



Blood Donations and Diving

Divers often donate blood and need to know when to resume diving. This article is meant to provide information to help answer those questions. This information should apply to any type of diving since the effect depends on the hemoglobin in the red blood cell mass rather than the partial pressures of gases.

How long must a diver wait after blood donation before diving?

The donor's body replenishes the fluid lost from donation in 24 hours. If not anemic (Hgb<12 Gm/dl) a person can dive in 24 hours after blood donation. It may take up to two months to replace the lost red blood cells. **Whole blood can be donated once every eight weeks.** The most important part of the blood to the diver is the red blood cell, responsible for the transport of oxygen to the tissues. The fluid part of blood is replenished in about one day. If the diver waits 24 hours and has a normal hematocrit, then diving should be allowed.

Red blood cells are perhaps the most recognizable component of whole blood. Red blood cells contain hemoglobin, a complex iron-containing protein that carries oxygen throughout the body and gives blood its red color. The percentage of blood volume composed of red blood cells is called the "hematocrit." The average hematocrit in an adult male is 47 percent. There are about one billion red blood cells in two to three drops of blood, and, for every 600 red blood cells, there are about 40 platelets and one white cell. Manufactured in the bone marrow, red blood cells are continuously being produced and broken down. They live for approximately 120 days in the circulatory system and are eventually removed by the spleen.

Is there a way to donate blood products and still be able to dive immediately?

Yes, through apheresis. This is the process of removing a specific component of the blood, such as platelets, and returning the remaining components, such as red blood cells and plasma, to the donor. This process allows more of one particular part of the blood to be collected than could be separated from a unit of whole blood. Apheresis is also performed to collect plasma (liquid part of the blood) and granulocytes (white blood cells).

Is there a way to shorten the time interval before red blood cell replenishment after blood donation?

Yes - Approximately 10 percent of body iron stores are removed with each donation. When appropriate, iron supplements can be prescribed for patients making donations to help increase red blood cell count. Erythropoietin, a hormone, can also be given to stimulate the bone marrow into producing more red blood cells.



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