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Blood Transfusion

is a procedure in which blood is given to a patient through an intravenous (IV) line in one of the blood vessels. Blood transfusions are done to replace blood lost during surgery or a serious injury.

A transfusion also may be done if a person's body can't make blood properly because of an illness. The transfer of blood or blood components into a person's blood stream can crack and cause toxic reactions due to clumped red cells, this can have fatal consequences.

Blood clumping : was an immunological reaction which occurs when the receiver of a blood transfusion has antibodies against the donor blood cells.

The differences in human blood are due to the presence or absence of certain protein molecules called **antigens** and **antibodies**.

The antigens: are located on the surface of the red blood cells and the **antibodies** are in the blood plasma.

Individuals have different types and combinations of these molecules.

The blood group you belong to depends on what you have inherited from your parents. There are more than 32 genetically determined blood group systems known today, but the **AB0** and **Rh** systems are the most important ones used for blood transfusion.

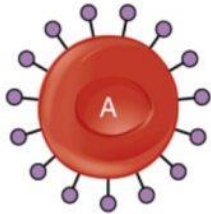
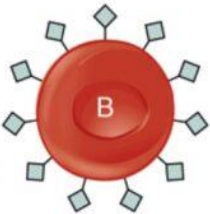
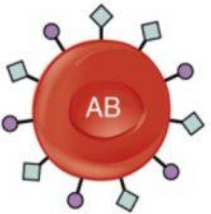
Types of blood group:

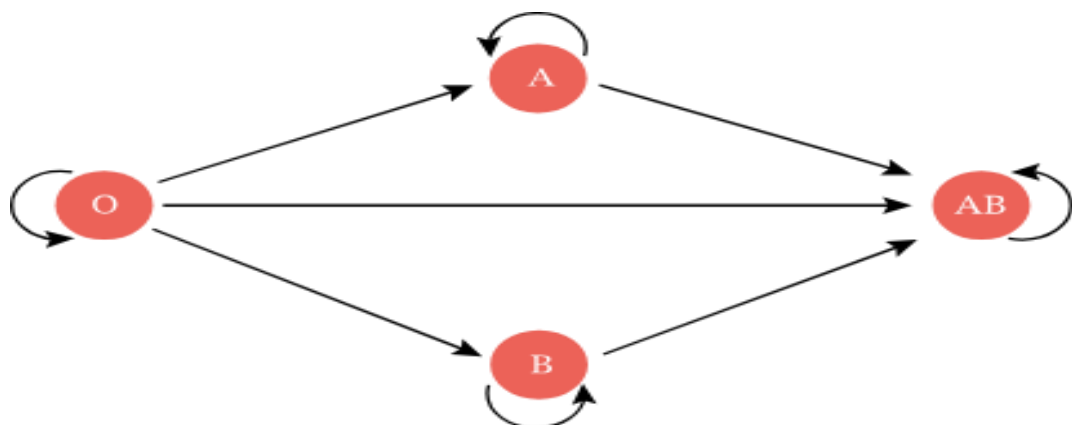
1--Blood group A: If you belong to the blood group A, you have **A antigens** on the surface of your red blood cells and **B antibodies** in your blood plasma.

2--Blood group B: If you belong to the blood group B, you have **B antigens** on the surface of your red blood cells and **A antibodies** in your blood plasma.

3--Blood group AB: If you belong to the blood group AB, you have both **A and B antigens** on the surface of your red blood cells and **no A or B antibodies** at all in your blood plasma. (universal recipient)

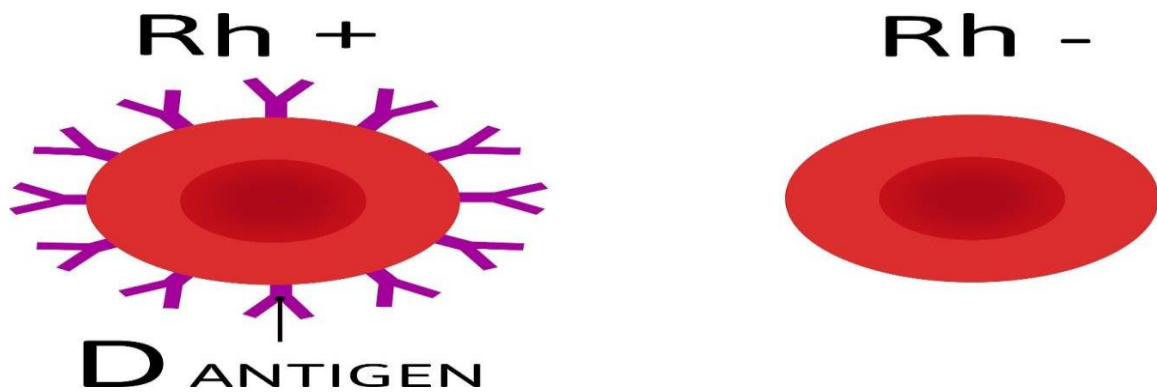
4- Blood group O: If you belong to the blood group O (null), you have **neither A or B antigens** on the surface of your red blood cells but you have both **A and B antibodies** in your blood plasma.(universal donor).

Blood Type				
	A	B	AB	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 Types Compatible in an Emergency	A, O	B, O	A, B, AB, O (AB ⁺ is the universal recipient)	O (O is the universal donor)



Rhesus factor:

Many people also have a so-called Rh factor (D antigen) on their blood cell's surface. This is also an antigen and those who have it are called **Rh+**. Those who haven't are called **Rh-**.



Methods

There are two types:

- 1- Slide methods (commonly used)
- 2- Tube methods

Slide methods:

The principle: a drop of blood is mixed with anti a and anti b sera and examined for agglutination (clump).

Materials

- 1- Clean slides
- 2- Drop of blood
- 3- Anti sera a and Anti sera b and Anti sera Rh.

Procedure

- 1- Clean your finger with alcohol and let dry.
- 2- Prick finger with lancet, near the tip but not too close to the nail. You will need three large drops of blood. Prick so that blood flows freely. Try squeezing up from your wrist if blood does not flow after pricking finger.
- 3- Use one slide for ABO typing and Rh factor. Place three drops of blood on the slide, add the appropriate typing serum, and determine your blood type. Be sure the serum dropper does not touch the drop of blood. Results should be readable in about a minute.

HOW TO READ YOUR RESULTS

BLOOD TYPE	ANTI-A	ANTI-B	ANTI-D	CONTROL
O-POSITIVE				
O-NEGATIVE				
A-POSITIVE				
A-NEGATIVE				
B-POSITIVE				
B-NEGATIVE				
AB-POSITIVE				
AB-NEGATIVE				
INVALID				