8th World Physiotherapists and Physicians Summit

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Posters

Tan Ee Chen Jaclyn, Physiother Rehabil 2018, Volume 3
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Clinical outcome in relation to care of a multidisciplinary non-cystic fibrosis bronchiectasis outpatient clinic

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Background & Aim: Non-Cystic Fibrosis Bronchiectasis (NCFB) is a complex inflammatory airway disease with structural airway damage, significant morbidity and mortality. The evidence of improved clinical outcome from managing patients with CF at specialist center is well-established. However, the role of specialist clinic in managing NCFB patients has not been well-reported from Asia. We aim to evaluate the clinical outcome of managing patients with NCFB at a multidisciplinary Specialist Outpatient Clinic (NCFBSOC).

Methods: Patients from NCFBSOC were divided into two periods. Period A was 12 months before attending the NCFBSOC and patients were managed by a non-bronchiectasis specialist. Period B was 12 months after attending the NCFBSOB and managed by a bronchiectasis specialist, respiratory physiotherapist and 2 respiratory nurses. We performed a comparison analysis on predicted Forced Expiratory Volume in one second (FEV1), Body Mass Index (BMI), hospital admissions and Emergency Department (ED) attendances due to bronchiectasis exacerbation between Period A and B.

Results: We studied 74 patients (29 male) with a mean (SD) age of 68 (12). The mean (SD) rate of ED attendances due to bronchiectasis exacerbation was significantly reduced from Period A to B (0.3 (0.6) vs. 0.1 (0.3), p=0.01). The mean (SD) rate of the hospital admission was also significantly reduced (1 (1.2) vs. 0.5 (0.9), p=0.01). The BMI and percent predicted FEV1 were stable after attending the NCFB for 12 months ((20 vs. 20) and (65% vs. 67%) respectively).

Conclusion: This study demonstrates that managing patients at a NCFBSOB results in a reduction in the rate of ED attendances and hospitalizations.

Biography

Tan Ee Chen Jaclyn has completed his Graduation from University College London in MSc with merit in Advanced Physiotherapy (Cardiorespiratory). She has 8 years of experience in Healthcare as a Critical Care Physiotherapist and Clinical Educator. She has a great interest in the management of patients with respiratory diseases and is the forerunner in pushing for early mobilization for the critically ill patients in the medical intensive unit care. She is also involved in the development of the bronchiectasis care path in the hospital. She has presented multiple posters and abstracts at both local and overseas conferences and won awards for some of these posters.

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Sarah Blyton, Physiother Rehabil 2018, Volume 3
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Associations between neck kinematics and pain in individuals with chronic idiopathic neck pain

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Aim: To determine associations between kinematics and chronic idiopathic neck pain intensity.

Method: Three-dimensional motion capture quantified kinematics in 10 individuals with chronic idiopathic neck pain performing overhead reach to the right and putting on a seatbelt at baseline, 6 weeks and 6 months. Kinematic variables included maximum joint angle (°), time to maximum (% movement phase), total range of motion (°) and velocity (m/s) for Head segment relative to Neck (HN) and Head/Neck segment relative to Thoracic (HNT). Visual analogue scale quantified pain at each time point. Mixed regression models determined associations between pain and kinematic variables both over time and cross-sectionally at each time point.

Results: Higher pain associated with less maximum HN rotation at baseline (reach: β=-0.32°, 95% CI -0.13 to -0.52, p=0.003; seatbelt: β=-0.52°, 95% CI -0.30 to -0.72, p<0.001) and less HN total rotation range of motion at baseline (seatbelt: β=-0.29°, 95% CI 0.10 to -0.49, p=0.006) and 6 months (reach: β=-0.19°, 95% CI -0.38 to -0.002, p=0.048). Higher pain associated with delayed timing to reach maximum HNT rotation over time (reach: β=0.46%, 95% CI 0.099 to 0.82, p=0.015). Pain not associated with other kinematic variables.

Conclusion: Higher neck pain associated with lower maximum and total rotation during functional tasks requires cervical rotation. This results supports clinical observation of altered movement strategies in individuals with chronic idiopathic neck pain.

Biography

Sarah Blyton has completed her Bachelor of Physiotherapy degree at the University of Newcastle. She has presented her research at the University of Newcastle and at a national conference. She currently works in private practice treating primarily musculoskeletal conditions and on weekends works as a Physiotherapist for a Local Netball Association.

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e-Poster

A Efstratiadis, Physiother Rehabil 2018, Volume 3
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The role of static and dynamic stretching in athletic performance: A systematic review

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Background & Aim: The main categories of stretching are static and dynamic. Static stretching is a stretch is held in a challenging but comfortable position for a period of time, usually somewhere between 10 to 30 seconds. It is the most common form of stretching found in general fitness and is considered safe and effective for improving overall flexibility. However, many experts consider static stretching much less beneficial than dynamic stretching for improving range of motion for functional movement, including sports and activities for daily living. Dynamic stretching is a controlled stretch which involves voluntary movement. The purpose of this literature review is to investigate whether the use of stretching before or after the workout can affect performance in sport. At the same time, we will investigate the most effective type of stretch in the performance of an athlete based on the articles to be studied. The appropriate time to apply the appropriate stretch will also be studied.

Method: The databases that were used for this review: Medline, PubMed, Cinahl, SPORTdiscus, and Cochrane. The inclusion criteria were: (1) Randomized controlled trials or controlled trials, (2) to be written in English language, (3) to provide information on the inclusion and exclusion criteria for the entry of participants, (4) studies from 2012 until 2017, (5) to compare a kind of stretch with at least one other or to compare a kind of stretching with a stretch tool and (6) have done in different kind humans.

Result: Static stretching seems to have better results in increased range of motion, muscle stiffness, strength and muscle activation. Dynamic stretch seems to improve athletic performance in the areas of flexibility, strength, range of motion, balance and sprint.

Conclusion: The results of the study showed that static stretching should be avoided before training and it would be good to avoid up to 24 hours before an explosive workout exercise. Dynamic stretching appears to be appropriate for athletes prior to training. Dynamic stretching has positive effects in improving flexibility, agility, balance, strength and overall improvement in athletic performance. The duration of its application varies. However, the results of the research have shown that it should be applied for more than 30 seconds. Each static stretch is good to apply at least 30 seconds and not more than 60 seconds, for 3 repetitions. Also, static stretching appears to be indicated in conditions of muscle stiffness, reduced flexibility and reduced range of motion.

Biography

A Efstratiadis has completed his BSc in Physiotherapy and MSc in Sport Physiotherapy from European University of Cyprus.

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Accepted Abstracts

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Exercise for reducing fear of falling in older people living in the community

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Objective: To determine the effect of exercise interventions on fear of falling in community-living people aged ≥65 years.

Methodology & Design: Systematic review and meta-analysis. Bibliographic databases, trial registers and other sources were searched for randomized or quasi-randomized trials. Data were independently extracted by pairs of reviewers using a standard form.

Results: Thirty trials (2878 participants) reported 36 interventions (Tai Chi and yoga (n=9), balance training (n=19), strength and resistance training (n=8)). The risk of bias was low in few trials. Most studies were from high income countries (Australia=8 and USA=7). Intervention periods (<12 weeks=22, 13-26 weeks=7 and >26 weeks=7) and exercise frequency (1-3 times/week=32 and ≥4 times/week=4) varied between studies. Fear of falling was measured by single-item questions (7) and scales measuring falls efficacy (14), balance confidence (9) and concern or worry about falling (2). Meta-analyses showed a small to moderate effect of exercise interventions on reducing fear of falling immediately post intervention (Standardized Mean Difference (SMD) 0.37, 95% CI 0.18, 0.56; 24 studies; low quality evidence). There was a small, but not statistically significant effect in the longer term (<6 months (SMD 0.17, 95% CI -0.05, 0.38 (four studies) and ≥6 months post intervention SMD 0.20, 95% CI -0.01, 0.41 (three studies)).

Conclusion: Exercise interventions probably reduce fear of falling to a small to moderate degree immediately post-intervention in community-living older people. The high risk of bias in most included trials suggests findings should be interpreted with caution. High quality trials are needed to strengthen the evidence base in this area.

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Quality of Passive Movement Scale (QPM): Evaluation of validity, reliability and use in orthopedic rehabilitation

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98% of manual physical therapists use manual assessment during their exam and base treatment decisions at least partially on their findings. Important values in the manual assessment are the measurement of pain and range of motion. Quality of movement has been found to be an important factor for the assessment of body's function. Unfortunately manual assessment is subjective for the therapist and is often not measurable. Also it is not possible to compare results between different therapists. Although the poor reliability of high quality studies clinicians continue use of manual assessment as part of clinical examination. The development of evidence-based medicine goes towards objective measurements. In fact, there are possibilities to take objective measures about pain using Visual Analogic Scale (VAS) or other scales and range of motion, using a goniometer for measuring the degrees. In addition, also other important variables in physiotherapy are measurable. A commune method to classify pain, spasm and resistance and to bring it in relation to range of motion is to recode joint function findings with movement diagrams or characterizing the end feel. Unfortunately this method is subjective and not reliable. At the moment no objective possibility of measuring quality of movement is available, except the quality of movement scale. Evidence suggests that manual assessment of stiffness may have some predictive validity in determining which patients are likely to respond best to different treatments.

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Neonatal physiotherapy

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Neonatal physiotherapy is an area of pediatric physiotherapy, whose intervention framework covers, mainly, the first month of life. The physiotherapists who develop their work in the neonatal intensive care units and the neonatal intermediate care units require a specific training that demands to reach the necessary competences to safely and effectively fulfill their intervention and understand the impact of different neonatal conditions on the motor development of the child. It is estimated that around 15 million preterm infants are born in the world every year. If we consider the increase of prematurely born children who survive, thanks to the evolution of neonatal care and that the frequency of appearance of motor and respiratory sequelae described in them remains constant (due to high morbidity), it is important, from the health, social and economic point of view, put into practice strategies that can improve the evolution of these children. In this regard, the development of physiotherapy treatments aimed at preterm infants from a preventive and assistance perspective is fundamental to reduce to minimum the consequences of motor, respiratory and oro-facial risk factors, etc. To contribute to the maturation of fundamental functions such as breathing, suction and swallowing, promote the motor development of the newborn, treat the different pathologies and injuries and provide guidance and support to parents. Neonatal physiotherapists develop specific functions such as their identification evaluation and intervention. In addition, co-ordination functions, with the rest of the interdisciplinary team, and research as fundamental basis.

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Can early physical rehabilitation modulate underlying pathological mechanisms in critical illness?

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Critical care management is multi focal which can confound into multiple pathologies requiring multiple pathways of recovery. An estimated 2% to 11% of critically ill patients require prolonged stays in the ICU accounting for 25-45% of total ICU days. Acute muscle wasting is directly correlated with systemic inflammation during critical illness and patients with multi-organ failure can suffer muscle loss of more than 15% by the end of the first week of ICU admission. In addition, oxidative stress caused during the disease process is an atrophic stimulus in unloaded muscle that promotes atrophy by modifying redox-sensitive processes in the muscle fibers. Preservation of muscle mass should focus on anabolic restoration through early physical rehabilitation strategies however anabolic and catabolic pathways have not been explored in detail up to date. Through targeted exercise, the prevention of excessive release of pro-inflammatory cytokines and activation of proteolytic pathways leading to limitation of free-radical generation may inhibit the catabolic skeletal muscle changes in severe critical illness. Progressive physical activity may also reduce resting CRP (C-Reactive Protein) levels through multiple mechanisms, causing a decrease in cytokine production and possibly impose an antioxidant effect. Different exercise protocols can result in varying levels of ROS (Reactive Oxygen Species) production, as oxidative damage can be both intensity and duration dependent. However, the oxidative stress responses of early physical rehabilitation during disease states are yet to be explored. The overall aim is to evaluate the capacity of early exercise to modulate pathological outcomes during critical illness. It is hypothesized that early exercise alters underlying pathological mechanisms of critical illness; inflammation, illness severity, microcirculation and oxidative processes affecting muscle architecture. Preliminary evidence suggests that early exercise can modify fat free muscle mass and inflammatory biomarkers in critically ill patients. The physiological reasons for improvement or adverse effects on underlying pathology of critical illness with early exercise require further investigations.

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How emotions affect posture: A scientific view of the organization of fascia

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The most recent emotional theories say that emotions are the sum of exteroceptions and interoceptions together with the information contained in the limbic system. From there the CNS (Central Nervous System) forms an emotion triggering series of efferent responses, acting on the regulatory system of biotensegrity and remodeling the extracellular matrix. In the case of negative emotions, the insular cortex, somatosensory and right hypothalamus generate a descending response where there is a greater activation of the fibroblasts, myofibroblasts and smooth muscle cells, contracting and generating alterations in the collagen networks, tensioning deep fascia and the epimysal fascia, mainly in the deeper layers, related to the maintenance of the posture. If the emotion is chronically maintained, the collagen network of the extracellular matrix remodels itself to change the posture in a pathological pattern.

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Role of Physiotherapy in the Management of Pott's disease at Kundiawa General Hospital, Simbu Province Papua New Guinea

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Pott's disease also known as spinal Tuberculosis (TB) which commonly leads to a gradual onset of neurological deficits. Tuberculosis is on rise in the developing countries as in Papua New Guinea. Kundiawa General Hospital is one of the hospitals in the country which is currently managing Pott's disease with specific Physiotherapy methods and techniques over the last 20 years. Retrospective analysis of 253 patients documented 158, from medical admission records, years 1996 to 2018. Physiotherapy interventions were based on: Clinical examination, spine x-ray, neuromuscular skeletal assessment (Frenkel Grading). Total of 253 of Pott's diseases patients, 158 were documented, out of that figure 63 patients with neurological deficits and paravertebral abscess underwent surgery, Physiotherapy and anti-tuberculosis treatment and have benefited well. The other 95 patients without neurological deficits were on pure physiotherapy and anti-tuberculosis and also benefited. Thorough physiotherapy neuromuscular skeletal assessment contributes to the successful management of the spine and limbs using treatment methods of back care, log rolling techniques , back extension, stimulations exercises and power exercises program of the back and limbs. Patients with gibbous underwent distraction of bilateral uppers and lower limbs by distracting the spine. Majority of patients benefited well with early physiotherapy interventions and discharged home with POP corsets. Most 154 (94.2%) of them have walked and lived a normal live at home after full physiotherapy rehabilitation program with the awareness and continuity of Community based on rehabilitation program. It has been a successful multi-disciplinary approach of surgical, medical, physiotherapy, nursing and family was involved.

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Revolutionary breakthrough: Neuroscience and power of fear/the pattern of fear decoded

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Whether we like it or not we all have fear. The discovery of the neuromotoric pattern of fear started in 2002. It started as an observation by accident why the generalized population reacts in a different way in situations of fear in a certain sport. Psychologists, psychiatrists and scientists mainly focused on calming or treating the limbic system (site of fear) through verbal expressions of patients/athletes in general. They have used the higher learning sites of the cortex/cortical functions to solve and overcome fear. The main focus of this discovery is to solve the problems arising in athletes who 'choke' (froze) in their movements during their game which is the sign of fear. The introduction of test for fear are based on exposure of the subject at once on the 5 common fears such as height, flight, falling, darkness and a modified explosive sound. Individuals who were tested have a common denominator which is the fear of death. The test subjects started with individuals with cerebrovascular accident, Parkinson's, neurologic cases and other disabled handicapped patients who volunteered. The test itself failed because none of them want to do the jump test. After the setbacks of the test which focused more on able bodied individuals this time started to attempt and do the test with tremendous presence of fear and specific pattern in the body parts such as extension of the elbow, hyper extension of the back exaggerated plantar flexion and other body parts moving in definitive pattern. So the test subjects focused with the participation of 1000 individuals with all the same patterns. Only 3 among the thousand managed to do the test. Through this test all negative movements reveal specific patterns. Based on these observed cases, one's body will then be calibrated to a natural and more relaxed movement that enhances a recoil reaction using the milestones training. These are done through using primitive reflexes and exposing them in the areas of common fears. The author also found out that free falling is also the common denominator of those in relation to gravity (body weight). The body reacts in a panic state when joints obstruct movement forward by using inhibitory patterns through moving backwards. The author says 'The mind can lie but the body won't and the brain knows it'. Therefore, our mind adds information which leads to over calculation and eventually disruption of specific skillful movements. Injuries and all negative behaviors are results of the incoming stress which demonstrates itself as: Anger, impatience, loss of focus, inability to listen and inability to move naturally. On December 13, 2017 the test was copyrighted and started to be used in sports as a supportive technique to have more confidence in performance without the need for over training. It is known as the Alvarez Fear and Recoil Test.

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Effect of stability exercise in comparison with routine physiotherapy exercises on the pain, disability and transverse abdominis muscle thickness during voluntary and functional tasks in patients after lumbar decompression surgery

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Introduction & Aim: There is evidence that changes in the function of deep trunk muscles remain in patients with low back pain after lumbar decompression surgery. The purpose of this study was to investigate the effectiveness of Stability Exercise (SE) on the pain, disability and Transverse Abdominal (TrA) muscle thickness during voluntary and functional tasks in patients with low back pain after lumbar decompression surgery.

Materials & Methods: This randomized clinical trial study was conducted on 40 patients who underwent lumbar decompression surgery over the past two to three months. The intervention group underwent 8 weeks of treatment consisting of SE and the control group received only General Exercise (GE) in the same period. The TrA muscle thickness was measured using the HS-2100V ultrasonography apparatus with a 7.5 MHz B-type linear probe. A Roland-Maurice questionnaire was used to assess the patients' disability due to Low Back Pain (LBP) and the Visual Analog Scale (VAS) questionnaire was used to measure the severity of the pain.

Results: The results showed that the percentage of changes in the TrA muscle thickness during the Abdominal Hollowing (AH) maneuver and standing, significantly increased in the SE group and also the pain and disability decreased significantly ($P<0.05$). In addition, the results demonstrated that pain and disability decreased significantly in the GE group ($P<0.05$); however, the percentage changes in the muscle thickness in the AH maneuvers and standing were not significant ($P>0.05$). The independent T-test indicated that changes in the level of the TrA muscle function during standing (muscle functionality status) as well as the changes in the level of disability were significantly higher in the SE group than the GE group ($P<0.05$).

Conclusion: SE is more effective than GE in increasing the performance of deep abdominal muscle during functional tasks and contributes in reducing the level of disability. Therefore, this intervention can help to improve the functional activity of deep abdominal muscle, especially in standing tasks in people who have undergone lumbar decompression surgery.

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Change in quality of life among adults with lower limb amputation after rehabilitation in Cambodia

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To examine predictors of Quality of Life (QoL) improvement in people with lower limb amputations after receiving rehabilitation in Cambodia. People with Lower Limb Amputations (LLAs) from seven Physical Rehabilitation Centers (PRC) in Cambodia were interviewed using the comprehensive quality of life scale adult questionnaire (composed of objective and subjective score) at the first day of registration and three months after discharge. A paired t-test examined the difference between the QoL scores and linear regression was used to identify factors potentially associated with changes in QoL. Absence of residual stump pain having less time (6 months) since amputation before receiving proper rehabilitation services and receiving the support of relatives or friends before receiving rehabilitation services, were significantly associated with an increased score of quality of life. Rehabilitation was shown to improve QoL for people with lower limb amputations. Rehabilitation should be provided as soon after amputation as possible to increase its effectiveness on improving QoL. Both phantom limb pain and residual stump pain may require additional intervention and those with LLA who have no support from relatives or friends may require additional help to improve QoL. A longer-term follow up study should be conducted.

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Specialized neuro-rehabilitation strategies for retraining brain circuits following functional neurosurgery: An occupational therapy perspective

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Objective: The purpose is to highlight and briefly summarize how a patient who has dystonia involving either complete body, focal or task specific were managed through occupational therapy after they were operated for functional neurosurgeries. This report also aims at providing a backbone structure for rehabilitation which maximized results post-surgery in such cases.

Methodology: Four different cases, one each of cervical dystonia (retrocollis) progressed to generalized body dystonia, cervical dystonia, writer dystonia and guitarist dystonia who underwent stereotactic MRI guided RF ablation surgeries were referred for neuro-rehabilitation on the first day post operation. Each one of them was assessed pre- and post- surgically to identify the deficits in the performance components and associated performance areas. Thorough occupational therapy evaluation was done. Following evaluation, occupational therapy sessions were planned with goals specific to improving performance in day to day task and specific task identified as per Canadian Occupational Performance Measure. Occupational therapy (part of neuro-rehabilitation) was done to improve range of motion. Therapy strategies used included graded strengthening of the weak muscles, motor re-education to rectify muscle memory of the dystonic muscles, postural correction using visual, tactile and proprioceptive feedback, cognitive retraining to focus on the position of the involved body part while active participation during therapy, visual fixation and scanning task for cervical dystonia and generalized dystonia, deep relaxation techniques and care giver education. For focal dystonia, task specific training using a combination of departmental activities and slow and graded retraining of the involved task were carried out.

Result: After completion of occupational therapy session patients reported remarkable improvement in their abilities. They learnt to hold head in erect posture with minimal involuntary contraction, sit independently and perform their self-care task under supervision. Those who had focal/task specific dystonia, they regained 85-90% functionality as per their satisfaction rating. People with focal/task specific dystonia regained independent in all basic activities of daily living and instrumental activities of daily living participation and were able to return to their social life confidently. Patients with generalized dystonia became community ambulatory with one person's assistance. All of them reported return of dystonia component if therapy was not continued as advised or over did beyond the advised repetitions or duration. But they regained their abilities within 1 week with intense occupational therapy. Hence, they were strictly advised to follow up every 15 days to review the therapy program.

Conclusion: Patients with severe dystonia can be successfully rehabilitated for optimal results using combination of neurosurgery and neuro-rehabilitation comprising of occupational therapy as a significant contributor. The results vary depending on the severity of dystonia, type of dystonia, post-op status, proper implementation of neuro-rehabilitation and patient support.

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