
OWENS RECOVERY SCIENCE

# PERSONALIZED BLOOD FLOW RESTRICTION REHABILITATION

## STRENGTH AND HYPERTROHY

According to the American College of Sports Medicine (ACSM), optimizing muscular strength and hypertrophy can be achieved through moderate to high intensities of resistance exercise that utilizes 8-10 upper and lower body exercises. These exercises should target major muscle groups 2-3 days per week at a training intensity of more than 65% of the subject's one-repetition maximum. (Donnely 2009)

» Unfortunately, people recovering from injury or the elderly may not be able to tolerate these loads, which can limit their ability to have an adequate strength and hypertrophy response.

## PBFR REHABILITATION

Personalized Blood Flow Restriction Rehabilitation (PBFR) is a paradigm shifting intervention for the rehabilitation professional with over 160 peer-reviewed articles in the scientific literature. By applying a surgical-grade tourniquet briefly and intermittently to an exercising limb you can induce significant and substantial strength, hypertrophy and endurance changes while using a very light load.

## WHY USE PBFR?

Personalized Blood Flow Restriction Rehabilitation has consistently demonstrated strength and hypertrophy gains vs controls and comparable gains to heavy load lifting.

» Research suggests that low load resistance exercise (20-30% 1 RM) and low load aerobic exercise (<70 m/min walk training), which would not be expected to cause considerable increases in muscular quantity or quality under normal circumstances, when combined with BFR produce an exaggerated response for maximizing muscle strength and hypertrophy. (Slysz 2015)

» Low-load resistance muscular training during moderate restriction of blood flow is an effective exercise for early muscular training after reconstruction of the anterior cruciate ligament. (Ohta 2003)

» In a study by Abe et al., they examined BFR cycling at 40% VO2 Max for 15 minutes compared to a control group that cycled for 45 minutes at 40% VO2 max without BFR. Thigh and quad muscle volumes increased, extension strength increased, and VO2 max increased in the BFR group compared to the control group. (Abe 2010)

*"Johnny Owens teaching Blood Flow Restriction Training to us was invaluable. It is one of the biggest game changers in rehabilitation."*

- **Geoff Kaplan** HOUSTON TEXANS


## HOW DOES PBFR WORK AND WHO IS APPROPRIATE TO TREAT WITH IT?

The exact mechanism behind the positive results seen with PBFR is still being extensively researched. Theories range from a significant build-up of metabolites by anaerobic metabolism, a systemic anabolic response, and cellular swelling. It is most likely a combination of multiple factors. It does appear that muscle protein synthesis plays a significant role after PBFR as this has been consistently demonstrated in the literature.

Clinically we have applied it to many diagnoses with very positive results including but not limited to total joint arthroplasties, Achilles tendon repairs, fractures, rotator cuff repairs, muscle strains, nerve injuries, post-operative cartilage arthroscopies and reconstructions, and tendinopathies.



## ONGOING CLINICAL RESEARCH

- Knee Arthroscopy Trial
- Anterior Cruciate Ligament Reconstruction
- Chronic Thigh Weakness After Surgery
- REPAIR Study (Femur fracture)
- Chronic Achilles Tendinopathy
- Distal Radius Fractures
- Meniscus Tear/ Repair Study
- Regenerative Medicine and PBFR

These trials span across 14 different centers and total more than $6,000,000 in grant funding. All trials utilize the Delfi Personalized Tourniquet System for Blood Flow Restriction.

***"Blood flow restriction training has been a huge complement to the medical and performance care of our athletes. I just wish I knew about it sooner."***

- **Christopher Stackpole** PORTLAND TRAIL BLAZERS

## JOHNNY G. OWENS, MPT

**DIRECTOR, CLINICAL EDUCATION**

Owens is former Chief of Human Performance Optimization at the Center for the Intrepid (CFI), which is part of the SAMMC–Department of Orthopaedics and Rehabilitation (DOR). Johnny was at SAMMC for 10 years, treating service members suffering severe musculoskeletal trauma. His successes included the application of regenerative medicine for volumetric soft tissue loss and Return to Run Clinical Pathway, an internationally recognized rehabilitation program designed to combat delayed amputations and compliment a dynamic exoskeleton, the IDEO. He took part in numerous multi-center research projects involving regenerative medicine, sports medicine and rehabilitation of the combat casualty.

Johnny Owens has been applying Personalized Blood Flow Restriction Rehabilitation clinically since 2012 and credits the modality with significant strength recovery in more than 300 patients. He has trained numerous NFL, NBA, NHL, MLB, NCAA teams, and healthcare systems in PBFR.

Owens has been published extensively in the peer-reviewed literature and his work has been featured on 60 Minutes, Time magazine, NPR, Discovery Channel and ESPN.

## SOCIAL MEDIA

Follow us on social media for all of the latest updates. Learn about the equipment, upcoming courses and events and how you can get certified in Personalized Blood Flow Restriction Rehabilitation.

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twitter.com/owens_recovery

## GET CERTIFIED

Purchase of the FDA device listed surgical-grade tourniquet system specifically for Personalized Blood Flow Restriction Rehabilitation requires course certification.

go to: **OwensRecoveryScience.com**

Owens Recovery Science (BOC AP# P8865) is approved by the Board of Certification, Inc. to provide continuing education for Athletic Trainers. This program is eligible for a maximum 8.5 EBP Category hours/CEUs. ATs should claim only those hours actually spent in the educational program.