

# BLOOD FLOW RESTRICTION (BFR) EXERCISE FOR SARCOPENIA: A CASE SERIES

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## Background and Aims

Sarcopenia, characterized by progressive loss of muscle mass and strength, is a significant health concern in older adults. Blood flow restriction (BFR) exercise has emerged as a promising intervention, enabling muscle adaptation at lower loads, which may be safer and more feasible for frail individuals.

## Methods

We present a case series of three older adults (ages 58–81 years) diagnosed with sarcopenia based on reduced muscle mass and strength. The participants included two females and one male with body mass index (BMI) ranging from 19.5 to 23.9 kg/m<sup>2</sup>. All patients participated in a supervised BFR exercise program, consisting of three sessions per week for four weeks. The BFR pressure was set at 40% of arterial occlusion pressure (AOP), and exercise intensity was maintained at 30% of one-repetition maximum (1RM). Each session included a combination of lower limb resistance exercises performed under BFR conditions.

## Results

All patients completed the intervention without adverse events. Hand grip strength (HGS) showed varying degrees of improvement across cases, ranging from 0.8% to 46.5% (from 14.2 kg to 23.0 kg post-intervention). Thigh muscle thickness increased by 37.9% to 44.7%, with final measurements up to 28.8 mm. In terms of physical performance, short physical performance battery (SPPB) scores improved from 8–9 at baseline to 11 at follow-up, and 6-minute walk test (6MWT) distances increased by 37 to 74 meters. However, no consistent changes were observed in appendicular muscle mass index (AMI).

## Conclusion

This case series suggests that low-load blood flow restriction (BFR) exercise may be a feasible and well-tolerated approach for enhancing muscle strength, muscle mass, and physical function in older adults with sarcopenia. While these observations are encouraging, further research with larger samples is needed to confirm the potential benefits of BFR training in this population.

**Keywords:** Sarcopenia, BFR