CO45-004-e

Chronic ankle instability (CAI) characterization with analysis of various balance tasks
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Keywords: Dynamic balance; Static balance; Star Excursion Balance Test;
Centre of pressure

Background.– Chronic ankle instability (CAI), characterized by recurrent episodes of lateral instability [3], is a complication of lateral ankle sprain which is the most common injury in sport activities [1]. Static balance can be evaluated in bipodal and unipodal conditions, and dynamic balance with Star Excursion Balance Test (SEBT) [2].

Objective.– The aim of this study is to note if static and/or dynamic balance can characterize CAI.

Methods.– Sixteen healthy subjects (CTRL) and 20 subjects with CAI (CAI) realize unipodal and bipodal balance tests, with eyes opened (EO) and closed (EC).

Results.– In static conditions, no difference between CAI and CTRL is shown. During bipodal balance tests, significant increases (P<0.05) are observed for centre of pressure displacement and velocity for CAI between EO and EC conditions. Reached distances at SEBT are significantly shorter (P<0.05) for CAI people.

Discussion.– Characterization by static balance seems difficult, contrary to what has previously been found by other authors [4]. Differences between EO and EC conditions in bipodal balance tests suggest proprioceptive alteration [3]. Dynamic balance seems to be relevant to characterize CAI through SEBT [4].

References

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Isometric eversion and inversion testing after acute ankle sprains
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Keywords: Ankle sprain; Isometric testing; Rehabilitation monitoring

Background.– Ankle sprain is one of the most common injuries in sports. Most of the methods used to monitor ankle condition after acute ankle sprains do not provide knowledge about the functional state of the ankle.

Objectives.– We suggest monitoring early eversion and inversion changes after acute ankle sprains.

Methods.– Eighty athletes with acute grade II ankle sprain. All subjects were randomized into isometric testing group (40 subjects), and control group (40 subjects). Both groups underwent the same rehabilitation programme. We measured isometric peak torque and peak torque differences between the healthy and injured legs in eversion and inversion movements of the ankle. The outcome measures were pain on activity, swelling, Lower Extremity Functional Scale score, isometric eversion and inversion strength, Square hop test, and figure of Eight hop test.

Results.– There were no significant differences between parameters measured in both groups. Statistical analysis indicated significantly lower eversion and inversion strength of the injured limb, significant eversion and inversion deficit changes during the whole study. Eversion and inversion deficit correlated with Lower Extremity Functional Scale score.

Conclusions.– We suggest that isometric testing detects early eversion and inversion changes and helps monitoring rehabilitation after acute lateral ankle sprains.

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Injury and illness risks during outdoor European athletics championships: Analysis of Helsinki 2012 championships
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Objectives.– To analyse incidence and characteristics of newly incurred injuries and illnesses during major athletics championships, in order to discuss injury and illness risk factors.

Methods.– Newly occurred injuries and illnesses were prospectively recorded among the 1342 registered athletes by the physicians and physiotherapists from the national team and local organizing committee during the 2012 European athletics championships in Helsinki, Finland.

Results.– Among the athletes, 92.7% were covered, with report forms response rate of 90.7%. Overall, 132 injuries were reported (97.6 injuries per 1000 registered athletes), and 61 (47%) resulted in time-loss from sport. The main injury diagnoses were hamstring strain, ankle sprain, lower leg strain, and trunk muscle cramps. Overuse (38%) was the predominant cause, but non-contact trauma represents 25% of injury causes. Injury risk was higher in male and increased with age. Injury risk during finals was significantly higher than during qualifying rounds. The highest incidences of injuries were found in combined events and middle- and long-distance events. Twenty-seven illnesses were reported, with most of upper respiratory tract infections and gastro-enteritis/diarrhoea. Illness risk factors remains unclear.

Conclusions.– During elite athletics championships, the gender, age, finals and some disciplines seem to be injury risk factors. Illness risk factors remains unclear.

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Role of rehabilitation physician and physiotherapist in the classification in disabled sports, an example: Paracycling
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Keywords: Disabled sports; Classification; Doctor; Physiotherapist

The rehabilitation physician and the physiotherapist can be a doctor or a physiotherapist expert in disability assessment to classify an athlete who wishes to practice disabled sports competitions. Depending on the sport, the classification is more or less complex. It depends on the accessibility of sport at various disabilities and the number of categories proposed by the discipline.

In paracycling, there are different categories with a point system scale according to the type of disability (amputation, neurological, orthopedic) and clinical evaluation. The classification is done with the medical record and is multidisciplinary. The physiotherapist is involved in clinical evaluation by muscle and joint testings. A specialized technician is involved in the evaluation on bike, using a battery of tests to determine if the assessment by the physiotherapist and the doctor correlates with the impact of disability on the bike. The stakes of this classification are very important at a high level because according to the category, an athlete can win or not a medal in Paralympic games, in national
and international competitions. This involves a multidisciplinary classification where each actor plays a similar and complementary role in the final decision.

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Paratriathlon: Method for physical and social rehabilitation

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Keywords: Paratriathlon; Paralympic Games in Rio; Rehabilitation

Paratriathlon, sport consisting in swimming, cycling and running will enter the next 2016 Rio Paralympics games. To show assets of paratriathlon for rehabilitation of athlete with a disability (AWAD). To show high level paratriathlon organization (French Paratriathlon Team) and the international classifications issues. Triathlon could be seen as an elite and inaccessible sport, particularly for people with disability. Nevertheless, it could be a powerful method or approach to readapt people to sport thanks to 3 complementary activities showing progressive loads (swimming, cycling and running). Paratriathlon could be made over different distances and with several modalities (alone, by relay with valid or with other AWAD) offering the possibility to try triathlon step by step and a true way of social re-integration as well. The management of rehabilitation is multidisciplinary because associating doctors, sport coaches, physiotherapists and Orthoist. The image of high-level practice also contributes to develop the paratriathlon as a method to readapt to effort. After the French medals won at the last world paratriathlon championship, the goal to win medals at the next Paralympics games in Rio make development and accessibility of paratriathlon one of the most important challenge of the next years.

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Physical activity, a health factor: Evidences, interest, education and prescription

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Keywords: Physical activity; Exercise; Health; Prevention; Medical prescription; Sport professional

There is scientific evidence that physical activity is beneficial to health as well in primary prevention as in tertiary prevention, in opposition to sedentarity. For tertiary prevention of chronic diseases, physical activities or sport practice must be prescribed by physicians and is performed by professionals who are used to this type of subjects. The French State acted early at the initial stage training of these health and sport professionals. A national convention was signed on October 2012 by group of the deans of the medical schools and group of the deans of the sport science schools to encourage partnership and exchanges in the field of theoretical and practical education and research in the field of physical activity as a health factor. Ten pilot-universities were chosen to initiate and performed this convention on a regional scale. This convention and the current practices of some of those universities are described as well as the education in this field in medical schools and in sport science schools. These improvements of skills are important to create outside hospitals regional networks of “health sport”.

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Adapted physical activity during pulmonary rehabilitation

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Chronic obstructive pulmonary disease (COPD) is a respiratory disease with systemic abnormalities. Specifically, muscle dysfunction is of prime importance because of its impact on dyspnea, quality of life and survival rates. Thus, COPD management requires to deal with the primary (bronchial obstruction) and the secondary pathology (muscle dysfunction). Adapted physical activity (APA) is thus a major item to take into account in respiratory rehabilitation, because the improvement of muscle function will have major effects on COPD health status. The conference will be focused on presentation of APA concept and its application on pulmonary rehabilitation. The main objectives are to show how it was possible to accept the idea of exercise as a main component of rehabilitation and why it is now so well accepted. The academic trainings of APA teachers will be presented to show the importance of a strong knowledge on pathophysiological and psychopathological of physical activity to be able to correctly manage the interface between exercise and disease. Last, the impact of published articles from APA scientists and the legal texts allowing APA teachers to work on rehabilitation centers will show the importance to build relevant approaches from scientific works and to obtain legal recognition of these professionals.

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Perceived exertion at exercise: Stress and inflammation’s part. About the commando walk

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Keywords: Borg; Cortisol; Interleukin-1 beta; Perceived exertion; Strenuous physical exercise

Objectives.– To show a correlation, during a strenuous exercise, between perceived exertion, measured by the Borg’s scale, and salivary cortisol and interleukin-1 beta, both resulting from mechanisms of stress and inflammatory level.

Methods.– Subjects of this prospective monocentric study, without any intercurrent pathologies, ran 8 kms with military fatigue, combat boots and a 11 kg rucksack. Heart rate, salivary cortisol and IL-1β were collected at departure and arrival, whereas Borg’s scale was completed, and performance recorded.

Results.– Sixty-one subjects had been enrolled. Borg’s scale was related to no other measured variable. Two kinetic profiles of salivary levels have been identified: some showed an increase during exercise, others started with high rates, which secondarily decreased. The cortisol profiles were correlated to performance.

Discussion.– Cortisol and IL-1β salivary rates are not correlated to Borg’s scale. They cannot be identified as objective markers of painfulness, with limitations of subjective marker’s using. New kinetic profiles of cortisol and IL-1β should be explored to understand their origins, roles and consequences during effort and accident.

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Nutrition best practices of endurance sportsmen: Myth and reality

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