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The influence of low power laser stimulation on vascular reactivity
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Keywords: Laser biostimulation; Vascular reactivity

Background.– The mechanism of action of laser biosimulation on tissues is unclear. Authors of publications present the positive clinical impact of low and medium power laser radiation on vascular reactivity.

Objective.– Main aim of this study was to analyse the role of vascular endothelium in laser-induced constricted by endothelin-1.

Methods.– Experiments were performed on isolated and perfused rat tail arteries of weighing 250–350 g male Wistar rats. Contractility of arterities as a response to endothelin-1 was measured for normal and endothelium denudated arteries before and after exposure to low power laser stimulation (10, 30 and 110 mW).

Results.– Laser radiation inhibits vascular smooth muscle contraction induced by endothelin-1 proportionally to the laser power. Concentration-response curves were shifted to the right with significant reduction in maximal response. Inhibitory effect was present only for arteries with normal vascular endothelium. Moreover, in the presence of L-NAME (inhibitor of nitric oxide synthesis) and ODQ (inhibitor of soluble guanylyl cyclase) inhibitory effect was not observed.

Discussion.– Our results strongly suggest that during laser biostimulation vascular smooth muscle cells reactivity is reduced, moreover this effect is present only in arteries with normal endothelium.

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Cardiorespiratory responses during aquatic and land treadmill in patients with coronary artery disease

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Keywords: Coronary artery disease; Cardiovascular response; Exercise

Objective.– This study was undertaken to investigate cardiorespiratory responses elicited during exercise stress tests using an aquatic treadmill (ATM) and a land treadmill (TM) in patients with coronary artery disease (CAD).

Methods.– Twenty-one CAD patients (17 males and 4 females; average age, 59.9 years) with stable clinical status were enrolled for this study. All subjects participated in two continuous, symptom-limited incremental exercise stress protocols (ATM and TM). For the ATM protocol, ATM speed was started at 2.0 km/h, and increased incrementally to 0.5 km/h every minute thereafter. For the TM protocol, speed and grade were started at 2.4 km/h and 1.5%, respectively, and speed was increased to 0.3 km/h, and grade was increased 1% every minute thereafter. Oxygen consumption (Vo2), metabolic equivalents (METs), heart rate (HR), and respiratory exchange ratio (RER) were measured continuously with peak values.

Results.– When comparing peak cardiorespiratory responses during ATM and TM protocols, peak Vo2 (29.8 vs 31.1, P = 0.11), peak MET (8.5 vs 8.9, P = 0.11), and peak HR (131.9 vs 136.1, P = 0.25) did not show statistically significant differences. Peak RER was significantly greater in TM than ATM.

Discussion.– This study demonstrated that ATM exercise can elicit similar cardiorespiratory responses compared with LT exercise in patients with CAD.

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Effects of kinesiotaping on venous pain in postmenopausal women with chronic venous insufficiency
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Keywords: Kinesiotaping; Venous insufficiency

Background.– Kinesiotaping (KT) is a bandaging used to increase vascular flow and diminish venous pain. This last was the aim of this study.

Methods.– A blinded randomized trial was performed. A total of 183 postmenopausal women with mild chronic venous insufficiency (CVI) (C1-C3 CEAP) were referred to the laboratory of the University of Granada (Spain) and allocated in three groups: Standardized-KT (Standard KT application to facilitate gastrocnemius muscle contraction and ankle dorsiflexion), mixed-KT (standard application & peripheral compression) and placebo (sham KT application). All taping were applied 3 times/week during one month. Pain was measure by visual analogue scale, McGill pain questionnaire and PainMatcher.

Results.– Student t-test showed pre-post-treatment statistical differences in standardized-KT (VAS, P = 0.01; McGill, P = 0.011; PainMatcher, P = 0.001), mixed-KT (VAS, P = 0.001; McGill, P = 0.001; PainMatcher, P = 0.001) and placebo (VAS, P = 0.016; McGill, P = 0.022; PainMatcher, P = 0.001). ANCOVA analyze showed significant post-treatment differences between groups (VAS, P = 0.001; McGill, P = 0.002; PainMatcher, P = 0.012).