

A-PRF™ and **i-PRF™**
Platelet Rich Fibrin

Strictly physiologic!

PROTOCOL

Please read carefully!



www.a-prf.com



View and download all the videos, click here:

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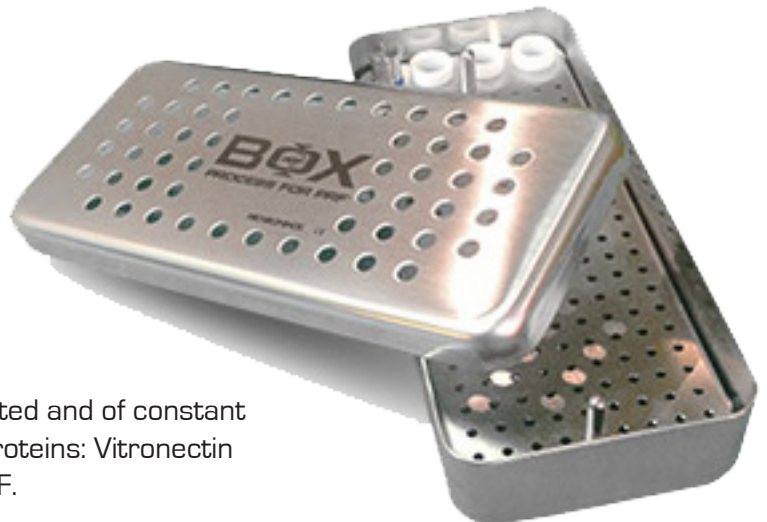
▶ DUO Centrifuge:



The new centrifuge DUO has a «switch» button that affords you to select various settings mode for the A-PRF and i-PRF. The values of these settings are preset and locked except for PRP / PRF / CGF (you can set other values) . Simply turn the knob on the desired mode of operation, the corresponding LED will light on. The machine is ready. Simply press the button  to start the centrifugation.



▶ PRF BoX :



« PRF Box » allows to get membranes always hydrated and of constant thickness, but also to recover the exsudate rich in proteins: Vitronectin and Fibronectin. You can also produce “plugs” of PRF.

The instruments :



PRF Scissors

Allows to separate easily the fibrin clot from the red cells and to cut membranes into small pieces.



PRF Forceps

Is used to remove and manipulate membranes.



PRF Mini Tray

Used to prepare membranes and too:

- Separate the fibrin clot from the red blood cells
- Cut the membranes
- Fold the membranes
- Make «punches»



PRF Bowl

Is used to mix the membranes cut into small pieces with biomaterials. It can also be used for the cutting: Put the membrane into the bowl and cut it with PRF scissors.

The instruments :

In the Sinus: this plate is used to retrieve the PRF membrane (always) folded twice and slide it into the sinus to the desired location easily. Introduce the pointed end of the pad 1 in the sinus window and drag the PRF membrane on the Schneiderian membrane. Same process for a collagen membrane.

1

Pad PRF

2

Is used to position the PRF membranes easily, anywhere, using the pad as a cake server. Drag the PRF membrane on Pad 2 and place it on the desired surgical area. Same process for a collagen membrane...

Compactor Small

Allows to compact and tamp the bone filling materials in the recipient sites (alveoli, sinus, goshawks implants).

Compactor Big

Allows to compact and tamp the bone filling materials in the recipient sites (alveoli, sinus, goshawks implants).

Double Spoon

Allows to collect and handle the bone filling materials in the recipient sites (alveoli, sinus, goshawks implants).

The instruments :

Tube-holder

Is used to hold the tubes and let them rest after the blood drawing



Tourniquet

It must be tightened to the patient's forearm 10 cm above the site of venipuncture.



Sticker

Is used to maintain in place the collector during the blood drawing



Tubes and Blood Collectors :



A-PRF™ +



i-PRF™ 9



Blood Collector

Class IIa medical device.

Glass tubes without anticoagulant or additives




To become familiar with the technique, we advise you to do the first PRF procedure and blood drawing on the practitioner himself.

▶ Settings:



Turn the switch on the left to position 1: A-PRF

Speed area Lock status Time area

		
13 × 100rpm		8 min

Let the tubes «rest» for 5 minutes

1. Press the **ON/OFF** button: on position **ON** at the back of the machine
 2. The lid opens automatically
 3. Take off the rubber
 4. Close the lid
 5. Turn the switch on the left to position 1: A-PRF, the red LED lights on.
- Your machine is ready for use. The settings are preset and locked.

Details : **13** x 100 rpm / **8** minutes

6. To start the spin, press the **START** button
7. At the end of the spin, the lid opens automatically

⚠ **Caution!** Starting the spin without removing the rubber may destroy the motor.

▶ Blood Drawing:

Who can draw the blood? Surgeons, Dentists, Nurses, Doctors, Lab technicians

One single rule: The blood drawing has to be as fast as possible. It's essential for the PRF clot quality.

Without anticoagulant in the tube, the blood starts to coagulate after 1 or 2min. Over this time, the blood coagulates progressively and it becomes difficult to separate the elements .

Warning: For patients on anticoagulants:

- Don't change the settings
- At the end of centrifugation, let the tubes rest, they will coagulate with a small delay.

- **It's not recommended to do the blood aspiration with a syringe!**
- The tubes are under vacuum. The blood stops being collected when the tube is full. When the tube is full, place it in the centrifuge.
- **Number of tubes collected:** at least 2, max 12, always **BALANCED** 2 by 2. You **MUST** equilibrate the tubes in the centrifuge (opposite, 2 by 2). If you do not respect this statement, you'll get important vibrations during the centrifugation.

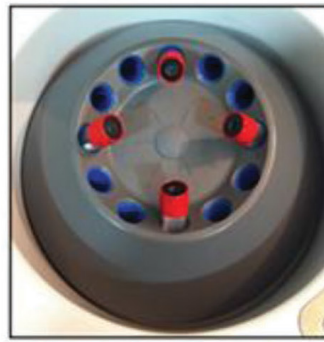
A few examples of balance:



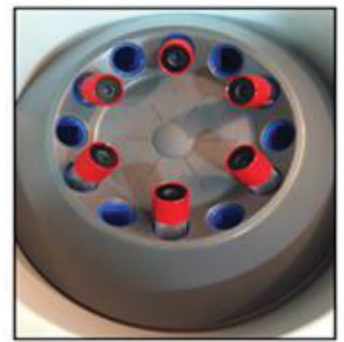
2 tubes



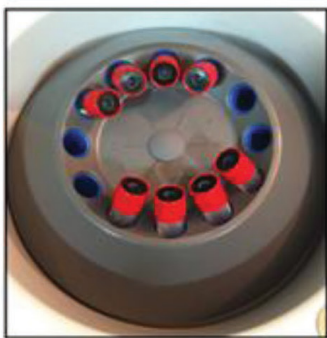
3 tubes



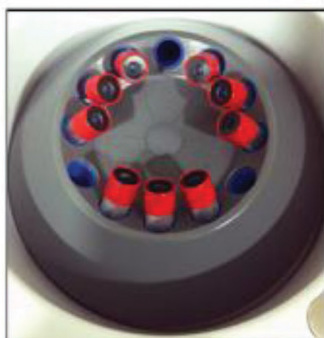
4 tubes



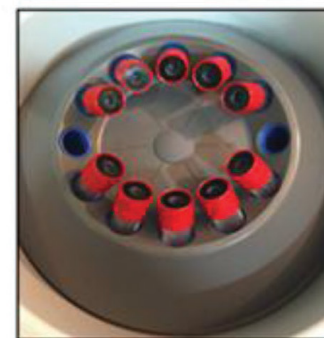
6 tubes



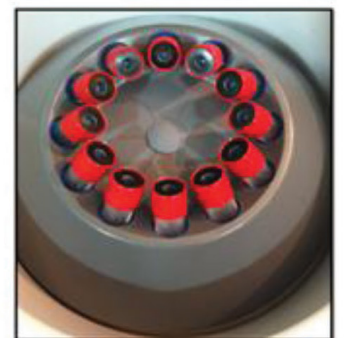
8 tubes





9 tubes



10 tubes



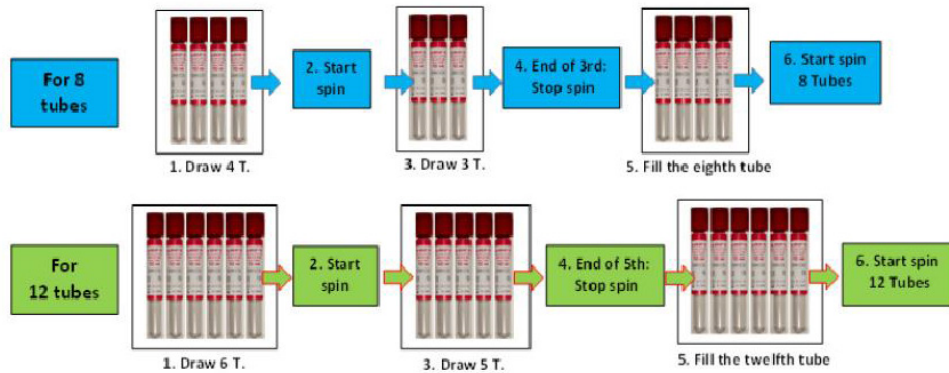
12 tubes

- **Prepare a tube filled with water.** If you haven't collected an even number of tubes, this tube will be used to equilibrate others tube in the centrifuge.
- If you want to draw **more than 12 tubes**, see the protocol to maintain the vein permeable (*see the video multiple puncture*)
- Close the lid. Press on  button.
- Check that the speed displays  It means that the rotor has started.

● **If you want to collect 8, 10 or 12 tubes:**

1. Start immediately the centrifugation of the first 4 or 6 tubes.
2. Start the collection of the 4 or 6 following tubes. Stop the machine while the 7, 9 or 11th tube are filling.
3. The rotor will stop at the same time of the eighth or the twelfth full blood filling.
4. Put the last 4 or 6 tubes and restart the spin.

The 4 or 6 first tubes will be centrifuged 1 min more than the last ones. It doesn't change the clots quality . However, if you collect 12 tubes once, the first tubes will be partially coagulated before you start centrifugation.



If you want to collect 10 tubes, you'll draw 6 and 4... or 4 and 6.

▶ PRF Clots removal:

- Remove the tube caps before placing the tubes in the sterile tube holder and let them «rest» around 5 minutes.

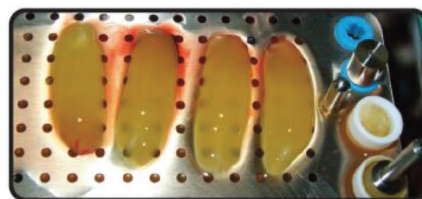
- Take the fibrin clot into the opened tube with the sterile PRF forceps.



- To separate easily the fibrin clot from the red cells: Put the clot on the mini-tray covered with a gauze and use the closed scissors to peel off the red clot.



- Put the PRF clots on the BoX grid and cover them with the tray, then put the lid on (always).

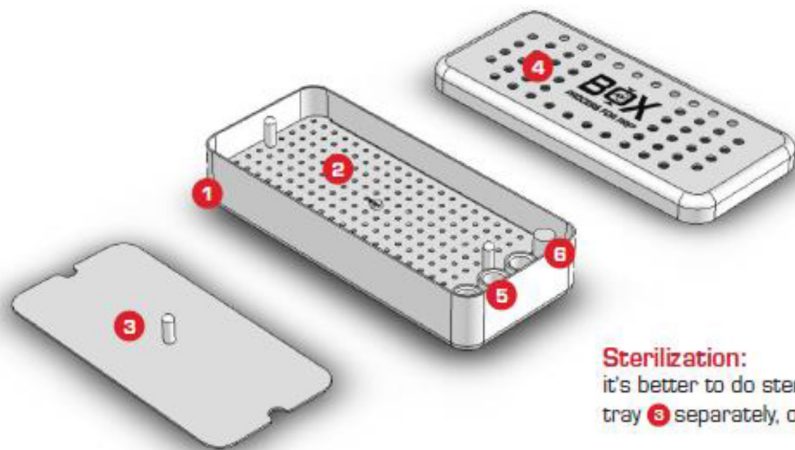


▶ Preparation of membranes in the BoX:

Why the «BoX» ?

- To get membranes of constant thickness and always hydrated
- To remain them intact for 2 or 3 hours (no dehydration)
- To recover the exsudate (in the BoX): rich in proteins: Vitronectin and Fibronectin
- To produce "plugs" of PRF, for socket extraction filling (in the white cylinders, with the piston)

- 1 Box for exsudate recovery
- 2 Grid
- 3 Tray
- 4 Lid
- 5 White Cylinder
- 6 Metal piston



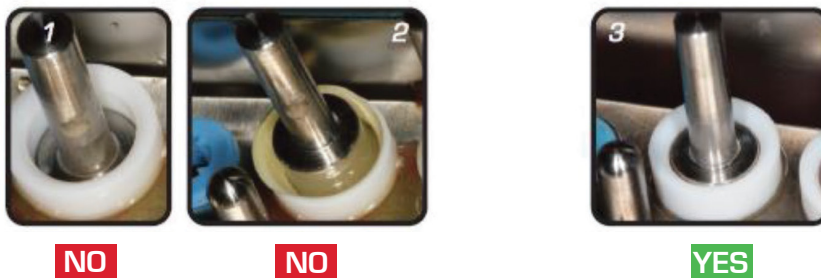
Sterilization:
it's better to do sterilization of the tray 3 separately, outside the box.

With the PRF «BoX» you can:

▶ **Make membranes** : Put the clots after separation on the grid. Cover with the tray and then put the lid. The membranes will be ready for use after 2 min. The membranes remain intact. (without any dehydration and with a constant thickness...)

The exsudate collected in the bottom is very rich in proteins (Fibronectin and Vitronectin).

▶ **Make plugs of PRF:** Place a clot in each cylinder and push it with the metal piston. The piston mustn't be partially or fully depressed (photo 1 and 2). It must be stopped at the edge of the white Teflon cylinder (photo 3). The plugs can be used immediately for socket extractions filling.



▶ Keep the exsudate recovered at the bottom of the box:

- To hydrate Biomaterials
- To flush the surgical sites, sockets and cysts.
- To preserve the autogenous bone blocks (rather than in saline)

Preparation of membranes without the BoX:

1. If you want to use the membranes immediately: cover the PRF clots after removal with a sterile gauze and crush them with your thumb. Let the fibrin rest for 5 minutes. Otherwise it will retract and you will get a smaller size membrane. If you wait for 5 minutes, the size of the membranes will be definitive.

2. If you use biomaterials: PRF membranes (1 or 2 membranes) are cut into small pieces in the bowl and mixed with the granule.

The PRF used as membranes:

- **As a whole membrane :** on the implants after being «punched», on bone graft, under the gingiva, on the palate: covering the harvest area of the connective tissue (membrane will then be sutured), etc...
- **Membrane(s) cut into small pieces:** with the scissors supplied. These fragments will be mixed with biomaterials.
- **In the sinus-lift:** apply one or two PRF membranes folded twice under the Schneiderian membrane with the PRF Pad. Mix 1 to 2 membranes cut into small pieces with the biomaterial.
Use 1 or 2 membranes for a lateral closure of the sinus.
- **If the sinus membrane is punctured,** it can be repaired using 1 or 2 PRF membranes folded twice. PRF immediately sticks to the Schneiderian membrane.
- In the extraction sites, it is preferable to use the cylinders prepared in the PRF BoX. To compress the «PRF plugs» in the socket, use a gauze hydrated and not a metal instrument.




Class IIa medical device.

Tubes without anticoagulant or additives

To become familiar with the technique, we advise you to do the first PRF procedure and blood drawing on the practitioner himself.

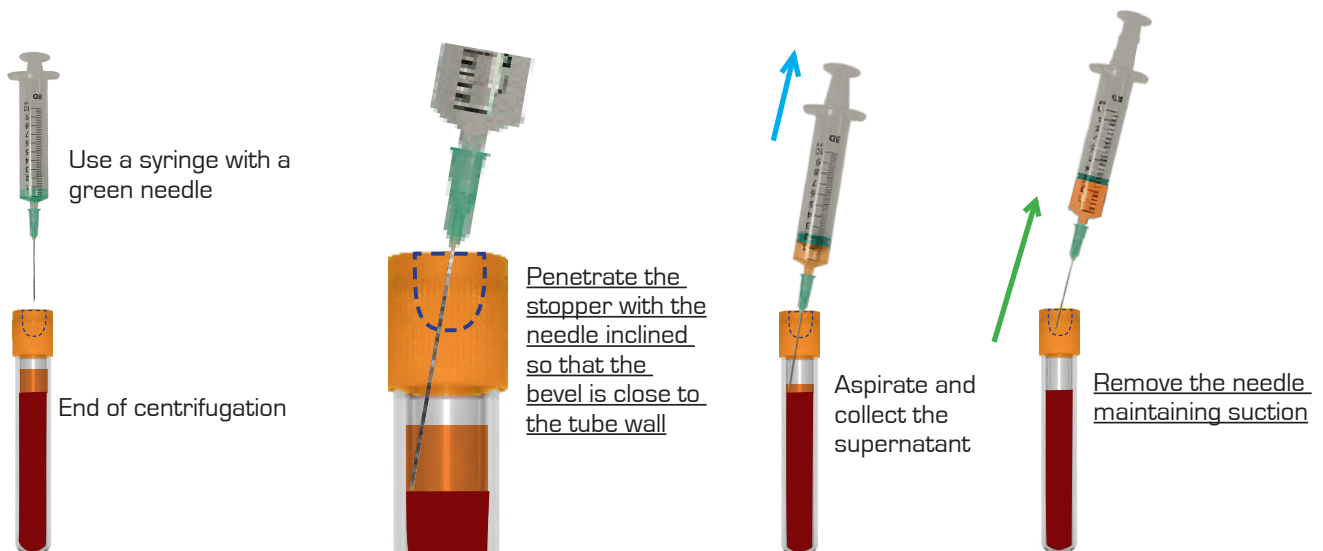
▶ Settings:



Speed area	Lock status	Time area
 7 × 100rpm		 3 min
At the end of the centrifugation, an orange color supernatant is formed on the surface		

1. Use the i-PRF9 tubes (orange).
2. Turn the switch on position 3: i-PRF, the orange LED lights on. The machine is ready for the use of i-PRF. The settings are preset and locked. Details: **7** x 100 rpm / **3** minutes for the i-PRF. To start centrifugation, press **START/STOP** button. *At the end of centrifugation the lid will open automatically*
3. At the end of the spin, an orange supernatant will form on the surface.
4. Penetrate the cap with a 21G needle (green) mounted on a syringe.
5. Place the bevel of the needle in the middle of the i-PRF supernatant, against the wall of the tube (better visibility).
6. Aspirate until the level of the red blood cells raises up to the needle bevel.
7. Remove the needle maintaining suction.
8. i-PRF remains liquid for about 10 -12 minutes, then it will clot. The injection will have to be done before the end of these 10-12 minutes.

▶ Schema :






Applications:

1. The blood for i-PRF must be drawn just before injection. It cannot be prepared in advance.
2. To make the drawing after the A-PRF, watch the video on our website www.a-prf.com called «multiple punctures». This video explains how to collect, simply and several times, with the same butterfly needle, in the meantime of several minutes or hours.
3. The i-PRF can be injected:
 - a. Into the soft tissues
 - b. In the bone graft. Mix the granules with the A-PRF (as usual), and pour the i-PRF drop by drop to avoid an overflow. Wait a few seconds and go on until you obtain the complete coagulation of the biomaterials (in less than a minute). If you inject too fast, the i-PRF will overflow from the bone graft!
 - c. Into the sinus, after the filling . The granules will be fixed and coagulated.
 - d. The i-PRF can be used to coagulate the biomaterials before application. This is the «steak» technique: Use the same technique of dropwise preparation.
 - e. Several videos are available on our website www.a-prf.com

PRP PRF CGF



Turn the switch in the middle on position 2: PRP / PRF / CGF

speed	lock	time
		
X ×100rpm		Y min

Press the **ON/OFF** button: on position **ON** at the back of the machine

2. The lid opens automatically
3. Take off the rubber
4. Close the lid
5. Turn the switch on position 2: PRP/PRF/ CGF, the green LED lights on.

Press the button **SELECT**. When the program flashes, the settings can be changed. Turn the programming button (fig 1.) on the right to increase the value and on the left to decrease it.

For setting the speed and time.

Press the button **SELECT**. The speed in rev / min flashes. Set the speed with the button The minimum value of the speed you can set is 500 rev / min.



(fig 1.)

Press the button **SELECT**. The time value flashes.

Set the time with the button (fig 1.). You can adjust the centrifugation time from 30 seconds to 99 minutes.

Once the settings are completed, press the button **START STOP** to start centrifugation.

To stop the centrifugation before the end of the program, press the button **START STOP**. The hood will open automatically once the rotor has stopped.

The settings remains in memory by default (after pressing **START** button).

Sterilization:

Used method	Description	Explanation / Notes
• Cleaning	Mechanical alkaline cleaning	Instruments with joints or metal
• Disinfection	Thermodisinfection 5 min at 90°C	
• Desiccation	Desiccation up to 120°C / 248°F.	
• Sterilization	Fractional vacuum process, hold time 5 min at 134°C	
• Other		Sliding surfaces should be oiled to prevent friction before each sterilization.