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Anaemia risk for teenage blood donors

NEW US research has found that adolescent girls who donate blood are more likely to experience low iron levels and anaemia related to iron deficiency than adult female blood donors and teenage girls who don't give blood.

Led by researchers at John Hopkins University, the new study looked at blood samples and blood donation history taken from 9,647 females participating in the National Health and Nutrition Examination Survey, a long-running study which assesses the health and nutritional status of adults and children in the US.

Within the group there were 2,419 adolescents aged 16 to 19, with the rest of the women aged 20 to 49.

The findings, published in the journal *Transfusion*, showed that around 10.7 per cent of the teenagers had donated blood within the past 12 months, compared with about 6.4 per cent of the adults.

The researchers also found that the average ferritin levels found in the blood, which indicate the body's iron level and a possible deficiency, were significantly lower among blood donors than among the non-donors in both the adolescent and adult groups, 21.2 vs. 31.4 nanogrammes per millilitre and



Donating blood could put teenage girls at a greater risk of iron deficiency, according to new research.

26.2 vs. 43.7 nanogrammes per millilitre, respectively.

Although the rate of those who had iron deficiency anaemia was low in both groups, 9.5 per cent among adolescent donors and 7.9 per cent among adult donors, the researchers note that it is still significantly higher than the rate of anaemia in non-donors in both age groups, which was 6.1 per cent.

IRON DEFICIENCY

Moreover, 22.6 per cent of adolescent donors and 18.3 per cent of adult donors also had absent iron stores. Blood donation may increase the risk of iron deficiency as each whole blood donation removes about 200-250 milligrammes of iron from the donor.

As adolescents typically have lower blood volumes than adults, they have a

relatively higher proportional loss of haemoglobin — the iron-containing protein in blood cells that transports oxygen — when donating blood, and therefore a greater loss of iron.

Females also have a higher risk of iron deficiency than males due to blood loss during menstruation every month.

The researchers point out that on the whole giving blood is a safe procedure, and regulations are already in place to prevent iron deficiency in donors, such as haemoglobin screening, a minimum weight to donate and an eight-week interval between donations for repeat whole blood donation. However, the team adds that other protections could be put in place for teen donors, for example, suggesting oral iron supplementation, increasing the minimum time interval between donations, or donating other blood products such as platelets or plasma rather than whole blood.

"We're not saying that eligible donors shouldn't donate. There are already issues with the lack of blood supply. However, new regulations or accreditation standards could help make blood donation even safer for young donors," says co-lead author Aaron Tobian, M.D., Ph.D.

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