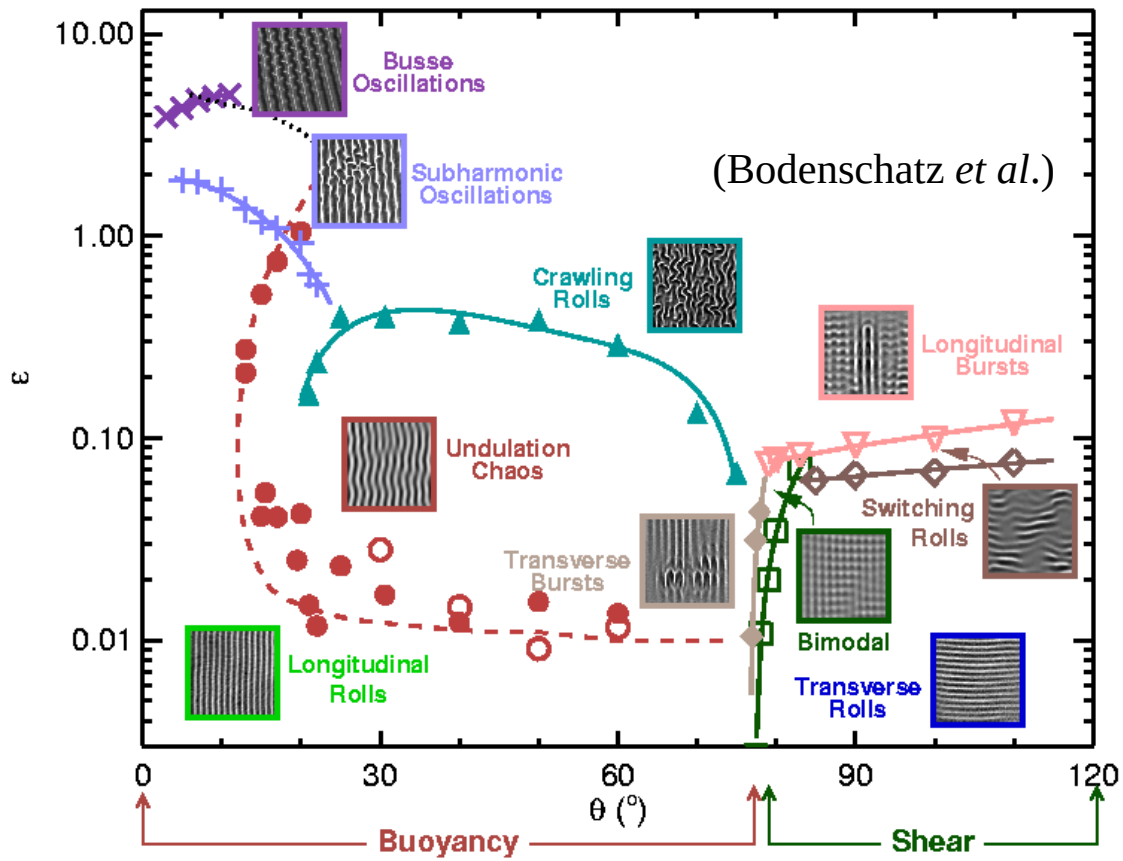
Blood and Hemoglobin



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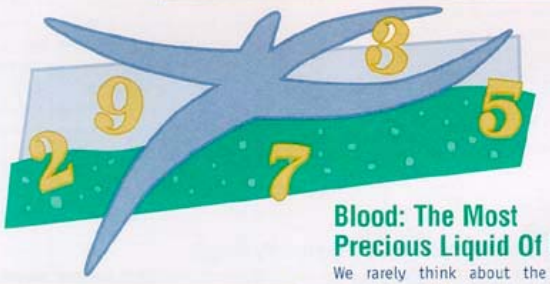
The Complete Blood Count

understanding your

Complete Blood Count



Blood: The Most Precious Liquid Of Life

We rarely think about the importance of blood, even though it circulates through our entire body throughout our life. But it is important that you never take your blood for granted, especially when you are sick. While the human body does not require a large amount (only about 5 quarts for a 160-pound adult) in order to function properly, you cannot survive without a healthy and proper supply of this precious red liquid.

Do I Need A CBC?

Regular CBC testing can help catch a low or high blood count so that it can be treated before it becomes serious. Your doctor will determine if you need a CBC.

How Is A CBC Performed?

A CBC is a relatively fast and painless procedure. It generally takes less than a drop of your blood, which is collected by a healthcare practitioner who either pricks your finger or takes blood from a vein. This small blood sample is then sent to a laboratory for analysis. Results are usually ready within minutes to hours of the blood test.

How To Read A CBC Test

CBC tests aren't difficult to read. Although your own test results will be different than those shown on the back, you can learn how to read your own CBC results from the sample chart.

What Is A Complete Blood Count?

Your blood is made up of three basic types of cells: red cells, white cells and platelets. It takes all three types, working together properly, to perform vital bodily tasks. In order to know how efficiently your blood cells are functioning, a blood test, or Complete Blood Count (CBC) is commonly performed to measure the levels of the different types of cells in your blood.

Hemoglobin: Fuel For Your Engine

Hemoglobin (Hb) is important to you because it transports the oxygen in your blood to all parts of your body. The oxygen carried by Hb is the fuel your body needs to stay active. If you think of your body as a car, then think of hemoglobin as the fuel that makes your engine run. If your body runs low on hemoglobin, or Hb, then like a car on empty, it cannot function efficiently.

Hemoglobin is a complex iron protein found in your red blood cells. It's the substance that makes your blood look bright red.

What Is Anemia?

Red blood cells live about two months, then wear out and must be replaced. Normally your body makes enough red cells, but certain diseases can cause the under-production of red blood cells. If this happens, your Hb will drop and your body will not get enough oxygen, resulting in a condition known as anemia. With anemia, you may become extremely tired physically and mentally and may be unable to do your normal activities. Even extra sleep will not help an anemic person feel better.

How Does Hemoglobin Fuel My Body?

Because hemoglobin contains iron, it is the perfect vehicle to transport oxygen and carbon dioxide to cells throughout your body. When red blood cells fill the air sacs of your lungs, they take up oxygen. The hemoglobin in these cells then combines with the oxygen to form a compound called oxyhemoglobin.

When the red cells travel through the rest of your body, they give up the oxygen to the tissues. Once in the tissues, hemoglobin takes up carbon dioxide and releases it into the air sacs in your lungs. The carbon dioxide is then exhaled. The process sounds complicated, but actually, it's as easy as breathing!

Sample CBC Chart

Female Ranges: 4.1-5.1 / 12.0-16.0 / 37.0-48.0

This person's hemoglobin level is below the normal range. This patient is anemic and may be starting to notice symptoms.

Test	Results	Low/High	Units	Normal Ranges
CBC WITH DIFFERENTIAL				Male Ranges
Red Blood Count		3.25(L)	x10^{12}/L	4.5-5.3
Hemoglobin		10.8(L)	g/dL	14.0-18.0
Hematocrit		31.1(L)	%	42.0-52.0
Platelets	302		x10^{3}/L	150-350
White Blood Count	7.2		x10^{3}/L	4.5-11
Lymphocytes		48(H)	%	16-46
Monocytes	4		%	4-11
Neutrophils	45		%	45-75
Eosinophils	3		%	0-8
Basophils	0		%	0-3

This part looks at components of white blood cells. As you can see, this patient has a higher than normal lymphocyte count.

This column shows counts that are lower (L) or higher (H) than the normal range.

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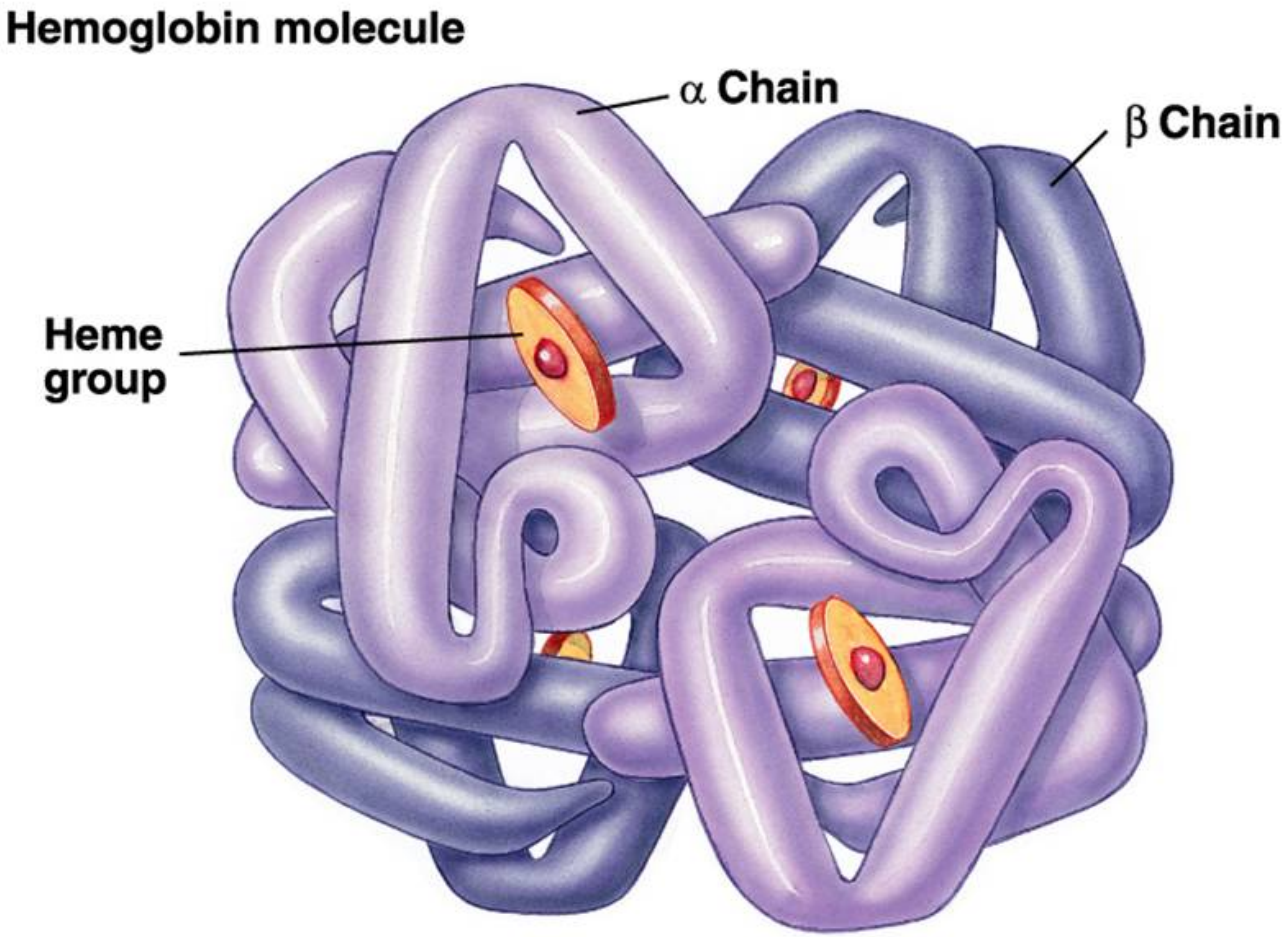
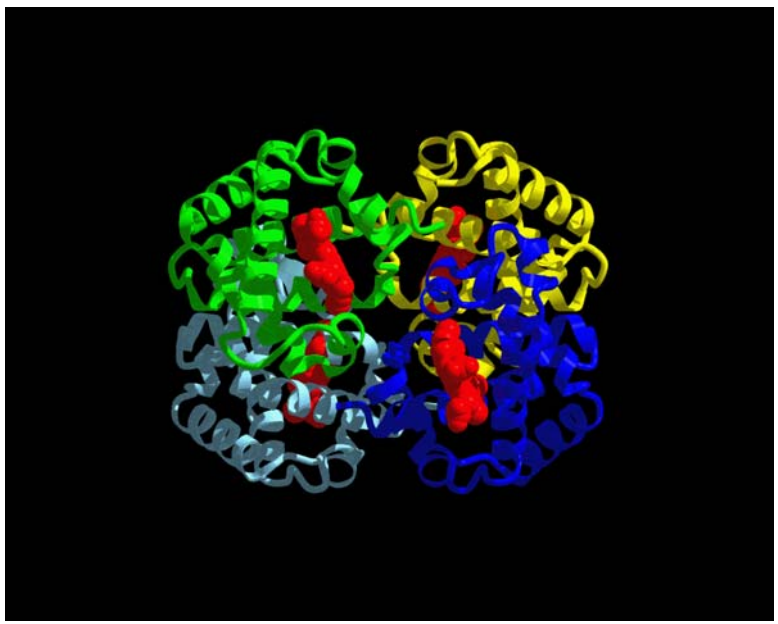
Hemoglobin Molecule





Oxygen Binding