

# MANIPULATION OF BLOOD AND BLOOD COMPONENTS



Manipulation of blood can be considered blood doping, is therefore prohibited under the World Anti-Doping Agency (WADA) Prohibited List and Tennis Anti-Doping Programme (TADP).

This guide is designed to help players and their support teams understand the rules in relation to manipulation of blood, and what to do if you need more support.

## You cannot:

- Administer or reintroduce blood or red blood cell products from any source.
- Withdraw blood or blood components, unless performed for 1) analytical purposes including medical tests or Doping Control, or 2) donation purposes.
- Artificially enhance oxygen uptake, transport, or delivery.
- Perform intravascular manipulation of blood or its components through physical or chemical means.
- Use re-breathing systems/equipment to deliver carbon monoxide, unless performed as diagnostic procedure under the supervision of a medical or scientific professional.

## FAQs

### Can I get a Therapeutic Use Exemption (TUE) for one of the methods listed above?

There are legitimate medical uses for the methods listed above and, under certain circumstances and for specific medical conditions, players could be granted a TUE.

TUE applications are made with the assistance of a physician. Players must assign a physician to complete the application on their behalf in the Tennis Anti-Doping Portal: <http://tennis.idtm.se>

Step-by-step video and flowchart guides are available below:

- [Video guide for players](#)
- [Video guide for medical professionals](#)
- [TUE Application Guide](#)

### Do I need to document/report any time I have medical blood tests done?

If you are required to provide a blood sample as part of Doping Control, you will be asked a series of questions on your Doping Control Form, including some relating to blood loss in the past 3 months. Here, you can declare any blood loss relating to situations such as medical tests, accident, pathology, or donation. Please note, this blood loss does not include any blood lost due to menstruation.

Athletes who undergo any medical tests, are in an accident or have any pathology, or donate blood or plasma should ensure they keep all records of this in case these are required in the future.

### Is platelet-rich plasma (PRP) therapy permitted?

The withdrawal of blood as part of medical treatment with PRP is permitted.

In PRP therapy, a patient provides a blood sample, which then goes through a process known as centrifugation to separate and concentrate the platelets. This PRP is then injected at the site of injury to treat various conditions.

However, If the subsequently injected PRP is altered for performance benefits (e.g., with the addition of growth factors) then it is prohibited.

If you are subject to Doping Control and have undergone PRP in the last 3 months this should be declared on your Doping Control Form.

### Is altitude training permitted?

Altitude training is a popular training method used by athletes to naturally increase red blood cell production, as exposure to low oxygen environments stimulates the body's natural production of red blood cells. Altitude training is not prohibited in sport, as it does not involve external administration or manipulation of blood.

The effects of altitude training can be simulated using hypoxic tents/masks or hyperbaric chambers. These are also not prohibited in sport.

If you are required to provide a blood sample as part of Doping Control, there are questions on your Doping Control Form relating to altitude exposure and altitude simulation in the last 2 weeks. Please note that, as of 1 April 2026, these questions will ask about altitude exposure or simulation in the last 4 weeks.

### What is carbon monoxide re-breathing and why is it prohibited?

Under certain conditions, the inhalation of carbon monoxide can increase red blood cell production. However, when inhaled at high or unregulated doses, it can have potentially fatal effects.

The use of carbon monoxide for controlled, diagnostic purposes, such as total haemoglobin mass measurement or determination of pulmonary diffusion capacity, is not prohibited under the supervision of a medical or scientific professional. Nevertheless, athletes who undergo such diagnostic procedures, should ensure they keep all records of this.

If you have any questions regarding the Prohibited List and its various sections, please contact [anti-doping.admin@itia.tennis](mailto:anti-doping.admin@itia.tennis).



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