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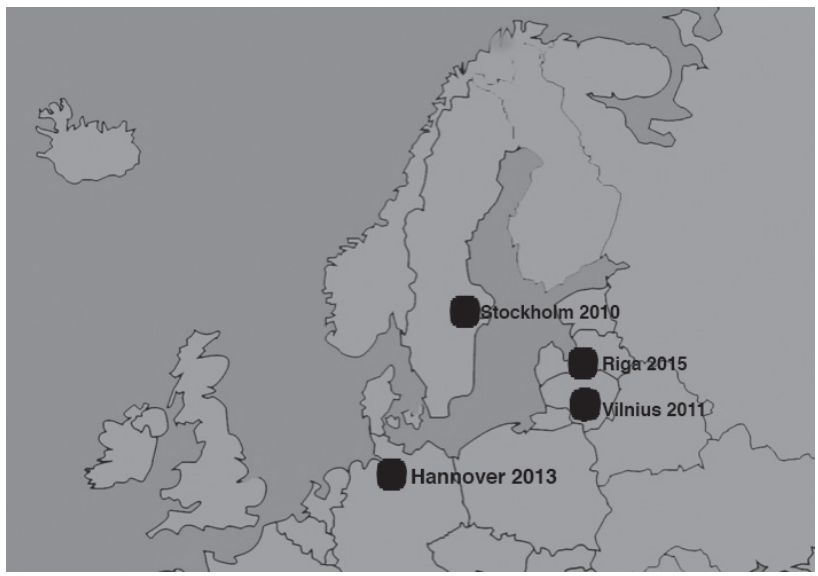

Baltic & North Sea Conferences on PRM

TABLE OF CONTENTS

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Introduction: Epiphyseal fractures of proximal tibia are rare, with an incidence of 0.5–3% of all epiphyseal fractures and they occur mostly in older children and adolescents during sports activities. *Case report:* A 15-year-old boy was admitted in the emergency department with bilateral knee pain and inability to stand after a jump in a trampoline. There was no significant medical history, including joint or bone pathologies. No previous clinical symptoms of Osgood-Schlatter disease were reported. On physical examination, he had swelling and intraarticular effusion of both knees, with tenderness to palpation. The knees were held in a semiflexed position and any attempt of motion provoked severe pain. No neurovascular deficits were present. X-rays showed bilateral fractures of the proximal tibial epiphysis, classified as Salter-Harris type II on the left tibia and as Salter-Harris type IV on the right tibia. The patient underwent bilateral closed reduction and internal fixation with cannulated screws. Long-leg casts were applied in extension position. Six weeks later, casts were removed and x-rays showed good healing. He presented small effusion of right knee, bilateral pain at femoral quadriceps contraction, bilateral atrophy of femoral quadriceps and sural triceps muscles, limitation of 10˚ in left knee's flexion and 20˚ in right knee's flexion. He underwent a rehabilitation program, with pain control, passive and active-assisted mobilization, strengthening of quadriceps and hamstring muscles, gait training with progressive weight-bearing and proprioceptive training. Four months later, he reported improvement of pain, but still showed limitation of 10˚ in right knee's flexion, with functional repercussion only in squatting. He had no limitations in daily activities. There were no signs of growth disorders. *Discussion:* While fractures of the infantile and adolescent distal tibia are common, the proximal tibia is rarely involved, due to high intrinsic stability. The mechanism of injury and the type of lesion are age-dependent. In late adolescence a flexion type injury is more usual, because the posterior part of the growth plate is usually closed and the anterior part is still open. Complications and neurovascular injuries are rare, and the result of treatment is generally good.

PP24

DIRECT ELECTRICAL STIMULATION OF THE INJURED ULNAR NERVE VIA ACUPUNCTURE NEEDLES COMBINED WITH REHABILITATION MAY ACCELERATE NERVE REGENERATION AND FUNCTIONAL RECOVERY – A CASE REPORT

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Introduction: Poor function recovery and long time of return to work (RTW) are the most common complaints for those who underwent immediate peripheral nerve repair surgery of upper extremities. Alternating current electrical stimulation (ACES) has been used to manage patients with peripheral nerve injury for the prevention of joint contractures but the nerve regeneration. Many studies already showed good recovery of nerve repair surgeries post direct electrical stimulation in animal and human models. This case study described a 32-year-old male suffering of total rupture of the right ulnar nerve. We used direct ACES and daily rehabilitating activities to see whether the recovery can be improved promptly. Patient case presentation The 32-year-old male suffered of total rupture of right proximal forearm ulnar nerve, and partial rupture of flexors. After 2 weeks of the repair surgery, the wound and the suture sites were in good condition so we started intervention of acupuncture combined with functional trainings. Direct ACES on the route of the injured ulnar nerve transmitted by the 2 acupuncture needles inserted in the cubital tunnel was applied. Other needles were placed according to the origins and insertions of the muscles. All needles were connected to electrical stimulators as electrodes. We executed these procedures one time per week and daily rehabilitating activities. The Rosén and Lundborg protocol, DASH scores and electromyography were used to measure the outcomes. *Discussion:* The patient had distal ulnar nerve lacerated and immediate repair surgery. This may explain why the patient returned to the former job in 3 months and achieved satisfactory recovery in 6 months. Two probable mechanisms for the relation between the acceleration of axon regeneration and direct ACES are (1) axon outgrowth across the suture site, and (2) the number of newly regenerated motor units as well as the affiliated axons significant increase. No prominent side effects were found in the treatment course. *Conclusion:* Direct electrical stimulation of the injured nerve may augment nerve regeneration by three possible mechanisms. Though direct ACES contributed to dramatic effects with minimal adverse in this case, further investigation of treatment protocols and definite mechanism still needs to be established.

PP25

INSTITUTIONALIZED ELDERLY REHABILITATION – EFFECTS ON PHYSICAL FITNESS AND QUALITY OF LIFE

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Physical activity is important for healthy ageing and may help to maintain good function in older age. Institutionalization is often due to functional decline and institutions frequently do not provide activities to maintain or regain functionality. Exercise therapy is an important component of rehabilitation programs for elderly and helps reduce pain, improve joint stability, functional ability, muscle strength and endurance, and aerobic capacity; preventing bone loss and fractures, and improving or maintaining quality of life. This study aims to investigate if a physical exercise program improves self-perception of health status, physical fitness, muscle strength and body composition in a group of institutionalized elderly. A quasi-experimental study was conducted using the Portuguese version of the Short Form-36 Health Survey (SF-36v2), the Rikli Jones Senior Fitness Test, hand dynamometry and bioelectrical impedance before and after a physical exercise program. A total of 20 elderly aged 76.1±8.7 years with 18.3±13.3 months of institutionalization, participated in a two-month of physical exercise program. Results show that scores of SF-36v2 after the program had significantly increased in physical and mental components. They also increased significantly in scales such as physical functioning, bodily pain, vitality, social functioning, general health and mental health. Physical fitness results show that all components improve after the intervention. Noteworthy are aerobic endurance, lower flexibility, superior flexibility and agility, speed and dynamic balance all with statistical significance. An increase in muscle mass and a decrease in body fat, metabolic age, visceral fat and body water was observed, but without statistical significance. Bone mass had no changes. Physical exercise programs can contribute to improve physical status and self-perception of well-being leading to autonomy and confidence in performing daily living activities. In institutionalized elderly population this is a very important step towards independent life.

PP26

EXPERIENCE OF A MOBILISATION AND ACTIVE EXERCISE PROGRAM ON THE RANGE OF MOTION OF BEDRIDDEN PATIENTS WITH DISUSE SYNDROME

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Introduction: Disuse syndrome is a disorder that is most often associated with acute or chronic disease complications. Despite disuse

syndrome may affect all organs and systems, the impact of range of motion limitations caused by immobility on functional capacity to perform activities of daily living is often very severe. Mobilization and active exercise have beneficial effects that counteract the impact of immobility on the body. *Objective:* This study aims to assess the effect of a mobilization and active exercise program on the range of motion of bedridden patients with disuse syndrome. *Method:* A quasi-experimental pre-post study was developed. The sample consisted of 26 persons that have been bedridden for more than six months at home. A mobilization and active exercise program was designed, fitting patients' individual needs and implemented 2 times/week for 2 months. Caregivers where trained to transfer the patient from bed to chair and to repeat active exercise every day. Data collection was performed before and after intervention, using the Barthel Index and a goniometer for range of motion evaluation. *Results:* 26 study participants, aged 77.19 ± 11.67 and bedridden for 18 months (18.73 ± 15.25) were enrolled, but only 24 completed the intervention program. There was a minimal difference in the sex distribution with 7.6% more women than men. The results showed a statistically significant increase on range of motion of the shoulder, elbow, wrist, hip and knee. There was statistical significance in plantar flexion but not on the dorsiflexion. Barthel Index score increased significantly (28.65±21.28vs31.46±23.28; p=0,035) after the mobilization and active exercise program. *Conclusion:* A mobilization and active exercise program implemented regularly may contribute to improve range of motion of bedridden patients with disuse syndrome.

PP27

INSTITUTIONALIZED ELDERLY REHABILITATION – IMPROVING BALANCE ABILITY WITH A PLATFORM TECHNOLOGY

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Introduction: Ageing is associated with a decrease in the functionality of all organic systems. One factor that affects the quality of life in the elderly is the decrease of balance that sometimes leads to falls and consequently the fear of falling. In this sense, it is essential to try to mitigate this progressive degeneration. Wii is a platform technology and method that can be used to improve balance in elderly and thus enable them a better quality of life and well-being. *Objective:* To investigate whether an exercise programme using Wii games, improve balance in a group of institutionalized elderly. *Method:* A quasi-experimental study was design in which it was used a sociodemographic questionnaire, nine of the ten tests of Fullerton Balance Advanced Scale to assess balance and the Falls Efficacy Scale (FES) to assess fear of falling. The exercises program where performed on the Wii platform, and applied in 10 minutes session three times a week for two months. *Results:* Twenty elderly were included, 70% women, with an average age of 82.20±4.92 years, 55% were widowed, 35% single and 10% married. The results of the Fullerton Balance Advanced Scale evaluation showed that 17 elderly improved balance and 3 elderly decreased. The Fear of falling results showed a statistically significant increase (Z=–2.875; p=0.004) from the first to the second assessment moment (67.20±12.07 vs 70.25±12.94). *Conclusions:* The exercise program set up with the Wii platform improved balance ability and decreased fear of falling in the elderly who participated in this study. Wii games can be used in rehabilitation of elderly to improve balance and reduce fear of falling.

PP28

IMPLEMENTING A PROPRIOCEPTIVE EXERCISE PROGRAM IN ELDERLY

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Introduction: With aging, the human body goes through a period of transformation that generates decline of some physical capacities, such as decreased flexibility, agility, coordination, joint mobility and balance, compromising the functional capacity of older people, which is essential for carrying out Activities of Daily Living. The physical exercise is key to improving the functional capacity of the elderly, in particular with proprioceptive exercises, which have been used in recent studies with elderly. *Objective:* The aim of our study is to evaluate the effects of a proprioceptive exercise program on functional capacity in the elderly group. *Method:* To achieve this objective, we designed a quasi-experimental study with pre- and post-intervention measurements. All participants were evaluated with hand grip strength, finger pinch force, the Tinetti Gait and Balance Test, single leg balance test, evaluation of senior fitness test by the "arm curl test", "sit to stand test" "timed up and go test", "back scratch test" and "chair, sit and reach test " by Rikli & Jones. The program was conducted 2 times a week for 12 weeks. *Results:* The sample consisted of 24 elderly, 12 of them in the intervention group (67.25 ± 2.01 years) and the other 12 in a control group (68.08 ± 1.73 years). According to the results, the intervention group showed a statistically significant improvement in all evaluations performed after the program. In the control group, there was no significant improvement in functional capacity components evaluated after 12 weeks. *Conclusion:* Our proprioceptive exercise program proved to be improving the functional capacity of the elderly. This proprioceptive training program is one of the pioneers in this specific area with great potential for future use.

PP29

ELDERLY WITH FEMORAL NECK FRACTURE: ANALYSIS OF FALLS AND FUNCTIONAL CHANGES

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Introduction: According to the Portuguese Ministry of Health there are in Portugal more than 9,500 femoral neck fractures each year, which reached hospital expenses of around 52 million euros. The same source estimates the mortality from 20% to 30% over a year after fracture; referring to severe disability it reaches a prevalence of 40% in the same period. *Objective:* To know the effect on the functional capacity of the elderly falling victim, which results in femoral neck fracture. *Method:* This research is a descriptive, longitudinal, prospective correlational study with a quantitative methodology. The sample consisted of 35 elderly patients at the first assessment and thirty in the second, all admitted to the trauma service of the Bragança Hospital Unit, Portugal. Data collection took place between February and June 2014 and the second evaluation was conducted between August and December, 2014. It was intended to assess the degree of recovery of functional ability after fracture of the proximal end of the femur, the fear of falling and characterize the falls. The instrument used for calculating the degree of functional recovery was the Katz index. *Results:* Of the sample studied 33.3% had femoral neck fracture and the remaining 66.6% had trochanteric, subtrochanteric and intertrochanteric fractures. Surgical treatment was instituted in 93.3%. The values of the Katz index decreased from 15.53 to 12.93 points. The degree of recovery of functional independence is significantly higher in patients who underwent osteosynthesis with hip prosthesis, whether it was partial or total. *Conclusion:* The variables that most influenced the functional recovery were the type of fracture and the type of osteosynthesis. There was a decline in functional capacity and in parallel an increase in the fear of falling.