

UW Medicine

Blood Flow Restriction Rehabilitation *At UW Medicine Sports Medicine Center*

This handout explains blood flow restriction rehabilitation. This therapy is offered by physical therapists at UW Medicine Sports Medicine Center

What is blood flow restriction rehabilitation?

Blood flow restriction (BFR) rehabilitation (rehab) is one way to help heal and strengthen muscles and tendons.

How does it work?

BFR rehab uses a special *tourniquet* that looks like a blood pressure cuff. The cuff is placed on the injured arm or leg. The cuff is inflated, reducing blood flow to the limb. Limiting blood flow to the muscle is called *occlusion*.

While wearing the cuff, you will exercise at a low level – about 20 to 30% of your greatest effort. When the working muscle does not receive the blood it needs, your body releases special hormones. These hormones help the muscle heal and grow.

The goal of BFR rehab is to work the injured muscle while you are exercising at a low level. To get the same muscle response that occurs during BFR rehab, you would need to lift a heavy load (more than 70% of your greatest effort).

Who can do BFR rehab?

Talk with your provider before starting BFR rehab. Do not do BFR rehab if you are pregnant or have had varicose veins or blood clots (*deep vein thrombosis*).

What happens during a BFR rehab session?

First, your physical therapist will set the cuff pressure. The amount of pressure depends on the size of your limb, your *soft tissue density* (how much lean muscle tissue you have compared to fatty tissue), your blood pressure, the width of the cuff, and where the cuff will be placed.



UW Medicine Sports Medicine Center is at Husky Stadium.

Once the pressure is set, you will do exercises based on your rehabilitation plan. It will feel like you are doing a heavy workout, but you will be lifting only a light weight.

These symptoms are common during a BFR rehab session:

- Your muscle will start to feel like it is working very hard. Most people say they feel their muscle “burning.” This feeling is caused by the build-up of *lactate* (lactic acid).
- You may also start to sweat and feel your heart beat faster.

Exercise Protocol

To get the most from BFR rehab, you must do the total number of repetitions (reps) and sets your provider prescribed. This is usually 4 sets of 30/15/15/15 reps.

For each rep:

- Contract the muscle for 2 seconds (lifting motion).
- Then move in the opposite direction for 2 seconds (lowering motion).

Your muscle will be contracted for 4 seconds with each rep. After each set, rest for 30 seconds. It takes a little less than 7 minutes to do a full BFR rehab session. This includes the rest periods.

What can I expect after a BFR rehab session?

After your session, many positive effects can occur. These include:

- An increase in growth hormone and other *anabolic* (positive) muscle growth factors
- An increase in *muscle protein synthesis* (your muscles’ ability to grow)

We usually advise eating 20 grams of protein every 4 hours for the first 24 hours after a BFR rehab session, while you are awake. Talk with your provider about how much protein is right for you.

Are there any side effects?

It is very rare to have problems after BFR rehab. Most times, it simply feels like your muscle has had a good workout.

The most common side effects are:

- Swelling in the arm or leg
- A very tired muscle
- Some mild soreness

These symptoms usually go away within 24 hours. If they do not go away, talk with your provider. Be sure also to ask about any other concerns you may have.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

UW Medicine Sports
Medicine Center: Weekdays
from 7 a.m. to 5 p.m., call
206.598.DAWG (3294) and
press 2.