Abstracts

Thursday 1st July, 10.30-11.30

<https://stmarys.zoom.us/j/88118021138?pwd=NFZpWWt4VUVSUHFPc0xNRW9kV1B1UT09>

**Theme 6: Recovery and Training Load (Session Chair: Jamie Tallent)**

**Talk 1: Jess Hill, Charlie Pedlar, John Pattison, Sarah Coakley, Rishi Patel:** Recovery of Performance following Exercise-Induced Muscle Damage Recovery Strategies

**Talk 2: Stephen Patterson:** The effect of acute and repeated ischemic preconditioning on recovery following exercise-induced muscle damage

**Talk 3: Joe Shaw:** Training load in Professional Ballet

Title:  Recovery of Performance following Exercise-Induced Muscle Damage Recovery Strategies

Presenter: Jess Hill, Charlie Pedlar, John Pattison, Sarah Coakley, Rishi Patel

Exercise-induced muscle damage (EIMD) commonly occurs following strenuous exercise.  Achieving an optimal balance between training stress and recovery and the ability to recovery quickly between rounds in a competition is key for athletic success.  Consequently, there is growing interest in strategies that can minimise the experience of EIMD and accelerate recovery.

This abstract showcases a collection of ongoing research works focusing on optimising recovery from strenuous exercise. Our research has the following aims;

To assess the efficacy of new and emerging recovery interventions

To progress the research in established recovery interventions in order to identify ‘best practice’

To assess the impact of long-term use of recovery interventions

Historical: In the last 12 months we have published several pieces of research.  Two papers indicated efficacy for the use of tart cherry supplements in recovery from strenuous exercise and one paper indicated no benefit of compression garments when worn for recovery in elite Judoka (Great Britain Judo team).  A final paper, currently in review, indicates some efficacy for the use of cryotherapy as a recovery strategy.

Current: One current focus is to establish the efficacy of emerging nutritional supplements as potential recovery aids, we are currently preparing a study investigating the efficacy of Spirulina on recovery from muscle damage.  In addition to this we are progressing research on both cold water immersion (CWI) and compression with one study comparing the effectiveness of standing versus seated CWI and another study investigating the effect of compression on the repeated bout effect.

Future: In the future we plan to further this research by 1. investigating the impact of the chronic use of recovery strategies on the adaptive response and 2. by establishing the effectiveness of new and existing strategies, for example, coco flavanols and contrast water therapy.

Title: The effect of acute and repeated ischemic preconditioning on exercise-induced muscle damage

Presenter: Stephen Patterson

Objectives

The aim of this investigation was to determine if acute or repeated applications of ischemic preconditioning (IPC) could enhance the recovery process, following exercise induced muscle damage (EIMD).

Design

Randomized control trial.

Methods

Twenty-three healthy males performed the muscle damaging protocol (five sets of 20 drop jumps from a 0.6 m box) and randomly allocated to one of three groups: SHAM (3 x 5 min at 20 mmHg), Acute IPC (3 x 5 min at 220 mmHg) and Repeated IPC (3 days x 3 x 5 min at 220 mmHg). The indices of muscle damage measured included creatine kinase concentration ([CK]), thigh swelling, delayed onset muscle soreness, counter movement jumps (CMJ) and maximal voluntary isometric contraction (MVIC).

Results

Both acute and repeated IPC improved recovery in MVIC versus SHAM. Repeated IPC led to a faster MVIC recovery at 48 h (101.5%) relative to acute IPC (92.6%) and SHAM (84.4%) ( P <  0.05). Less swelling was found for both acute and repeated IPC vs. SHAM ( P <  0.05) but no group effects were found for CMJ, soreness or [CK] responses ( P >  0.05).

Conclusion

Taken together, repeated IPC can enhance recovery time of MVIC more than an acute application, and both reduce swelling following EIMD, relative to a SHAM condition.

Title: Training Load in Professional Ballet

Presenter: Joe Shaw

Professional ballet dancers undertake rehearsal and performance volumes of over 30 hours per week, exceeding training and performance exposure typically seen in professional sport. Furthermore, whereas sporting athletes taper their training loads in the build-up to a competition, prior to an opening night, a professional ballet company will increase the number of rehearsals and stage calls to perfect the performance. Rehearsal and performance themselves consist of many jumping and landing movements; during performance, dancers jump more frequently than athletes during basketball or volleyball match-play. Consequently, ballet dancers undertake significant lower limb mechanical loads; unsurprisingly, jumping and landing is the most frequent mechanism of injury in this population. This presentation will explore two research threads relating to the management of training loads in professional ballet. Firstly, a five-year cohort study exploring the relationships between dance exposure, individual characteristics, and injury risk in a professional ballet company. Secondly, a series of research studies investigating methods of measuring training load variables in professional ballet.