

Blood flow restriction therapy suddenly getting a lot of attention

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The application of Blood Flow Restriction (BFR) training is gaining traction among physical therapists for its ability to improve strength gains and aid in rehabilitation and recovery when used with more traditional treatment for a range of orthopaedic conditions. BFR has been found to be helpful in cases with weight bearing restrictions, or when patients with lower back pain need to gain functional strength without lifting more considerable weight. It is not intended for use to treat joint pain.



BFR training uses a tourniquet to briefly and intermittently restrict blood flow to muscles during exercises to stimulate muscle growth (hypertrophy) and strength response with significantly lighter weights than are typically required to obtain these gains.

The concept of BFR during exercises originated in Japan in the late 1960's by Yoshiaki Sato. It was called KAATSU training and resulted in muscle hypertrophy (growth in size) and increased strength. As this form of therapy caught on, exercising with occlusion bands became popular in body building to “hack” the body into gaining bigger and stronger muscles. Early clinical applications also started in geriatric populations to address age-related cardiovascular changes and muscle atrophy (loss in muscle size). Several key studies by Abe et al, found that BFR helped increase skeletal muscle mass and functional ability in a group of 60- to 78-year-olds while walking on a treadmill five days a week for six weeks as compared to a control group.

Before incorporating BFR into your exercise program, always consult with your physician to make sure it is appropriate for your specific diagnosis and condition. The physical therapist also may contact your physician to determine if you are a BFR candidate and the appropriateness of the intervention, as well as discuss the amount of occlusion to use since it is highly individualized and is regulated by a certified physical therapist to ensure safety. Additionally, the physical therapist will perform a review of your pertinent medical history and inquire about any specific considerations pertaining to the diagnosis.

To use BFR training, the physical therapist will place a tourniquet and sleeve on the affected arm (upper biceps) or leg (upper thigh) during exercises. Exercises may be performed on a table with light weights, or with functional tasks (squat, deadlift, shoulder press) for only short durations of time and with rest breaks. Adverse side effects are rare, but your physical therapist will be able to help monitor your response to treatment. The most common side effects after BFR training are residual swelling in the limb, muscle fatigue and mild soreness. These usually resolve in 24 hours, which is a typical side effect of traditional strength training.

Performed improperly by inexperienced individuals, BFR can result in tissue injury and tissue death. Dr. Chudik does not advocate for BFR but understands the importance of providing the information so patients understand the treatment and its risks. Dr. Chudik prefers to avoid inducing muscle and tissue ischemia. Ischemia (lack of appropriate blood flow to skin, muscle and nerve tissue) can cause severe complications and permanent injury to the limb.