

## ***Blood Transfusion***

### **Introduction**

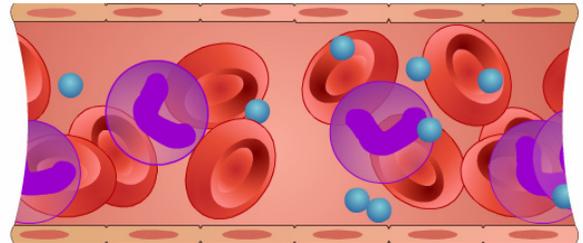
Blood transfusions are very common. Each year, almost 5 million Americans need a blood transfusion. Blood transfusions are given to replace blood lost during surgery or serious injury. They are also given when a person's body does not produce enough blood because of certain illnesses.

This reference summary will help you better understand what a blood transfusion is as well as what to expect and the risks of the procedure.

### **Blood Types**

Blood plays a very important role in the body. It moves oxygen and important nutrients to organs and tissues. Having a healthy supply of blood is important to your overall health.

Blood is made of different types of cells floating in plasma. Plasma is mostly made of water with chemicals in it. These chemicals include cholesterol, proteins, hormones, minerals, vitamins, and sugar. Sugar is also called glucose.



Blood

There are three basic types of blood cells:

- Red Blood Cells.
- White Blood Cells.
- Platelets.



Red Blood Cells



White Blood Cells



Platelets

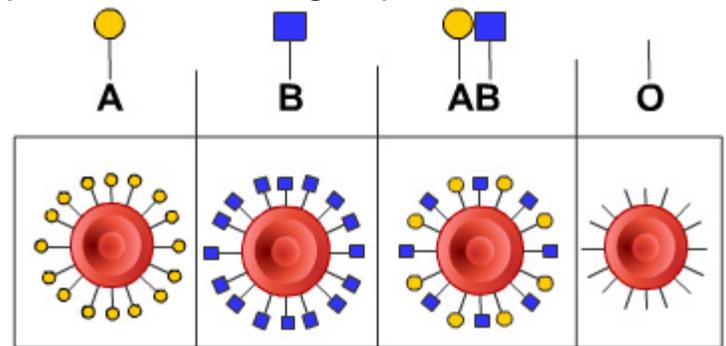
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You may have heard of blood types or groups, such as blood group A, B, AB or O.

Both A and B stand for a certain protein that is found on red blood cells.

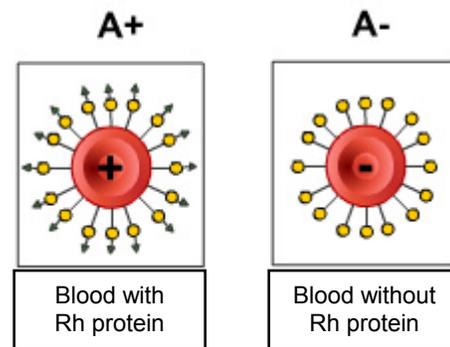
People who have the A protein have type A blood, those who have the B protein have type B blood, and those who have the A and B proteins have type AB blood. People with neither protein have type O blood.



Examples of Type A and B proteins

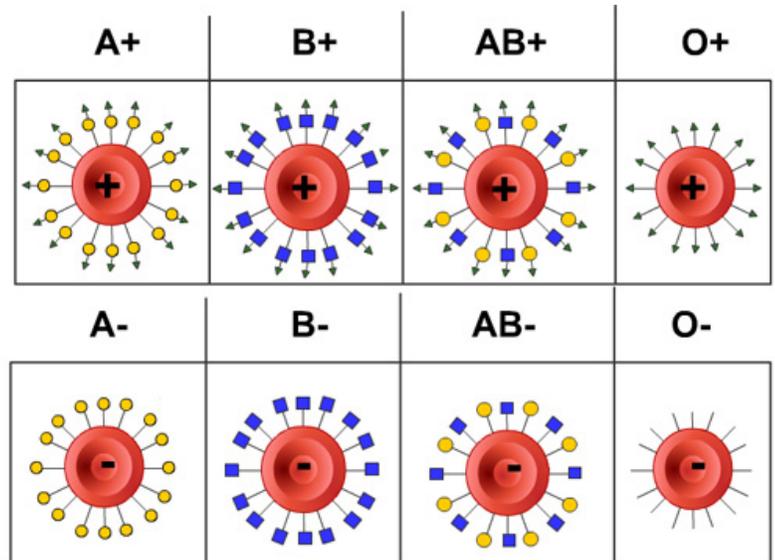
Another protein found on some red blood cells is the Rh, or Rhesus, protein. People with this protein are called Rh positive. Those without this protein are Rh negative. The plus (+) and minus (-) signs are used to write positive and negative.

Each one of the A, B, AB and O blood groups can be either positive or negative. This means there are 8 different blood types.



Here are the 8 blood types:

- A negative A-
- A positive A+
- B negative B-
- B positive B+
- O negative O-
- O positive O+
- AB negative AB-
- AB positive AB+

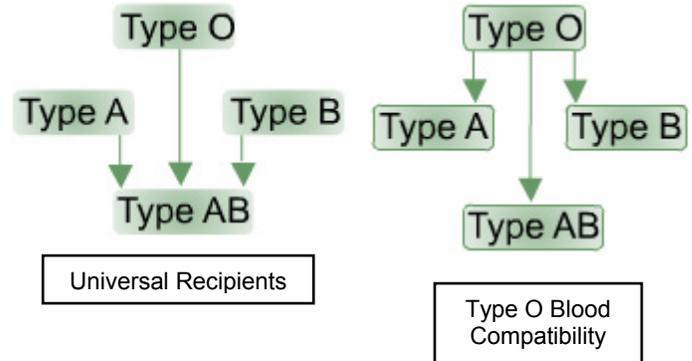


8 Blood Types

Blood types are important when a person needs a blood transfusion. Getting blood that is the wrong type can cause a transfusion reaction, making the person very sick. It can even be life-threatening.

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The immune system fights germs and foreign substances. When a person receives a non-compatible blood type, the body fights it as if it were a foreign material. Type O blood is safe for most people. In fact, almost 40 percent of the population has type O blood. During an emergency, when there is no time to check the person's blood type, people are often given type O blood.



People with type AB blood are called universal recipients. This is because they can receive any type of blood. If you have Rh positive blood, you can receive Rh positive or Rh negative blood. However, if you have Rh negative blood, you can only receive Rh negative blood. Like type O blood, Rh negative blood is used in emergencies when there is no time to test a person's Rh type.

### Types of Blood Transfusions

The blood used in blood transfusions typically comes from a blood bank. Blood banks collect, test, and store blood. They carefully screen all donated blood for possible problems, such as viruses that could make you sick.

If you have a surgery scheduled and know you may need a blood transfusion, you may be able to use your own blood for a transfusion. If this happens, you will be asked to donate blood over a couple of visits so it can be used if you need a transfusion.

Your blood is then usually stored in a blood bank. When a person is given a transfusion of their own blood, it is known as an autologous blood transfusion. Blood can be used whole or in parts. Sometimes, only parts of the blood are used in a transfusion, like the platelets or red blood cells. Other times, people need whole blood transfusions with all its parts.

Red blood cells carry oxygen from the lungs to organs and tissues. You may need a red blood cell transfusion if you've lost blood from an injury, surgery, or have anemia. Red blood cells are the most common part of the blood that is used in transfusions.



Anemia is a low count of red blood cells. It can be caused by a shortage of iron. Also, a shortage of certain vitamins can cause diseases that can cause anemia.

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Platelets are the part of the blood that helps blood clot and helps you stop bleeding. In some diseases, the body does not make enough platelets. You may need a platelet transfusion if you have certain diseases or trouble with clotting.

Plasma is the liquid part of the blood that contains glucose, cholesterol, proteins, hormones, minerals, and vitamins. Plasma transfusions may be needed if you have severe burns, liver failure, or severe infection.



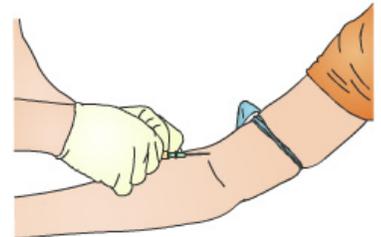
### **Alternative Treatments**

Scientists are trying to find ways to make blood. At this time, there is no man-made alternative to human blood. Researchers have developed medicines that may help do the job of some blood parts. Some medicines may help patients make more of a specific type of blood cell. This may mean fewer blood transfusions for some patients.

During surgery, surgeons try to reduce the amount of blood loss so that fewer patients need blood transfusions. Sometimes they can collect and re-use the blood for the patient.

### **Procedure**

Your blood will be tested to determine your blood type. Before the transfusion, a technician may prick your finger or take blood from your arm to test your blood type. Sometimes for your safety, a second blood sample will be drawn to confirm your blood type.



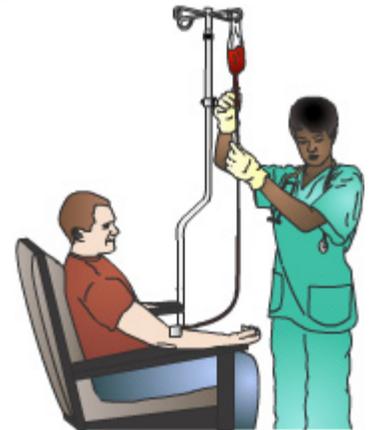
Most patients do not need to make any changes in diet or activity before the procedure. Your doctor will let you know if you need to make any changes. Usually blood transfusions are done in a doctor's office or at the health care facility. A needle will be used to insert an IV into one of your blood vessels. Blood will then go through the IV line and into your body. IV stands for intravenous. It is an intravenous tube that is inserted into a vein in your arm or hand so fluids, medications, or blood can be given when needed.

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You will be monitored during the transfusion in case you have any kind of reaction. A blood transfusion usually takes 1 to 4 hours, depending on how much blood you will need. After the transfusion, your vital signs, such as temperature and blood pressure, will be checked.

Your blood pressure, temperature, respiration and pulse rate will be taken 15 minutes before transfusion, 15 minutes after the start of transfusion and at the end of transfusion the IV may also be removed. Your doctor will give you more information on what the signs of complications are and what to watch for when you go home.



## Risks

Blood transfusions are very safe, but complications can happen. You need to know about them in case they happen. Your doctor will explain to you the risks, benefits, and alternatives associated with a blood transfusion. Please ask your health care team if you have any questions.



Sometimes people have allergic reactions to the blood they are given. This can happen even if they are given the correct blood type. Allergic reactions can range from mild to severe. Signs of allergic reactions include anxiety, chest or back pain, high pulse or low blood pressure, trouble breathing, fever, chills, and nausea.

Your doctor may prescribe a medication to stop allergic reactions. If you have allergies or have had an allergic reaction from a blood transfusion in the past, be sure to let your doctor know. He or she will make every effort to make sure you are safe. Sometimes the area where the IV line was placed may be bruised or sore for a few days.



All blood that is used in transfusion goes through screening processes to make sure it is safe to use for a transfusion. This is because viruses and infectious diseases, such as HIV, can be passed through a blood transfusion. Getting a virus or disease from a blood transfusion is extremely unlikely, but it is possible.

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Some people get a fever the day of the blood transfusion. This is caused by the body's response to the white blood cells in the donated blood. This can also be caused by the preservatives used by blood banks. This can usually be treated with over-the-counter medications.

Getting too many blood transfusions can cause too much iron to build up in the blood. This can cause damage to the liver, heart, and other parts of the body. This is more likely in people who have conditions that require multiple blood transfusions.

In rare cases, blood transfusions can damage your lungs, which can cause trouble breathing. This complication usually happens within six hours of the transfusion. Your health care team will monitor you closely so any signs of a transfusion reaction can be identified and treated promptly.

## **Conclusion**

Blood transfusions are very safe and can save your life. Although they are unlikely, complications can happen. Knowing about them may help you detect and treat them early in case they happen.



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