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# BOOK OF ABSTRACTS

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Conclusions: Significant association was found between ERS and migraine in female athletes. Whether the common denominator is in a similar gene mutation should be further investigated.

## FUNCTIONAL STATUS IMPROVES WITH ANGIOTENSIN CONVERTING ENZYMES INHIBITORS PLUS EXERCISE IN HYPERTENSIVE OLDER ADULTS

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Introduction
Pharmacological interventions with angiotensin converting enzyme inhibitors (ACEi) have been associated with clinical benefits on physical function in hypertensive adults. However, it has been suggested that the benefits may only occur when ACEis are combined with exercise training (EX), but this issue remains controversy. Therefore, the aim of the present study is to analyze the effect of three types of treatment on functional status, and health related quality of life in hypertensive older adults with comorbidities.
Methods
These 2-year un-randomized longitudinal cohort study included 418 hypertensive older adults (> 60 years) that underwent one of the following 3 conditions: i) multicomponent exercise training 3 times/week (EX; n = 116); ii) angiotensin converting enzyme inhibitors used mono-dose daily (ACEi; n = 70); iii) combined exercise and ACEi medication (ACEi+EX; n = 232). Baseline and follow-up evaluations included the Senior Fitness Test battery (Rickli & Jones, 1999), Short Form Health Survey 36 (SF-36)(Ferreira, 1998) and the health history questionnaires.
Results
The EX and ACEi+EX improved all physical functional status outcomes (P<0.001) and augmented the physical functioning, role physical and physical component score (PCS) (P<0.05), but also bodily pain (P<0.05). The ACEi group diminished the upper body strength, upper and lower body flexibility and aerobic endurance (P<0.05); and decreased general health and PCS (P<0.05).
Discussion
This study demonstrated that chronic use of exercise training combined with ACEi medication produce significant improvements in the functional status, particularly in upper and lower body strength, and in aerobic endurance in independently hypertensive older adults with comorbidities. Additionally, long-term ACEi mono-dose isolated therapy does not prevent functional status decline and, reversely, may even augment physical disability through decreases in upper body strength, in upper and lower flexibility, and in aerobic endurance capacity. Hypertensive older adults with independently functional status using ACEi medications may benefit from adopting an exercise training regimen, promoting physical functioning and ultimately HRQoL.
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## EFFECTS OF 6-MONTH RESISTANCE TRAINING ON PHYSICAL FITNESS IN PANCREATIC CANCER PATIENTS

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Introduction
It is well known that regular exercise improves physical fitness in patients with various cancer entities. However, such studies in pancreatic cancer patients are lacking. Therefore, we assessed the feasibility and effect of 6-month resistance training on muscle strength and cardiorespiratory fitness in pancreatic cancer patients within a randomized controlled intervention trial.
Methods
In total, 65 pancreatic cancer patients were enrolled and randomized into three groups (supervised progressive resistance training EX1, home-based resistance training EX2, usual care control group CG). Both exercise groups performed resistance training two times per week for about one hour over 6 months. Maximal voluntary isometric contraction (MVIC) and maximal isokinetic peak torque (MIPT; 60°/s) for extension and flexion of knees, elbows, and hip as well as cardiorespiratory fitness were assessed before, during and after the intervention. Differences among the groups were analyzed based on linear mixed-models adjusting for baseline value.
Results
Out of the 65 patients 47 patients completed the intervention period. Patients attend in 59% of the prescribed training sessions while those who completed the intervention, attendance rate were 59% (EX1) and 78% (EX2). Completer showed significant improvements in MIPT for arm flexion (EX1: +6.3Nm, 95%CI [2.7, 9.8], KG: +0.6Nm, 95%CI [-2.3, 3.4]; ß 5.5; p-value group differences p= 0.01) and extension (EX1: +7.0Nm, 95%CI [3.1, 10.9], KG: +0.7 Nm, 95%CI [-2.4, 3.8]; ß 6.5; p= 0.01) for EX1 compared to CG as well as compared to EX2 (arm flexion: +1.8Nm, 95%CI [-0.7, 4.3]; ß 4.3; p= 0.04, arm extension: +1.7Nm, 95%CI [-1.1, 4.4]; ß 5.5; p= 0.02). For MVIC of knee extension significant improvements could be observed for EX1 (EX1: +13.5Nm, 95%CI [-4.5, 31.6], KG: -17.9Nm, 95%CI [-32.8, -3.1]; ß 34.5; p= 0.0048) and EX2 (+2.4Nm, 95%CI [-10.2, 15.0]; ß 20.7; p= 0.04) compared to CG. For cardiorespiratory fitness there were significant improvements in maximal work load (W) for EX1 compared to CG (EX1: 19.1Nm, 95%CI [8.8, 29.3]; ß 15.6; p= 0.02).
Discussion
We demonstrated that resistance training in pancreatic cancer patients was feasible. Muscle strength was improved through regular resistance training and supervised training seemed to be more effective than home-based resistance training.
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## EXERCISE PRESCRIPTION TO IMPROVE CLINICAL PRACTICE ON CANCER PATIENTS SUFFERING CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY UNDERGOING TREATMENT: A SYSTEMATIC REVIEW.

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Introduction

This document aims to summarize and analyze systematically the current body of evidence about the effects of specific exercise protocols on physical function, balance control and quality of life in patients with peripheral neuropathy (PNP) induced by chemotherapy.
Methods
Systematic Review
Literature survey
Specific terms were identified for the literature research in MEDLINE, Scopus, Bandolier, PEDro, and Web of Science. Only studies published in peer-reviewed journals written in English language were considered. Four manuscripts were classified as eligible with 88 total participants, with an average of 57.1 years old. Quality appraisal classified two studies as high quality investigations while two with low quality. Results were summarized in the following domains: "CIPN symptoms", "Static balance control", "Dynamic balance control", "Quality of life and Physical function".
Results
Specific exercise protocols were able to counteract common symptoms of chemotherapy-induced peripheral neuropathy (CIPN) during chemotherapy treatments. Significant improvements were detected on postural control. Additionally, patients' quality of life and independence were found ameliorated after exercise sessions, together with reductions on altered sensations and in other peripheral neuropathy symptoms. Combined exercise protocols including endurance, strength and sensorimotor training showed larger improvements.
Conclusions
Exercise prescriptions for cancer patients undergoing chemotherapy with CIPN symptoms should be recommended since these exercise interventions appeared as feasible and have been demonstrated as useful tools to counteract some common side effects of chemotherapeutic agents.

## REGULAR PHYSICAL ACTIVITY IN CHRONIC HEMODIALYSIS PATIENTS: EFFECTS ON DIURNAL PATTERN OF STEROID HORMONES.

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Introduction
Chronic renal diseases need dialysis treatment which has many side effects on patients. We notice a decrease in quality of life (Finkelstein et al., 2009), hormone release disorders (Raff et al., 2012), appetite and sleep disturbances (Mitch, 2002; Murtagh et al., 2007), and an inflammation marker increase (CRP: C-reactive protein) (Barany et al., 2012).
Health benefits of physical activity in hemodialysis patients are well-documented (Labadens et al., 2014). But, to our knowledge, little data are available on the effect of physical activity on hormonal circadian rhythm.
Methods
Fifteen hemodialysis patients were distributed into two groups: TP group that engaged in an intradialytic resistance band exercise training program (Bullani et al., 2011) three times a week during 3 months (N: 8, age: 56.5 ± 17.24 years, weight: 89.26 ± 11.10 kg) and NTP group that not engaged in training program (N: 6, age: 57 ± 12.88 years, weight: 69.17 ± 9.35 years). Blood and salivary samples were collected at the beginning and at the end of the study. Three-day food diaries, appetite and sleep disturbances questionnaires are also used. Salivary samples were collected six times a day to observe cortisol and DHEA (dehydroepi-androsterone) circadian variations.
Results
The main expected result is an improve circadian rhythm of hormonal release. The unusually high level of cortisol during the night (Raff et al. 2012) may decrease. The regular physical activity could also contribute to the maintenance of the DHEA level, which decreases faster in hemodialysis patients than in healthy people (Kakiyo et al., 2012). Moreover, we expected a decrease in inflammation marker and in sleep disorders in TP group patients.
Discussion
The improvement of cortisol and DHEA diurnal pattern, in response to physical activity, will preserve patient autonomy and enhance quality of life by reducing sedentary lifestyle.
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## BALANCE IMPAIRMENT IN KIDNEY TRANSPLANT RECIPIENTS WITHOUT CONCURRENT PERIPHERAL NEUROPATHY.

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Introduction
Kidney transplant recipients (KTRs) present with an overall compromised functional capacity, low levels of physical activity, muscle atrophy, and peripheral nerve dysfunction that may result in high postural instability (McAdams-DeMarco et al., 2015). Therefore, this study aimed to compare the static balance control of KTRs with healthy adults (HA).
Methods