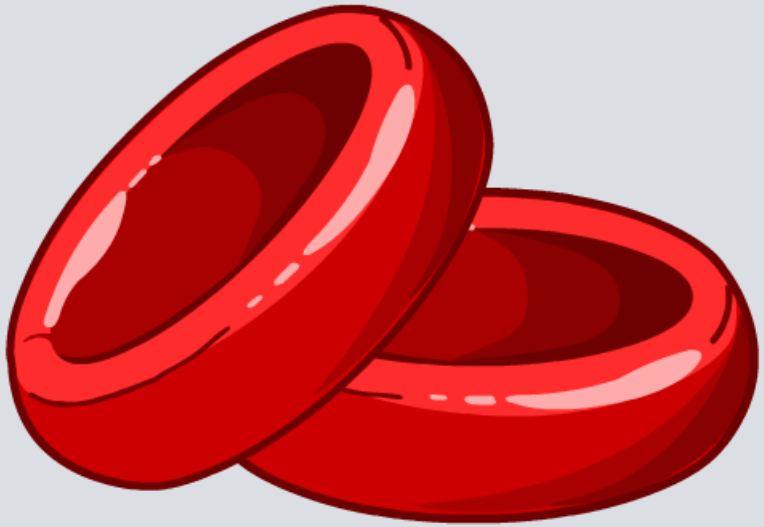
Blood Transfusions



Blood transfusions

A **blood transfusion** involves taking blood from one person and giving it to another.

Blood transfusions are used to replace blood lost in accidents, after surgery and to treat blood conditions. Hospitals will store a large amount of donated blood.

Blood is regularly donated by thousands of people around the US. The **American Red Cross** obtains, transports and tests blood from donors before it is used.

ABO blood grouping

Cells contain markers on their surface, called **antigens**. Red blood cells can contain two types of antigens called antigen A and antigen B. These form the basis of a type of blood grouping called the **ABO blood system**.

Blood groups can be classified by the presence or absence of these antigens:

- blood group A – cells contain antigen A only
- blood group B – cells contain antigen B only
- blood group AB – cells contain antigens A and B
- blood group O – cells do not contain antigens A and B

Who can receive what type of blood?

The immune system will contain **antibodies** against the antigens that are **not** present in the blood. For example, group A blood will contain antibodies against antigen B.

Blood group	Antigens	Antibodies	Can receive
O	None	anti-A, anti-B	O
A	A	anti-B	A and O
B	B	anti-A	B and O
AB	A and B	None	All groups

If a recipient's anti-B antibodies come in contact with blood cells containing antigen B this will cause **clotting**. This affects blood donation: e.g. a person with group A blood can only receive blood group A or O, as these don't contain B antigens.

Donating ABO groups

How much do you know about ABO grouping?

blood group	antigens	anti-bodies	can receive	can donate to
O	none	anti-A and anti B	O	?
A	A	?	A and O	A and AB
B	B	anti-A	?	B and AB
?	A and B	none	all	AB

A and B | AB | B and O | all

anti-B | none

? | C | solve

Rhesus blood grouping

Blood can be categorized using **Rhesus blood grouping**. Individuals either do or do not possess the **Rhesus antigen** on the surface of their blood cells.

Those with the antigen will have Rhesus **positive** or +blood, and those without will have Rhesus **negative** or –blood.

This type of blood grouping can be used alongside the ABO grouping. For example, people with group A blood will either be A+ or A–.

It is important that this type of blood grouping is considered during blood transfusions, as the wrong type may cause clotting.