

Blood: The transport system

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Collins A. Blood: The transport system. *J Blood Disord Treat* .2022; 5(6):1-2.

ABSTRACT

Blood is essential for transporting oxygen, nutrients, and other substances

to tissues throughout the body. Donated blood can be lifesaving for individuals who have lost blood because of accidents or surgery, as well as for people who have become severely anemic or have dangerously low platelet counts because of certain medical conditions and/or treatments, such as chemotherapy to treat cancer.

Key Words: *Leukaemia; Haemoglobin; Anaemia.*

INTRODUCTION

Screening measures help to maximize safety of blood donation for the donor and the recipient. People are being advised to stay at home (and minimise interaction with other people) as much as possible during the pandemic in many locations. Although this is crucial to halting the virus's spread, it also means that fewer individuals are giving blood. As a result, there might not be enough blood for everyone who requires it. Now is a crucial moment to donate blood if you are healthy and able to do so.

MEASURES TO PROTECT THE DONOR

Blood donation is safe for the donor and is unlikely to have any harmful health effects thanks to a number of precautions.

Potential donors are questioned regarding their history of heart, lung, and blood disorders. People who have heart disease, heart valve issues, irregular heartbeats, brain blood vessel disease, heart failure, and certain lung conditions may not be allowed to donate blood, or they may be allowed to do so as long as their health care provider has given the go-ahead and they haven't experienced any serious symptoms in the previous six months. Exclusion may also result from certain blood conditions like chronic leukaemia or iron deficiency anaemia.

Other health issues - Prospective donors are questioned about their general health and wellbeing on the day of donation. The donor health historian will assess a potential donor's eligibility to donate after learning about any further serious medical issues they may have.

People with a history of seizures may give blood as long as it has been a specified amount of time since their last episode.

Recent surgery - When healing is complete and donors have resumed full activity, those who recently underwent surgery are eligible to donate blood. Donation is not permitted for a year if a transfusion was given at the time of operation, nevertheless.

Age restriction - Depending on the state, 16 or 17 years old is the minimum age to donate blood. When permitted, 16-year-olds must bring a parent's consent form that has been duly signed. There is often no upper age limit for donation, though in some circumstances

the physician of the donor must approve.

Weight requirement: Blood donations are not accepted from anyone who weigh less than 50 kg (110 pounds). The probability of experiencing a response like dizziness and fainting after donation increases with donor weight. Reactions after blood donation are uncommon, however they are more common in people who weigh between 50 and 54 kg (110 and 119 pounds). For donors aged 16 to 18 who are barely over the weight limit, the majority of blood centres do an additional examination that takes into consideration the donor's expected blood volume, which is determined by the donor's height and weight. There is no maximum weight for blood donation, but some facilities set a cap based on the size and weight of the donor phlebotomy chair.

Before donating, a donor's temperature, blood pressure, and pulse are all examined. With the exception of highly trained athletes and those on beta blockers, anybody with a fever, high blood pressure (often greater than 180/100), very high or very low heart rate, or an irregular heartbeat are temporarily prohibited from donating blood.

Blood test - To determine the amount of haemoglobin in the blood, a small sample of blood is drawn through a fingerstick and examined. To make sure the donor is not anaemic or unlikely to develop anaemic after donating, this is done. Hemoglobin levels that are too low prevent people from temporarily donating blood.

The donor is seated comfortably in a chair throughout the donation, and a needle is inserted into the arm to draw blood. This is done carefully enough to reduce potential side effects like dizziness. The removal of one unit of blood (approximately 500 mL or about a pint). Following the donation, the patient receives some juice or other beverages or food while being watched.

Time until next donation – In accordance with US Food and Drug Administration (FDA) guidelines, donors are only permitted to make another whole blood donation 56 days (eight weeks) after the one before it. It depends on how quickly a person's body can replace its red blood cells, thus not all donors will be able to qualify at this minimum interval. People with heavy periods, for instance, won't be able to give every 56 days since their iron reserves won't be enough to replace the lost red blood cells.

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Received: 05-Nov-2022, Manuscript No. PULJBDT-22-5656; Editor assigned: 07-Nov-2022, Pre QC No. PULJBDT-22-5656 (PQ); Reviewed: 14-Nov-2022, QC No. PULJBDT-22-5656 (Q); Revised: 16-Nov-2022, Manuscript No. PULJBDT-22-5656 (R); Published: 24-Nov-2022, DOI: 10.37532/puljbd.2022.5(6).1-2.



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Iron deficit – If the body's iron reserves are already low, donating blood might cause iron insufficiency because it takes iron from the body. Teenage donors, premenopausal women, and those who donate regularly have the largest risk of iron insufficiency (three or more times a year). Many blood collection organisations advise people at increased risk for iron deficiency to take a multivitamin with iron or an iron-only supplement for about 60 days to replace the iron lost through each blood donation because the strategy of eating iron-rich foods is insufficient to replenish lost iron.

SCREENING MEASURES TO PROTECT THE RECIPIENT

Blood donors are screened to assist guarantee that the blood is suitable for transfusion into a recipient.

Laboratory testing and a screening questionnaire for potential infections For this screening, a range of tools are utilised, including a questionnaire for self-reporting of viral exposures and other infectious

disease risk factors. A blood sample is examined in a lab to check for different infections.

Elimination of remuneration for donation - In the United States, all whole blood and blood components are obtained from volunteers since the late 1970s. Occasionally, when donors are compensated, the donated parts go through further processing to remove any potential infectious pathogens.

Infection screening – Potential blood donors are questioned on a range of topics, including their travel history, prior drug use, and sexual conduct, which may raise their risk of contracting specific infectious illnesses. In some situations, this information disqualifies a person from giving blood permanently or for a set length of time. In reaction to the COVID-19 epidemic and worries about a decline in the country's blood supply, the Food and Drug Administration (FDA) of the United States altered some of the requirements for donation in April 2020.