

Course Outline and Objectives

Owens Recovery Science: Personalized Blood Flow Restriction Rehabilitation

Brief Abstract:

Traditional low intensity exercises and modalities applied in a rehabilitation setting don't cause enough stress to offset the effects of decreased stress or disuse also known as anabolic resistance. The use of Personalized Blood Flow Restriction (PBFR) can enhance the effects of the low intensity exercises that are commonly used. The applied vascular restriction recreates the anaerobic environment typically created when lifting heavy weight. The research would suggest that 20-40 % of an individual's 1 rep max can mimic some of the effects seen with 70-80 % 1RM. This presentation aims to educate attendees on the physiologic effects of decreased stress to muscle and why it's imperative to have better strategies to combat these effects and the role that PBFR might play. The presentation will also cover safety, parameters for application, and clinical reasoning concepts for optimal use as well as touching on how this might help bridge the gap back to higher intensities of exercise or be used to improve performance. The application of PBFR as an adjunct to traditional therapy can be a safe and effective strategy to enhance the effects of low intensity exercise and improve outcomes across a broad spectrum of populations.

Outline

Personalized Blood Flow Restriction Rehabilitation

08:00 Introduction to ORS and Blood Flow Restriction Training

08:20 History of Blood Flow Restriction and Evolution into Clinical Practice

08:40 BFR Literature and Intro to Methods: Occlusion Pressure

09:10 Lab One: Cuff Selection and Measuring Occlusion Pressure

9:50 5 Minute Break

9:55 BFR Methods: Intro to Passive, Endurance, and Resistance Applications

10:25 Physiology and Intro to BFR Mechanisms – Comparable effects to High Intensity

10:40 Safety: Clotting, Hemodynamics, Muscle Damage

11:15 Lab Two: Lower Extremity Exercise

12:00 Lunch Break (1 hour)

1:00 Skeletal Muscle: Understanding Anabolic Resistance

1:25 BFR and Pain: Research on Analgesia and Potential Mechanisms

1:45 Prehab: Metabolic Stress, Scar, Blood Flow, Muscle Protein Synthesis

2:00 Acute Rehab: Timing and Research to Support Early Interventions

2:30 Lab Three: Upper Extremity Exercises

3:05 5 Minute Break

3:10 BFR Resistance Exercise: Potential Targets and Key Parameters

3:30 Chasing Optimal: Nutritional Considerations

3:40 Effects for the Proximal Muscles: Theories and Research for the Hip and Shoulder

3:55 Beyond Muscle: BFR and the effects on Bone and Tendon

4:10 Applications for Older Populations

4:20 Endurance Exercise Research and Understanding Key Parameters

4:40 BFR for Performance and Recovery

5:00 Clinical Reasoning: Entry Points and Decision Making on Indications

5:15 Wrap Up and Group Exam

5:30 Adjournment

Course Objectives

At the conclusion of the course the participant will be able to:

- Translate the physiology behind mechanical tension compared to metabolic accumulation training and the downstream effects.
- Manipulate blood flow restriction protocols to create a local or systemic response within the soft tissues.
- Differentiate limb occlusion pressures objectively for each individual athlete/patient.
- Translate appropriate tourniquet safety measures to the outpatient/training room setting.
- Recommend and implement a rehabilitation blood flow restriction protocol for patients after injury or surgery.

Program Purpose

Successful mastery of the course objectives will prepare the clinician to understand and utilize blood flow restriction (BFR) training. This is a rigorously researched area (hundreds of published peer reviewed articles) that allows individuals to restore strength and hypertrophy safely after injury with very low loads.

The clinician will learn the physiological principles behind blood flow restriction training to include enhanced muscle protein synthesis, systemic responses and increased gene expression. From this the clinician will be introduced to the use of BFR in clinical settings to improve strength and hypertrophy after surgery or injury, mitigate the atrophy associated with disuse or non-weight bearing and learn the potential role of BFR on bone healing.

To perform this technique the clinician will need to use a specialized surgical tourniquet. The FDA regulates tourniquets and lists them as a Class I medical device. This course will instruct the clinician in proper tourniquet safety including AORN guidelines. This will include the understanding and measurement of limb occlusion pressure, the use of pneumatic tourniquets and proper tourniquet cuffs that minimize potential injury.

This is an advanced level of difficulty course secondary to the need to have a strong science foundation to understand the physiological principles that take place. This is a treatment that is not covered as core coursework for ATCs, PTs and OTs.

Desired Education Level

Candidates for the course must hold an active medical license and have completed the necessary coursework and degrees fulfillment for the occupations listed below.

Target Audience

Athletic Trainers, Physical Therapists, Chiropractors, Medical Doctors, and Occupational Therapists

Expected Outcome

At the conclusion of the course the healthcare provider will be proficient in the science and mechanisms of BFR. Additionally, they will be versed in the application of BFR for clinical applications and the appropriate risks and contraindications. Competency will be demonstrated during lab check offs in proper tourniquet system use, limb occlusion pressure determination and exercise prescription and monitoring. Lastly, proficiency will also be demonstrated on a group, post-course examination.

Course Website: www.owensrecoveryscience.com

CE Credit:

- Owens Recovery Science is a BOC Approved Provider (P8865), this course is listed for 8.5 contact hours (Category A)
- This course has also been submitted to multiple state associations and boards for credit. Hours approved for Physical Therapists and Physical Therapy Assistants may vary by state



Faculty to Attendee Ratio: 1 Faculty: 16 Attendees

Refund Policy: If Owens Recovery Science, Inc is notified in writing or by phone 14 or more working days prior to beginning of course a full refund, less a \$50 processing fee, will be provided.

Course fees are non-refundable within 14 days of a course.

Course registrations can be held for future courses or transferred to a different course without penalty.