



6th International Conference on

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Posters

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A body mass index cut-off point for determining endurance impairment in community-dwelling elderly

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In Thailand the number of elderly trends to rapidly increase. Advancing age induces decrement of many body systems which impact on the physical performances. Currently, people behaviors truly change in which it may be a reason of increase the prevalence of overweight and obesity in Thai elderly. Previous studies reported that Body Mass Index (BMI) was closely related to endurance performance in elderly. However, cut-off point of BMI for determining endurance impairment is unknown. Thus, the study investigated cut-off point of BMI for determining endurance impairment in 194 community-dwelling elderly. The participants were interviewed their characteristics and health information including age, gender, smoking status, drinking status, and underlying disease. Then, they were assessed their endurance performance using the 6-Minute Walk Test (6MWT). The findings reported that a cut-off point of BMI to indicate endurance impairment was 23.0 kg/m² (64.62% sensitivity, 46.51% specificity, area under the curve=0.5643). Furthermore, the findings showed a correlation of BMI and 6MWT ($r=-0.24$, p -value=0.001). Age, gender, smoking status, drinking status and underlying disease also related to endurance ability ($r=-0.159$ to -0.334 , p -value<0.05). Although there was a low correlation between BMI and 6MWT, it was a significant trend of health promotion. Furthermore, other factors should also be concerned for planning an appropriate management in order to increase endurance performance to be independently performing activities in daily living of the elderly.

Biography

Phiangdao Artchaithorn is a Physiotherapist and pursuing Masters in Physical Therapy Program, School of Physical Therapy, Khon Kaen University, Thailand.

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PHYSIOTHERAPY

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The effects of the visual bio-feedback information to control for hyper extended knee

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Hyper-extended knee is described as knee pain associated with impaired knee extensor mechanism. Additionally, hyper-extension of knee may have reduced knee joint position sense that may reduce the individual's ability to control end range knee extension movement. The Purpose of this study is to investigate the effects of visual bio-feedback information for plantar weight bearing distribution to plantar pressure for the foot, lower extremity muscle activities, and knee joint angle in subject with hyper-extended knee. Thirty subjects with hyper-extended knee were participated in the study. Surface electromyography was recorded for the rectus femoris, biceps femoris, tibialis anterior and gastrocnemius muscle activities. The plantar weight bearing distribution displayed and measured using a pressure measurement mats. Kinematic parameter for knee joint angle was recorded using a motion analysis system. A paired t-test was used to determine the significance between visual bio-feedback and prefer condition. Knee joint angle significantly decreased in the visual bio-feedback condition than prefer condition ($p < 0.05$). RF and GCM muscle activities were significantly differ between visual bio-feedback and prefer condition ($p < 0.05$). The results of this study showed that the visual bio-feedback information of plantar weight bearing distribution is effective for correction of hyper-extended knee.

Biography

Sung-Min Ha is currently an Assistant Professor in the Department of Physical Therapy at the College of Health Science of Sangji University. He has received his PhD from Yonsei University in 2012. He is interested in the mechanism of movement impairment, biomechanics and development of therapeutic intervention approach through movement analysis and EMG study for movement disorders and musculoskeletal disease.

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PHYSIOTHERAPY

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Comparison of muscle activity of abductor hallucis in subjects with mild hallux valgus during three different foot exerciseJung Sung hoon², Sung-Min Ha¹ and In-Cheol Jeon³¹Sangji University, South Korea²Yonsei University, South Korea³Hoseo University, South Korea

Hallux valgus (HV) is clinical impairment of foot. HV is occurred due to weakness of abductor hallucis muscle. Short foot exercise (SF) and Toe spread out exercise (TSO) are the existing strengthening exercises for abductor hallucis. The purpose of this study was to investigate a more effective exercise than SF and TSO to activate abductor hallucis muscle (AbH). The sixteen subjects with mild hallux valgus were participated. Three exercises were performed in subjects with hallux valgus for SE, TSO, and TSO with pressure biofeedback unit (TSOP). Electromyography (EMG) was used to collect EMG signals from AbH. Any significant difference in EMG activity of AbH among the three conditions (SF vs. TSO vs. TSOP) was assessed using a one-way repeated ANOVA with the Bonferroni post hoc test. As a EMG value of AbH appeared 19.99% (SF), 60.97% (TSO), 89.61% (TSOP)($p < 0.01$). TSOP exercise showed the greatest AbH muscle activity among three different exercises. This result suggested that TSOP was the most effective exercise for strengthening the Abductor haullcis.

keyword: Hallux valgus; Pressure biofeedback unit; Short-foot exercise; Toe Spread Out exercise.

Biography

In-cheol Jeon is currently assistant professor in the Department of Physical Therapy at the College of Life & Health Science, Hoseo University. He received the Ph.D. degree from Yonsei University in 2017. He is interested in the mechanism of movement impairment, biomechanics, and development of therapeutic intervention approach through movement analysis and EMG study for movement disorders and musculoskeletal disease.

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The effectiveness of the concentric versus balance exercises in preventing 'Achilles' tendinopathy in healthy footballers and runners and in a healthy living population: A prospective study

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BACKGROUND: Achilles tendinopathy is a common musculoskeletal disorder with various pathological manifestations in both athletes and non-athletes^{1,2}. It is an overweight injury characterized by localized progressive pain and

OBJECTIVES: The aim of this prospective study was to investigate the effectiveness of concentric exercises versus balance exercises in preventing Achilles tendinopathy on healthy footballers/runners and in a healthy living

RESULTS: In this prospective study was analyzed 4th articles to prevent Achilles tendinopathy (Table 2). This results providing the existing knowledge of types of exercises in treatment Achilles tendinopathy in healthy participants. dysfunction³. The frequency of Achilles tendon injury is estimated to be 30-50% of all sports population.

METHODS: There is no statistically significant difference in efficacy between concentric and balance exercises in the prevention injuries, 50% between athletes running and 6% in sedentary lives^{4,5}. The etiology of Achilles' tendinopathy is multi factorial and is due to both extrinsic and insitric injury factors^{6,7}. Treatment of tendinopathy usually consists of conservative physiotherapeutic treatment and surgical treatment⁸. However, basic therapy is kinesiotherapy, both in rehabilitation and prevention⁸.

REFERENCES: Research will be conducted through the electronic databases PubMed, Science Direct, MEDLINE and Proquest. The search will be limited to English articles. The study will be randomly sampled from the county of Argolida, Greece. A sample of 60 people over 18 years old will be taken by men and women footballers and runners, as well as 30 people from the general population. The evaluation of the sample will be done if crash diaries are provided to each participant where each participant has to record daily injuries or annoyance on the Achilles tendon. Also, the strength will be measured with the maximum repeat (RM), the ankles motion range with a simple goniometer, and the muscular activity of electromyography (EMG) gastrocnemius. Chi-square and exact Fisher test for nominal data on Achilles tendon injury are used and the descriptive data will be calculated with mean and standard deviation. ANOVA analysis and Correlation analysis with the Pearson correlation coefficient for the relationship between exercise and occurrence groups of tendinopathy and equilibrium exercise groups in relation with the occurrence of tendiopathy will be used. The level of statistical significance will be set at $P < 0.05$. Finally, SPSS, version 20 for Windows, will be implemented. The intervention protocol contains a warm-up program for the Achilles tendons for all three groups and then each group will receive the specialized exercise program for 9 months and 4 times a week. of Achilles' tendinopathy in healthy footballers, runners and in a healthy living population. The importance of the problem is to include the most effective exercise in the prevention of Achilles' tendinopathy in athletes and in the healthy living population. This will reduce the incidence of Achilles tendon injury to healthy footballers, runners and the sedentary peoples of the population. For the creation of the present research proposal, the condition is the approval of the Ethics Committee of Greece

CONCLUSION: The creation of this prospective study will find the effectiveness of concerted exercises against equilibrium exercises in preventing Achilles tennisopause in healthy footballers / runners and in a healthy population of living.

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PHYSIOTHERAPY

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The effect of daily exercise on the prevention of musculoskeletal and cardiovascular diseases: Literature review

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European University of Cyprus, Cyprus

Introduction: Using a simple mobile application related to daily activity shows a significant increase in a user's physical activity for over 8 weeks» (Glynn et al., 2014). The development of technology and medicine meet on mobile telephony devices, which have become an integral part of our everyday life. Through these devices you enable the user, among other things, to record some personal health data such as diet, weight, walking, sleeping and exercise. Many recording applications of the above data have been rendered in recent years and used by the general public to record their daily performance (Rooksby et al., 2014). Depression from daily exercise seems to be the fourth major risk factor for global mortality, causing 3.2 million deaths per year worldwide (Virost P., 2011). These statistics have confused the research community, medicine and mobile phone technology. As reported, by the end of 2010, there have been over 17,000 mobile applications that track a user's daily exercise, and it is estimated that 500 million people, 1/3 of mobile users worldwide, use applications to improve their quality their lives (Kirwan et al., 2012). Walking is the most common form of exercise, meanwhile it seems to help pain reduction and reduces the symptoms of osteoarthritis, and if walking is combined with daily dosing can bring positive results to the cardiovascular system (White et al., 2013). The aim of the research is to upgrade the existing knowledge and to highlight the ideal number of steps a person needs to do, to prevent musculoskeletal and cardiovascular diseases within a daily exercise base.

Material and method: The review was based on clinical studies, randomized studies or systematic reviews that took place over the last five years (2013-2018) to validate existing knowledge. The search was conducted in PubMed, EBSCO, SPORT Discus databases, meanwhile the google scholar search browser was also used. Keywords used within the databases were per / day, musculoskeletal system, cardiovascular system. Surveys from around the world were used including articles that used mobile phone or watch applications. Unpublished articles were not included as well as non English articles or those including animals. In a post-menopausal study, the 10,000 steps were not enough, claiming that the 12,500 steps are those that can improve the health of women with a high energy index, while women with low energy activity 7,500 are enough (Kroemeke et al., 2014). People who suffer from multiple sclerosis should take 5903 steps a day to maintain their musculoskeletal system healthy and help prevent various conditions (Dlugonski et al., 2013) In people with stage-2 diabetes, a survey showed that these individuals should do walking on a daily basis of 4,000 steps and over to control their glucose levels (Van Dyck et al., 2013). While people with osteoarthritis need to perform daily about 8,200-11,800 steps (White et al., 2014). Regarding the healthy population, a survey reveals that 5000 steps - known so far- on daily basis should be avoided and instead suggesting that 7500 steps where 3,000 of these done within 30 minutes is the ideal figure for healthy individuals (Houle et al., 2013; Shift et al., 2013; Pillay et al., 2015; Thus, another survey conducted in 2017 reports that the 5000 steps are enough for healthy individuals (Dohrn et al., 2017). However, a 2018 survey indicates that 10 000 steps per day are the most ideal (Saldias et al., 2018). Research conducted on people with long-lasting sedentary lifestyles has shown that an hour of daily physical exercise can not compensate for the negative effects of daily inertia. While it is reported that reducing daily inertia with low-intensity activities such as walking and standing is more effective than one-hour exercise a day to improve insulin factors (Duvivier et al., 2013)

Conclusions: A daily exercise program should be proposed to all health clients and especially those who are mobile phone application users, could benefit a walkthrough of 7,500 steps a day. Following the general framework, the general public should be encouraged to restrict periods of immobility, increase walking and exercise frequency. The 7500 steps recommended, are not excessive and can offer many benefits such as the prevention of musculoskeletal and cardiovascular diseases.

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Effect of different body positions on lung dynamic functions in healthy young non-obese subjects**Abhijit Diwate**

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Background & Aim: Frequent changes in body position and avoidance of prolonged period in any single position will minimize the risk of cardiorespiratory complications. Body positioning has potent and direct effect on cardiorespiratory functions and dynamics. Hence the purpose of study was to find out effect of different body positions on lung dynamic functions and apply the results of study in a large population for therapeutic purpose.

Methodology: 50 young healthy non-obese subjects (29 females and 21 males) between age group 18-30 years were selected and Pulmonary Function Tests were done in six different positions (sitting upright, reclined sitting (crook), supine, prone, right and left side lying) in a Cardiorespiratory Laboratory of a Superspeciality Hospital. FVC, FEV, PEER, PIFR, FEV1, FVC, FEF 25-75%, SVC, VE, Vt, Vt/Ti and MVV were measured in six different positions. All the data was statistically analyzed and results were documented.

Result: There was statistical significant reduction in PFT parameters in all recumbent positions compared to upright positions ($p < 0.0033$). Further, prone position showed significantly higher flow rates and lung volumes when compared with supine position.

Conclusion: Hence we conclude that reference standard position of upright sitting was the best position among all other positions. Subsequently, prone position was found to be more physiological than supine position.

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PHYSIOTHERAPY

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Influence of muscle energy techniques on low back pain during pregnancy**Dalia Mohamed Kamel**
Ahlia University, Bahrain**Aim:** To determine the influence of Muscle Energy Techniques (METs) on pregnant women with mechanical low back pain.**Participants:** Sixty primigravide women in their 20 to 25 weeks' gestation having mechanical low back pain participated in this study. They were selected from the Obstetrics and Orthopedic Outpatient Clinic of Cairo University Hospitals. They were randomly assigned into groups two groups, Group-A: Control group, who received exercise program (three sessions per week) and back care advise during daily living activities. While, Group-B: Study group, performed a treatment program included a course of muscle energy techniques and the same exercise program and back care advise as in group-A (three sessions per week for 4 weeks).**Outcome Measures:** Present Pain intensity (PPi) scale, lumbar and thoracic curves and paraspinal muscles activity Electromyography (EMG) for both groups were done before and after 4 weeks of the treatment. In addition, the PPi was re-measured after one month as follow up.**Results:** Both groups showed significant decrease ($p < 0.05$) in low back pain intensity and paraspinal muscle activity while there was a statistically highly significant increase ($p < 0.05$) in kyphotic and lordotic angles. Between groups comparison showed a significant difference ($p < 0.05$) in low back pain intensity, kyphotic and lordotic angles as well as paraspinal muscles activity in favor of group-B.**Conclusion:** Muscle energy technique showed effectiveness in reducing low back pain during pregnancy as well as improving muscle activity.

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PHYSIOTHERAPY

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MDR tuberculosis contact prophylaxis of a newborn

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Background & Aim: Low back pain is a major cause of disability affecting performance at work. One of the hidden and less studied culprits of chronic low back pain is facet joint syndrome. Currently, there is paucity in the literature regarding the effectiveness of physiotherapy techniques in treating facet joint syndrome. Hence this trial was undertaken to study the effectiveness of Passive Accessory Intervertebral Movement (PAIVM) such as Maitland's mobilization and passive sustained accessory mobilization, such as Mulligan's technique (SNAGS) along with conventional physiotherapy intervention as compared to conventional physiotherapy in facet joint syndrome.

Method: A single-blind, randomized control trial was conducted on participants diagnosed with lumbar facet joint syndrome. Outcome measures for the study were Visual Analogue Scale (VAS), Modified Oswestry Disability Questionnaire (MODQ), Pressure Pain Threshold (PPT), Back muscle endurance, Spinal flexion and extension ROM. After baseline assessment, participants were randomly assigned to Group-A which received Mulligans Sustained Natural Apophyseal Glides (SNAGS), therapeutic ultrasound (Cont.1 MHz, 1.5 W/cm²) and spinal exercises, Group-B received Maitland's spinal mobilization (PA Glides), therapeutic ultrasound and spinal exercises and Group-C received therapeutic ultrasound and spinal exercises for the period of 2 weeks. Follow up was done at 3rd week.

Result: Total 186 participants were analyzed using Kruskal-Wallis test and Dunn-Bonferroni post hoc test. K-W test showed a significant difference in all three groups in terms of VAS, MODQ, PPT and Spinal ROM. Post Hoc test showed the significant difference ($p < 0.001$) between SNAGS and Maitland Group in terms of flexion and extension ROM and there was no significant difference ($p > 0.05$) between SNAGS and Maitland's manual therapy groups in terms of pain, MODQ and PPT.

Conclusion: SNAGS is more effective in improving spinal ROM, however SNAGS and Maitland's spinal mobilization are equally effective in reducing pain, disability and improving pressure pain threshold. Back muscle endurance improved in all the three groups, but the difference was not statistically significant.

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PHYSIOTHERAPY

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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 is 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 from years 1996 to 2018. Physiotherapy intervention was based on: Clinical examination, spine X-ray, neuromuscular skeletal assessment (Frankel 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 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 life at home after full physiotherapy rehabilitation program with the awareness and continuity of community based rehabilitation program. It has been a successful multi-disciplinary approach of surgical, medical, physiotherapy, nursing and family was involved.

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PHYSIOTHERAPY

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Effect of wrist tenodesis exercise on rehabilitation of finger flexor tendon repair on zone II**Mohamed Raafat Atteya**
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Introduction: The effectiveness of rehabilitation program post-surgical repair of flexor tendon remains unproved and controversy exists in the literature about the specific program which results in improved outcomes.

Purpose: This study was conducted to investigate the effect of wrist tenodesis exercise in patients with flexor tendon repair on zone II.

Methods: Thirty (30) patients participated in this study were assigned randomly into two experimental groups with age ranged from 20-60; Group-A 15 patients were treated by Kleinert protocol only, Group-B 15 patients were treated by Kleinert protocol with addition of wrist tenodesis exercise at 2nd week. Both groups were evaluated through measuring TAM by Finger Goniometer, hand grip strength by Jammer Dynamometer and functional disabilities by quick DASH scale, were measured at the 6th, 9th and 12th week postoperatively.

Results: The independent sample t-test was used to identify the differences between both groups; there was significant early improvement in TAM and hand strength into the group-B more than group-A, and significant reduction in functional disabilities scale into the group-B lesser than group-A post treatment.

Conclusion: The wrist tenodesis exercise can be used as one of effective modality on rehabilitation program after flexor tendon repair on zone II, as it was revealed a great and early outcomes.

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PHYSIOTHERAPY

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Highlighting women's health with evidence-based antenatal, natal and post-natal exercise programs

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Background & Aim: The rapidly increasing prevalence of childhood obesity has become a major burden on health worldwide, giving an alarm to healthcare clinicians and researchers. Adipocytes act as an active endocrine organ by releasing a plenty of bioactive mediators (adipokines) that play a vital role in regulating metabolic processes. Apelin is a newly discovered adipokine that is expressed in adipocytes. The present work aimed to study the association between serum apelin and childhood obesity and its related complications as hypertension and hyperglycemia

Introduction & Aim:

Physiotherapy evolved a lot over the past decades by revealing its significance in various branches. In Bhutan, however, the focus on Women's Health remained in the shadows until the past few years. The expectant mothers were only assigned to regular check-ups. The physical therapy services were never introduced to them. The factors could be mainly due to lack of awareness among Community Health team about the importance of exercises to treat common complains during pregnancy like backache, ankle swelling, urinary incontinence and so on. Secondly, pregnant women rarely consulted Physiotherapy unit as they were not referred to the latter. And partly the gender discrimination by male Physiotherapists could also be a contributing factor but it could just be an assumption. However, over the last few years, few keen physiotherapists along with technicians saw the need to develop this unit and they brought up the Women's health unit with evidence-based exercise routines for all women.

Methods:

In November 2013, an informal survey was jointly conducted by Physiotherapy staff and CHD. The questionnaire was administered to 209 women attending ANC, PNC and FP under CHD. The assessment revealed the complaints of backache, perineal pain, sleep disturbances, difficulty in breathing and urinary incontinence. The problems were greatest during the 2nd and 3rd trimester of pregnancy.

Introduction of ANC and PNC Exercise Routine at Women's Health unit under Physiotherapy.

Based on the research it was found that women can begin exercise class when she attains 24 weeks of POG. And there are 3 types of classes which are taken by the therapist usually on a group basis:

A) ANC Sessions:

- 1) Basic class: First introductory class.
- 2) Advanced Class: Includes strengthening exercises and resistive exercises. The women with previous LCSC are exempted from this and pushing class.
- 3) Pushing class:

After 37 weeks of POG, the techniques of pushing the baby during the time of labour are taught.

B) PNC sessions:

Here the therapist counsels the mother on correct posture during breast feeding, back posture, continuation of Kegel's to enhance sutures healing and help the mothers with their individual complaints.

Flow chart:

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