

Blood Flow Restriction Training

What is it?

Blood Flow Restriction, commonly referred to as BFR, involves the application of a specialized tourniquet cuff to the proximal portion of an exercising arm or leg to reduce arterial inflow and restrict venous outflow from the limb. Exercising in this manner allows the use of low intensity exercise to elicit positive adaptations in muscle size, strength, or endurance typically associated with much heavier loads or higher intensities.



How is it performed?

The cuff is placed on the proximal portion of the limb being exercised and the appropriate limb occlusion pressure is applied. An exercise or group of exercises is selected that can safely be performed with light resistance and high repetitions to achieve muscle fatigue that induces metabolic changes in the muscle tissue.

How does it work?

Blood flow restriction training works by the indirect effect of metabolite accumulation and the hypoxic (decreased oxygen) environment from exercising with limited arterial flow. This causes greater fatigue, muscle activation, and also anabolic signaling pathways that lead to muscular adaptations compared to exercise without BFR.



Which patients will benefit most?

- Post surgical
- Immobilization and non-weight bearing
- Osteoarthritis
- Muscle atrophy
- In-season athletes

Are there any risks involved?

Patients that participate in BFR exercise training will typically experience delayed onset muscle soreness for 24-48 hours after treatment. In addition, other reported side effects include temporary numbness and tingling in the extremity, bruising, and pain during exercise due to placement or pressure of occlusion cuff. There is no evidence to suggest that there is an increased risk of blood clotting with the use of BFR in all patients. Contraindications to the treatment include any patient with a history of cardiovascular disease, blood pressure irregularities, thrombosis, diabetes, impaired circulation, and pregnancy.