

95.6 ± 80.7 to 137.2 ± 87.5 min between the 1st and 8th week ($P=0.002$) in the IG only, with 53.6% of the sample achieving the targeted amount of moderate-intensity PA. During the 8th week, the EE averaged 543.7 ± 144.1 kcal and 266.7 ± 107.4 kcal in the IG and CG, respectively ($P=0.004$).

Discussion.— Telephone support based on accelerometric recordings appeared to be an effective strategy to improve the adherence to PA in non-compliant patients. This intervention could be implemented after CRP because it represents an inexpensive, modern and easy-to-use strategy.

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CO43-007-e

Physical activity barriers in coronary artery disease: Development and validation of a new scale: BAPAC: Barriers to Physical Activity in Coronary heart disease

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Keywords: Barriers; Coronary artery disease; Physical activity; Assessment; Questionnaire; Therapeutic education

Objective.— To develop a questionnaire measuring perceived barriers regarding the practice of regular physical activity (PA) among coronary patients.

Methods.— Twenty-four coronary heart disease patients benefited from a semi-structured interview aiming at determining the “barriers” to PA. After regroupment and reformulation of the answers by 2 experts, the items importance was re-assessed at 15 days (1–5 Lickert scale). The most relevant items were selected by an algorithm. A principal component analysis (PCA) was carried out and the results were compared with those of the literature, in order to evaluate the content validity. Internal consistency was evaluated by Cronbach alpha coefficient.

Results.— Thirteen subjects performed the 2 quotations, and 12 items were selected. The questionnaire had a good face validity. The PCA highlighted 4 factors explaining 75% of the original variance. These 4 factors and their items appeared comparable with those reported in the literature, confirming a good content validity. Internal consistency was good (Cronbach $\alpha=0.75$).

Discussion.— This work allowed to select 12 relevant items to design the questionnaire. An ongoing prospective study should assess the psychometric properties of the questionnaire (reliability, sensitivity to change, threshold score) to confirm its interest to help design the optimal individual therapeutic education.

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Effects of transcutaneous electrical nerve stimulation on walking claudication distance in patients with peripheral artery disease

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Keywords: Peripheral arterial disease; TENS

Objective.— The aim of this study was to verify the favourable effects of Transcutaneous Electrical NeuroStimulation (TENS) on the improvement of training efficiency and patient comfort in peripheral arterial disease (PAD).

Method.— Fifteen PAD subjects underwent in a random order four exercise sessions consisting of 5 walking bouts until pain on a treadmill, interspersed by



10 min of recovery. These 4 sessions were preceded by a 10 minute TENS session with different modalities: 80 Hz, 10 Hz, SHAM TENS (presence of electrodes without stimulation) or control (no electrodes). Patients had no feedback concerning the walking distance achieved.

Results.— Walking claudication distance for the 5 bouts was significantly different between T10, T80, SHAM and CON ($P<0.0003$): 2944 ± 1323, 2628 ± 1290, 2299 ± 1101 and 1390 ± 335 meters, respectively. No difference was observed between T10 and T80 but T10 was different from SHAM and CON. SHAM, T10 and T80 were all different from CON ($P<0.001$). No difference was observed in heart rate and blood pressure between each condition.

Discussion.— TENS seems to be an innovative tool to improve walking claudication distance in class II PAD patient, with superior efficacy of TENS 10 Hz. This non-pharmacological strategy deserves further investigations in those patients.

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CO43-009-e

Does rehabilitation for lymphedema improve function?

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Keywords: Lymphedema; Rehabilitation; Functional test

Objective.— The effectiveness of rehabilitation to reduce the volume of the limb in lymphedema is now demonstrated. The effect on the function remains to be investigated. This is the aim of this pilot study.

Methods.— Prospective study including 56 patients (age 61.7 years) enrolled in an intensive program (1 to 2 weeks, 5 hours/day) of rehabilitation for lymphedema (37 lower and 19 upper limbs) combining manual lymph drainages, multilayered bandaging, physical exercises and education. The primary outcome measure was the function of the limb evaluated by the number of specific movements realized in 30 seconds. Secondary outcomes were the limb circumferences and the passive motion of the knee or the elbow.

Results.— This study confirms the decrease of the circumferences (2.5 ± 1.6 cm; $P<0.01$), specifies the gain of passive motion ($7.9 \pm 6.9^\circ$; $P<0.01$) and reveals a functional improvement (7.5 ± 7 movements; $P<0.01$).

Discussion.— The intensive rehabilitation of lymphedema seems to improve function. This result has to be confirmed by a randomized clinical trial with ecological assessment of function and assessment of quality of life.

Further reading

Fialka-Moser V, et al. The role of physical and rehabilitation medicine specialist in lymphoedema. *Ann Phys Rehabil Med* 2013;56:396–410.

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Posters

P291-e

Six-minute walk test: An effective and necessary stress test in modern cardiac rehabilitation

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Keywords: Functional capacity; High-intensity aerobic interval training; Moderate intensive continuous training

Background.— The six-minute walk test (6MWT) is a widely used stress test for measuring the effectiveness of cardiac rehabilitation interventions (CR) in heart patients.

Material and methods.— Included individuals in our study ($n=75$) were randomized into two CR groups. The HIAIT group consisted of 37 participants ($n=37$) and the MICT group of 38 ($n=38$). Both CR groups performed the 6MWT in 30 m hospital corridor.

Results.— A statistically significant increase of the covered 6MWD by 506.34 m in the HIAIT group has been observed after 12 weeks of training and was bigger than the result achieved from MICT CR group 480.16 m, $P < 0.001$.

Conclusion.— 6MWT is a powerful prognostic predictor of the effectiveness of CR interventions and one-year survival of patients with chronic heart failure (CHF).

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P292-e

Program for tolerance increase to external weather factors at patients with meteosenstivity and arterial hypertension

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Keywords: Arterial hypertension; Water-soluble antioxidant; Low-frequency magnetic therapy; Physical activities; Meteosenstivity

Background.— Adverse influence is rendered by environment factors, such as climatic and weather-meteorologic. Their sharp fluctuations can change the functional condition of the central and vegetative nervous system, disorders of blood coagulation, cardio haemodynamics, the oxygen balance of an organism at the persons inclined to raise meteosenstivity and to promote occurrence meteopathic reactions.

Methods.— We surveyed 250 men at the age 20–45 years. Complex: bioenergetic resonant therapy, baths with water-soluble antioxidant Mitofen, physical trainings with dosed out in steps accruing physical activities on cyclic and power training simulator, psychological and relax therapy, individual diet.

Results.— There were normalization of variability the arterial pressure (84%), reduction of degree of meteosenstivity (54%).

Discussion.— Thus inclusion of not medicamentous methods possessing the pathogenesis orientation of action and raising tolerance of the organism to external adverse influences of the weather-climatic factors.

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P293-e

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 arteries 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 guanyl 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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P294-e

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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P295-e

Effects of kinesiotaping on venous pain in postmenopausal women with chronic venous insufficiency

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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, $P = .001$; McGill, $P = 0.011$; PainMatcher, $P = 0.001$), mixed-KT (VAS, $P = .001$; 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, $P = .001$; McGill, $P = .002$; PainMatcher, $P = .012$).