



Department of Anesthesia Techniques



LAB/4

THE BLOOD TYPES

م. م فائن كريم
م. م امال صاحب
م. م علا عبدالله

د. زهراء طارق
د. دعاء حمزه



BLOOD TYPING

A test that determines a person's blood type. It is essential for:

[blood transfusion](#) 2- [blood donation](#)

Not all blood types are compatible, so it's important to know the blood group. The blood type is determined by what kind of antigens that red blood cells have on the surface. The ABO blood typing system groups the blood into one of four categories:

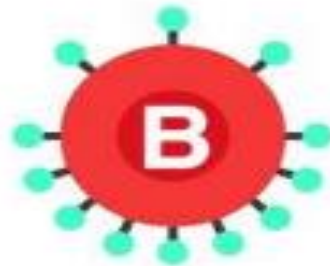
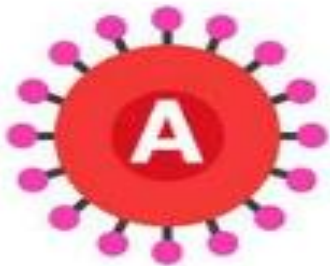


Type A has the A antigen.

Type B has the B antigen.

Type AB has both A and B antigens.

Type O has neither A nor B antigens.



O: Type O individuals can donate blood to anyone, because their blood has no antigens. However, they can only receive blood from other type O individuals (because blood with any antigens is seen as foreign).

A: Type A individuals can donate to other type A individuals and type AB individuals. Type A individuals can receive blood only from other type A individuals and type O individuals.



B: Type B individuals can donate blood to other B individuals and AB individuals. Type B individuals can receive blood only from type B individuals and type O individuals.

AB: Type AB individuals can give blood only to other AB individuals, but can receive blood of any type.

People who have matching blood groups are said to be **‘compatible’**

This means they could give or receive each other’s blood if necessary.



The rhesus (Rh) system

The other blood typing system commonly used is the Rhesus system, also called Rh system, named after the Rhesus monkey in which it was first discovered. In this system, if you have an antigen called the **RhD antigen** on the surface of your red blood cells, you are said to be **Rhesus positive (Rh+)**. If you don't, you are said to be **Rhesus negative (Rh-)**.

Combining ABO blood group with whether are Rh+ or Rh- means blood can be classified as one of 8 possible types.



Blood Type Compatibility

Blood Type	Gives	Receives
A+	A+, AB+	A+, A-, O+, O-
O+	O+, A+, B+, AB+	O+, O-
B+	B+, AB+	B+, B-, O+, O-
AB+	AB+	Everyone
A-	A+, A-, AB+, AB-	A-, O-
O-	Everyone	O-
B-	B+, B-, AB+, AB-	B-, O-
AB-	AB+, AB-	AB-, A-, B-, O-



How is blood typing done?

Testing is called ABO blood typing:

A sample of a blood is tested separately against 2 laboratory solutions – one that contains antibodies against the A antigen (anti-A) and one that contains antibodies against the B antigen (anti-B).



Rhesus typing

The test is called RhD typing. In this test, a sample of red blood cells is mixed with a laboratory solution that contains antibodies to RhD. If a blood reacts to the Rh test by agglutinating (clumping), it's Rh positive. If it doesn't react, it's Rh negative.

Both ABO and RhD blood typing are done on all blood collected from donors, as well as on all blood used for transfusions in hospitals.



