CO43-002-e
Whole-body strength training using Huber Motion Lab in coronary heart disease patients: Optimization and safety

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Background.— Exercises performed during cardiovascular rehabilitation program associate global aerobic exercises and resistance training, usually performed as circuit-resistance training.

Objective.— The purpose of this study was to compare the acute cardiopulmonary responses with two different exercises performed on HML in order to identify the most optimal one in coronary heart disease (CHD) patients and to verify the safety.

Methods.— After an assessment of VO2peak on cycle ergometer test, 20 coronary patients participated in two different exercises performed at 40 or 70% of the maximal voluntary contraction (MVC) on HML. Both exercises consisted of 6 exercise blocks (8 contractions of 6 sec alternating with 10 sec of passive recovery) in different postures.

Results.— No adverse event was observed and no muscle suffering was reported within 48 hours of testing. The 40%-protocol resulted in lower mean ventilation compared to spent time near 30% of VO2peak. The percentages of carbohydrates and lipids exertion measured by the Borg scale (11.2 vs 11.5). Both protocols allow patients for a difference in metabolic demand. No difference was observed in perceived recovery) in different postures.

Discussion.— Exercises on HML appear safe and feasible in CHD patients. If the total energy expenditure remains relatively low on both exercise intensity tested, it remains to compare it with a standard strength training session.

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CO43-003-e
Association between vitamin D deficiency and impaired physical fitness in cardiac rehabilitation
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Keywords: Vitamin D; Cardiovascular rehabilitation

Background.— Recent studies showed that vitamin D deficiency is related to a higher prevalence of cardiovascular diseases. The impact of such a deficiency on physical fitness improvement in cardiac patients remains unknown.

Objective.— To study in heart diseases, the link between the concentration of 25-hydroxyvitamin D and physical performance and gain in physical performance after exercise training in cardiovascular rehabilitation (CVR) according the vitamin D deficiency.

Methods.— A dosage of 25-OH-vitamin D was made from a cohort of 131 patients admitted to CVR. Parameters of physical fitness (6 minute walking test (6MWD), maximal power (Pmax)) were collected. The threshold chosen for vitamin D deficiency was 20 ng/ml according to the literature.

Results.— Compared to non-deficient, subjects deficient in vitamin D had a lower initial 6MWD and Pmax (6MWD = 81 ± 17 vs 89 ± 11% of predicted value, P < 0.05; Pmax = 103 ± 45 vs 121 ± 38 W, P < 0.05). After CVR, this difference was maintained. The improvement in 6MWD and Pmax was lower in case of deficiency.

Discussion.— There was an association between the presence of vitamin D deficiency and (1) impaired physical fitness at the entry into CV and (2) a smaller gain in physical fitness in this cohort. This is probably related to the action of vitamin D on the muscle.

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CO43-004-e
Therapeutic Education of the Patient (TEP) in cardiovascular diseases: Role and impact of adapted physical activities
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Objective.— To assess the role played by interventions of Adapted Physical Activities (APA) in TPE after acute coronary insufficiency and chronic heart failure.

Methods.— The out-patients were included in a rehabilitation program for 4 weeks including TPE. In the multidisciplinary team, the APA teacher is involved in the individual educational diagnosis regarding physical fitness, and proposes physical activities adapted to the patient capacities.

Results.— From May 2011 to April 2012, 243 out-patients were included and 225 achieved the program (mean age: 54.64 ± 7.8 years). The mean value of improvement at D90 with analogic visual scale (AVS 0 to 10 cm) were: 1- self-care of the disease = 4.3 ± 1.2; 2- ability to manage risk factors = 4.15 ± 1.1, 3- quality of life = 3.9 ± 2.1; 4- social life = 3.9 ± 1.3; 5- activities of daily living = 4.1 ± 1.8; 6- regular physical activity = 3.9 ± 2.6.

Discussion.— APA teacher takes a large part in TPE program and helps in the first step towards a regular physical activity in cardiovascular diseases. But the long-term effect of TEP on the continuation of a physical activity in daily life is still questionable today.

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CO43-006-e
Telephone support oriented by accelerometer measurements enhances adherence to physical activity recommendations in non-compliant patients after a cardiac rehabilitation program
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Keywords: Accelerometer; Cardiac rehabilitation; Compliance

Background.— We recently showed that half of the patients returned to sedentarity 12 months after a cardiac rehabilitation program.

Objective.— To assess the efficacy of a strategy based on telephone support oriented by accelerometer measurements, on the adherence to PA in cardiac patients.

Methods.— Twenty-nine non-compliant cardiac patients (weekly moderate-intensity PA).