Intensive Programme on
Sport Performance: A Lifespan Challenge
2011-1-IT2-ERA10-27118

February 6-19, 2012

Rome, Italy

ABSTRACTS OF STUDENTS
Relationship between body image and physical activity in adolescents of two populations of Spain and Portugal

Arravás Grajera M.J.
University of Huelva, Spain

Today, the preoccupation society is growing to acquire a body image according to the aesthetic fashion purchasing physical activity an important role (Galvez, 2004). There are numerous studies linking physical activity with body image (Camacho, et al., 2006, Gonzalez-Montero et al., 2010; Urrutia et al., 2010, among others). With this work we propose to obtain information about physical activity, assess and describe the perception of body image of adolescents, to check the relationship between body image perception and physical activity in response to differences in gender and age, and test the relationships between the towns of Huelva (Spain) and Ghia (Portugal). This is a descriptive, evaluative and correlation study with four variables: perceived body image, physical activity, gender and age. The hypotheses that we consider are that the practice of physical activity is preponderant among men, boys presented better perception of their body image than girls, the perception of body image in both boys and girls, will relate positively with physical activity and body image perception and practice of physical activity will be similar in both populations (Ghia and Huelva). The population used was composed for 154 students in required secondary education (Huelva, Spain) and required primary education (Ghia, Portugal), whose aged was between 12 and 14 years, from four public schools in Huelva (Spain) and two public schools in Guide (Portugal). To measure the perception of body image, the method of estimating total body image (Thompson et al. 1998), the Eating Disorders Inventory (Garner, et al. 1983) and the Body Image Avoidance Questionnaire (Rosen et al. 1990). To measure physical activity we use the Yesterday Activity Checklist (Sallis et al. 1997).

References:


e-mail: manu_a_g@hotmail.com
The Physical active lifestyle of Flemish Secondary School teachers
Bogaert I.
Vrije University of Brussels, Belgium

Introduction
The promotion of a Physical Active LifeStyle (PALS) among the population is considered to be part of the primary prevention program of welfare diseases. The school is not only an ideal setting for the promotion of a PALS among children, it is also a working environment for the teachers. Knowing that teachers are vulnerable for psychological and musculoskeletal problems in their job and are also a great influence as a role model on children’s and adolescents behavior, they are an important target group for intervention. However not many research concerning this topic could be found in recent literature up till now. In a first phase the physical activity levels and the mental well-being of Flemish secondary school teachers will be measured by a survey and focus groups and the ergonomics of teaching will be studied by video analysis. Outgoing from the literature and the obtained data a multi-component worksite intervention will be developed and evaluated. Outcome measures of this PHD project will concern: teacher’s physical activity, teacher’s mental well-being, teacher’s physical well-being or ergonomics, teacher’s attitudes and behavioral changes towards a PALS, effects of a worksite physical activity intervention, cost effectiveness of the intervention and the influence of the teacher as a role model for the pupils.

e-mail: ibogaert@vub.ac.be

Junior players’ ball control. Analysis and study in a real situation
Castilla Arroyo J.B.
University of Huelva, Spain

In modern football, the importance of ball control is unquestionable and even more so when it allows you to achieve crucial sporting objectives. Skilful ball control and good positioning can be essential to obtaining your proposed aims, such as going through a knock out stage in a competition, qualifying for the World Cup, European Cup etc. Without going any further we can just take for example Iniesta’s ball control in the winning goal of the 2010 World Cup final.

Objectives: To analyse the effectiveness of ball control of the junior footballers in a highest level Spanish Team.
To validate the methodology used in order to ascertain what type of ball control will be most needed in different football positions in the future.

Methodology: Using the qualitative methodology, the instrument of measurement was filming and a series of observations. The percentage agreement of inter-observer was 99%, Moreno et al. (2002) recommend that this process should be carried out using several codifiers, obtaining a rate of reliability of 80%. The participating subjects in this study are 3 male footballers from the Honour Junior Division (17-18 years old) who play as central mid-fielders, wingers and forwards.
**Results:** Central mid-fielder; after carrying out our observations, we assessed a total of 15 participants who were successful 12 times and who made 3 errors. Winger; we assessed a total of 15 participants and they were successful 11 times and made 4 errors. Centre forward; a total of 12 were evaluated, all of whom were successful.

**Discussion:** In numerous studies, ball control is one of the most important ways of differentiating between footballers with talent and those without. ((Pazo (2010), Reilly et al. (2000), Malina et al. (2005), Vrljic y Mallett (2008)).

**Conclusion:** In this study, the method used has been validated due to the high level of agreement amongst the observers. However, the results are not as relevant as we hoped for because the data that has been analysed is quite limited.

**Biography:**

E-mail: juan.castilla@dempc.uhu.es

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**Blunt eye trauma during sporting activities**

**Clemente C.**

*University of Cassino, Italy*

Visual loss due to ocular trauma continues to be a major public health problem in most countries. Ocular trauma is the second leading cause of visual impairment in the United States. Many causes of eye trauma are accidental and the majority of these injuries occur in the workplace, at home, during sporting activities, in motor vehicle collisions (including air-bag injuries) and in association with fireworks.

Blunt trauma occurs when the eye is struck with a solid object without penetrating the eyewall and can lead to damage at site of injury as well as away from it. It can also affect the retina causing it to tear or detach from its underlying surface. Retinal damage has devastating consequences for the victim, resulting in partial or permanent loss of vision in the affected eye. The exact biomechanical mechanisms of ocular injury are not clear. In ophthalmology, based on impact experiment performed by Delori et al. (1969), it is commonly accepted that the pathogenic mechanism responsible for retinal damage is the vitreous pull-traction action and the equatorial expansion of the sclera.

Severe eye injuries, such as ruptured globes and retinal detachments, are typically the result of high speed blunt trauma such as impact with sports equipment. A number of different sporting objects have been implicated in patients with ocular damage, including baseballs, golf balls, squash balls, the ends of hockey sticks, elbows, BB pellets, paintballs.
In this study we examine the collision with airsoft pellets. Airsoft is a sport in which participants emulate common military tactics and shoot round non-metallic pellets launched via replica firearms.

In order to test the hypothesis that shockwave induced pressure and strain may generate retinal damage, a finite element analysis of blunt eye trauma was performed. Future work will involve performing experimental tests aimed at the evaluation of the pressures generated during the impact in enucleated animal eye bulbs.

e-mail: chyara85@hotmail.it

Time motion analysis of elite female basketball players during competition, with particular reference to repeated sprint ability
Conte D.
University of Rome “Foro Italico”, Italy

Few studies analyzed movements of female basketball players during competition. A Time-Motion Analysis will be performed on a female basketball team during 12 First Division Italian Championship and Euroleague official matches. This study aims to evaluate movement patterns of elite female basketball players during competition with references to Repeated Sprint Ability (RSA). The following parameters will be investigated: a) number and duration of sprint repetitions; b) duration and intensity of the activities during rest periods; c) number and duration of the high intensity specific movements (HISM) and jump actions activity; d) and the distance covered during each sprint in relation to 5 classes of distance (0-5m; 6-10m; 11-15m; 16-20m; >20m). Furthermore, a qualitative analysis, in order to describe the sprint activities (linear and curved sprints, and sprints with change of direction), will be carried out in relation to their executions with or without the ball. This study could improve the knowledge on female basketball, with particular practical applications for trainers and sport scientists to design a new RSA test specific for basketball.

e-mail: danieleconte25@gmail.com

Physical education specialist in primary school? Yes thank you!
Crova C., Raparelli I., Marchetti R., Pesce C.
University of Rome “Foro Italico”, Italy

The decrease in Physical Activity (PA) makes more complex to contrast the secular trend of decline in aerobic fitness and increase in children and adolescents obesity observed in industrialised countries.

Although there is a marked interest in research towards the cognitive processes subtending this trend, which enhance social and cognitive development and academic achievement, there are few concrete initiatives. Moreover, the value of the Physical Education (PE) specialist teacher in primary school is still not sufficiently recognized.
The purpose of this study was to examine whether an educational intervention led by specialized PE teachers in primary school classes might benefit child's motor and cognitive development.

In addition, it was verified whether the intervention effects are moderated by both by the level and type of free-time physical activities.

The study was conducted on a sample of 52 children (mean age 7.3 years) from two classes led by a specialist and a generalist teacher, respectively. Same cognitive and motor development tests and spontaneous play questionnaire were administered at the beginning and end of the school year as pre- and post-intervention testing.

The results provided indications that confirm the importance of quality PE programs taught by specialist teachers. This in order to ensure the practice of appropriate motor activities and to enhance cognitive functions, the executive, which significantly contribute to academic learning and self-regulation of child’s behaviour.

Furthermore, the contribution of the PE specialist teacher was decisive for children not practicing spontaneous outdoor play by equating this group on differences in acquisition of gross and fine motor skills with respect to their more active counterpart.

e-mail: claudia.crova@uniroma4.it

Eating disorders in older athletes
D’Adamo V.,
University of Rome “Foro Italico”, Italy

Introduction: The percentage of the older population is increasing worldwide although the increased life expectancy is not always accompanied with aging well. In general, exercise and proper nutrition appear to influence longevity by delaying aging processes and promoting health-related quality of life. Focusing their attention on diet to optimize performance, master athletes could represent a model of successful aging. Nevertheless, active older individuals are not free from risks. In fact, senior athletes might adopt popular diets without consulting sport nutritionists placing themselves at risk of disordered eating behaviors, which can endanger their health. Unfortunately, there is scarce information on eating behaviors in older individuals involved in sports.

Purpose: This study aims to assess the incidence of eating disorders and perceived health status in senior athletes competing in endurance and team sport events, compared to sedentary peers and young athletes. In particular, it was hypothesized that age and activity level might influence the tendency to adopt disordered eating behaviors in older individuals.

Methods: One hundred senior (age>60 yr) athletes (endurance sport=50, team sports=50), 100 sedentary older individuals (age>60 yr), and 100 young (age range: 20-25 yr) athletes (endurance sport=50, team sports=50) will be administered the Health Status Survey (SF-36), the Eating Disorder Test (BUT) questionnaires. Differences (p<0.05) between age and activity groups will be analyzed by means of an analysis of variance (ANOVA), with Bonferroni post hoc tests and Cohen’s effect sizes (ESs) for significant effects.

e-mail: vale_dadda88@hotmail.it
Assessment of repeated dribbling ability in young soccer players
Duarte J.P.
University of Coimbra, Portugal

Introduction
The intermittent character of football requires the ability to repeatedly produce high intensity actions every 72 seconds [1]. Although only 1.2-2.4% of total distance covered is with ball possession [2], the technical ability of dribbling at high speed is essential for performance [3]. However, and to our knowledge, studies examining the ability to repeat dribbling efforts with brief recovery periods (Repeated Dribbling Ability) are still lacking in the available literature. Thus, the purpose of the current project is to develop and validate a repeated dribbling ability (RDA) test for soccer players.

The sample will include approximately 60 male soccer players aged 11-to-18 years old from a soccer club in the Portuguese Midlands. The testing will occur during the players’ regular training hours. Ambient temperature, humidity and wind conditions will be documented. Repeated sprint ability will be first measured using the 7-sprint protocol [4;5;6] followed, on a 48-hour interval period, by a second measurement consisting of the same protocol principles but while the subjects are dribbling a soccer ball (players will be instructed to control the ball while performing the test). On a third occasion, players will be re-tested on the RDA protocol. The time for each sprint, as well as dribble, will be recorded with a digital chronometer connected to photoelectric cells (Globus Ergo Timer Timing System, Codogné, Italy).

Mean scores and standard deviations will be calculated for both sprint and dribble tests for each age group and playing position. Associations between sprint tests and dribble tests will be analyzed using Pearson’s correlation coefficient (r). Based on previous research [3], and although differences in methodological approaches must be considered, we expect to find age and playing position as contributors to repeated dribble performance.

References:

e-mail: 123jp4@gmail.com
Alzheimer’s Disease: relationship between postural/gait and attentional/cognitive deficits and effects of an integrated physical-cognitive training

Falbo S.
University of Rome “Foro Italico”, Italy

The major motor and cognitive functions disorders in Alzheimer’s Disease (AD) are postural instability, compromised locomotor functions and difficulties in focusing and re-orienting attention in the visual space.

**Question 1:** « Are deficits in the modulation of visuo-spatial attention stronger in AD than in healthy older persons? » and « Are they associated to deficits in performing simple and complex postural/locomotor tasks? ».

**Question 2:** « Are motor-cognitive dual task performances more strongly impaired in AD than in normally aging people? ». According to the “Selective Optimization with Compensation” theory – SOC, both healthy elderly and AD tend to shift resources from the cognitive to the concomitant motor activity. The SOC theory needs to be explored further using the ‘specificity’ concept.

**Question 3:** « What is the role of physical exercise in older adults at risk of or affected by AD? » and « What are the benefits, if given, of an integrated physical-cognitive training approach joining aerobic exercise and the features of qualitatively enriched environments challenging cognitive function? ».

**Methods, materials and procedures:** Functional efficiency will be measured using gait and postural tests under single or dual task conditions with varying motor and/or cognitive task complexity. Attentional and cognitive efficiency will be tested by means of executive functions tests and a visual attention control test.

**Expected results:**

**Hypotheses 1:** The attention performance should be worse in AD than in healthy elderly particularly under conditions of high executive control demands. Deficits in high-demanding control of attention should be paralleled by deficits in performing more complex walking.

**Hypotheses 2:** In dual tasking, older adults, and even more those affected by AD, could have greater deficits when the difficulty of the motor task is higher.

**Hypotheses 3:** Integrating physical and cognitive training, rather than realizing them isolatedly or combinedly, should produce benefits that are more pronounced and stable over time, particularly in AD.

**Outlook**

The results should contribute to exploit the potential of Quality Physical Activity for special populations, appropriately weighing energetical, neuromuscular, and cognitive demands.

e-mail: s.falbo@me.com
The anthropometric characteristics of young paddlers, associated with the dimensions of the equipment set-up.

Fernandes R.A.

University of Coimbra, Portugal

Purpose
Canoeing is present in the Olympic calendar since 1936 and is a sport of growing popularity, there is a considerable number of studies describing anthropometric and physiological attributes of elite kayakers [1, 2] and young paddlers [3, 4]. Yet very little is known about the tuning of the equipment associated with the morphology and body size of the paddler, particularly the dimensions of the paddle to select. Thus, the purpose of this study is to examine the association between the anthropometric characteristics reported by the scientific community as being typical of the sport, with the dimensions of the equipment set-up selected.

Methods/design research
The physical dimensions of the athletes, and the parameters related to the equipment will be analyzed based on the assessment of 30 young male athletes. The anthropometric data will include; height, sitting height, arm span and body mass, and follow the protocol described by Lohman, Roche & Martorell (1988). Body composition will be analyzed using the BOD POD® - Cosmed. The equipment dimensions to assess will be the seat height, paddle length, blade length, blade width, and distance between hand grips.

The association between body proportions and equipment set-up will be explored using a stepwise linear regression analysis. A Pearson correlation matrix will facilitate the selection of independent variables as input data for the regression analysis.

Hypothesis
Assessing young paddlers is vital to control the training process [4]; furthermore, the potential information collected in this study may be useful as reference for coaches of young categories, in crew position configuration and equipment set-up [6].

References:

e-mail: ruitas.fernandes@gmail.com
Distribution of chronological age in "Serie A" soccer season 2009/2010
Francioni F.M.
University of Rome “Foro Italico”, Italy

Introduction: The purpose of this study was to identify the distribution of Relative Age through the Italian Serie A soccer league during the 2009/10 season.

Methods: The overall sample was composed by the only players actually employed by the 20 clubs, and divided into 5 classes of age (≤18, 19-21, 22-25, 26-29 and ≥30 years). In turn, the first two classes were grouped and divided by the quarter of birth and also analyzed for seasonal total time of play in relation the number of matches.

Results: The 571 players employed were so distributed: 0.4%, 10.7%, 21.1%, 30.8% and 37.4% for ≤18, 19-21, 22-25, 26-29 and ≥30 yrs, respectively. The 63 players aged ≤ 21 year-old a 36.5% (n=23), 17.5% (n=11), 30.1% (n=19) and 15.9% (n=10) were borned during the 1st, 2nd, 3rd, and 4th quarter, respectively. The analysis of time per match showed a mean of 63, 62, 58, and 60 minutes of play per match in relation to the quarter of birth classes (in order), respectively.

Discussion: A first general analysis revealed that CA did not influence the clubs' choices about the ≤21 year-old players' engagement. However, further analysis for month of birth needs.

e-mail: fmfrancioni@hotmail.it

Validity and reliability of the Italian SAMSAQ
Guidotti F., Tessitore A., Minganti, C., Piacentini, M.F, Cortis, C., Capranica, L.
University of Rome “Foro Italico”, Italy

Introduction
This study aimed to validate the Italian version of the Student Athletes’ Motivation toward Sports and Academics Questionnaire (SAMSAQ; Gaston-Gayles, 2005).

Methods
Italian collegiate athletes (female = 83, male = 245; age: 22.14±3.46 yrs; competition level: 22.31% county, 47.52% regional, and 30.17% national) completed the 30-item SAMSAQ. An Exploratory Factor Analysis (EFA) and reliability estimates (Cronbach’s alpha) were applied to assess the factor structure and the internal consistency of items on the three SAMSAQ subscales, respectively. Moreover, a Confirmatory Factor Analysis (CFA) was conducted considering several fit indices (Bishop et al., 2004).

Results
Excluding 10 items, EFA established a three-factor model with acceptable Cronbach’s alpha coefficients (Factor 1 = 0.84; Factor 2 = 0.69; Factor 3 = 0.71). CFA confirmed the satisfactory structure of the Italian model (χ² = 338.83; χ²/df = 1.95; NFI = 0.831; CFI = 0.908; TLI = 0.889; RMSEA = 0.054).

Discussion
Cross-cultural differences have to be considered in a psychometric approach for understanding academic and athletic identities of collegiate European student athletes. In considering that in Europe distinct education and sport career paths exist, these data
should encourage European Sport and Education Bodies to cooperate for guaranteeing the protection of young athletes’ educational rights.

**References**


E-mail: flavia.guidotti@hotmail.it

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**Exercising for metabolic control: is timing important?**

Haxhi J., Scotto di Palumbo A., Sacchetti M.

*University of Rome “Foro Italico”, Italy*

Regular physical activity is being strongly advocated as a precious tool in easing the global burden of chronic disease. Although exercise intensity, duration and frequency are well-established in current guidelines for healthy and diabetic individuals, there is still no consensus on an optimal timing of exercise in relation to the last meal, in the “Directions for use” section of the Exercise prescription. However, time interval from a meal, appears to matter in the control of postprandial events, which have long been described as atherogenic. Regarding postprandial lipemia, it is generally agreed upon a better effect of exercising in the fasted state rather than the postprandial state. Exercising the evening before a test meal has been demonstrated to provide optimal lipemic effect in the healthy, partly but not exclusively, involving an increased activity of LPL. On the other hand, the effect of exercise is greatly influenced by the energy expenditure and by meal size and composition. Hence, low- or moderate-intensity exercise prior to a moderate-fat meal, might not provide any benefit to the postprandial lipemic response. Furthermore, regularly exercising in the fasted state might be favor weight control and insulin sensitivity when on a hyper-caloric, high-fat diet. Glucose metabolism on the other hand, seems to benefit more from post-meal exercise, particularly diabetic patients on diet or oral hypoglycemic therapy. Glucose lowering effect of exercise has been demonstrated to be greatest when exercise was performed 2-5 hours postprandially. In addition, the effect of exercise was showed to depend on pre-exercise glycemia and on total energy expended during the exercise session. Therefore, exercise prescription for the prevention and management of chronic diseases should be individualized taking into account meal-related characteristics. Exercising in the fasted state, possibly the evening before, might be more advisable when a high-fat meal is to be consumed. Individuals who are on a high-fat diet should also perform regular physical activity in the fasted state, aiding to the prevention of insulin resistance. When postprandial glucose control is the target, exercise performed after a standard or ad libitum meal might offer greater benefit in diabetes management and prevention of diabetes-related complications.

E-mail: efijona@yahoo.com
Mechanical and structural properties in the extensor apparatus in elite volleyball players with and without patellar tendinopathy

Helland C.
Norwegian School of Sports Sciences, Norway

Background: Patellar tendinopathy (PT) is an overuse injury in the patellar tendon, with an estimated prevalence as high as 40-50% among elite volleyball players. The causes of the disorder are poorly understood, and the risk factors are not fully known. It has been shown that patients, after 12 weeks of heavy slow resistance training, have responded with less symptoms and a reduction in patellar tendon stiffness.

Purpose: To compare the mechanical and structural properties in the muscle-tendon complex in the lower limb between elite volleyball players with and without PT.

Study design: Case-control study.

Methods: 20 male volleyball players with PT and 20 healthy controls have been identified from a 5-year prospective cohort study among junior elite volleyball players. These will be invited for jump performance testing (extensive jump testing on a force platform), and patellar tendon mechanical properties will be measured by synchronizing isometric knee extension force with patellar tendon deformation using ultrasound. Ultrasonography and MR will be used to characterize the structural properties of the patellar tendon.

Results: Preliminary results will be presented at the conference.

e-mail: christian.k.helland@gmail.com

Acute effects of whole-body vibration with different interval durations on neuromuscular system

Kalc M.
University of Ljubljana, Slovenia

Vibration exercise is enjoying popularity as an alternative exercise modality for enhancing muscle activity, force and power. Vibration exercise has been suggested as an attractive and efficient complement to traditional forms of exercise for athletes, the aged and health compromised individuals. Despite its wide use in the physiological responses of vibration exercise remain equivocal because a number of studies have used various protocols, of different methods of application, vibration parameters, training duration and exercises performed with vibration.

Many studies examined the acute effect of vibration exercise with monitoring only the rate of force development using functional tests like squat jump and isometric knee extension. But only a few studies examining acute effects of vibration exercise on neuromuscular parameters like motoneuron excitability, central and peripheral fatigue. The aim of this study is to systematically examine the effect of vibration exercise of different long intervals on neuromuscular parameters. Fifteen recreational active university students will take part in the study. Every student will be measured six times,
with a week between every measurement. Fatiguing protocols with different interval durations will be performed on different measurement sessions. The subjects will perform 3 different protocols standing in a semi squat position on a vibration platform for the duration of 18x30s or 9x60s or 3x180s. The same interval durations will be repeated without the vibration and used as a control measurement. A measurement protocol will be performed to determine the effect of vibration exercise of different interval duration on neuromuscolar parameters. Motoneuron excitability, MVC, level of maximum voluntary activation of the quadriceps femoris muscle, type of periferal fatigue (HFF - high and LFF - low frequency), rate of force development and EMG data will be measured pre and post fatiguing protocol. H-reflex and HFF – LFF will be also measured between interval rest period. This study will allows us to better understand how the vibration exercise influence the central and periferal neural excitability, wich kind of periferal fatigue may cause and how this kind of exercise influence the ability of fast force production.

E-mail: kalcmilos@gmail.com

Evaluating and synthesising evidence of physical activity interventions and integrated strategies (ESEPAIIS)

Leone L.
University of Rome “Foro Italico”, Italy

For physical activity promotion (PAP) to become a social priority (in health promotion, welfare, education and urban policies) there is a need to focus on PAP in a broad sense, with a large-scale, population-based, comprehensive and sustainable approach grounded on evidence-based strategies. The research project aims to collect evidence from several approaches to PAP and to apply innovative methodologies to the evaluation and the synthesis of evidence on social and health-related effects of PAP. Methods for evaluating the impact of complex social interventions and developing systematic reviews will be employed, including theory-driven review and realist synthesis. The research project will analyse different aspects: (a) the policy frame promoted at UE level, guidelines and public health guidance for the promotion of PA and the creation of environments that support increments in PA levels; (b) the role of regulatory measures targeted to promote PA within the framework of effective integrated strategies aimed at improving quality of life and physically active lifestyle; (c) literature about PAP interventions in order to understand what are underpinning mechanisms of effective programs under different circumstances and target groups (i.e. children, aged people, groups characterized by low Socio-Economic Status and health inequality). Main attention will be devoted, within the health promotion framework, to PAP interventions addressing non communicable-diseases and childhood obesity prevention, independent living and healthy ageing of population. The objectives are:

a) Developing a framework to evaluate and synthesize the direct and indirect effects of complex and multi-level programs aimed at promoting PA.
b) Developing a systematic review of integrated multi-sectorial strategies aimed at enhancing PA among the general population (see: comprehensive approaches that integrate individual, community, organizational, and societal systems) and community-based PA programs for special populations.

The identification of success-and-failure factors is aimed at deriving useful information for different stakeholders to adopt and implement multilevel interventions and approaches tailored to local contexts. The ultimate goal is to provide tools for national agencies and community-based organizations involved in the evaluation of PA programs enabling them to systematically evaluate program outcomes and iteratively improve PAP interventions.

e-mail: leone@cevas.it

Evaluation of changes in the metabolic, ventilatory and kinematic parameters with and without a maternity support for the treatment of low back pain in pregnancy

Lucciola A.
University of Cassino, Italy

Purpose: Literature on pregnant women (Federico et al., 2007) reported a reduction in low back pain and perceived exertion during daily activities wearing a maternity support (ComfortBody©). Thus, the purpose of this study is to verify differences in energy cost and kinematic changes during walking with and without ComfortBody in pregnant women.

Methods/research design: After given their written consent, 18 women in their second and third trimester (20-36 wk) of pregnancy will take part in a randomized, single-blind, cross-over design (pregnant women will be retested to the same assessment at 8-12 months post-partum). Absolute contraindications for physical activity during pregnancy (Davies et al., 2003) will be the only criteria for exclusion from the study. After a familiarization session, participants will be asked to walk 10-min on a treadmill (speed: 3 km/h; slope: 0%) during three experimental sessions (wearing the body, a placebo or without support) with a 30-min recovery between sessions. At rest (standing position for 5 min) and walking (on a treadmill) perceived exertion and the following metabolic parameters will be evaluated (K4b2, Cosmed): Oxygen consumption (VO2), ventilation (VE), respiratory frequency (Rf) and tidal volume (VT). Using kinematic analysis software movement (Dartfish©) kinematic parameters of walking (step width and frequency step, landmarks and body center of mass trajectories) will be analyzed. We expect a decrease in energy cost when walking with the ComfortBody, due to a different posture, which could decrease the step width (during pregnancy increases the step width; Jang et al., 2008), thus improving the walking economy. ComfortBody could reduce the energy cost and the perceived exertion reduction during daily activity in pregnant women.
Life skills measures in life skills sport intervention to study the effects of life skill training and multi-sports sampling on self-efficacy and sport performance

Marchetti R.
University of Rome “Foro Italico”, Italy

Introduction
According to Gould and Carson (2008), in order to achieve excellence in sport, passion, skills, and character are needed. There is evidence supporting the effectiveness of programs that integrate sport and life-skills (L.S.) training. A number of programs have been recently developed, applied and tested, both in sports settings, like “GOAL” (Danish et al. 1992), “SUPER” - a sport-based adaptation of the GOAL Program (Danish 2002), “CLDP” (Gould 2008), “Rugby Advantage Program” (Hodge 2008), “Play it Smart program” in Football (Petitpas, 2001 and Petitpas, Van Raalte, Cornelius,& Presbrey, 2004), “The First Tee” in youths’ golf (Petlichkoff, 2001), and in Physical Education settings (Goudas et al, 2006; Goudas & Giannoudis, 2008; Papacharis, Goudas, Danish, & Theodorakis, 2005). In this way, L.S. training has been successfully implemented in traditional Physical Education and youth sport, but only in monodisciplinary training. Nevertheless, this wide-ranging goal might be more appropriately pursued within a multisport approach.

Target of this preliminary validation study:
Before starting the intervention study, the Italian versions of following questionnaires were submitted to validation procedures: “Going for the goal knowledge questionnaire” and “The sport observation system” (Danish 2008), used in Virginia Commonwealth University, U.S.A., and the “Life Skills Self Beliefs” (Goudas, M., Karabekou, A., & Papacharisis, V. 2007), used in University of Thessaly, Trikala, Greece. These instruments allow to evaluate knowledge on and self-efficacy believes in L.S. and to verify the effectiveness of L.S. training when implemented within Physical Education or youth sport training. Moreover, we validated the “Life Skills Profile” suggested by Trauer (1995), reported by Rosen et al. (2001), for monitoring L.S. improvements of persons with disability.

Sample: about 500 male and female students, 11-13/14 year-old, both normally developing and with disability, attending 10 junior high school classes and 10 senior high school classes of schools belonging to three different Regions of Italy.

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e-mail: rosalba.marchetti@uniroma4.it
Perception of the objectives and demonstration of educational values in a sports school football in the province of Huelva in the categories of children and cadets

Medina Rebollo D.
University of Huelva, Spain

Physical activity and sport have always been considered that improves health, but when it comes to physical activity (PA) and sports, always tend to think that the objective to pursue is to improve health, but do not think the values that can be developed (Jimenez & Durán, 2005). But a bad use of sport does not contribute to develop the desired values (Robles, and Giménez Abad, 2005).

Objectives:
1. Describe the perceptions of events and objectives to be achieved in football in terms of educational values.
2. To determine whether the program is being respected philosophical center.

Methodology:
The sample of 52 children, aged between 13 and 16 years (14 ±0.57), and used the questionnaire of Gutierrez (1995), which aims to assess what are the objectives to be pursued in practice sport.

Results:
The results showed no significant differences between the objects perceived by the students and their demonstration, but appear counter-high valuation, especially in its manifestations.

Conclusion
No statistically significant differences between the valuations of the objectives for the demonstrations. But there are specific items that show negative aspects to be studied.

Neurophysiologic and neurocognitive approach in agonistic performance of combat sports

Montaruli A.
University of Rome “Foro Italico” , Italy

INTRODUCTION: The secretion of catecholamines and cortisol have been proposed as objective stress indicator in combat sports. Some studies reveal a different reactivity of hormonal systems, marking as well some age, gender, diet-related differences. Nevertheless, combat requires the activation of specific neurocognitive processes. Some studies have shown that attentional skills vary according to the sport, experience, gender and finally according to the role. Studies have investigated the neural mechanisms responsible for fast and flexible behaviour in athletes of combat sports recording event-related potentials (ERPs). These have shown a better modulation of attention in visual processes and a stronger activity of prefrontal cortex. High level athletes show shorter reaction, movement and total response times if compared to neophytes, and develop, at the same time, a larger precision.

OBJECTIVES: This project objective is to encourage a better understanding of adapting processes which occur in combat sports (taekwondo, fencing and boxing), and
that influence neuro-hormonal, neurocognitive and nervous autonomic systems. In addition, we will evaluate if such conditions could be distinctive elements that characterise a successful athletes, with the aim to predict the level of achievable performance or simply, testifying the eligibility for an agonistic practice.

METHODS: Part of the study will be agonistic athletes, practisers of combat sports (boxing, fencing and taekwondo). Athletes enrolled in the experimental protocols will be chosen in relation to the different categories and will be balanced in age and gender. Besides, sedentary subjects will be selected. When recruited, all the subjects will be submitted to the detection of the main anthropometric measurements (weight, height, BMI, and body composition), physical (heart rate, systemic blood pressure) and metabolic (calories, VO2max, anaerobic threshold). All the participants will undertake a complete range of neuropsychological tests and EEG recordings. By detecting bioelectric signals, it will be possible to analyse event-related potentials (ERP), activated during some neurocognitive procedures, in order to rate cortical response to visual and auditory stimulus. Samples for the determination of cortisol and alpha-amylase salivary values will be taken to evaluate bio-humoral responses during exercise and combat, but also before and after such training.

e-mail: pantakel@hotmail.it

Turnover soccer drills: effects of type and duration
Montini M., Capranica L., Tessitore A.
University of Rome “Foro Italico”, Italy

In soccer, fast turnovers are required when players gain possession of the ball from the opposing team. Thus, coaches make use of several technical-tactical drills to train the players' turnover abilities to reach their required offensive positions. Thus, the present study will aim to evaluate heart rate (HR) responses, subjective ratings of perceived effort (RPE), and movement patterns (acceleration and distance covered) of players during 4vs4 and 4vs6 soccer turnover drills in relation to their duration.

Methods. Ten male soccer players will participate in a randomised cross-over study, including two turnover protocols (i.e., 4vs4 and 4vs6) of two durations (i.e., 5 and 10 bouts). To intermittent-endurance ability of soccer players will be assessed by means of the Yo-Yo intermittent recovery test. Exercise intensity will be evaluated through HR recordings (Teamsystem, Polar, Kempele, Finland) and RPE (CR-10 Borg’s scale) values. To calculate the distance covered and velocity of each bout, athletes will wear a 15hrz wearable Global Positioning System (GPS, SPY Pro, GPSsport, Canberra, Australia). A 2 (drill: 4vs4 and 4vs6) x 2 (duration: 5-bout and 10-bout) x 2 (sequence: short-long and long-short) ANOVA for repeated measures (p<0.05) will be performed.

e-mail: m.montini_1@libero.it
Physiological responses during two supramaximal high intensity intermittent training protocols to exhaustion in competitive cyclists


University of Rome “Foro Italico”, Italy

High intensity interval training (HIT) is used by coaches as a time efficient strategy to perform a greater amount of work at high intensity if compared with continuous exercise. However, the effects of the combination of work and rest intervals on performance and physiological responses remain to be fully explored.

We investigated two types of supramaximal HIT protocols used by some cycling coaches to significantly stress both the aerobic and anaerobic metabolism.

Thirteen young competitive cyclists (19±2 yr, VO2max 63,1±4,2 ml·kg·1·min·1) performed a maximal incremental test and two randomized HIT protocols until exhaustion during the competitive season. HIT protocols differed in work and rest durations (40 s:20 s and 30 s:30 s) but had the same work (135% of peak power output) and rest (0 W) intensity. Gas exchange and ventilatory parameters, heart rate (HR) and blood lactate [La-] were measured for all the trials performed.

Time to exhaustion was 10±3 min and 38±13 min for 40:20 and 30:30, respectively. The maximum value of VO2 for 40:20 was significantly higher (p<0,01) than that of 30:30 and of the incremental test (4361±298, 4012±282, 4145±307), while no significant differences were appreciated between the VO2 of the latter two trials. Average VO2 for 40:20 and 30:30 were 89±4% and 75±4% of VO2max. Peak value of [La-] was significantly higher (p<0,01) for 40:20 than for 30:30 (13±1,5; 10±2,9) while mean values of [La-] for 30:30 were at or above the 8 mM value for 18 min. Maximal minute ventilation (VE) was significantly higher (p<0,01) for 40:20 than for 30:30 and the incremental test (162±23, 133±14, 150±18). The kinetics of VE as a function of time was incremental while that of VO2 was quite stable throughout the trial. The HR kinetics indicated a cardiac drift. All the kinetics described were similar between the two HIT protocols.

In conclusion, the two investigated protocols resulted in a sustained stimulus for both aerobic and anaerobic metabolism, with 30:30 allowing to maintain high [La-] levels for a long period of time. The present data can help coaches and exercise scientists choose and prescribe supramaximal HIT protocols.

e-mail: andrea.nicolo@yahoo.com

The harmonized SAMSAQ for the Italian population

Negri F., Guidotti F., Capranica L.

University of Rome “Foro Italico”, Italy

Introduction

A previous study (Guidotti et al., 2012) reported that the Italian version of the SAMSAQ (Gaston-Gayles, 2005) did not show an overall acceptable fit to assess
academic, athletic and sport career motivations in Italian student athletes. Thus, this study aim to validate the harmonized Italian version (H-SAMSAQ) of the questionnaire.

Methods
300 Italian student athletes (male = 70%; female = 30%; competition level: 20% county; 50% regional; 30% national) will participate in the study. To assess the factor structure an Exploratory Factor Analysis (EFA) will be performed applying an Oblique Rotation and Maximum Likelihood Extraction according to literature (Costello et al., 2005). Moreover, to assess internal consistency of items on subscales reliability estimates (Cronbach’s alpha) will be computed.

Results
A three-factors structure (12 items loaded on the Academic Motivation Factor, 14 items on the Student Athletic Motivation and 10 items on the Career Athletic Motivation) and a good internal consistency of items on each subscales (Cronbach’s alpha > 0.70) will be expected.

Discussion
In considering that in Italy distinct education and sport career paths exist, expected findings could confirm the H-SAMSAQ as a valid tool for the evaluation of academic and athletic motivations of Italian student athletes.

References

Assessment of physical activity level, motor development, psychological and affective factors in Italian adolescents
Piccinno A.
University of Rome “Foro Italico”, Italy

Purpose: Physical activity is an important life-style factor for health promotion of the people. A major health threat for young people in the 21st century is physical inactivity in conjunction with the elevated prevalence of obesity (Blair, 2009; WHO 2004). Despite this evidence, a considerable proportion of children and youth exhibit low levels of activity (Michalopoulou et al., 2011). The aim of the study is to examine the physical activity levels, motor development and psychological and affective factors in Italian adolescents through cross-sectional and longitudinal study.

Method: The sample (n=1000-1500) will be composed by males and females, aged 14-16 years, attending the 2nd,3rd class of secondary school located in three cities (province of Foggia, Bari, Lecce) in the Puglia region. The partecipants will be evaluated for three years. Motor performance will be assess with standing broad jump, Handgrip test, Sit-up test, 10x5 m shuttle run, Plate tapping, Sit and Reach test, Unipedal Balance eyes closed test and Léger test. Physical activity level will be obtain using pedometer to measure mean steps for 7 consecutive days and self-reported questionnaire (IPAQ-A),
while enjoyment in physical activity, physical self-efficacy and motivational climate with self-reported questionnaire.

**Expected results:**

a) Links between motor performance, motivational climate, perceived self-efficacy and physical activity levels in relation to variables: gender, age and BMI;

b) Links between teaching styles, physical activity levels, motivational climate and enjoyment in physical activity in consequence of experimental intervention;

c) Increased daily physical activity levels in consequence of experimental intervention;

d) Links between motor performances, perceived self-efficacy, BMI and extracurricular physical activity level.

**References:**

- World Health Organization, Global strategy on diet, physical activity and health, 2004

**The antioxidant alpha-lipoic acid to contrast metabolic and neuromuscular abnormalities induced by type 2 diabetes**

**Scotto di Palumbo A.**

**University of Rome “Foro Italico”, Italy**

Type 2 diabetes (T2D) is the most prevalent chronic disease in the world characterized by insulin resistance in peripheral tissue leading to blood glucose level abnormalities, which, in turn, progressively leads to metabolic and, secondarily, neuromuscular derangement. One potential factor in the multi-factorial aetiology of skeletal muscle insulin resistance is oxidative stress, an imbalance between the cellular exposure to oxidative stress and cellular antioxidant defences. Alpha lipoic acid (ALA) is a potent antioxidant endogenously synthesized by humans as well as absorbable by the diet. An emerging body of evidence indicates the effectiveness of ALA supplementation in treating several chronic disorders, among which type 2 diabetes, due to its antioxidant, anti-inflammatory and AMPK enhancing properties. Likewise exercise is a potent stimulus in contrasting the detrimental effect of the disease, by promoting muscle glucose uptake, glucose tolerance, and insulin sensitivity. The aim of the present project is to investigate the possible synergic acute and chronic effect of ALA administration and exercise, in mitigating the metabolic and neuromuscular derangement induced by T2D. With this in mind, three studies will be performed. The first will shed light on the hypothesis that acute administration of ALA before meal may enhance the effect of exercise in alleviate postprandial hyperglycaemia. The second will investigate the hypothesis that a compound effect of ALA and exercise training results in a greater improvement in metabolic function in T2D humans. The third study will evaluate the hypothesis that a compound effect of ALA and exercise training results in a greater
improvement in the neuromuscular function in T2D humans. Was the hypothesis to be confirmed, it would provide helpful information for setting up the intervention recommendations to counteract the burden of T2D.

e-mail: a.scottodipalumbo@hotmail.it

Endurance and high altitude

Šegula A.
University of Ljubljana, Slovenia

Altitude training is frequently used by competitive athletes to improve sea-level performance. However, the objective benefits of altitude training are controversial. On one hand, acclimatization to high altitude results in central and peripheral adaptations that improve oxygen delivery and utilization. Moreover, hypoxic exercise may increase the training stimulus, thus magnifying the effects of endurance training. Conversely, hypoxia at altitude limits training intensity, which in elite athletes may result in relative reconditioning. We reasoned that if athletes could live at moderate altitude, above 2,500 m, but train at low altitude, below 1,500 m, they could acquire the physiological advantages of altitude acclimatization for maximizing oxygen transport, without the detraining associated with hypoxic exercise. The principal objective of this study is to test the hypothesis that acclimatization to moderate altitude (3,000 m) plus training at low altitude (1,500 m and 400 m), “living high-training low,” improves sea-level performance on bicycle in moderate trained student from Faculty of sport, more than an equivalent sea-level or altitude control. We wish to have 39 students (men), which would be trained: 1) a 2-wk lead-in phase, followed by 4 wk of field training camp randomized to three groups: “high-low” (n 13), living at moderate altitude (3,000 m) they will live in hypoxic rooms on Rogla, which is on the 1517 m above sea level) and training at low altitude (between 1,500 m an 400 m on Pohorje); “high-high” (n 13), living and training at moderate altitude (3,000 m); or “low-low” (n 13), living and training at sea level (300 m) in laboratory Faculty of sport. A incremental step tests and 50 min time trial test would be the primary measure of performance; laboratory outcomes included maximal O2 uptake (VO2max), anaerobic capacity (accumulated O2 deficit), maximal steady state (MSS; ventilatory threshold), lactate curve, hemoglobin/myoglobin (Hb/Mb)-deoxygenation of m. vastus lateralis bicycle economy, velocity at VO2max, and blood compartment volumes.

e-mail: aljazsegula@hotmail.com

Maximal oxygen uptake in 11-year-old male soccer players in relation to body size and biological maturation

Severino V.J.S.
University of Coimbra, Portugal
**Introduction:** VO2max develops just like other process related to growth and maturation during childhood and adolescence (Helmantel, Elferink-Gemser & Visscher, 2009), appearing to occur a stabilization of values expressed per unit body mass as a result of aging (Malina, Bouchard & Bar-Or, 2004). The validity of expressing the variable per unit body mass in children and adolescents has been questioned due in part to changes associated with growth and maturation (Welsman et al. 1996). The current study examines the inter-relationship between peak VO2 and skeletal maturation.

**Methods:** Thirty youth male soccer players (chronological age, CA: 11.9±0.3 years) were assessed in stature and body mass; skeletal age (SA) was determined using the FELS protocol. Bivariate correlations were calculated to examine the association between Peak VO2, body size descriptors and maturation (SA, SA-CA, ratio SA by CA). Power function ratios were determined for body mass and stature using ANCOVA (log-transformed peak VO2 as dependent variable and log-transformed mass and stature as covariates). The correlations between maturation variables and maximal oxygen uptake were re-calculated using the scaled variables.

**Results:** Mean SA, mass and stature were, respectively, 12.0±1.5 years, 38.8±10.0 kg, and 146.0±8.1 cm. Peak VO2 for the total sample was 2.33±0.43 L/min (60.9±5.9 ml/kg/min). The maturity status-associated analysis classifies more subjects on time (53%) followed by early mature (27%) and late mature (20%). Before normalization, correlations between peak VO2 and potential correlates were: CA (+0.48, p<0.01), SA (+0.42, p<0.05), SA-CA (+0.34, n.s.), SA/CA (+0.34, n.s.), body mass (+0.90, p<0.01) and stature (r=+0.78, p<0.01). After allometric modelling correlations between peak VO2 and CA, SA, SA-CA and SA/CA were +0.24 (n.s.), +0.10 (n.s.), +0.04 (n.s.), +0.04 (n.s.), respectively.

**Discussion:** Simple ratio standards failed to produce a dimensionless physiological performance variable (Nevill, Ramsbottom & Williams, 1992). Thus, interpretation of aerobic power in youth soccer players should consider allometric scaling. On the other hand, studies with larger samples and an extended pool of variables (e.g. muscle girths included) are needed.

**References:**

e-mail: vitorjss@gmail.com
Caffeine and double-poling performance in cross-country skiing
Stadheim H.K.
Norwegian School of Sports Sciences, Norway

**Aim:** The study examined the effect of caffeine ingestion (6 mg x kg⁻¹) upon endurance performance (EP) during an 8 km cross-country ski poling performance test (8 km C-PT).

**Method:** Ten highly trained cross-country skiers underwent a training period before performing two 8 km C-PT in a randomized, double-blinded, cross-over-design order. Before each 8 km C-PT subjects had to complete an incremental test.

**Results:** Time to complete the C-PT was significantly reduced with 4 % (34:26±1:25 to 33:01±1:24 min) after caffeine ingestion, and 80 % of participants had showed a positive effect.

**Discussion:** Improvements after caffeine ingestion came as a result of subjects keeping a higher speed during the caffeine 8 km C-PT compared to placebo. No difference in RPE was observed between treatments during the C-PT, while during the four submaximal workloads it was lowered. The improved EP of the study therefore seems to come from caffeine effecting TS RPE, probably by lowering it. The author speculates this leads subjects to push themselves harder increasing: Speed, HR, VO₂ consumption, and blood lactate accumulation. The study is the first to show caffeine can improve EP during upper body muscle exercise, and results are similar to those observed in leg studies.

e-mail: stadheim@hotmail.no

Development of an evaluation test for the classification of athletes with intellectual disabilities in the sport of rowing
Varalda C.
University of Rome “Foro Italico”, Italy

The relational and intellectual disability is an irreversible state of health, given the effect of serious mental and neuromotor disorders. The non-genetic causes are those that determine the biological level and can arise at different times of individual’s life: before birth (we speak of causes pre-natal), during delivery (prematurity and asphyxia), or to diseases occurring after birth (encephalitis, meningitis, head trauma). In the field of intellectual disability on the path towards greater inclusion in society has undergone a significant acceleration. Twenty are the Sport Federation recognized by the Italian Paralympic Committee, which collects both athletes with physical disabilities that relational intelligence. Intellectual disabilities in sport there are many difficulties in being able to classify the degree of disability than the aspect and rules of the medical certification. For rowing, in order to allow participation in the Paralympics Games, there is not now a system of classification on the assessment of the influence of intellectual disability in the practice of specific sports discipline. The purpose of this research project is to identify the performance parameters that allow to classify the intellectually disabled athletes in the sport of rowing.
The idea is to consider, in a time of 3 minutes, some technical parameters to allow coordinative highlight the difficulty of the athletes.

For the analysis I plan to use an accelerometer located beneath the ergometer.

This will capture the following parameters:
- Number of stroke for minutes
- The maximum acceleration applied to a stroke
- The minimum acceleration applied to a stroke
- The average acceleration in each minute.

There will also be compared with the test of able body athletes of various ages, to see which category you can assimilate the intellectual disabilities athletes.

In addition we will see if with the workout there is some improvement of coordination skills.

e-mail: carlo.261@tiscali.it