

The Eccentric of Passive Warm-Up After Eccentric Exercise Induced Muscle Damage

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Abstract

Background: Warm-up before exercise could increase blood flow of whole body, increase muscles and skin temperature and prevent injury within exercise. Passive warm-up can increase temperature of muscles as active warm-up do, but it won't cause the muscle fatigue. To use heat packs or ultrasound is the way for passive warm-up. Purpose: To determine the effects of two different modalities of passive warm-up and exercise without warm-up in exercise performance and recovery on muscle damage. **Methods:** Eight volunteers were participated in this study (age =23.88±5.06 y/o), and all of them were involved into three groups as control group (CON), heat packing group (HP) and ultrasound group (USD). CON never received any warm-up protocol before eccentric exercise, HP received 15 minutes of superficial heat with electrical heat pack before exercise, and USD received 7 minutes of deep heat with ultrasound diathermy before exercise. Each subject processed 30 repeated bouts of eccentric exercise with 80% MVC level. Serum CK, MVC, ROM and CIR were measured before, immediately after exercise and at 2nd, 4th, 7th, and 10th days post-exercise. **Results:** When measuring serum CK and CIR, there were no significant difference between CON, HP and USD ($p>0.05$). When measuring ROM and MVC, there were significant difference between CON, HP and USD ($p<0.05$). **Conclusion:** USD and HP have better muscle strength and performance than CON. According to the recovery procedure, USD took lesser damage in muscles damage than HP and CON. USD had lesser swelling then HP and CON in recovery stage after exercise.

Keywords: Passive warm-up, Muscle damage, Ultrasound

