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Influence of vibration on delayed onset of muscle soreness following eccentric exercise.

ORIGINAL ARTICLE

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Abstract:

Delayed onset muscle soreness (DOMS), which may occur after eccentric exercise, may cause some reduction in ability in sport activities. For this reason, several studies have been designed on preventing and controlling DOMS. As vibration training (VT) may improve muscle performance, we designed this study to investigate the effect of VT on controlling and preventing DOMS after eccentric exercise.

Methods: Fifty healthy non-athletic volunteers were assigned randomly into two experimental, VT (n = 25) and non-VT (n = 25) groups. A vibrator was used to apply 50 Hz vibration on the left and right quadriceps, hamstring and calf muscles for 1 min in the VT group, while no vibration was applied in the non-VT group. Then, both groups walked downhill on a 10[degrees] declined treadmill at a speed of 4 km/hour. The measurements included the isometric maximum voluntary contraction force (IMVC) of left and right quadriceps muscles, pressure pain threshold (PPT) 5, 10 and 15 cm above the patella and mid-line of the calf muscles of both lower limbs before and the day after treadmill walking. After 24 hours, the serum levels of creatine-kinase (CK), and DOMS level by visual analogue scale were measured.

Results: The results showed decreased IMVC force (P = 0.006), reduced PPT (P = 0.0001) and significantly increased mean of DOMS and CK levels in the non-VT group, compared to the VT group (P = 0.001).

Conclusion: A comparison by experimental groups indicates that VT before eccentric exercise may prevent and control DOMS. Further studies should be undertaken to ascertain the stability and effectiveness of VT in athletics.