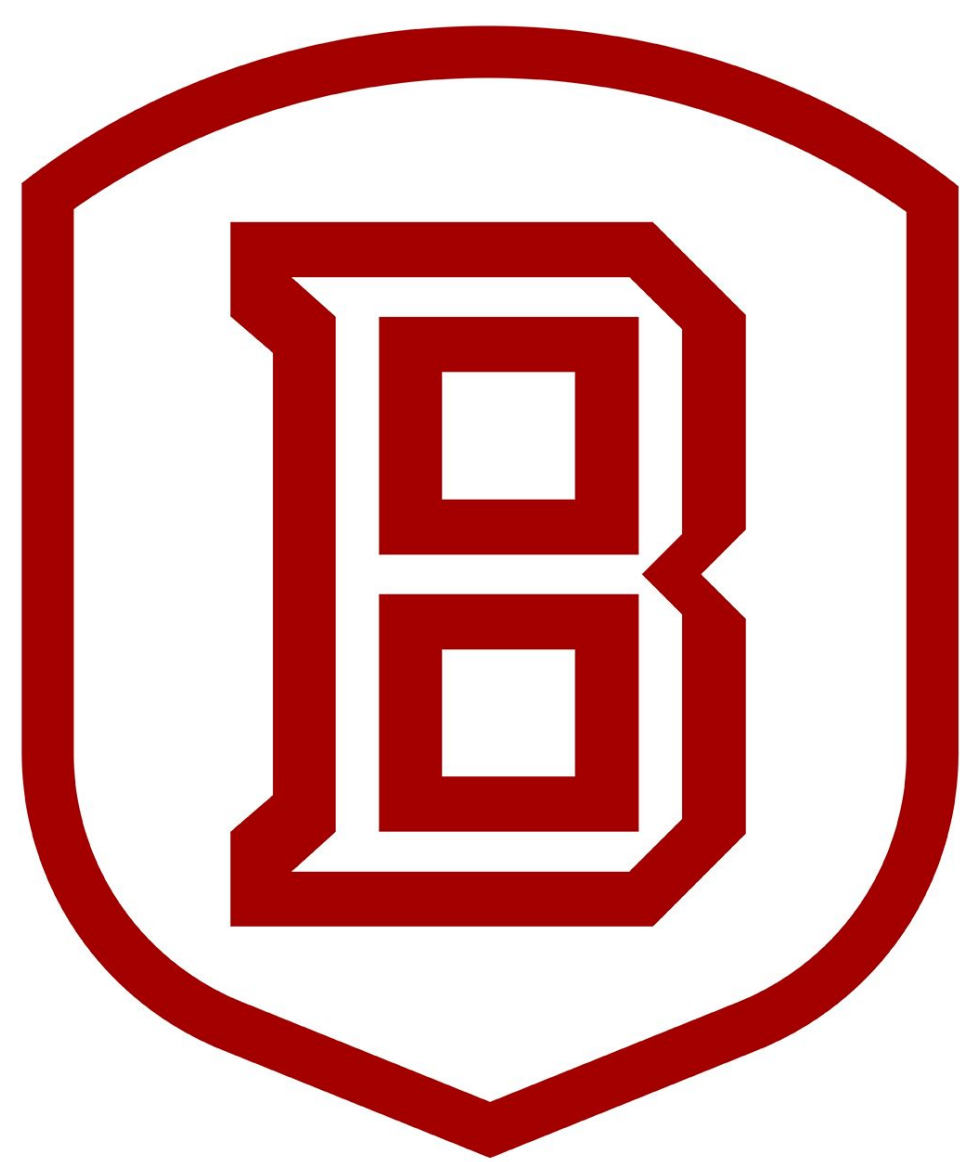
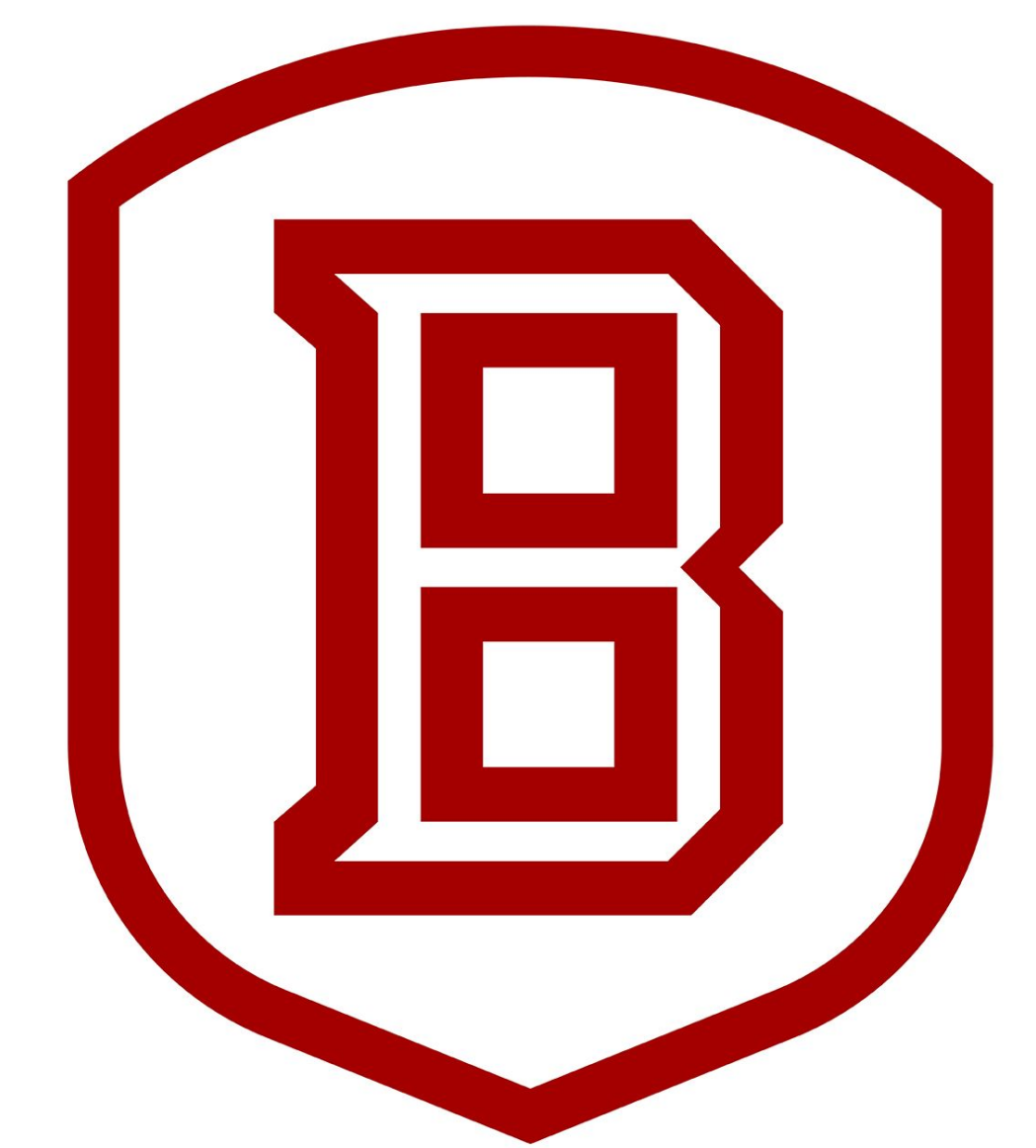




# Blood Flow Restriction Therapy for Functional Improvements in a Patient with Multiple Sclerosis: A Case Study



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## INTRODUCTION

- Blood flow restriction (BFR) therapy is an intervention which entails applying a set amount of pressure to partially occlude blood flow while someone undergoes exercise.
- Cardiovascular training with BFR can increase cardiac adaptation<sup>2</sup>
- The usage of BFR has been implemented across a number of patient demographics, primarily in those with orthopedic impairments.<sup>1</sup>
- Little research has explored the effects of BFR in patients with neurological diagnoses, but preliminary studies have shown beneficial outcomes in strength and function.<sup>3-5</sup>

## CASE SUMMARY

- 53 y/o male, diagnosed with relapsing remitting MS in 1995
- Total of 7 visits over an 8-week period
- Examined gait speed, TUG, 6MWT, and MFIS
- Occlusion pressure set to 80% for LEs
- Established gait speed and rest intervals to patient tolerance: pace of 0.8 MPH with 2 minutes walking and 1 minute of rest for 16 minutes of total walking.
- Investigated whether BFR would improve our participant's tolerance to cardiovascular exercise and endurance.



| Outcome Measure Data |         |           |
|----------------------|---------|-----------|
|                      | Initial | After BFR |
| MFIS                 | 23      | 27        |
| Gait Speed (m/s)     | 1.24    | 1.09      |
| TUG (s)              | 8.11    | 9.48      |
| 6MWT - 2 min. (ft)   | 409     | 421       |
| 6MWT - 4 min. (ft)   | 790     | 832       |
| 6MWT - 6 min. (ft)   | 1155    | 1230      |

## DATA ANALYSIS

- Paired t-tests were run for 6MWT, gait speed, and TUG
- No statistically significant differences were found
- MFIS has a MCID of 4, so the MFIS showed clinically significant change<sup>6</sup>

## DISCUSSION

- Overall improvements in endurance and fatigue were subjectively reported by the participant
- 6MWT and MFIS improved, only MFIS can be said to be clinically significant.
- Progressed treadmill speed from 0.8 MPH to 1.0 MPH
- Exogenous circumstances outside of researcher control affected results on re-evaluation day.
- Pt underwent Ocrevus infusion 2 days prior, and had a cold for reassessment. As a result, pt reported feeling fatigued prior to starting reassessment.
- Despite the increased fatigue, pt performed at, or near, initial evaluation baseline.
- Further research on the cardiovascular and functional benefits of BFR for a MS patient are warranted, given the above findings.



References