Anemia Profile

This information is provided for informational purposes only and is not intended to diagnosis, treat, cure, or prevent disease. Abnormal test values falling outside the Normal Range will be printed in bold and noted in the "Flag" column. Abnormal values should be reviewed by your primary physician and a copy of all testing should be included in your medical record for future reference and comparison.

This test series is designed to investigate anemia, which is a condition that affects the red blood cells in the human body. Anemia classification is generally based upon the number, size, shape, and the hemoglobin content of red blood cells. Some types of anemia such as sickle cell and thalessemia are inherited traits. The most common causes of anemia are iron or other nutritional deficiencies; however other causes include excessive alcohol use, liver disease, thyroid deficiency, environmental poisoning, and bone marrow problems. This test profile includes:

Total Iron Binding Capacity - the amount of iron needed to bind to all of the transferrin in a certain amount of blood. This value is an estimate of the iron carrying capacity of the transferrin molecule.

Iron - a necessary mineral for the proper function of muscles and organs, as well as for the formation of hemoglobin. The original source of all the body's iron is from foods such as liver and other meat, eggs, fish, and leafy green vegetables. Healthy adult men rarely develop an iron deficiency; because they get enough iron from the foods they eat and have enough reserves of iron in their bodies to last for several years. Women however can lose large amounts of iron due to menstrual bleeding, pregnancy, or breast-feeding, and are much more likely than men to need an iron supplement. About three-fourths of the body's iron is found in hemoglobin; the rest is bound to other tissues or proteins such as transferrin and ferritin.

Vitamin B12 - also known as cyanocobalamin is another important precursor in red blood cell production. Like folate, a lack of Vitamin B12 also causes macrocytic anemia. Vitamin B12 is not found in vegetables; instead it is contained in animal products such as meat, shellfish, milk, cheese, and eggs. Low levels of Vitamin B12 are rarely caused by dietary deficiencies (except in vegans who do not eat any animal products), but more commonly result from absorption problems within the digestive tract (a condition called pernicious anemia).

Folate, RBC - also known as folic acid; a B vitamin which is very important in red blood cell production. A dietary deficiency of folate causes decreased production of red blood cells, and the cells which are produced are typically larger than normal (a macrocytic anemia). The direct measurement of folate contained in the red blood cells is a much more sensitive test than measuring blood concentrations, and is not affected by dietary habits or recent ingestion of folate.

Ferritin - a protein found in the liver, spleen, and bone marrow in the body which binds unused iron. Although only a small amount of ferritin is found in the blood, the measured concentration indirectly correlates with the amount of iron stored in the body.

Transferrin - When red blood cells die, the iron from their hemoglobin is released and carried by transferrin to the bone marrow, where iron is stored and recycled as needed to make new red blood cells.