

BLOOD FLOW RESTRICTION (BFR)



What is BFR?

BFR is a treatment option used after surgery to elicit **positive adaptations in muscle size, strength, and endurance** early on during rehabilitation. This is achieved by **using an extremity tourniquet** to create an environment that stimulates muscle growth. While it may take time before a person can add resistance training to their program, BFR can be introduced early to achieve similar results and give you a head start in your post-operative journey.

The Science - How does it work

BFR works by **decreasing oxygen delivery to the muscle cells** during low-resistance exercise. In order to do this, an extremity tourniquet is employed, which helps to reduce arterial inflow and restrict venous outflow. This process effectively stimulates muscle growth by triggering cell signaling and hormonal changes that initiate the necessary processes for protein production, muscle stem cell activation, and the building of type two muscle fibers. As a result, patients performing exercises with lower loads at 20-50% of their 1 repetition maximum can promote muscle growth similar to that of traditional strength training protocols while reducing pain and adverse joint loading.

Our Services

You will first be scheduled for a physiotherapy assessment where you will learn about BFR, how to set it up, which exercises to perform, and which parameters to use. Going forward, you have the option to continue BFR sessions with the physiotherapist or book them independently. To schedule an individual BFR session on your own, visit the Group23 website and click on the 'Book Appointment' button located in the top right corner of the main page. If you previously had a physiotherapy assessment, you will have the option to book your own 30-minute BFR session, available for booking only on the hour.

Contraindications- When BFR should not be used

Patients at risk for adverse reactions are those with poor circulatory systems, obesity, diabetes, arterial calcification, sickle cell trait, severe hypertension, or renal compromise. Possible contraindications to consider are venous thromboembolism, peripheral vascular compromise, sickle cell anemia, extremity infection, lymphadenectomy, cancer or tumor, or medications known to increase clotting risk.

Risks

There is a 0.04-0.8% risk of nerve injury, skin injury, increased pain, chemical burns, temperature changes, prolonged postoperative swelling, prolonged ischemia, and arterial injury. These complications can arise as a result of prolonged use in one sitting, the use of a narrow cuff, high cuff pressure, and high-pressure gradients under the tourniquet.