

BLOOD TYPES



About **5 million** Americans need blood transfusions every year, for all sorts of reasons. Sometimes, a transfusion is an **emergency** (like losing blood after an accident). Sometimes **it's expected** (as with treatment for cancer). Whatever the reason, blood transfusions are one of the most common hospital procedures. While transfusions are common, there's a lot more to them than just taking blood from one person and using it to help someone else. It's very important to keep the blood supply safe. So, each unit of blood goes through many tests to check for infectious diseases and establish the blood type.

Four Blood Groups...

All blood contains the same basic components (red cells, white cells, platelets, and plasma), but not everyone has the same types of **markers** on the surface of their red blood cells.

These markers (also called _____) are proteins and sugars that our bodies use to identify the blood cells as belonging in our own system.

Blood cell markers are microscopic. But they can make the difference between blood being accepted or rejected after a transfusion. So medical experts group blood into types based on the different markers.

The four main blood groups are:

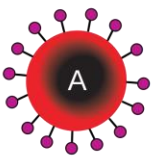
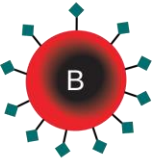
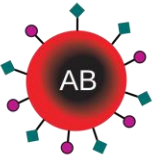
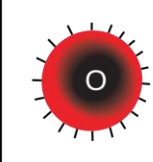


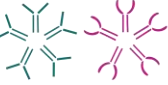



A blood type (also called a blood group) is a classification of blood based on the presence or absence of inherited **antigenic substances** on the surface of red blood cells

TYPE A.	
TYPE B.	
TYPE AB.	
TYPE O.	

ANTIGEN vs. ANTIBODY

- Blood markers are also in plasma.
- These plasma blood markers are called _____
- They are the body's response to _____
- Antibodies are proteins made by the immune system.

*The immune system produces proteins known as **antibodies** that act as protectors if foreign cells enter the body. Depending on which blood type you have, your immune system will produce antibodies to react against other blood types.*

	Group A	Group B	Group AB	Group O
Red blood cell type				
Antibodies in Plasma	 Anti-B	 Anti-A	None	 Anti-A and Anti-B
Antigens in Red Blood Cell	 A antigen	 B antigen	 A and B antigens	None

BLOOD TYPE	ANTIGEN	ANTIBODY
A		
B		
AB		
O		

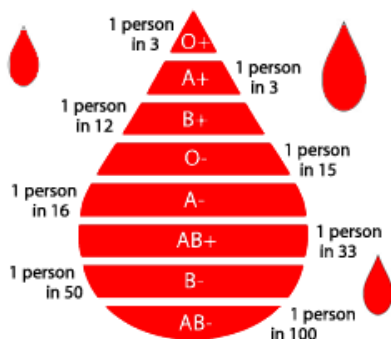
Some people have an additional marker, called **Rh factor**, in their blood. Rh is a _____.

Because each of the four main blood groups (A, B, AB, and O) may or may not have Rh factor, scientists further classify blood as either " _____ " (meaning it has Rh factor) or " _____ " (without Rh factor).

Having any of these markers (or none of them) doesn't make a person's blood any healthier or stronger. It's just a genetic difference, like having green eyes instead of blue or straight hair instead of curly.

The different markers that can be found in blood make up eight possible blood types:

O -		
O +		
A -		
A +		
B -		
B +		
AB -		
AB +		



_____ is the most common blood type.

_____ is the second most common.

_____ is the least common blood type.

**DO YOU KNOW
YOUR BLOOD
TYPE?**

SCENARIOS

Let's say you have Type A blood. Because your blood contains the A marker, it produces B antibodies. If B markers (found in Type B or AB blood) enter your body, your Type A immune system gets fired up against them. That means you can only get a transfusion from someone with _____ not from someone with _____

In the same way, if you have the B marker, your body produces A antibodies. So as a person with Type B blood, you could get a transfusion from someone with _____, but not _____.

Things are a little different for people with Type AB or Type O blood. If you have **both** A and B markers on the surface of your cells (Type AB blood), your body does not need to fight the presence of either. This means that someone with AB blood can get a transfusion from someone with _____

But if you have Type O blood, meaning your red blood cells have neither A or B markers, your body will have both A and B antibodies and will therefore feel the need to defend itself against A, B, and AB blood. So a person with O blood can only get a transfusion with _____.

Type _____ blood can be given to people with any blood type. That's because it has none of the markers that can set off a reaction. People with this blood type are considered "universal donors" and are in great demand at blood banks.

Because Type _____ blood has all the markers, people with this type can receive any blood type. They're called "universal recipients."



BLOOD TESTING

- A sample of blood is taken usually from a _____ in your arm using a needle
- A way of helping doctors check for certain _____
- _____ draw the blood and analyze it

Why are blood tests done?

What information can blood tests give you?

- _____ to count blood cells
- _____ from the fluid that contains them (plasma)
- _____ is used to measure substances in the blood

One type of blood test is **HEMATOCRIT** which is a measure of how much space red blood cells take up.

High:

Low:

Abnormal:

