



No.52 – What is a Full Blood Count

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Title: **The Full Blood Count (FBC) or Complete Blood Count (CBC); What does it tell us**

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The Full Blood Count (FBC), known in the United States as the Complete Blood Count (CBC), is one of the laboratory tests most frequently ordered by physicians. The test requires just a few drops of blood and the result is usually available quite promptly. It is a critically important test in diagnosing blood conditions (such as ITP) as well as helping to monitor people with established blood disorders, whether they are simply being observed, or receiving treatment of one kind or another. Each type of blood cell is measured in the laboratory using a somewhat complex electronic instrument and the results are reported to the physician and patient as the actual number of cells in a specific volume of blood, most commonly a cubic millimeter (or microliter). The value is then compared with the “range” of values seen in normal persons. The result of each test component described below is recorded along with its normal range. It is important not to be alarmed if several of the many FBC measurements are “out of range” by being just slightly higher or lower than “normal.” This can happen just “by chance” due to statistical variation, because the “normal” values are actually the values reported in 95% of normal people. Therefore for all “normal” values, 2.5% of normal people are higher or lower than the “normal” range of values. It doesn’t mean that anything is wrong. If in doubt, you should discuss this with your doctor.

The FBC measures the three main types of cells in the bloodstream. They are: (1) the RBC’s or red blood cells (which carry oxygen throughout the body and when reduced indicates anemia), (2) the WBC’s or white blood cells (which help combat infection), and (3.) what’s most important to people with ITP, the platelets (i.e., the platelet count). The normal range of platelet counts varies slightly from one laboratory to another but is generally stated to be about 150,000 to 450,000 cells per cubic millimeter (often shortened to 150 to 450 to avoid all the extra zeros). Even though the platelet count is what people with ITP are most interested in, the other components of the FBC are also important for accurate diagnosis and for monitoring during subsequent treatment and follow-up. For example, the RBC count is accompanied by other measures of RBC’s such as hemoglobin, hematocrit, MCV, RDW, etc. (and a normal reference range for each). The WBC count includes a description of each kind of WBC (neutrophils, lymphocytes, and monocytes being most prevalent), with each “specializing” to control different forms of infection. Many FBC reports also include measurements of the size of the person’s platelets (MPV or mean platelet volume). Although some reports suggest that platelets are a little larger than normal in patients with ITP, causing the MPV to increase, we do not believe that this is an important measurement for diagnosing or following patients with ITP. These various measurements regarding each type of blood cell (red, white, and platelets) can be helpful to physicians but not necessarily to most ITP patients. Clearly the most important FBC value for persons with ITP is their platelet count.

Most people with ITP suffer from destruction of their platelets by antibodies resulting from a virus, drug, autoimmune process or, most commonly, unknown causes. The FBC in ITP thus generally shows reduced platelet numbers (thrombocytopenia) unless the condition has totally resolved, spontaneously or following treatment. However, some ITP patients become anemic – have too few RBC’s (expressed also on the FBC by decreased values for hemoglobin and/or hematocrit) as a result of recent bleeding. To monitor people with ITP the platelet count is the most important part of the FBC, but the RBC’s are generally carefully examined as well. WBC measurements are usually normal in ITP. If the WBC count is low, this suggests that there may be a cause of thrombocytopenia other than ITP, such as a disorder of bone marrow production of platelets and white blood cells.

In many cases the FBC report is accompanied by a microscopic examination of the blood cells after being “smeared” on a glass slide and stained with a dye. This visual description of the blood cells (offered by a skilled laboratory technician, hematologist, or pathologist) is considered an important accompaniment to the FBC, especially when the patient’s diagnosis or treatment response is unclear. Actually examining the cells “up close and personal” with the microscope often provides information that the electronic FBC cannot convey. For example, if platelets in someone suspected as having ITP are extremely small or have a slate gray color, then an alternative diagnosis is likely.

Given that the FBC is easy to perform, inexpensive, and readily available, it is gratifying how much information we can derive from it. It may be the most important laboratory test of all!