example, phospholipids are needed to form the myelin sheath on the nerves. This is similar to insulation on wires. If it is not strong, the brain short circuits, like two bare wires touching each other. This can cause seizures, multiple sclerosis and other problems.  
  
The brain uses about one-third of your produced energy. High-energy phosphorus compounds are critical for thinking and higher brain development of a human being. This is a reason why vegetarians are more prone to anxiety, depression and fatigue than are meat eaters. Meat is higher in bioavailable phosphorus compounds than vegetarian proteins like nuts, seeds and beans.
5. Cell membranes. Phospholipids are needed to maintain the integrity of cell membranes, a critical body function. The cell membranes keep the essential nutrients inside the cells and keep the harmful ones out of the cells. Omega-3 fatty acids are incorporated into phosphorus compounds to form cell membrane structures needed for the transfer of nutrients into the cells and to move waste products out of the cells.
6. Protein synthesis. Phosphorus is involved in DNA and RNA metabolism. RNA is needed to make body enzymes, hormones, proteins and trillions of other chemicals. We must have adequate phosphorus or the process stalls and health declines. Excessive mercury or aluminum can interfere with protein biosynthesis. This may appear on a hair mineral analysis as a phosphorus level less than about 13 mg%.
7. Buffering the blood pH. Phosphorus compounds buffer acids in the body to maintain a steady pH, also known as acid-base balance. While phosphorus is considered an acid-forming mineral, this is only partially true. Phosphorus in certain forms has a neutralizing effect upon lactic acid and other acids that can build up in the body. So, phosphorus can be both acid-forming and alkaline-forming in our bodies depending on how it is used.
8. Maintaining the osmotic balance of the body fluids. All body fluids such as the blood, intracellular fluid and lymph must be maintained in a balance. Otherwise pressures would build up and damage our cell walls and blood vessels through which the fluids flow. Some phosphorus compounds help to keep fluids in balance by conducting small amounts of it back and forth between various body compartments.

## PHOSPHORUS ASSESSMENT USING HAIR MINERAL ANALYSIS

Hair phosphorus level mainly has to do with protein biosynthesis. Without sufficient protein synthesis, healing is impaired. Thus, maintaining a proper phosphorus level on a hair analysis is of primary importance. An ideal hair phosphorus level is about 16 mg%.

**A speed indicator.** Phosphorus on a hair mineral analysis may indicate the speed of protein synthesis. It can also be a catabolic indicator. When the hair phosphorus level is less than 15 mg%, a person may be taking too long to synthesize protein. This reflects a catabolic state. This means the body is breaking down faster than it is being built up. This is a useful indicator for assessing a person's health status and perhaps understanding why a person is not improving very fast.

**An important vitality indicator.** Phosphorus can also be viewed as a general vitality indicator. The ideal is about 15 to 16 mg%. When the level is lower, it indicates impaired vitality.

When the hair phosphorus is less than 12 mg%, vitality is lower. A level less than 10 mg% is even more extreme. We see the low levels in those who do not eat enough protein, who have impaired digestion, yeast infections, vegetarians and extreme stress.

**A yang indicator.** Phosphorus is a yang mineral. When it is low, it often indicates a more yin condition of the body.

**An important "male" mineral.** Another way to analyze phosphorus metabolism is by understanding that phosphorus is a "male" mineral because of its fiery nature. Trauma or anything that makes the body yin, including too many "female" toxic metals such as mercury and copper, can interfere with its functioning.

**Lifestyle and phosphorus.** Those with low hair phosphorus can be high strung. It is helpful for them to relax to help normalize their hair phosphorus level.

**Impaired digestion and low phosphorus.** Low hair phosphorus may indicate impaired protein digestion. Many people do not digest protein well. The reasons can be low digestive enzymes, poor food combinations, improper eating habits such as eating on the run, yeast infections, intestinal infections or improper gut flora. To correct this, everyone with a low phosphorus level should take powerful digestive enzymes.

**Copper toxicity and low phosphorus.** A low phosphorus on a hair mineral analysis may indicate hidden copper toxicity. Copper imbalance is associated with yeast overgrowth in the intestines, low digestive enzyme production due to low zinc, improper gut flora and intestinal infections and protein destruction due to the effect of copper on other nutrients such as zinc, vitamin C and manganese.

**An indicator for other toxic metals.** A low hair phosphorus may be an indicator for the presence of aluminum, mercury, nickel or lead.

**Trimethylglycine (TMG) may help raise a low hair phosphorus reading.** TMG enhances methylation which may enhance protein biosynthesis.

**Elevated hair phosphorus and mental development.** A phosphorus level between 17 to 25 mg% may indicate a milder form of protein breakdown or catabolism that is associated with mental or spiritual development. This is not a problem. It signals an unusual change in the body. It may indicate a breakdown of certain support cells in the brain of adults. The supporting cells, called the glial cells, are replaced by neurons, which are the “thinking cells” of the brain. This is an exciting change because the end result is a greater brain capacity and better mental functioning. Thus, a slightly elevated phosphorus can be a positive indicator.

Very high phosphorus readings ( $P > 25$  mg%). First rule out the use of pubic hair. Also, rule out certain hair products that contain phosphorus. One that is toxic makes the hair shiny. Usually, this will explain the high reading. It is not necessarily a spiritual development pattern.

#### **SUBSTANCES THAT MAY IMPEDE NORMALIZATION OF THE HAIR PHOSPHORUS READING**

Propranolol. This drug is used to lower blood pressure, reduce thyroid activity and to calm the heart. It may interfere with the fiery quality of phosphorus.

#### **CAUSES FOR A LOW HAIR PHOSPHORUS (IMPAIRED PROTEIN SYNTHESIS)**

1. Not enough high-quality dietary protein such as meat and eggs. Living on soy products such as tofu, nuts, seeds or beans can cause this reading as these are lower quality proteins. Other examples are vegan diets and vegetarian diets.
2. Incorrect eating habits. These include eating in the car, eating too fast, eating in noisy restaurants, eating when not at peace, eating standing up, eating when upset, not chewing your food thoroughly or eating at your desk while you are working.
3. Eating overcooked meat and hard-cooked, hard-boiled eggs. Protein powders, no matter how nutritious, should ideally be eaten alone. When they are mixed with fruit, vegetables, water, juice or vitamins in a blender they are often poor food combinations that are poorly utilized by the body.
4. Problems in the digestive tract or liver that interfere with the absorption or utilization of amino acids. A common one is a chronic candida albicans infection. Others are leaky gut syndrome, an inflamed intestinal tract or an irritated bowel due to a parasitic or other infection. These problems are extremely common and plague many people.
5. Deficiencies of some nutrient or an excess of toxins in the mitochondria that impairs energy production and DNA and RNA synthesis. This is an important final step in protein synthesis. Many people suffer from mitochondrial defects. Minerals such as zinc and magnesium are needed in the correct proportions and the correct forms for protein synthesis and energy production.

6. The presence of toxic metals. Examples are excess copper, mercury or aluminum. The presence of other metals or irritant forms of minerals may inflict oxidant damage on body proteins.

7. Low hair phosphorus may be an indicator for a hidden zinc deficiency. A low hair phosphorus level frequently indicates a need for zinc, or the presence of excess copper in the body, regardless of the hair zinc or copper levels. Zinc is required for several important enzymes involved in protein synthesis such as RNA transferase. Without adequate available zinc, protein synthesis is severely impaired.

Hair, Nail and Skin problems. If zinc becomes deficient, the body prioritizes its zinc reserves and may reduce the synthesis in less essential proteins such as the hair, nails and skin. This is one cause for baldness, skin diseases and zinc spots, small white spots on the fingernails and toenails.

One can calculate when stress or another trauma reduced the available zinc by the location of the spots relative to the end of the fingernails. The fingernails usually grow about one-fourth of an inch per month. The closer a white spot is to the nail bed, the more recent was the stress.

Impaired protein synthesis due to low zinc or high copper is also why some women develop stretch marks, baldness, spider veins, varicose veins and digestive problems. These indicate stress and copper imbalance and other protein synthesis problems.

#### **PHOSPHORUS READINGS DURING NUTRITIONAL BALANCING PROGRAMS**

**Very high hair phosphorus on a retest - a celebration pattern.** A sudden increase in hair phosphorus on a retest, but only when a person has followed a nutritional balancing program, is often positive, even if the level rises to 25 or 30 mg%. It appears to reflect a breaking down and release of old, diseased tissue. The level usually returns to a more normal level on the next retest.

In this regard, tissue breakdown or catabolism is not bad when it is controlled and is a part of rebuilding or a healthful remodeling of the body. This is an important principle of nutritional balancing science. Sometimes tissue must break down to be replaced by healthier tissues.

**Updating the minerals.** A high phosphorus of this type can represent updating the minerals in the body. This is a rather unusual process, as is mental development, that rarely occurs except when one follows a complete nutritional balancing program for several years.

It involves replacing what may be called “older” minerals with “newer” ones that work better. The older ones include toxic metals such as lead, cadmium, arsenic and aluminum. The newer ones include zinc, copper, selenium and silicon. Humanity is moving in the direction of the newer minerals and away from the older ones which are associated with violence, horror and certain diseases.

**“Gathering Firewood” pattern.** Phosphorus may decrease on a retest if the body eliminates lead, mercury or perhaps some other toxic metal. This occurs commonly during a nutritional balancing program. It is not a problem.

In these cases, toxic metals, especially lead, had been displacing the phosphorus level upwards. As the toxic metal is eliminated from the body, the hair phosphorus decreases to where it should be. This phenomenon is called displacement.

Another possibility is that as certain toxic metals are removed from the body, they may temporarily interfere with protein biosynthesis and cause a lower phosphorus reading.

**"On Fire" pattern.** This is defined as an increase in the hair phosphorus of 2 mg% or more on a retest. This is an excellent sign, indicating better vitality and improved speed of protein biosynthesis.

© This material was edited and adapted from an article by Dr. Lawrence Wilson, the Center For Development. Any information missing from the original article was deemed to be irrelevant or unnecessary for our purposes. Dr. Wilson is an amazing resource for hair mineral analysis education. He may be contacted at POB 54, Prescott, AZ 86302-0054, 928-445-7690.