



Whole-Body Vibration on the i.Tonic Platform Reduces Delayed-Onset Muscle Soreness



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This research examining perceived pain following intense exercise, demonstrates:

- *WBV as a form of massage and applied during stretching can reduce perceived pain following intense exercise.*
- *WBV exercise may serve as an effective tool to enhance recovery following intense exercise sessions.*

Muscle Soreness

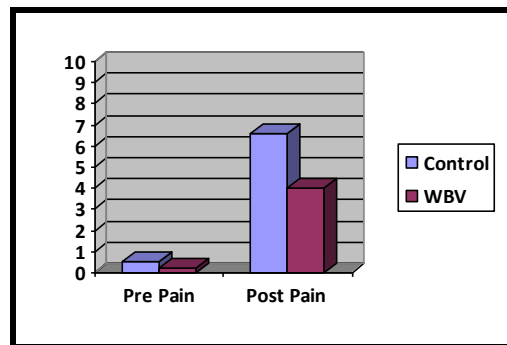
The physiology of muscle soreness following exercise is one that has received significant attention in the research literature. The mechanisms behind soreness are still speculative, especially regarding delayed-onset muscle soreness. Following intense exercise, especially during the initial stages of training, muscle soreness is experienced during and immediately following exercise. This acute soreness often subsides within an hour of training. Delayed-onset muscle soreness is often experienced 24-48 hours (delayed-onset) after the workout. Initially, lactic acid build-up was blamed for delayed-onset muscle soreness; however, research has shown that about 90% of lactic acid is removed from the muscle within 60 minutes of an intense workout. Common theory today suggests that micro-damage to the muscle tissue resulting in inflammation and nerve irritation is the cause of such soreness.

Muscle soreness has been cited by individuals as a deterrent to exercise participation and can be very uncomfortable and painful. Prevention of soreness is extremely important to enhance adherence to a training program. Treatment strategies such as ice, stretching, and electrical stimulation have been employed to prevent soreness with varying degrees of success. Whole-body vibration may serve as an effective tool for decreasing soreness.

Whole-Body Vibration and Delayed-Onset Muscle Soreness

Research conducted under the direction of Dr. Matthew Rhea, Director of the RACE Rx Academy of Exercise Sciences, demonstrates that whole-body vibration exercise can reduce perceived pain several days following an intense workout. Twelve untrained men were subjected to an intense resistance training and repeated-sprints workout designed with slow eccentric muscle actions and high anaerobic energy demands and then randomly assigned to either a WBV or Control group. Perceived pain was measured before the workout and again 48 hours later. Twice a day in the 2 days following the exercise session, each group performed 5 minutes of cardiovascular exercise and 10 minutes of static stretching. The WBV group also performed sets of 60 seconds of massage (50Hz, low amplitude) for the quadriceps, hamstrings, calves, and glutes. Additionally, 3 static stretches for each of those groups was performed while on the iTonic platform for 30 seconds (30 Hz, low amplitude).

There was no difference in perceived pain measures, on a scale of 0-10 (0 being no pain), before the exercise session; however, a significant difference was measured 48 hours post-workout. The WBV group reported an average perceived pain of 4.0 while the Control group reported an average pain of 6.6. This difference represents approximately 35% lower perceived pain when WBV is used during recovery.



Implications for Exercise Prescription

These data suggest that WBV can help stimulate recovery, perhaps due to increase blood flow. Blood flow out of the muscle tissue immediately following a workout can facilitate the removal of by-products of energy production and the entrance of repair agents into the muscle tissue. This should accelerate the repair process and reduce the degree of delayed-onset muscle soreness experienced.

Exercise professionals can include WBV following exercise sessions, and during days following, in order to enhance recovery. This affect can help reduce muscle soreness during the initial stages of training and to stimulate faster recovery following high-intense, exhaustive training sessions.

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