

# iTRANSFUSEFACTSHEET

all about blood

VOLUME 3, NUMBER 7

## I NEED TO KNOW ABOUT HAEMOGLOBIN AND IRON

DR JO SPEEDY

### What is haemoglobin and how does it function?

Haemoglobin is an iron-containing protein found in red blood cells. Oxygen moves into the red blood cell and binds to haemoglobin, which allows it to be transported around the body.

Haemoglobin has two major parts:

- heme molecules – structure containing iron
- globin molecules – proteins that surround and protect heme

### What is the relationship between haemoglobin and iron?

Iron is the building block needed to produce haemoglobin. Red cells are continually being replaced and this process reuses iron from the old red cells. Despite this recycling, our body has an ongoing need for iron from our diet.

### Is iron needed for anything else?

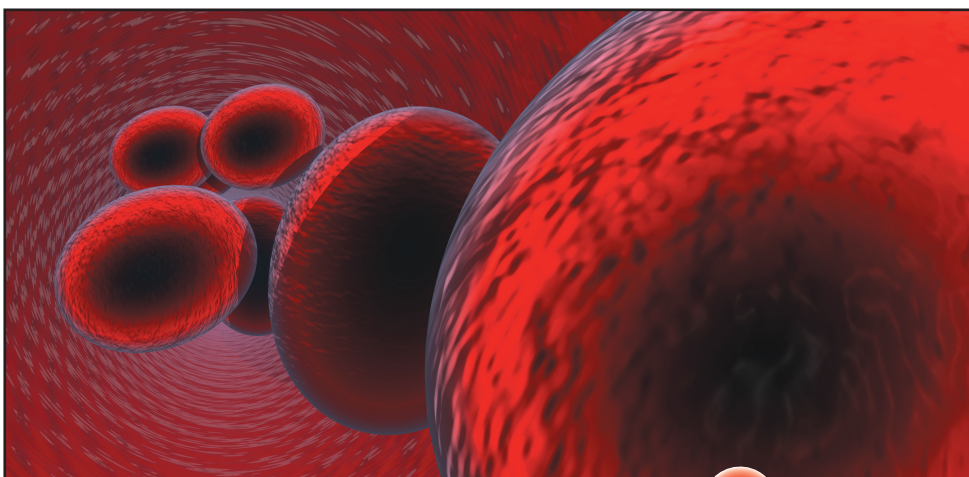
Yes. Although haemoglobin uses most of the iron, it is also needed to maintain the function of cells and may assist in brain function.

### Can I have low iron but normal haemoglobin?

Low iron stores, which may be due to lack of dietary intake or poor absorption, blood loss (eg menstruation) or increased need for iron (eg pregnancy), can impair the production of haemoglobin. It is important to recognise that iron deficiency can be present without low haemoglobin levels (anaemia). However, progressive depletion of iron stores without replacement will eventually result in anaemia.

### Are there any other reasons why someone would have a low haemoglobin count?

Yes. Any process which slows red cell production (eg B12 or folate deficiency) or increases red cell loss (eg early red cell destruction) can cause anaemia.



### How does blood donation affect iron and haemoglobin?

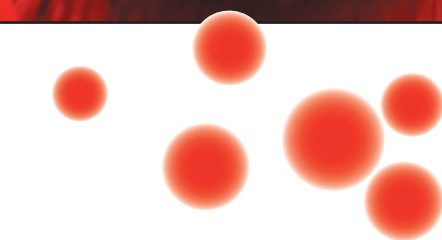
To ensure the wellbeing of donors, the Blood Service has set haemoglobin limits for donation at higher than the normal range. This allows for the short term fall in haemoglobin after donation and recognises that donors with haemoglobin in the lower end of normal range are more likely to have iron deficiency.

### How does the Blood Service test for haemoglobin and iron?

Haemoglobin is measured by finger-prick testing prior to donation. If the haemoglobin is below the minimum level required, donors are offered a more precise blood test. If this is low, a portion of the sample collected is sent for ferritin testing. Ferritin is a measure of iron stores in the body. Donors with low iron stores and/or anaemia are deferred and are asked to see their doctor.

### Why are donation intervals for whole blood and apheresis different?

To allow donors time to replenish their iron stores and haemoglobin levels, minimum time



### PACKFACT

It's not really iron that makes blood red, it's the porphyrin in haemoglobin that gives blood its colour.



intervals between donations are in place. Haemoglobin limits and donation intervals are different for apheresis donations as red cell (and hence haemoglobin and iron) losses are significantly less than whole blood.

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