PhD Course in Physical Activity and Health (2007-2010)

Approved Projects

1- ALBERTO JORGE CARVALHO ALVES

Supervisor: *José Oliveira*

Title: Efeito do genotipo e exercicio regular na função e estrutura cardíacas de pacientes com insuficiencia crónica

Goals: The study sought to examine the effect of exercise training on the left ventricular function and structure of patients with HF and the effect of exercise intensity on the cardiac adaptive response. Furthermore, the proposed study aims to analyse the variability on cardiac adaptive response to exercise training and the effect of genotype on this variable response. As secondary albeit relevant end-points, this study aims to investigate (i) the association between genotype, indices of cardiac function and prognosis of patients with HF and (2) the effect of changes in left ventricular function and structure induced by exercise training on clinical outcomes of patients with chronic HF.

Grant: FCT/SFRH/BD/33122/2007

2- ANA ISABEL VALENTE MARQUES

Supervisor: *Joana Carvalho*

Title: Projects to enhance quality of life for older people: appliance of quality management models

Goals: The general goal of this work is to characterise and analyse the management models of the projects developed by the Local Public Administration to enhance quality of life for older people, according to the principals and

concepts of the Excellence Model of the European Foundation for Quality Management (EFQM). The idea is to, later on, improve and adapt this model for the specifically management purpose of the programmes for Physical Activity promotion for older people.

Grant: FCT/SFRH/BD/36796/2007

3- CARLA MARISA MAIA MOREIRA

Supervisor: *Jorge Mota*

Title: Metabolic Syndrome, Physical Activity and Food Frequency in Portuguese adolescents and young adults.

Grant: SFRH/BD/44422/2008

4- CARLOS MANUEL FERNANDES SALGADO

Supervisor: *Joana Carvalho*

Title: Relationship between habitual physical activity, isokinetic strength of lumbar extensor *vs* abdominal muscles and disability in individuals with nonspecific low back pain.

Goals: Low back pain (LBP) is one of the main causes of disability, and, despite its high prevalence, the source of pain is not established in most of the cases and the term "nonspecific low back pain" (NSLBP) is commonly used. Factors that have been proposed as important in the genesis and persistence of NSLBP are stability and control of the spine. Studies of individuals with LBP have identified impairments in the control of the deep trunk muscles responsible for maintaining the stability of the spine. Furthermore, there is evidence of decreased muscle strength and increased fatigability in the paraspinal and abdominal muscles of individuals with LBP. Moreover, the decline in daily physical activity levels has also been indicated as a potential risk factor associated with NSLBP. Thus, it seems important to identify the impact of habitual physical activity (HPA) and muscle strength in disability of patients with NSLBP. Within this context, the aim of this study is to investigate the relationships between HPA, trunk muscles isokinetic strength, lumbar extensors and abdominals, Health-Related Quality-of-Life (HRQOL), pain and disability in patients with NSLBP.

5- CHEN YAMIN

Supervisor: José Alberto Duarte; Michael Sagiv (Zinman College); José Oliveira

Title: Exertional rhabdomyolysis: the relatiuonship to effort type and genetic polymorphisms

Goals: Exertional rhabdomyolysis is a metabolic disorder resulting from imbalance between muscle energy requirements and adenosine triphosphate (ATP) production. Therefore, candidate genes participating in energy transduction and inflammatory pathways may have a major role in the aetiology and pathophysiology of rhabdomyolysis.The aim of this project is to investigate the involvement of several genes in these pathways using the following strategies: (1) Systematic candidate gene analysis by mutation screening of individuals with exertional rhabdomyolysis; (2) Gene-expression analysis to investigate up and down-regulation of candidate genes in exertional rhabdomyolysis; (3) Genotype-phenotype correlations in exertional rhabdomyolysis (with relation to clinical manifestations and effort type).

6- DANIEL MOREIRA GONÇALVES

Supervisor: *José Alberto Duarte*

Title: Mechanisms underlying cardioprotection induced by exercise: signaling pathways and hemodynamic adaptations.

Goals: The main goals are: i) understand if exercise training protects the heart against acute pressure overload induced by partial occlusion of thoracic descending aorta, ii) investigate the specificity of the protection of exercise training against acute pressure overload, iii) study the time course of gene expression of cardiac muscle as a consequence of different acute stimuli and, iv) establish the connection between this acute response and the chronic adaptations of cardiac muscle.

Grant: SFRH/BD/33123/2007

7- ELISA AMÉLIA ALVES FERNANDES MARQUES

Supervisor: *Joana Carvalho and Jorge Mota*

Title: Effects of Exercise in the Prevention of Osteoporosis and Falls - Study in Premenopausal and Postmenopausal Women

Goals: The purpose of our study is to investigate the effect of two exercise interventions (resistance training and aerobic training) on the bone mineral density (BMD) and in the prevention of falls and fall-related fractures. We intend to understand the relationship between the practice of different and specific

training protocols and modifications on the parameters of physical functioning, BMD and body composition. Additionally, we will investigate the association between behavioural factors and the incidence of osteoporosis.

Therefore, collected findings may help to clarify the role of exercise in osteoporosis and falls prevention and, particularly, the distinctive characteristics of the appropriate exercise for stimulating new bone formation and preventing falls. Additionally, the existence of information regarding the contribution of different risk factors associated with reduced bone strength and falls may constitute an effort to the assertive conception of preventive strategies to both immediate risk factors (falling and osteoporosis).Improving rates of prescribing and compliance in clinical practice, by addressing these modifiable factors, would thus be expected to reduce the risk of osteoporotic fractures.

Grant: SFRH/BD/36319/2007

8- FLÁVIA A.C. WANDERLEY

Supervisor: *Joana Carvalho*

Title: Cardiovascular Risk Factors, Functional Fitness and Health-Related Quality of Life in Older Adults: Effects of Different Exercise Protocols.

Goals: 1) to investigate the possible relationships between CVD risk factors, functional fitness and Health-Related Quality-of-Life (HRQOL) on physically independent older adults;2) to observe the effects of two different exercise protocols on modifiable CVD risk factors, functional fitness an HRQOL.

Grant: FCT/ SFRH/BD/33124/2007

9- GUSTAVO MARÇAL GONÇALVES DA SILVA

Supervisor: *José Carlos Ribeiro and José Oliveira*

Title: Physical Fitness, Physical Activity and Aggregation of Cardiovascular Risk Factors in Children and Adolescents. A study focusing on Cardiorespiratory fitness in Physical Activity and the Effects of an intervention program.

Goals: The purposes of this study are: (1) to verify the clustering of cardiovascular risk factors and its associations with physical fitness and physical activity; (2) to suggest a new approach to the evaluation of cardiorespiratory fitness in children and adolescents; and (3) to verify the effects of interventions related to physical fitness and physical activity promotion as health prevention strategies in children and adolescents of Porto District (Portugal).

Grant: FCT: SFRH/BD/45090/2008

10- HÉLDER RUI MARTINS FONSECA

***Supervisor**: José Alberto Duarte*

Title: Role of physical activity in the prevention and rehabilitation of bone tissue induced alterations by aging and disuse."

Goals: The aim of this study is to establish the bone tissue induced alterations by the normal biological aging phenomenon and by the acute lack of mechanical stimulation, as also to identify the possible role of regular physical activity in decreasing the consequences of those circumstances. In order to do so, two experimental periods were considered: i) in a first stage of the experimental design, the influence of aging in several parameters of bone quality will be assed (structural, material, functional and biochemical) as also the association of regular physical activity throughout life in the expression of those parameters; ii) in a second stage, our intention is to study the particular case of acute disuse and its influence in the quality of bone tissue, as also to identify the role of exercise in the rehabilitation of those acute changes in bone quality.

Grant: FCT: SFHR/BD/38110/2007.

11- HUGO FERNANDO DE JESUS OLIVEIRA VALENTE

***Supervisor:** Pedro Moreira**,** Carla Lopes, Jorge Mota*

Title: Food Intake, nutritional adequacy, sedentary behaviors and overweight among Portuguese schoolchildren

12-KURUSART KOHARN

***Supervisor:** José Carlos Ribeiro*

Title: Physical activity patterns and health-related physical fitness in overweight and obese children in Thailand, using accelerometers

Goals: To determine the physical activity patterns and eating behavior in Thai overweight and obese children in Thailand.

13- LUÍSA MARIA DA CRUZ SOARES MIRANDA

***Supervisor:** Jorge Mota*

Title: Cardiovascular risk factors and cardiac autonomic function among University Students.

Goals: The aim of this project is to study and characterize the relationship between cardiovascular risk factors, cardiac autonomic function and lifestyle among students in Porto University.

Grant: SFRH/BD/38502/2007

14- MORAN SAGIV SCHIAMAMA

Supervisor: José Oliveira; Yoav Meckel (Zinman Colllege, Wingate Institute); José Alberto Duarte

Title: Effect of different exercise bouts on the oxygen delivery-extraction in health and disease during the life cycle.

Goals: a) to compare the effect of aging on the interplay between cardiac output and O_2 extraction, in trained and untrained elderly at peak oxygen uptake.; b) to observe the effect of gender on left ventricular function and exercise oxygen utilization in healthy, well-trained men and women during the 30-s all-out Wingate anaerobic test; c) to observe the effect of pathological status on the interplay between cardiac output and O_2 extraction, in CAD and HTR patients at peak oxygen uptake; d) to compare the effect of adolescence on the interplay between cardiac output and oxygen extraction, in adolescents at VO_2max.; e) to observe the effect of pathological status on the interplay between cardiac output and O_2 extraction, in Coronary artery Disease and Heart Transplantation Recipients patients at peak oxygen uptake; d) to compare the effect of the above mentioned populations on the interplay between cardiac output and O_2 extraction, in health and disease at peak oxygen uptake and anaerobic.

15- NIR EYNON

Supervisor: José Oliveira; Michael Sagiv (Zinman College); José Alberto Duarte

Title:The genetic basis of human elite athletic performance

Goals: Based on the major role of the cardiorespiratory and skeletal muscle function in the development of sustained high-level performance in a variety of sport disciplines, it is hypothesized that several potential candidate genes may influence the elite athletic status. Therefore, in the current project it is aimed to investigate candidate performance-related genetic traits using the following approaches: (1) Systematic candidate gene analysis by mutational screening of elite athletes, to identify gene polymorphisms related to elite performance; (2) Gene-expression analysis to identify up-regulation and/or down-regulation of potential candidate genes in elite athletes (3) Genotype-phenotype correlation analysis in elite athletes from different sport disciplines.

16- PAULA CLARA RIBEIRO SANTOS

***Supervisor**: Jorge Mota*

Title: Level of physical activity during pregnancy and it influence on physical and psychological status of women, as well as in the morpho-functional parameters of the child in the first year of life

Goals: To determine levels of physical activity before and during pregnancy and it influence on the physical and psychological status of women, as well as in the morpho-functional parameters of the child in the first year of life.

Grant: SFRH/BD/45375/2008