**Blood Test Results: Understanding the Numbers**

This is a simple guide to help you understand blood test results.

The most common tests done during your annual physical examination are panels, include complete blood count (CBC), chemistry panel and lipid profile, which measures cholesterol and related elements. Here is a brief explanation of the abbreviations used in measurements followed by descriptions of several common test components.

**Chemistry Panel (or Metabolic Panel)**

**ALT (alanine aminotransferase)**

Healthy range: 8 to 37 IU/L

This test looks at levels of the liver enzyme ALT. When all’s well with your liver, your score on this test should be within range. Anything higher may indicate liver damage.

**Albumin**

Healthy range: 3.9 to 5.0 g/dL

A protein made by the liver, albumin levels can be an indicator of liver or kidney problems.

**A/G ratio (albumin/globulin ratio) or total protein test**

Healthy ratio: a bit over 1, favoring albumin

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There are two types of protein your blood — albumin (see above) and globulin. The A/G ratio test compares levels of these proteins with one another. Elevated protein levels could indicate a health condition in need of attention.

**Alkaline phosphatase**

Healthy range: 44 to 147 IU/L

This enzyme is involved in both liver and bone, so elevations may indicate problems with the liver or bone-related disease.

**AST (aspartate aminotransferase)**

Healthy range: 10 to 34 IU/L

This enzyme is found in heart and liver tissue, so elevations suggest problems may be occurring in one or both of those areas.

**Bilirubin**

Healthy range: 0.1 to 1.9 mg/dL

This provides information about liver and kidney functions, problems in bile ducts, and anemia.

**BUN (blood urea nitrogen)**

Healthy range: 10 to 20 mg/dL

This is another measure of kidney and liver functions. High values may indicate a problem with kidney function. A number of medications and a diet high in protein can also raise BUN levels.

**BUN/creatinine ratio**

Healthy ratio of BUN to creatinine: 10:1 to 20:1 (men and older individuals may be a bit higher)

This test shows if kidneys are eliminating waste properly. High levels of creatinine, a by-product of muscle contractions, are excreted through the kidneys and suggest reduced kidney function.

**Calcium**

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Healthy range: 9.0 to 10.5 mg/dL (the elderly typically score a bit lower)

Too much calcium in the bloodstream could indicate kidney problems; overly active thyroid or parathyroid glands; certain types of cancer, including lymphoma; problems with the pancreas; or a deficiency of vitamin D.

**Chloride**

Healthy range: 98 to 106 mEq/L

This mineral is often measured as part of an electrolyte panel. A high-salt diet and/or certain medications are often responsible for elevations in chloride. Excess chloride may indicate an overly acidic environment in the body. It also could be a red flag for dehydration, multiple myeloma, kidney disorders, or adrenal gland dysfunction.

**Creatinine**

Healthy range: 0.5 to 1.1 mg/dL for women; 0.6 to 1.2 mg/dL for men (the elderly may be slightly lower)

The kidneys process this waste product, so elevations could indicate a problem with kidney function.

**Fasting glucose (blood sugar)**

Healthy range: 70 to 99 mg/dL for the average adult (the elderly tend to score higher even when they are healthy)

Blood sugar levels can be affected by food or beverages you have ingested recently, your current stress levels, medications you may be taking, and the time of day. The fasting blood sugar test is done after at least 6 hours without food or drink other than water.

**Phosphorus**

Healthy range: 2.4 to 4.1 mg/dL

Phosphorus plays an important role in bone health and is related to calcium levels. Too much phosphorus could indicate a problem with kidneys or the parathyroid gland.

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Alcohol abuse, long-term antacid use, excessive intake of diuretics or vitamin D, and malnutrition can also elevate phosphorus levels.

**Potassium**

Healthy range: 3.7 to 5.2 mEq/L

This mineral is essential for relaying nerve impulses, maintaining proper muscle functions, and regulating heartbeats. Diuretics, drugs that are often taken for high blood pressure, can cause low levels of potassium.

**Sodium**

Healthy range: 135 to 145 mEq/L

Another member of the electrolyte family, the mineral sodium helps your body balance water levels and helps with nerve impulses and muscle contractions. Irregularities in sodium levels may indicate dehydration; disorders of the adrenal glands; excessive intake of salt, corticosteroids, or pain-relieving medications; or problems with the liver or kidneys.

**Lipid Panel (or Lipid Profile)**

The lipid panel is a collection of tests measuring different types of cholesterol and triglycerides (fats) in your bloodstream.

**Total cholesterol**

General rules (best to worst):

|  |  |  |
| --- | --- | --- |
| • | Healthy | Below 200 mg/dL (below 5.18 mmol/L) |
| • | Borderline high | 200 to 239 mg/dL (5.2 to 6.2 mmol/L) |
| • | High | Above 240 mg/dL (above 6.2 mmol/L) |

This test measures combined levels of both LDL (bad) and HDL (good) cholesterol. The test may be done simply to

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record an individual’s cholesterol levels or for comparison purposes (e.g., to determine if cholesterol-lowering medications or nutrients are working).

**Triglycerides**

Healthy range: 40 to 160 mg/dL

These fats are found in the bloodstream and may contribute to heart disease and other health problems.

**HDL (Good) cholesterol**

General rules:

|  |  |  |
| --- | --- | --- |
| • | Best | Above 60 mg/dL |
| • | Good | 50 to 60 mg/dL |
| • | Poor | Below 40 mg/dL for men; below 50 mg/dL for women |

Also known as good cholesterol, HDL (high-density lipoprotein) protects against heart disease. Low scores are risk factors for heart disease.

**LDL (Bad) cholesterol**

General rules (best to worst):

|  |  |  |
| --- | --- | --- |
| • | Optimal | Below 100 mg/dL |
| • | Near optimal | 100 to 129 mg/dL |
| • | Borderline high | 130 to 159 mg/dL |
| • | High | 160 to 189 mg/dL |
| • | Very high | Above 189 mg/dL |

Also known as bad cholesterol, LDL (low-density lipoprotein) is the substance that clogs arteries and is linked to heart disease.

**Total cholesterol/HDL ratio**

American Heart Association guidelines:

|  |  |  |
| --- | --- | --- |
| • | Optimal | Ratio of 3.5 to 1 |
| • | Healthy | Ratio of 5 to 1 or lower |

This ratio is another way of checking your risk of heart

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disease. It is determined by dividing your HDL cholesterol level into total cholesterol. The lab normally does the calculation.

**Complete Blood Count (CBC)**

The CBC test examines cellular elements in the blood, including red blood cells, various white blood cells, and platelets. Here is a list of the most important components of the CBC panel.

**WBC (white blood cell) leukocyte count**

Normal range: 4,300 to 10,800 cmm

White blood cells help fight infections, so a high white blood cell count could be helpful for identifying infections. It may also indicate leukemia, which can cause an increase in the number of white blood cells. On the other hand, too few white blood cells could be caused by certain medications or health disorders.

**WBC (white blood cell) differential count**

Normal range:

|  |  |  |
| --- | --- | --- |
| • | Neutrophils | 40% to 60% of the total |
| • | Lymphocytes | 20% to 40% |
| • | Monocytes | 2% to 8% |
| • | Eosinophils | 1% to 4% |
| • | Basophils | 0.5% to 1% |

This test measures the numbers, shapes, and sizes of various types of white blood cells listed above. The WBC differential count also shows if the numbers of different cells are in proper proportion to each other. Irregularities in this test could signal an infection, inflammation, autoimmune 7

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disorders, anemia, or other health concerns.

**RBC (red blood cell) erythrocyte count**

Normal range: 4.2 to 5.9 million cmm

We have millions of red blood cells in our bodies, and this test measures the number of RBCs in a specific amount of blood. It helps us determine the total number of RBCs and gives us an idea of their lifespan, but it does not indicate where problems originate. So if there are irregularities, other tests will be required.

**Hematocrit (Hct)**

Normal range: 45% to 52% for men; 37% to 48% for women

Useful for diagnosing anemia, this test determines how much of the total blood volume in the body consists of red blood cells.

**Hemoglobin (Hgb)**

Normal range: 13 to 18 g/dL for men; 12 to 16 g/dL for women

Red blood cells contain hemoglobin, which makes blood bright red. More importantly, hemoglobin delivers oxygen from the lungs to the entire body; then it returns to the lungs with carbon dioxide, which we exhale. Healthy hemoglobin levels vary by gender. Low levels of hemoglobin may indicate anemia.

Normal range: 27 to 32 picograms

This test measures the average amount of hemoglobin in the typical red blood cell. Results that are too high could signal anemia, while those too low may indicate a nutritional

**Platelet count**

Normal range: 150,000 to 400,000 mL

Platelets are small portions of cells involved in blood clotting. Too many or too few platelets can affect clotting in different ways.

Other tests are ordered based on your risk factors. In general, pay attention to the reference range of each test result to determine if your result is within normal range.

Be sure to call our office if you need further explanation or are confused about your result.

Adapted from Newportnaturalhealth.com