

## Poster Presentation Abstracts

### **AB No 129: Immediate effect of footwear on balance in healthy young adult females using sensamove – A pilot study**

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**Purpose:** The present study aimed to evaluate the immediate effect of different types of footwear on balance which in turn determines the overall health and well being of individuals body. To determine the influence of footwear on balance system via sense move.

**Relevance:** Footwear is vitally important to connect body with ground. It gives sensory feedback to foot, control postural stability through the touch and proprioceptive system, therefore, potentially affects balance. The maintenance of static and dynamic balance is a necessary to reduce risk of injuries in daily life. Type of footwear may influence Balance in an individual. Sensamove is a sensory balance device that measures various parameters of Balance like range of motion, static balance, Proprioception and reaction time.

**Participants:** The total 28 young healthy females with the Age group (18-28) years wearing different footwear (heels, shoes, slippers, & bare feet) were selected for the present study.

**Methods:** Participants were asked to stand on Sensamove wearing different types of footwears. Various Balance parameters i.e., range, proprioception, static balance, reaction time were measured on Sensamove. Data was collected and statistical analysis was done using SPSS version 16 at 0.05 level of significance.

**Results:** The 20 female participants with mean (SD) of age 24.86 (3.35) years, controlled BMI between 19- 24 are analysed with bartlett's variance test and found to have significant difference in static balance centre and proprioception with p value 0.0001 and 0.04 respectively. Turkeys inter group comparison of different types of footwear on sense move shows means difference in static balance centre is 0.33 for heel vs shoes and proprioception is 5.5 and 11.87 for foot vs slippers, foot vs heel respectively.

**Conclusion:** The study concludes that footwear has immediate impact on static balance at centre and proprioception of an individual. Also, static balance is mostly effected in heel wearers and proprioception is effected in slippers and heel wearers both.

**Keywords:** Footwear, Static Balance, Proprioception, Sensamove.

### **AB No 141: Impact on quality of life of patients with CKD undergoing hemodialysis: A pilot study**

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**Purpose:** Chronic kidney disease (CKD) affects 5-10% of the worlds population. Hemodialysis, is used as a fluid replacement therapy for CKD. However, long-term dialysis therapy itself often results in reduced functional and societal roles. Due to these reasons, the physical, psychological, socioeconomic, and environmental aspects of life are negatively affected, leading to compromised QOL. The current study aimed to assess the QOL of CKD patients undergoing hemodialysis with reference to difference in their physical, psychological, social, and environmental health dimensions.

**Relevance:** Though studies are available on QOL of CKD patients undergoing hemodialysis, there is limited understanding on what is the overall QOL with respect to the various domains. If compromising domains are identified then the need for renal rehabilitation in patient undergoing hemodialysis can reviewed.

**Participants:** In a dialysis unit of a tertiary care hospital, the patients with a primary diagnosis of CKD, undergoing hemodialysis over a period of 6 months were eligibe to participate. 50 patients (35 males and 15 females) who consented to participate were enrolled.

**Methods:** The WHOQOL-BREF, a 26 item questionnaire was administered to the individuals. It has questions related to a person's physical, psychological, social, and environmental health. The individual is asked to tick the best response of his experience in the last 4 weeks. The scoring is like a 5 point Likert scale style.

**Analysis:** Descriptive analysis was done to interpret the data.

**Results:** Of the 50 participants 70% were males and 30% were females between 28-88 years who underwent dialysis atleast twice a week. Literature suggested 60 as an optimal cut off value for evaluating QOL. The QOL score in the domain of physical, psychological, social and environmental were 54, 58, 58 and 74 respectively.

**Conclusion:** The above results suggests that environmental health is good whereas the physical, psychological and social health is poor. The overall QOL is an average of individual domains, since one domain is of a higher value it represents the overall QOL as good, which may not be the actual representation of the overall QOL.

**Implications:** This study will pave a path for the need of renal rehabilitation to improve the QOL of CKD patients undergoing hemodialysis

**Keywords:** WHOQOL-BREF, Hemodialysis, Chronic kidney disease

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**AB No 26: The comparison of breathing exercise and incentive Spirometry versus breathing exercise and EZPAP on flow rates and chest expansion in post abdominal surgery patients: A randomised controlled trial.**

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**Affiliation:** Terna Physiotherapy College

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**Purpose:** To compare effectiveness of incentive Spirometry and breathing exercises versus EzPAP® and breathing exercises

**Relevance:** Chest physiotherapy has mainstay in improving respiratory status of post-surgical patients. Finding a treatment option to improvise oxygenation status will help patients in faster recovery.

**Participants:** Sample size 40 (Estimation done with 80% power value & 5% significance level). Patients with upper abdominal surgeries were included age group 18 – 60 years. Laparoscopic surgery patients; Anticipated post-operative hospital stay of less than three days were excluded.

**Methods:** Institutional ethics committee approval obtained. Consent taken. Patients randomly allocated in two groups. Experimental group were given EzPAP® and breathing exercise; Control group were given incentive Spirometry & breathing exercises. Treatment duration 5 days. Outcome measures: PEFr; Chest expansion; SpO<sub>2</sub>.

**Analysis:** Normality was checked using Shapiro rank test. T test used for normally distributed data. Wilcoxon Sign rank test (pre post within group) Mann Whitney U test for (between group) analysis.

**Results:** All the outcomes, PEFr, chest expansion-at nipple and xiphisternal level, SpO<sub>2</sub> showed more significant difference in experimental group (EzPAP® and breathing exercise)

**Conclusion:** Combination of EzPAP® and breathing exercise is better treatment protocol than incentive Spirometry and breathing exercise for post-surgical chest physiotherapy management.

**Implications:** EzPAP® therapy can improve flow rates and chest expansion more effectively than incentive Spirometry and breathing exercises.

**Keywords:** EzPAP®, Incentive Spirometry, Abdominal surgery, Breathing exercise Atelectasis.

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**AB No 5: Reliability and validity of a new clinical test for assessment of the sacroiliac joint dysfunction**

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**Purpose:** Dysfunctional sacroiliac joint (SIJ) has been cited as a source of low backache (LBA). Numerous non-invasive clinical tests are available for its assessment having poor validity and reliability which challenges their clinical utility. Thus, introduction of a new clinical test may be necessary.

**Relevance:** To assess reliability and validity of a new clinical test for the assessment of patients with SIJ movement dysfunction and to introduce it for clinical assessment of the dysfunctional SI joint.

**Participants:** Forty-five subjects (23 having LBA of SIJ origin and 22 healthy asymptomatic volunteers) with mean age 28.62 ± 5.26 years were assessed by 2 blinded examiners for 3 different clinical tests of SIJ, including the new test.

**Methods:** Post IEC approval, a diagnostic study for evaluation of reliability and validity of a new clinical test for assessment of SIJ dysfunction was conducted on 39 subjects from 128 referred LBA patients considered with SIJ involvement based on non-centralized pain of VAS 2–8 of 10 since minimum one month, asymmetry of presentation below L5 spinous process and localizing to the SIJ.

**Analysis:** The obtained values were assessed for reliability by intraclass correlation, kappa coefficient and percentage agreement. Validity was assessed by averaging sensitivity and specificity. Positive and negative predictive values and accuracy were assessed.

**Results:** The new test demonstrates good intra- (r=0.81) and inter-rater (r=0.82) reliability with substantial agreement between raters (k>0.60). It has 79.9% validity, 82% sensitivity, 77% specificity, 79% positive-predictive, 80% negative-predictive value and accuracy.

**Conclusion:** The new “Shimpi Prone SIJ test” has a good intra- and inter-rater reliability with a substantial rater agreement and a good validity and accuracy for the assessment of patients with SIJ movement dysfunction.

**Implications:** The Shimpi SIJ Test can serve as a highly reliable and valid clinical test for assessment of the SIJ dysfunction.

**Keywords:** Sacroiliac dysfunction, New clinical test, Shimpi test, Validity, Reliability.

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**AB No 13: Correlation of frailty with balance and cognition in geriatric population of Ahmedabad**

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**Purpose:** To find prevalence of frailty and its correlation with balance and cognition among older adults.

**Relevance:** Developed countries recognise frailty as a syndrome. In India as elderly population is increasing its essential to establish prevalence of frailty among them and correlation with balance and cognition.

**Participants:** Two hundred older adults aged 65 years and above, from various old age homes and community were included using convenience sampling.

**Methods:** This was an observational analytical study. All participants were asked to complete Tilburg Frailty Indicator (TFI). If individual was found to be frail according to criteria of questionnaire, he/she was made to undergo timed up and

go (TUG TEST) and Mini Mental State Examination (MMSE) scale was completed.

**Analysis:** Correlation of TFI scores with MMSE and TUG scores were done with Spearman's correlation. Association of frailty scores with gender was tested using Chi-square test. Level of significance was kept at 5% and confidence interval (CI) at 95%.

**Results:** From 200 geriatric people screened 26.5% were found to be frail with mean TFI score  $3.3 \pm 2.15$ . Weak, significant correlation of frailty with cognition was seen ( $r=0.33, p=0.015$ ). Weak correlation which is not significant was found between frailty and balance ( $r=-0.13, p=0.35$ ). It was found that there was association of frailty scores with gender  $\chi^2(1) = 0.80 (p < 0.05)$ . There was difference in frailty prevalence in females as compared to males (95% CI 3.98 to 28.14).

**Conclusion:** Present study shows 26.5% prevalence of frailty among the older population of Ahmedabad. There was weak correlation of frailty with cognition and no correlation between frailty and balance. Study concludes there is association of frailty with gender.

**Implications:** Being one of the first studies on frailty in India, this study shows that the geriatric population needs screening for frailty syndrome.

**Keywords:** Frailty, Cognition, Physical activity.

#### **AB No 18: Development of adherence-enhancing strategies to facilitate adherence to home-based exercises among stroke survivors: A delphi consensus**

**Authors:** Amreen Mahmood, Coralie English, N Manikandan, John Solomon, Anagha Deshmukh, Dianne Lesley Marsden, Glade Vyslysel, Sundar Kumar Veluswamy, B. Unnikrishnan, Artur Direito, Senthil Kumaran D, Suruliraj Karthikbabu, Harpreet S Sachdev, Girish N, Sebastian Padickaparambil and Shwetha TS

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**Purpose:** To develop adherence-enhancing strategies to facilitate adherence to home-based exercises among stroke survivors

**Relevance:** Home-based rehabilitation is equally effective as center-based rehabilitation to promote recovery after a stroke. Home-based exercises have been shown to improve functional outcomes; however, there are very few strategies/interventions that support exercise adherence specific to stroke.

**Participants:** Experts from the field of Physiotherapy, Occupational therapy, Clinical Psychology, Behavior Science, and Community Medicine were invited to participate in the study.

**Methods:** A four-round Delphi consensus was conducted to develop adherence-enhancing strategies for home-based exercise adherence.

**Analysis:** A qualitative content analysis approach was used to analyze the responses. A strategy was included for the next

round if it obtained a minimum of 55% agreement between the experts.

**Results:** The expert panel was formed by 13 consenting experts. First-round led to the development of 75 codes. A total of 64 codes were finally included for the subsequent rounds after excluding codes that were not agreed upon by the experts. In round 3, the strategies were categorized into nine domains. Twelve experts gave consensus for the final framework of strategies.

**Conclusion:** The framework of adherence-enhancing strategies is a wide-ranging set for supporting adherence to home-based exercises among stroke survivors. Future studies are needed to test the effectiveness of these strategies.

**Implications:** The adherence-enhancing strategies can be deployed for improving adherence to home-based exercises for both clinical and research purpose.

**Keywords:** Compliance, Home-based exercises, Stroke, Health behavior

#### **AB No 85: Physical activity in children and adolescents with disabilities**

**Authors:** Kirti Joshi, Mridula Madhukar, Sundar Kumar Veluswamy, Chandrika Rao

**Affiliation:** Department of Physiotherapy, Ramaiah Medical College

**Purpose:** The emphasis on quantifying physical activity (PA) objectively is established worldwide in normal as well as special populations. Limited studies have reported this data in our population and none have measured PA using objective measures in children with special needs. Thus this study aims to describe PA in terms of steps counts in children and adolescents with disabilities in our population.

**Relevance:** Objective PA data is crucial for accurate estimation of PA levels in children and youth with special needs to derive normative values and plan interventions to offset the negative consequence of physical inactivity.

**Participants:** In this ongoing cross-sectional study, 40 children (mean age 11.6 years) with GMFCS levels I to III with physical and intellectual disability were recruited through convenient sampling.

**Methods:** Following ethical approval and parental consent, the children were given ActivPAL accelerometers (PAL Technologies, UK) to be worn on the thigh for a period of seven days. ActivPAL data was tallied with the parental record and was considered valid for analysis if the participant had at least 3 days of data with a minimum of 10 hours/day of wear time.

**Analysis:** Wear time, valid days, step counts (actual and as a percentage of recommended step counts) were summarized using descriptive statistics. The effect of gender, age and diagnostic category on step counts were analysed using non parametric tests.

**Results:** Based on an average wear time of 13 hours/day for over 5 days, the median step count was 5175 steps/day (weekday: 5248, weekend: 5369) which is about 50% lower

than the recommended step count for the age group. In our study, we did not find any significant difference in step counts by age, gender or diagnostic category.

**Conclusion:** Physical activity levels of children and adolescents with disabilities are significantly less than recommended levels in spite of their ability to ambulate with minimal or no assistance.

**Implications:** Therapy for children and adolescents with special needs should target enhancement of physical activity for health promotion.

**Keywords:** Physical activity, Children, Adolescents.

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**AB No 2: Musculoskeletal pain and associated risk factors in an urban population**

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**Purpose:** To determine the prevalence of musculoskeletal (MS) pain and its related risk factors in an urban population.

**Relevance:** Musculoskeletal pain is a major health concern that is managed by physiotherapists across the country. Over the past decade, with increased urbanization, advances in technology and an increase in sedentary life styles there has been an advent in risk factors related to the incidence of musculoskeletal problems. In order to better manage and address these problems within the current healthcare delivery system, it is important to objectively determine the spectrum of MS pain, their prevalence and associated lifestyle risk factors in an urban population.

**Participants:** 1100 subjects were recruited for this study through non-probability, convenience sampling.

**Methods:** Survey questionnaire was used to obtain prevalence and related risk factors of musculoskeletal pain from the participants.

**Analysis:** Descriptive statistics, Frequency distributions, and statistical tests were used as needed.

**Results:** 54% of the sample reported musculoskeletal pain: low back (36%), neck (35%), Upper back (13%), arms (7%), legs (7%) and head (2%). Participants living in urban slums reported more pain (58%) than those living in urban areas (44%). Interestingly, pain prevalence was greater in young adults (more than 50%) than the elderly, and pain was not associated with risk factors, like sleeping surface, pillow, sleeping position, and medications.

**Conclusion:** Musculoskeletal pain, predominantly back pain and neck pain remain a major problem. A poor association between pain and traditional risk factors, such as sleeping surface, use of pillow, sleeping position etc. was found.

**Implications:** Our results suggest a need for re-examination of traditional associations between risk factors and MS pain.

**Keywords:** Musculoskeletal pain, Neck Pain, Back pain, Prevalence, Risk factors.

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**AB No 31: Perception on musculoskeletal injuries among adolescent cricketers in Kandy District, Sri Lanka**

**Authors:** Anuradha Samarakoon, Nuwandi Samaradiwakara and Indika Koralege

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**Purpose:** Cricket is one of the most popular played sports in Sri Lanka. The cricket infrastructure in most countries are still developing, therefore, injury surveillance is essential for identifying the potential injury risk factors in order to develop a mechanism for effective injury prevention. Objectives is, to understand about the musculoskeletal injuries among adolescent cricketers and how they cope up with their musculoskeletal injuries.

**Methods:** Qualitative research done among school cricket players of the Kandy District, with one on one in-depth interviews carried out until the data saturation point reached. Study sample consisted of 30 participants from 7 schools in Kandy District selected using purposive Sampling. Data was analyzed by using Thematic analysis method.

**Results:** The results portrait that most cricketers (all-rounder, batsmen and ballers) have faced musculoskeletal injuries. Such as back pain, hamstring strains, groin strains, triceps and deltoid muscles pain, and sprains. Based on cricketer's perception, the most common injury among cricket players is back pain. Many cricketers believe that their injuries impact health both physically and mentally however they have not given up playing cricket. The majority of adolescent cricketers are commonly using treatments such as ice pack, strengthening exercises, taping methods and resting. Some of them have received physiotherapy treatments such as, ultra sound, infra-red radiation therapy, interparent treatment and specific exercises. Minorities of cricketers are using Ayurvedic and acupuncture treatments for musculoskeletal injuries. Most of the schools do not have personal physiotherapist. Hence majority of adolescent cricketers finds it difficult to see physiotherapist outside.

**Conclusion:** Musculoskeletal injuries are increased among adolescent's school cricketers. Most of the school cricketers experienced musculoskeletal injuries in Kandy District Sri Lanka. Therefore, it can be recommended to have professional physiotherapists in schools to assess and treat cricketers.

**Keywords:** Musculoskeletal injury, Adolescents, Cricketers, Perception.

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**AB No 73:** A comparative study of core stability exercises and trunk extensor endurance exercise in the management of chronic low back pain

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**Purpose:** To compare the efficacy of Core stability exercises (CSE) along with conventional physiotherapy in contrast

with Trunk extensor endurance exercises (TEEE) along with conventional physiotherapy on pain, Activation of the TrA muscle, Trunk extensor endurance, and FABs in CLBP patient.

**Relevance:** Several studies shows that CSE and endurance tanning of low back extensors can be effective in relieving CLBP. Hence, Trunk extensor endurance exercise may need to be used in comparison with Core stability exercise to know which exercises are better for the management of CLBP.

**Participants:** 46 patients between 30-50 years of age, NPRS from 3to6 diagnosed with CLBP without radiating to buttocks and lower Extremity were randomized into two groups.

**Methods:** A Quasi-Experimental study conducted, Group A received CSE along with conventional physiotherapy and Group B received TEE exercises along with conventional physiotherapy for 4 weeks. The outcomes assessed in terms of TrA activation score, Trunk extensor endurance, Numerical Pain Rating Scale (NPRS), Fear avoidance belief questionnaire – Gujarati version (FABQ-G) at baseline, at end of week 2, and week 4.

**Analysis:** Mann-Whitney U test for between-group analysis

**Results:** Mann-Whitney U test for between-group analysis revealed statistically significant differences between core stability exercise and Trunk extensor endurance exercise for ADIM (TrA activation), NPRS and FABQ-G, GROC with p-values of 0.001, 0.009, 0.026 and 0.005 respectively. But there is no significant difference in Trunk extensor endurance between both groups ( $p=0.203$ ). The results for within-group analysis depicted statistically significant changes for all the outcome measures i.e. ADIM (TrA activation), TEE, NPRS, and FABQ-G with p-value less than 0.05 for both the groups.

**Conclusion:** Both treatment groups showed effective results. But Core stability exercise group was superior to Trunk Extensor Endurance exercise group for all variables for CLBP patients.

**Implications:** CSE exercise is more effective physiotherapy treatment approach for treating patients with CLBP.

**Keywords:** Chronic low back pain, Core stability exercise, Trunk extensor endurance exercise.

#### **AB No 40: Cardiorespiratory performance of children aged 8-14 years using three minute step test: a cross sectional study**

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**Purpose:** Sub-maximal tests such as the six minute walk test (6MWT) require a high level of concentration in younger age groups. Hence, administration of long duration tests becomes difficult. The three minute step test (3MST) is easily reproducible and provokes a measurable increase in heart rate and breathlessness. This study aimed to determine the cardio respiratory performance of children aged 8-14 years using the 3MST.

**Relevance:** The lack of test values in children for the 3MST test hinders its clinical usefulness. It can be used in schools to measure the exercise capacity of children and for health promotion.

**Methods:** Convenience sampling was used to recruit 306 children matching the inclusion criteria. Pre-test parameters (Heart ratepre, Blood pressurepre, Respiratory ratepre) were determined. Each child performed the step test for three minutes. Post-test parameters were measured immediately after, and documented. Descriptive statistics were used to analyse the data.

**Results:** The mean numbers of steps in males were  $59\pm 5.3$  in 8-10 years,  $65.4\pm 3.4$  in 10-12 years, and  $71\pm 2.21$  in 12-14 years respectively. The mean numbers of steps in females were  $63\pm 6.4$  in 8-10 years,  $64\pm 3.03$  in 10-12 years, and  $70\pm 4.9$  in 12-14 years respectively. The post-test recovery heart rate in males was  $95\pm 3$  in 8-10 years,  $91\pm 7.1$  in 10-12 years,  $87\pm 7$  in 12-14 years. The post-test recovery heart rate in females was  $92\pm 5.1$  in 8-10 years,  $93\pm 4$  in 10-12 years, and  $87\pm 3.1$  in 12-14 years.

**Conclusion:** 3MST makes it possible to estimate the exercise capacity of 8 to 14 year old children and to monitor changes in the response of the cardiovascular system to sub maximal exercise.

**Implications:** Determining values for 3MST in Indian children will help in using this test in future studies on physical activity/fitness in children, and in health promotion.

**Keywords:** Three minute step test, Children, Exercise capacity, Cardiorespiratory performance.

#### **AB No 41: A study to evaluate inter-rater reliability, intra-rater reliability and concurrent validity of the fullerton advanced balance scale for assessing balance in patients with chronic stroke (Pilot Study).**

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**Purpose:** To determine inter-rater reliability, intra-rater reliability, and concurrent validity of the Fullerton Advanced Balance scale in chronic stroke patients.

**Relevance:** The Fullerton Advanced Balance scale is a reliable and valid tool to assess balance in older adults and neurological conditions like Parkinson's disease. For patients with chronic stroke BBS and MINI-BESTest are used to assess balance till date. In comparison with BBS, the FAB scale has no ceiling effect and contains components of dynamic balance. The FAB scale is also more detailed in scoring when compared to Mini-BESTest. Therefore the reliability and validity of the FAB scale for assessing balance in patients with chronic stroke needs to be tested.

**Participants:** 17 patients with chronic stroke participated in the study.

**Methods:** For the purpose of reliability, the FAB scale was administered by two experienced raters on each patient within the 3-day period. Validity was assessed by comparing scores of FAB with that of BBS and Mini BESTest.

**Results:** The intra-class correlation coefficient (ICC) for inter-rater reliability was 0.95, for intra-rater reliability was 0.964 indicating high inter-rater and intra-rater reliability. The scores of the FAB scale also showed a good positive correlation with scores of BBS and Mini BESTest ( $r = 0.917$  and  $0.855$  respectively).

**Conclusion:** The study supports that the FAB scale is a reliable and valid scale to assess balance in patients with chronic stroke.

**Implications:** This study would provide an effective tool for assessing balance in a patient with chronic stroke and would add to literature support.

**Keywords:** Chronic stroke, Balance, Reliability, Validity.

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#### **AB No 43: Singing versus breathing exercise in patients with obstructive airway disease**

**Authors:** Rachna Arora, Saylee Dhupe

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**Purpose:** To compare the effect of singing versus breathing exercises on functional capacity and breathing control in obstructive airway disease patients.

**Relevance:** Singing involves strong and fast inspirations, followed by extended, regulated expirations. Amanda Gimenes Bonilha et al (2009) in their study showed that singing improved maximal expiratory pressures in patients with COPD. They compared singing classes with craft work. Hence, there was a need to compare singing with breathing exercises.

**Participants:** Patients with Obstructive Airway Disease

**Methods:** 40 Participants were given chest physiotherapy for 1 week and then randomly allocated into Experimental Group (Singing) and Control Group (Breathing exercise). The number of participants in each group was 20. Experimental group were made to sing Alankars by a trained music teacher on Casio for 20 min while the Control group received diaphragmatic and Lateral Costal breathing exercises for 20 min. Both groups received intervention thrice a week for 4 weeks. Six Minute Walk Test (6MWD), Single Breath Count Test (SBCT), Resting Respiratory Rate (RR) were recorded at baseline and post 4 weeks of intervention.

**Analysis:** Data was analysed using SPSS 16. Parametric paired and unpaired t test were used for data passing normality and Non parametric Wilcoxin Sign rank and Mann Whitney tests were used for data not passing normality.

**Results:** There were 13 (65%) males and 7 (35%) females with Mean Age 47.70 years  $\pm 1.20$  in experimental and 14 (70%) males and 6 (30%) females with Mean Age 45.95 years  $\pm 1.40$  in Control Group. At baseline, both groups were homogenous with respect to Age, Severity of obstruction, SBCT, Resting RR and 6MWD. Control group showed significant increase in SBCT by 2.68 counts  $\pm 1.63$  ( $p=0.000$ ), 6MWD by 50.78m  $\pm 4.77$  ( $p=0.000$ ), reduction in Resting RR by 2.58 breaths per min  $\pm 1.63$  ( $p=0.001$ ). Experimental Group showed a significant increase in SBCT by 5.90 counts  $\pm 2.10$  ( $p=0.000$ ), 6MWD by 51.07m  $\pm 2.1$

( $p=0.000$ ), reduction in Resting RR by 3.20 breaths per minute  $\pm 1.73$  ( $p= 0.000$ ). There was significant increase in SBCT ( $p=0.000$ ) in Singing Group however, there was no significant difference in Resting RR ( $p=0.505$ ) and 6MWD ( $p=0.259$ ).

**Conclusion:** Singing brought about a better control over breathing (SBCT) whereas both singing classes and breathing exercises were equally effective in improving functional capacity and reducing the work of breathing

**Implications:** Incorporating singing in treatment of patient with obstructive airway disease will improve adherence to the treatment.

**Keywords:** Singing, Breathing exercises, COPD.

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#### **AB No 49: Role of exercises in cancer cachexia: A literature review**

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**Purpose:** Exercise therapy has been widely and strongly advocated as part of a multicentric treatment approach for Cancer cachexia. Despite the growing evidence, there remains a need to elucidate the positive role of physical activity in controlling a few or all aspects of the multisystem disease. This review attempts to collate the findings of recent studies and discuss its application.

**Relevance:** According to the International criteria for cancer cachexia, it is clear that cachexia is not specific to advanced cancer stage only. The findings of this review can help a physical therapist identify the stages of cachexia and direct intervention strategies accordingly in the patient population.

**Methods:** To identify relevant studies, databases like Pubmed, Cochrane and Proquest were used with the search terms: exercise or physical activity and cancer cachexia. Search filter included studies from 2105-2019. PRISMA was used for the inclusion and exclusion criteria to finalise appropriate studies. Both the authors independently reviewed the articles for relevance.

**Analysis:** Pubmed search with keywords showed 234 studies which were screened down with additional filters to 12 studies. Pubmed Central-MEDLINE showed 1 study. Proquest search showed 40 studies which were further filtered and duplicates eliminated to 10 studies.

**Results:** In total 23 articles, few books and reputed association studies were reviewed.

**Conclusion:** Lack of high quality trails was observed. There is sufficient evidence to support effectiveness of exercises in controlling inflammatory and hormonal aspects of cachexia but insufficient evidence in terms of application on homogenous population as per the stage of cachexia.

**Implications:** This review shows us the gaps in literature and recommendations for future studies.

**Keywords:** Exercises, Physical therapy, Cancer cachexia.

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**AB No 61: Influence of age, gender and dominance on wrist proprioception in healthy individuals**

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**Purpose:** The purpose is to find the effect of age, gender and hand dominance on wrist proprioception, and its relation with hand function in healthy individuals.

**Relevance:** Proprioception is the perception of movement, posture and joint position. Several factors influence proprioception in healthy individuals. Wrist sensorimotor disturbances of the wrist has been implicated as a risk factor in several wrist pathologies. However, there has been limited literature to identify factors that may influence it.

**Participants:** Inclusion criteria: Healthy individuals between the age group of 18 to 40 years, of either gender. Exclusion criteria: Individuals who had any previously diagnosed wrist and hand pathologies like fractures, open wounds, etc.

**Methods:** Standardized goniometric active wrist joint position sense (JPS) test: Goniometer will be placed over volar wrist. Participant is shown reference wrist position (eyes closed) by passively moving wrist into 20 degree extension. Angle will be memorized. Goniometer will be then removed, and participant will be asked to move the wrist into a fully flexed position before moving into wrist extension, attempting to reproduce 20 degree angle, and it is measured. Difference between two angles will be used as the JPS deficit criterion value. Hand Function Tests: The Moberg Pick-Up Test

**Analysis:** SPSS Version 16 will be used. Descriptive statistics will be followed for demographic data like age, gender, hand dominance etc. Statistical data analysis will be done using Pearson's correlation coefficient or Spearman's correlation coefficient, to find the correlation of age, gender and hand dominance, with wrist proprioception and hand function in healthy individuals.

**Results:** Results for this study are awaited.

**Conclusion:** ---

**Implications:** The influence will help us understand the differences in wrist proprioception between genders and across age groups. These differences will help us design better preventive and rehabilitative strategies to address the deficits.

**Keywords:** wrist proprioception, Wrist sensorimotor control, Hand function.

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**AB No 39: Effect of iliopsoas, rectus femoris, hamstring tightness on proprioception at hip and knee in sagittal plane in children of 10-15 years age with cerebral palsy spastic diplegia as well as typically developing children**

**Authors:** Tanvi Deodhar, Vimal Telang

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**Purpose:** To correlate the extent of tightness of Iliopsoas, Rectus femoris (RF) and Hamstring with proprioception at the hip and knee in the sagittal plane in children (10-15 YEARS) with cerebral palsy spastic diplegia (CPSD) and compare it in typically developing children (TDC).

**Relevance:** In muscle tightness (MT) normal muscle fibres are replaced by collagen deposition. A concomitant change in the proprioceptive receptors viz; muscle spindles and Golgi tendon organs are expected.

**Participants:** CPSD=40, GMFCS level I, II, III with minimal scale for paediatrics score > 30, without Surgery/Botox/phenol/rhizotomy procedure done 6 months prior, TDC=40

**Methods:** Assessment of a) Muscle Tightness: Staheli's Test, Duncan elly's Test, R2 component of Modified Tardieu Scale for Hamstrings. b) Proprioception: Isokinetic Dynamometer on passive mode on proprioception protocol.

**Analysis:** Software used SPSS & InStat. Normality tested by Kolmogorov & Shapiro-Wilk tests. Mann Whitney test for intergroup comparison between the limbs and MT and PE. Spearman's correlation for correlation at  $p < 0.05$  at 95% confidence interval.

**Results:** 1) age group of children: CPSD (12.82+1.75) and TDC (12.77+1.80). 2) No significant difference in tightness and proprioception between right and left limb  $p > 0.05$ . 3) Significant difference in MT between CPSD and TDC (Iliopsoas  $p = 0.0001$ , RF  $p = 0.0004$ , Hamstring  $p = 0.0001$ ). Significant difference in PE at knee  $p = 0.0343$ , while no difference at hip  $p = 0.817$ . 4) In TDC, no correlation obtained between MT and PE at hip (iliopsoas  $r = -0.0667$ , RF  $r = -0.0112$ , hamstring  $r = -0.284$ ) and knee (hamstring  $r = -0.121$ ), while very weak correlation with RF ( $r = 0.142$ ). 5) Weak correlation obtained between MT and PE in CPSD at hip with iliopsoas ( $r = 0.154$ ), RF ( $r = 0.177$ ), hamstring ( $r = 0.248$ ) and at knee with RF ( $r = 0.337$ ), hamstring ( $r = 0.242$ ).

**Conclusion:** There was a weak correlation between hip & knee PE with iliopsoas, RF, hamstring MT in CPSD while no correlation obtained in TDC

**Implications:** There is a need for prevention and correction of tightness in CPSD to maintain proprioception.

**Keywords:** Muscle Tightness, Proprioception, Cerebral Palsy.

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**AB No 83: Application of transcranial direct current stimulation (tDCS) on execution of motor functions in subthalamic syndrome- A narrative review**

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**Affiliation:** Department of Physiotherapy, Punjabi University, Patiala

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**Purpose:** To retrieve the literature regarding the efficiency of Transcranial direct electrical stimulation on pain and motor functions in patients with Thalamic Syndrome.

**Relevance:** Thalamic syndrome refers to rare central neuropathic pain that occurs after infarction of thalamus. Patients complain of pain along with the symptoms of paresthesia and numbness with the progressing to intractable allodynia or dysesthesia. Transcranial direct electrical stimulation (tDCS) is a noninvasive brain stimulation tool, presented as effective and safe neurostimulation technique. It modulates the cortical activity by application of weak electrical currents to the targeted areas in the brain thereby modulating the cortical activity by up-regulation of the ipsilesional hemisphere and down-regulation of contralesional hemisphere.

**Methods:** Data Identification an English Language Literature search using Google Scholar, PubMed, Springer, Scopus, Research Gate, Medline, Embase was done. Study Selection Articles were identified and those which fulfilled the specific requirements were selected. Data Extraction.

In accordance with the inclusion criteria 8 studies done between years 1998 – 2018 were included for the qualitative synthesis of the data.

**Results:** From past studies on tDCS and thalamic syndrome it is accepted that tDCS improves motor function in hands. Moreover it is accepted that tDCS promotes motor learning. It has been found that tDCS has beneficial effects in improving the motor function of both upper and lower extremity. Studies showed the improved performance in a task of skilled hand function. There were significant improvements in response times of affected hand. Various studies demonstrated significant changes in functional improvement after consecutive sessions of tDCS. Furthermore, fine motor control of lower limb was larger after training combined with tDCS. The most consistent results of tDCS have been found with post stroke motor rehabilitation.

**Keywords:** tDCS (Transcranial direct current stimulation), Thalamic syndrome, Cerebrovascular accident.

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#### **AB No 20: Aerobic exercise training improves cognition in sleep disturbed collegiates**

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**Purpose:** Sleep disturbances adversely affects mental health. Since, pharmacological and invasive techniques are gold standard, we explored the effect of aerobic exercise, a highly feasible, non-invasive and a pharmacological intervention to improve cognition in sleep disturbed collegiates.

**Relevance:** Aerobic exercise, a modality in physiotherapy, may be used for neuro-modulation to ameliorate cognitive deficits in sleep disturbed collegiates.

**Participants:** After obtaining ethical clearance, collegiates were screened using Pittsburgh Sleep Quality Index and those scoring >5 (having poor sleep) were recruited and randomly assigned into two groups, experimental and control.

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**Methods:** The participants in the experimental group underwent an eight-week supervised treadmill exercise training. Intensity was determined using maximum heart rate (HRmax) obtained during individual baseline assessment. Participants exercised on their 85% HRmax ( $\pm 5$  beats/minute) for 45 minutes during each session. Participants in the control group were refrained from indulging into any sort of exercise during the study. Before and after 8 weeks, all the participants were assessed for their cognition using P300 evoked potential utilizing auditory oddball paradigm.

**Analysis:** Data was analyzed using SPSS 21. All the variables were checked for normality and those showing non-normal distribution were log transformed before applying inferential statistics. Independent t-test was used for between group analysis, whereas paired t-test was used to determine within group differences.

**Results:** Both the groups were comparable at baseline. The electrophysiological data showed a decrease in latency and increase in amplitude of P300 wave in the aerobic training group as compared to controls.

**Conclusion:** Eight week of moderate to high intensity aerobic exercise training improved cognition among sleep disturbed collegiate students.

**Implications:** The study strengthens the evidence regarding the role of aerobic exercise, a physiotherapeutic modality, as a non-invasive and non-pharmacological intervention to improve cognition in sleep disturbed collegiates.

**Keywords:** Aerobic Exercise, Cognition, P300.

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#### **AB No 95: Association between ankle muscle strength and agility in competitive badminton players**

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**Purpose:** The purpose of the study was to find the association between ankle muscle strength and agility in competitive badminton players and to assess the agility performance in competitive badminton players by using the badminton specific agility movement protocol.

**Relevance:** The result of the study would determine if ankle muscle strength need to be evaluated or intervened upon in competitive badminton players with compromised agility.

**Participants:** Competitive badminton players who are actively involved in training for 20 hours or more per week, playing badminton since last 2 years and participating at District level, State level or National level.

**Methods:** Twenty-two participants were assessed for the maximum isometric contraction for ankle dorsiflexor, plantar flexor, invertor and evertor with Baseline Push Pull Dynamometer. Agility data was collected by using the Badminton specific agility movement protocol. The player was given three trials with three minute rest intervals in

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between and the shortest time to complete the test was considered.

**Analysis:** Karl Pearson's correlation co-efficient using SPSS version 16.0 was used to determine the correlation between ankle muscle strength and agility.

**Results:** There was no statistical significant relationship between ankle muscle strength and agility in competitive badminton players. The experience and number of training hours per week were negatively correlated with agility in competitive badminton players.

**Conclusion:** Agility is a complex entity and according to our results, we conclude that strength may not be the only predictor of agility performance in competitive badminton players. Further studies can be done to evaluate the potential factors responsible for agility in competitive badminton players with a larger sample size.

**Implications:** Agility performance of badminton players is not dependent on the ankle muscle strength and is a combination of several components.

**Keywords:** Badminton players, Ankle muscle strength, Agility, Badminton specific agility movement protocol.

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#### **AB No 103: Physical morbidity and quality of life in adult male hemophilia patients- A case series**

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**Affiliation:** K.J Somaiya College of Physiotherapy

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**Purpose:** To assess the physical morbidity and Quality Of Life (QOL) in adult male Hemophilia patients visiting a tertiary health care center over a 6-month period.

**Relevance:** In Hemophilia, there is recurrent bleeding into the joints and muscles leading to hemophiliac arthropathy. This causes significant joint pain, swelling and contractures, affecting the individual not only at a personal level but also restricts his role as an active member of the family as well as of the society. It also results in frequent absenteeism from school and/ or work.

**Methods:** This is an ongoing case series, being conducted to assess the quality of life in adult male Hemophilia patients visiting a tertiary health care center over a 6-month period, using two outcome measures i.e., Numerical Pain Rating Scale (NPRS) for pain and HAEMO-QoL-A questionnaire.

**Results:** Total 23 patients were evaluated using the HAEMO-QoL-A questionnaire, with an average age of 29 years ( $\pm 3.97$ ) and mean NPRS score of 4.2 ( $\pm 1.31$ ). 40% of the subjects had elbow as their target joint and rest 60% had knee as their target joint. The Mean and Standard Deviation for various sub scales were: 1. Day to Day activities – 30( $\pm 6.99$ ), 2. Mood and Feelings – 31.1 ( $\pm 7.32$ ), 3. Work or school life, family life and Social Life – 32.8( $\pm 12.17$ ), 4. Hemophilia Treatment – 10.5 ( $\pm 7.56$ ). Average QOL of Life is 26.1, with standard deviation  $\pm 10.46$  in adult male hemophilia patients.

**Conclusion:** The Quality Of Life does not seem to be significantly affected in our primary report. However, the Work/ School life, Family life and Social Life components

are the most affected followed by Day to Day Activities component.

**Keywords:** Hemophilia, Quality of life, Hemophiliac arthropathy, Pain intensity physiotherapy.

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#### **AB No 162: Exercise participation among patients with common rheumatological conditions**

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**Affiliation:** Department of Physiotherapy, Ramaiah Medical College

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**Purpose:** Global Burden of Disease (2010) data indicates increasing prevalence of rheumatological disorders in India. The management of rheumatological disorders requires a multidisciplinary approach. Exercise interventions in this population has been shown to have multiple benefits, however exercise remains a sparsely used drug in India. This analysis was performed to determine exercise participation among patients with common rheumatological conditions.

**Relevance:** Data on exercise participation is limited in our population. Understanding exercise participation and its barriers would be crucial to improving exercise prescription, participation and adherence.

**Participants:** One hundred and two adult patients (> 18 years of age) with known medical diagnosis of common rheumatological conditions were recruited for an ongoing study from various rheumatology clinics in a metropolitan city.

**Methods:** The ongoing primary study is aimed at determining the extent of disability in patients with common rheumatological conditions. After ethical approval and due administrative permissions from various rheumatology clinics in the city; potential participants were approached and after obtaining written informed consent, anthropometric data, diagnostic details, investigations, medication details and exercise participation information were taken from the individuals medical records. A standardised questionnaire was used to obtain information on exercise participation.

**Analysis:** Descriptive statistics was used to summarise demographics, diagnosis and exercise participation. Pearson Chi-Square test was used to determine association between exercise participation and gender, educational qualification, and disease duration.

**Results:** Data was available for 101 adult participants (age: 47 $\pm 15$  years; 54% women); 62% participants had Rheumatoid arthritis and 27% had ankylosing spondylitis. Exercise participation history was positive in 25% of them. Exercise participation was associated with diagnosis ( $X^2=20.08$ ;  $p<0.001$ ; 55% for ankylosing spondylitis, 11% for RA) but not with gender, educational qualification and duration of the disease.

**Conclusion:** Given the role of exercise in rheumatological disorders, exercise participation was low in this population.

**Implications:** Studies analysing facilitators and barriers to exercise participation are needed to improve exercise initiation, participation and adherence.

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**Keywords:** Exercise barriers, Rheumatoid arthritis, Ankylosing spondylitis.

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**AB No 116: Association between cardiorespiratory fitness and diagnosis of pulmonary tuberculosis- A matched case-control analysis**

**Authors:** Bindhyashree Erappa, Gloria Alva, Sundar Kumar Veluswamy

**Affiliation:** Department of Physiotherapy, Ramaiah Medical College

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**Purpose:** Pulmonary rehabilitation is not a standard recommended treatment in patients with pulmonary tuberculosis (PTB). Our ongoing systematic review indicated paucity of studies assessing physical fitness across the time course of the disease. The current study was planned to determine the status of cardiorespiratory fitness (CRF) in patients with newly diagnosed TB in comparison to age and gender matched apparently healthy controls.

**Relevance:** If the burden of reduction in CRF in this population is known, the need for assessing physical fitness parameters and pulmonary rehabilitation could be reviewed.

**Participants:** Fifty six adults newly diagnosed with PTB and an equal number of age and gender matched apparently healthy community controls provided data for this analysis.

**Methods:** This is an interim analysis of a State Tuberculosis Centre funded research that aimed to recruit 226 participants (113 PTB and 113 controls) for determining physical fitness and its association with activity and participation in PTB. Newly diagnosed PTB were recruited through RNTCP centers and health controls were recruited from the community. CRF was assessed using one minute sit to stand test (1-STS).

**Results:** Participant characteristics and CRF were analyzed using descriptive statistics. The 1-STS data were grouped into above median and below median scores. Chi-square analysis was performed to determine the association between CFR with PTB. Results among the 56 pairs (mean age 47.4±15.6; 71% males) of PTB and controls, BMI (mean difference: 4.3; 95% CI: 2.8, 5.8) and 1-STS (mean difference: 4.8; 95% CI: 2.4, 7.2) were significantly lower in PTB ( $p < 0.001$ ). Low CRF was significantly associated with a diagnosis of PTB ( $\chi^2=12.9$ ; OR=4.12;  $p < 0.001$ )

**Conclusion:** In our analysis, low CRF was associated with PTB at diagnosis.

**Implications:** Considering the reductions in CRF, pulmonary rehabilitation programs may be useful in this population. Further research is needed to determine the CRF during the time course of the disease.

**Keywords:** Physical fitness, Pulmonary rehabilitation, Pulmonary tuberculosis.

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**AB No 88: Immediate effect of cervical thrust manipulation in weight bearing and non-weight bearing on cervical range of motion in asymptomatic individuals – A randomised clinical trial**

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**Affiliation:** KAHER Institute of Physiotherapy, Belagavi

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**Purpose:** Purpose of this randomised clinical trial was to evaluate the immediate effect of cervical thrust manipulation in weight bearing (CTM-WB) and non-weight bearing (CTM-NWB) on cervical range of motion (CROM) in asymptomatic individuals

**Relevance:** Owing to the modernized lifestyle, inappropriate postures and altered patterns of physical activity protective changes in the musculature and bony alignment tend to occur, leading to decreased neck mobility and stiffness. Non synchronous movement at one level provokes the same at the next level. Cervical thrust manipulation, has been proven to be effective in increasing range of motion. However, its effects in sitting, i.e. weight bearing position have not been evaluated.

**Participants:** 74 asymptomatic subjects who were randomly assigned into two groups

**Methods:** Subjects were assigned to Group A (n=37) who received CTM-WB and Group B (n=37) who received CTM-NWB. Subjects were assessed at baseline and immediately after intervention, using BASELINE® digital goniometer to measure all cervical range of motion.

**Analysis:** The paired t-test was performed on pre and post data in both weight bearing and non-weight bearing group. The unpaired t-test was done to test the difference of means between the difference between pre and post values in weight bearing and non-weight bearing groups

**Results:** Statistical analysis revealed significant differences in pre and post values of all degrees of freedom in CTM-WB and CTM-NWB groups ( $P < 0.05$ ). But there was no significant difference between CTM-WB and CTM-NWB groups

**Conclusion:** CTM-WB and CTM-NWB position are equally effective in improving CROM.

**Implications:** Cervical thrust can be given in either sitting or supine position in asymptomatic subjects.

**Keywords:** Cervical thrust, Weight bearing, Non-weight bearing, Cervical thrust, Manipulation.

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## Poster Presentation Abstracts

### **AB No 34: Determining the time and number of Suryanamaskar's required by adolescent school children to match the exercise intensity of their physical education session – a crossover study**

**Authors:** Apurv Shimpi<sup>1</sup>, Jaimala Shetye<sup>2</sup>, Meenakshi Kewlani<sup>3</sup>

**Affiliation:** <sup>1,3</sup>Sancheti Institute College of Physiotherapy, Pune, School of Physiotherapy, Seth GS Medical College and KEM Hospital, Mumbai

**Purpose:** Physical Education is the primary societal institution for promoting physical activity in the youth. A minimum of 225 minutes of Physical activity per week is recommended for adolescent children. But children are provided with a lesser exercise intensity due to the increased academic burden and time constraints.

**Relevance:** Suryanamaskar may offer an economic and time saving solution for provision of fitness enhancement in this population. Thus it becomes necessary to determine the number of suryanamaskar's and the time required to match the intensity of their physical training session.

**Participants:** Post IEC approval, 50 mixed healthy school going children of mean age 13.9± 0.78 years were recruited by a simple random sampling.

**Methods:** Post informed consent and assent, participants were asked to perform their routine physical education (PE) activity under supervision of their PE teacher. Post completion of a 30 minute session, their pulse rate (PR) and respiratory rate (RR) was measured. Rate of perceived exertion (RPE) were assessed using a modified Borg scale. After a 24 hour recovery period, participants performed suryanamaskar's at the speed of 1 suryanamaskar per minute on the same RPE as with their physical training session. PR, RR, number of suryanamaskar's and time taken to reach the exercise intensity was measured.

**Analysis:** The PR and RR on both the days was compared using unpaired t test while the RPE was correlated with the number of suryanamaskar's using Pearson's correlation coefficient with  $\alpha$  set at  $\leq 0.05$  at 95% confidence interval.

**Results:** Urban adolescent children performed 75.6 ± 20.31 minutes of PE per week. Their exercise intensity at the end of a 30 minute session, as measured by RPE, was 1.96 ± 1.42 (fairly light). The same exercise intensity was obtained with an average of 9.44 ± 2.30 suryanamaskar's within 9.44 ± 2.30 minutes which was matched by their PR ( $p = 0.25$ ) and RR ( $p = 0.08$ ). Their RPE showed a moderate positive correlation with the number of suryanamaskar's performed ( $r=0.4$ ,  $p = 0.003$ ).

**Conclusion:** A suryanamaskar session of 9.44 minutes, performed at 1 suryanamaskar per minute, is adequate to match the exercise intensity of a 30 minute PE session performed by adolescent children.

**Implications:** As this activity is performed with fairly light exercise intensity for 75.6 minutes/ week, the authors strongly recommend increasing the duration and intensity of

physical training or suryanamaskar's to obtain physical fitness in this population.

**Keywords:** Physical activity, Exercise intensity, Suryanamaskar, Physical fitness.

### **AB No 1: Association of severity, voluntary control, cognition, balance and gait parameters to the functional independence and quality of life in stroke**

**Authors:** Zarna Shah, Shraddha Diwan

**Affiliation:** SBB College of Physiotherapy

**Purpose:** Multiple risk factors including age, gender, dependency in Activities of Daily Living (ADL)/disability, social support, depression have been associated with poorer Health Related QOL (HRQOL) in stroke survivors. Critical review of literature reflects limited Indian studies exploring different factors on stroke recovery. It is of a much need to associate factors predicting stroke recovery so that it becomes easy for the healthcare professionals to predict the recovery.

**Relevance:** This study will help the health care professionals including Physiotherapists to associate different clinical tool scores to predict recovery in stroke patients.

**Aim:** To find out association between severity, voluntary control, cognition, balance and gait to the functional independence and QOL in stroke patients.

**Participants:** 60 stroke patients coming to Physiotherapy department for rehabilitation were included of all gender, type and duration with purposive sampling.

**Methods:** It is a cross sectional exploratory study where along with the basic demographic data subjects were also assessed for severity of stroke (National Institute of Health Stroke Scale (NIHSS)), cognition (Mini Mental State Examination (MMSE)), voluntary control (Stroke Rehabilitation Assessment of Movement (STREAM)), balance (Berg Balance Scale (BBS)), gait (10Meter Walk Test (10MWT)), functional independence measure (FIM) and QOL (Stroke Impact Scale (SIS)). Analysis: NIHSS, STREAM, MMSE, BBS and 10MWT were correlated with FIM and SIS with non parametric spearman test keeping  $p < 0.001$ .

**Results:** Severity of stroke was negatively correlated with FIM and SIS. Voluntary control, cognition, balance and gait parameters are significantly positively correlated with FIM and SIS scores.

**Conclusion:** Severity of stroke, cognition, voluntary control, balance and gait are significantly associated with the functional independence and quality of life in stroke patients.

**Implications:** One can predict the stroke recovery using these assessment scales.

**Keywords:** Stroke Association, Quality of life, Functional Independence.

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**AB No 3: Translation, cultural adaptation and validation of ACE III for assessment of cognition for Gujarati population**

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**Purpose:** To translate, culturally adapt and validate Addenbrooke's Cognitive examination III (ACE III) to Gujarati, for Gujarati population.

**Relevance:** ACE III is a screening tool which detects dementia and mild cognitive impairment. ACE-III was developed in English and translated to many languages. In Gujarat 8.3% are above 60 years. Cognitive assessment is important for rehabilitation and language plays a vital role in it. Timely diagnosis and intervention of cognitive decline might help for healthy ageing.

**Participants:** Ten bilingual (fluent in Gujarati and English) individuals, both males and females, age 60-75 years were recruited using convenience sampling. Impaired speech and impaired vision which cannot be corrected to normal were excluded.

**Methods:** A methodological study was conducted to translate ACE III to Gujarati using forward-backward-forward method. Translation procedure followed a strict translation and validation protocol described by WHO. The face validity was established by expert panel having seven neuro-medicine-rehabilitation professionals. The final Gujarati translation and original English version was administered to group of bilingual older adults for content validity.

**Analysis:** The data was analysed using SPSS 16.0.

**Results:** There is strong positive correlation between English and Gujarati version of ACE III with Pearson's correlation coefficient  $r=0.87$  and  $p=0.01$ . The Gujarati version correlated with Education level with Spearman's correlation coefficient  $r=0.75$ ,  $p=0.05$  and the English version correlated with Education level of older adults with Spearman's correlation coefficient  $r=0.75$ ,  $p=0.05$ .

**Conclusion:** Gujarati ACE III is a valid and culturally appropriate tool to assess cognition in older Gujarati adults.

**Implications:** Screenings and differential diagnosis of conditions like MCI, Dementia and Alzheimer's disease can be done easily for Gujarati population with freely available Gujarati ACE III.

**Keywords:** Cognition disorders, Cross-cultural adaptation, Diagnosis, Screening.

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**AB No 48: Prevalence of cervicogenic headache due to prolong smart phone use in college student of Kolkata: A survey study**

**Authors:** Tapas Kumar Pal, Shabnam Agarwal and Sweta Kumari

**Affiliation:** Nopany Institute of Healthcare studies

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**Purpose:** Cervicogenic headache (CGH) are recurring in nature and starts from musculoskeletal dysfunction of the cervical spine (neck) with a prevalence of 40% -50% in the age group of 18-30. In particular cervicogenic headache its cause is disorder of the cervical spine and its components. Although there are several studies towards the prevalence of CGH in different countries among variable population, no such documentation towards the prevalence in India as well as Kolkata.

**Methods:** Data was collected by Korean smart phone addiction proneness scale (KSAPS) for youth. After completing the KSAPS the smart phone user who reported neck pain in the last 7 days to last 3 months was given the Neck Disability Index (NDI) to measure the CGH level due to neck pain. Those who are in higher risk of neck disability due to prolonged smartphone use assessed for the presence of trigger point both Right (Rt.) and Left (Lt.) side suboccipital region.

**Outcome measures:** 1. KSAPS; 2. NDI questioner 3. PPT Algometer

**Analysis:** The data obtained was analyzed using descriptive statistics of Mean Standard Deviation of continuous data and frequency and percentage values of nominal and ordinal data.

**Results:** Those 31.9% students detected as high risk of mobile phone addiction were screened for CGH using NDI questioner. 36.36% were detected as moderate disability, 56.42% as severe disability and 7.21% as complete disability. PPT measurement for the presence of Rt. Side trigger point was 15.67% and Lt. side 14.73% having their score within 4-10.

**Conclusion:** The study showed high prevalence of CGH (7.21%) and neck pain of smart phone users among student in Kolkata.

**Implications:** This study provides the first insights into smartphone use and prevalence of CGH with the presence of suboccipital trigger points in young people of Indian population which is an important health problem needed to addressed by physiotherapists.

**Keywords:** Cervicogenic headache, Smartphone, Suboccipital Trigger point.

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**AB No 55: Physical fitness in patients with pulmonary tuberculosis across the time course of the disease - A systematic review**

**Authors:** Bindhyashree Erappa, Vineel Pedapenki, Gloria Alva and Sundar Kumar Veluswamy

**Affiliation:** Department of Physiotherapy, Ramaiah Medical College

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**Purpose:** Pulmonary Tuberculosis (PTB) continues to remain major global epidemic and is known to have significant impact on physical conditioning and quality of life. The role of physiotherapy interventions including pulmonary rehabilitation in this population has not received adequate attention. Limited understanding of the basis of physical deconditioning and its recovery has probably led to paucity of clinical rehabilitation guidelines for this population.

This systematic review was planned to determine the level of physical fitness in patients with PTB during the time course of the disease.

**Relevance:** Evidence from other chronic respiratory health conditions indicates that pulmonary rehabilitation can be beneficial in improving physical fitness, functional capacity and Quality of Life. If the burden of reduction in physical fitness, its variability during the course of treatment and at the time of cure is known, then the need for pulmonary rehabilitation in patients with TB can be reviewed.

**Participants:** Cross-sectional studies reporting data on physical fitness parameters in patients diagnosed with pulmonary tuberculosis were included for the review.

**Methods:** A comprehensive search using over 120 key words was performed by two authors in MEDLINE (through PubMed), CENTRAL, Web of Science, Scopus, PEDro and LILACS and included articles from date of inception. Title, abstract and full texts were screened by three authors to identify cross-sectional studies reporting physical fitness parameters using predefined criteria. Data was extracted from eligible full text articles.

**Results:** The search yielded 6428 unique articles of which eight were found eligible for inclusion and reported physical fitness using either VO<sub>2</sub>, 6MWD or Grip strength. One article reported fitness at the time of diagnosis, one during chemotherapy phase and the remaining six reported fitness in the post treatment phase. All but one articles reported significant reductions in physical fitness and recommended pulmonary rehabilitation.

**Conclusion:** Given the disease burden and prevalence, there is limited literature on physical fitness in patients with PTB. Existing studies indicate reduction in physical fitness but its association with other health indicators and quality of life has not been adequately studied.

**Implications:** There is a strong need for studies assessing physical fitness parameters and its association with other health indicators and recovery are needed to make a strong case for pulmonary rehabilitation in patients with PTB.

**Keywords:** Pulmonary Tuberculosis, Cardiorespiratory Fitness, Functional Capacity.

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**AB No 56: Cross cultural adaptation, reliability and validity of international physical activity questionnaire-long form (IPAQ-LF): A review of literature**

**Authors:** Sukhada Prabhu

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**Purpose:** IPAQ is widely used method for subjective assessment of physical activity. It is a self-administered questionnaire assessing levels and patterns of physical activity in healthy adults ranging from 15-69 years. The IPAQ has been translated, cross culturally adapted into multiple languages and extensively tested in many countries around the world. This review of literature aims to identify, evaluate and summarize the findings of all such relevant studies, thereby making the available evidence more accessible to the researcher and practitioners.

**Methods:** The literature was explored for studies regarding cross cultural adaptation of IPAQ. A comprehensive list of relevant journal articles was collected using range of sources, including peer reviewed journal articles. Key search terms included “cross cultural adaptation”, “translation”, “validation”, “reliability”, “IPAQ”. Further search through other sources were also carried out to locate primary research article within the literature.

**Analysis:** 19 articles were reviewed, out of which 14 articles were selected for analysis. All were written in English and addressed the cross-cultural adaptation process, validity or reliability of IPAQ-LF.

**Results:** Cross culturally adapted versions of IPAQ-LF in Arabic, Belgian, Chinese, French, Canadian French, Persian and Turkish languages showed good validity and reliability. Whereas, the construct validity of Artic, Portugal and Lithuania version of IPAQ-LF demonstrated moderate to low level of agreement when compared with accelerometer. The Croatian and Siberian version of IPAQ-LF revealed good reliability.

**Conclusion:** Most of cross culturally adapted versions of IPAQ-LF showed acceptable validity and reliability for the assessment of physical activity. Based on the review of literature, The IPAQ has been translated into multiple languages and extensively tested in many countries around the world, except in India. Hence, further cross cultural adaptation of this evaluation tool is warranted in India with respect to different cultures.

**Keywords:** International physical activity questionnaire, Cross cultural adaptation, Reliability, Validity. Physical activity.

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**AB No 71: Validation of gujarati translated version of GMFCS family report questionnaire (GMFCS FRQ) in children with cerebral palsy**

**Authors:** Shraddha Diwan<sup>1</sup>, Dhiren Ganjawala<sup>2</sup>, Pankaj Patel<sup>3</sup>

**Affiliation:** <sup>1</sup>SBB College of Physiotherapy, <sup>2</sup>Ganjwala Orthopedic Hospital, <sup>3</sup>NHL Municipal Medical College

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**Purpose:** To validate the Gujarati translated version of GMFCS FRQ

**Relevance:** The Gross Motor Functional Classification System (GMFCS) is a simple method for classifying children with Cerebral Palsy (CP) based on their functional abilities & limitations. After completion of research on mobility & Quality of Life of adolescent with CP, GMFCS E & R – Expanded & Revised was devised. Parent of children with CP have been shown to be reliable informant to classify their children's gross motor functions & hence GMFCS FRQ has been generated which enhances parents' knowledge. The customs & culture of various regions may not be reflected accurately unless a validation study is conducted.

**Participants:** Parents of children with CP who knows Gujarati reading

**Methods:** Permission to translate GMFCS – FRQ was taken from Can Child Research Centre, McMaster University. IEC approval No. PTC/IEC/19/2016-17. Two bilingual professional translators had done the forward-backward translation of questionnaire. An expert panel (n=7) of health professionals working in the field of pediatric rehabilitation (2 orthopedic surgeon, 1 neurologist, 3 physical therapist, 1 developmental pediatrician) has analyzed & modified the draft as per our culture. Pilot testing of the draft was done on parents after explaining them to rate their child's locomotor ability in any of the box most suitable to their child's best performance. Their suggestions were included in final draft of the questionnaire. A video of child's ability was presented to all expert panel members for their rating & to be compared to parents rating.

**Analysis:** SPSS version 16 & Microsoft Excel with 5% level of significance

**Results:** Spearman's highly significant positive correlation between parents and clinician's rating  $r = 0.929 (p < 0.005)$

**Conclusion:** GMFCS FRQ (Gujarati) is a valid tool

**Implications:** Sensitized parents to GMFCS helps in realistic future goals.

**Keywords:** GMFCS, Gujarati questionnaire, Cerebral palsy.

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**AB No 74: Efficacy of non-invasive brain stimulation on motor function in children with cerebral palsy: a systematic review**

**Authors:** Manisha Bangar, Narkeesh Arumugam, Divya Midha

**Affiliation:** Department of Physiotherapy, Punjabi University, Patiala.

**Purpose:** To review existing literature on non-invasive brain stimulation in children with cerebral palsy for rehabilitation purpose.

**Relevance:** Cerebral palsy is a non-progressive static encephalopathy of brain, primarily affecting motor function, posture, balance and gait with clinical signs typically appearing in early childhood. There are various therapeutic interventions available to aid in rehabilitation for improvement in motor as well as functional effects. Non-Invasive Brain Stimulation (NIBS) is one of them that involve the use of magnetic and electrical fields to alter brain activity in specific brain regions. Two forms of NIBS include Repetitive Transcranial Magnetic Stimulation (rTMS) and Transcranial direct current stimulation (tDCS) are routinely used in rehabilitation of Cerebral Palsy.

**Methods:** SEARCH METHODS Data was searched from PUBMED, Cochrane library, EMBASE, MEDLINE, with English language limitation. The reference list of articles were screened and useful contacts were made to find the other relevant studies.

**SELECTION CRITERIA** Inclusion criteria RCTs that focused on application of Non Invasive Brain Stimulation for improving motor function in cerebral palsy. Exclusion criteria Articles that included invasive methods of brain stimulation or those in which the subjects had acquired traumatic brain injury.

**DATA EXTRACTION** 17 studies done between 2006 and 2019 fulfilling the selection criteria were reviewed in this study.

**Results:** This review focuses on the neurophysiological and clinical findings in children with CP. Initial studies applying anodal tDCS and rTMS to promote excitatory effects with improvements in gait, mobility and balance.

**Conclusion:** It can be concluded that NIBS is safe and well tolerated by children with minimal risk. It serves as an effective technique that can promote the recovery of CP child which is needed to be incorporated into regular clinical practice. Though being effective and promising, further research is needed for development of research based evidence.

**Keywords:** Cerebral palsy, Non invasive brain stimulation, Repetitive trans- cranial magnetic stimulation, Trans-cranial direct current stimulation.

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**AB No 80: Sagittal plane kinematic gait analysis of newly designed trans-tibial squatting prosthesis: A case series**

**Authors:** Vaishali Pai, Ashok Indalkar, Ravindran R

**Affiliation:** All India Institute of Physical Medicine & Rehabilitation, Mumbai

**Purpose:** Objective of this study was to analyse the gait of a person using newly designed Trans-tibial (TT) Squatting prosthesis and compare it with gait using person's own PTB TT prosthesis.

**Relevance:** To observe whether the newly designed TT Squatting prosthesis can be used in clinical practice or not.

**Participants:** Three subjects with trans-tibial amputation of K3, K4 level of mobility and who were using PTB TT prosthesis for more than 6 months volunteered to participate in this study.

**Methods:** Gait analysis of all participants was done on BTS Smart D system using the participant's own PTB TT prosthesis and newly designed TT Squatting prosthesis. Sagittal plane kinematic data at hip, knee and ankle joints of the entire gait cycle using both prosthesis, % of Weight bearing on prosthetic limb, Prosthetic Evaluation Questionnaire(PEQ), Angle of knee flexion and ankle dorsiflexion in squatting were assessed as outcome measures.

**Results:** There was no major deviation in the kinematic analysis at hip and knee joints as compared to PTB TT prosthesis. At ankle joint there was increase in the dorsiflexion at ankle joint at terminal stance phase of gait cycle while using TT Squatting prosthesis in all three participants. Mean PEQ scoring using PTB TT prosthesis was 44.4% and while using TT Squatting prosthesis they scored higher at 67.33%. All TT Squatting prosthesis allowed 150° of knee flexion and 50 – 100° of ankle dorsiflexion which helped the participants to allow the function of squatting.

**Conclusion:** The TT Squatting prosthesis provides similar kinematic pattern in gait when compared with PTB TT prosthesis. This design also allowed subjects to assume squatting function, by allowing increase knee flexion and ankle dorsiflexion.

**Implications:** The newly designed TT Squatting prosthesis functions similar to PTB TT prosthesis also allowing squatting as an additional function.

**Keywords:** Gait Analysis, Trans-tibial Amputation, TT Squatting prosthesis

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### **AB No 81: The effect of duration of kidney disease and physical activity level on functional capacity among stable kidney transplant recipients**

**Authors:** Harda Shah<sup>1</sup>, Nehal Shah<sup>2</sup>

**Affiliation:** <sup>1</sup>IKDRC-ITS College of Physiotherapy, IKDRC-ITS, Ahmedabad, <sup>2</sup>SBB College of Physiotherapy, Ahmedabad.

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**Purpose:** Evaluation of functional capacity and to find its correlation with duration of kidney disease and physical activity level among KTR.

**Relevance:** Kidney transplantation is considered the optimal choice of treatment for end stage kidney disease in term of survival and Quality of life. Kidney transplant recipients (KTR) have to take lifelong immunosuppressive medicines which have various side-effects. Because of fear of organ rejection physical inactivity and sedentary behavior both are highly prevalent among this population.

**Methods:** For this single center, non-randomized observational study, total 153 KTR; who fulfilled inclusion and exclusion criteria, having stable graft function and more than 6 months of post-transplant duration were enrolled after

ethical committee approval. Duration on dialysis before transplant (DD) and after transplant (TD) was noted. Self-reported physical activity level (TPA) was assessed using translated version of International Physical Activity Questionnaire. Pulmonary function test and 6 minute walk duration was evaluated according to ATS criteria. Chair Sit to stand test and Isometric Hand grip strength was assessed for functional strength analysis.

**Results:** Evaluation of 149 KTR (74 % men) was done using SPSS (V17). DD (32.11± 22.23 months), TD ( 45.54 ± 33.84 months) and TPA ( 309.04 ± 235.0 MET minute/week) were assessed for its correlation and linear regression with 6MWD(516.11± 62.20 meters),FEV1(100.43± 17.66 %),FVC(97.64±24.43),STS 60(18.2 ± 6.1) and HGS(25.25± 7.35 kg). Positive correlation was noted for TPA and 6MWD (r=0.73) and for TPA and HGS(r=0.51) Duration of kidney disease was negatively correlated with 6MWD and STS60 (r<0).

**Conclusion:** Low physical activity and longer duration with kidney disease is associated with poor outcome in functional capacity.

**Implications:** Physical activity counselling and life style modification may play major role in improvement in functional capacity among this population.

**Keywords:** Kidney transplant recipient, Immunosuppressive medicines, Physical activity, Functional capacity

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### **AB No 89: Maximal respiratory pressures and their correlates in Indian population of 11-14 years of age: A cross sectional study**

**Authors:** Sweni Shah<sup>1</sup>, Vidhi Thakar<sup>2</sup>

**Affiliation:** <sup>1</sup>B. N. Patel Institute of Physiotherapy, <sup>2</sup>Ashok & Rita Patel Institute of Physiotherapy, Charusat University, Changa, Anand

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**Purpose:** 1) Determining the reference value of MIP (Maximal inspiratory pressure) and MEP (Maximal expiratory pressure) in individual of 11-14 years of age. 2) To determine the relationship of MIP/MEP with height, weight, chest circumference (CC), waist circumference (WC), FEV1 (Forced expiratory volume in 1 second) and FVC (Forced vital capacity).

**Relevance:** Measuring respiratory muscle strength aids in the diagnosis, prognosis and in the execution of pulmonary rehabilitation program.

**Participants:** At 5% level of significance and confidence level of 95% the sample size obtained was 149(81 boys and 68 girls of 11-14 years of age). Healthy subjects with normal WC and spirometric values were recruited in the study.

**Methods:** Participant's height, weight, WC, FEV1, FVC and CC was measured. Participant performed 3 attempts of MIP and MEP maneuvers in relaxed sitting position.

**Analysis:** SPSS (version 23) was used for the statistical analysis. Correlational statistics was used to study the relationship between MIP/MEP with other variables height,

weight, WC, CC, FEV1 and FVC. Inferential statistics was used to compare mean scores of MIP and MEP between males and females.

**Results:** MIP and MEP values in boys and girls showed low to moderate positive correlation with FEV1, FVC, CC, WC, height and weight. It was found that the value of MIP and MEP in boys as well as girls increased with age and males had higher value of MIP and MEP as compared to females.

**Conclusion:** The age wise mean values obtained for MIP and MEP can be used as a reference to determine respiratory muscle strength in normal Indian population of 11-14 years of age.

**Implications:** With the availability of the reference value of MIP and MEP in adolescent Indian population early detection and management of the respiratory muscle dysfunction will be possible.

**Keywords:** Respiratory muscle pressure, Indian, Adolescent.

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**AB No 93: Validation of culturally adapted Hindi version of long form mcgill pain questionnaire in low back pain**

**Authors:** Riddhi Shroff, Twinkle Dabholkar

**Affiliation:** D. Y Patil University, School Of Physiotherapy

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**Purpose:** Pain is reportedly a comorbid symptom of emotional and cognitive problems that can exacerbate the clinical condition of patients. Pain is usually associated with impaired daily function and quality of life. Out of all 291 conditions studied, Low Back Pain ranked 1st in terms of years lost to disability. Psychosocial issues related to increased occupational demand and consequent stress have also been reported as important risk factors for the development of complaints of Low Back Pain. The objective was to cross-culturally adapt Long form McGill Pain questionnaire into Hindi version which will enable clinicians and researchers to assess a patient's pain in their own cultural context and to test clinimetric properties of the Hindi version to determine its multidimensional use in Low Back Pain

**Methods:** The LF-MPQ was translated and adapted into Hindi version following recommendations from Mappi guidelines, the translated version was administered to 50 patients with chronic low back Pain to evaluate the construct validity using VAS, low back Rom and concurrent validity using Oswestry Disability Index.

**Results:** Hindi version of McGill questionnaire demonstrated high level reliability (intraclass correlation coefficient 0.85 to 0.90). We observed high correlations among the LF-MPQ and the Visual Analogue Scale (r- 0.83) and also LF-MPQ and Oswestry Disability Index (r- 0.89).

**Conclusion:** The Hindi versions of the MPQ were found to be reproducible, valid and reliable for the assessment of pain in patients with Low Back Pain.

**Implications:** It will facilitate Physiotherapist to formulate effective treatment strategies aiming multidimensional treatment approach based on pain descriptors identified by patients

**Keywords:** McGill, Pain, Hindi, Low Back Pain.

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**AB No 96: Effects of myofascial release versus Mulligan's sustained natural apophyseal glides in nonspecific low back pain**

**Authors:** Vignesh Bhat P, Vivek D Patel

**Affiliation:** Manipal Academy of Higher Education

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**Purpose:** The purpose of the study was to compare the effects of myofascial release (MFR) and Mulligan's sustained natural apophyseal glides among nonspecific low back pain (NSLBP)

**Relevance:** identifying a superior intervention among MFR and SNAGS can form the basis on which either one of the them can be recommended as a standalone management or as an adjunct in NSLBP

**Participants:** subjects with sub-acute to chronic NSLBP

**Methods:** Thirty participants with NSLBP were allocated to the SNAG's group who received SNAG's with exercise, the MFR group receiving MFR with exercise. The selected exercises Transverse abdominis, Lumbar multifidus and hip strengthening exercises. The total treatment included 6 sessions. Pain and disability level was assessed prior to first treatment, immediate and at the end of the treatment.

**Analysis:** Data was analyzed using SPSS 16.0. One way ANOVA was used to determine intergroup differences and Base line repeated measure ANOVA was done within the groups.  $P < 0.05$  considered as statistically significant

**Results:** There were no statistically significant found between the groups ( $p > 0.05$ ) but statistical significance was found within the groups ( $p < 0.001$ )

**Conclusion:** SNAGS with exercise and MFR with exercise were found to have equally and similar short term effects on NSLBP. Hence both the techniques can be implemented for short term management of sub-acute to chronic NSLBP.

**Implications:** Manual therapy techniques can be implemented in management of NSLBP

**Keywords:** Mulligan SNAGS, Myofascial release, Exercise, nonspecific low back pain.

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**AB No 106: Is recommended position the best: Comparison of hand grip strength in two testing positions**

**Authors:** Blessy Raiza Paul Putla, Bindhyashree Erappa and Sundar Kumar

Veluswamy

**Affiliation:** Department of Physiotherapy Ramaiah Medical College

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**Purpose:** Grip strength is a simple, quick, inexpensive and valid measure for assessing strength and for stratifying an individual's risk of mortality. In 1981, the American hand association (AHA) recommended specific positions for measuring grip strength. However, studies have reported better grip strength values using other testing positions.

Despite the AHA recommendations, the best testing position remains elusive. The current analysis aimed to compare the grip strength determined from two commonly reported testing positions.

**Relevance:** Since hand grip strength has diagnostic and predictive validity, it is essential that the best position is chosen for testing.

**Participants:** Thirty postgraduate physiotherapy students (Age: 23-27 years; 89% women) provided data for this analysis.

**Methods:** The students were assessed for various physical fitness parameters including grip strength as part of a physical fitness promotion activity. With participants sitting on a chair without armrest, grip strength was assessed using a digital hand-dynamometer in two positions (A. (AHA recommended) Shoulder adducted with elbow in 90 degree flexion; B. Shoulder in 90 degree flexion with elbow in neutral) over two consecutive days.

**Analysis:** Best of three readings from the dominant hand was taken for analysis. Twenty-eight participants provided valid data and mean difference in grip strength between two positions was compared using paired t-test.

**Results:** The mean grip strength with elbow in neutral was significantly greater ( $1.8 \pm 2.6$  kg; 95% CI: 0.7, 2.7;  $p=0.001$ ). However, the co-efficient of variation of the mean difference was high (1.44) indicating significant variability in the data. Though 17 participants had mean difference greater than 1 kg in elbow neutral position, the clinical significance of this difference needs to be reviewed against the recommended MCID of 5-6.5 kgs.

**Conclusion:** Grip strength measured in elbow neutral position seems to be better. Considering the variability, studies with a prior hypothesis and adequate sample size are needed to determine the best position for testing.

**Implications:** The variability in handgrip strength between different testing positions need to be considered while using it as an outcome measure in clinical and research practice.

**Keywords:** Hand grip strength, Dynamometer, Exercise test.

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**AB No 120: Prevalence of frailty in middle aged diabetic population of Ahmedabad: A cross sectional study**

**Authors:** Priyal Bhatt, Megha Sheth

**Affiliation:** SBB College of Physiotherapy

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**Purpose:** To find the prevalence of frailty in middle aged diabetic population and to find the correlation between severity of diabetes (HbA1c) with frailty (FRAIL scale) and chronicity of diabetes with frailty.

**Relevance:** Frailty is a clinical state in which persons exposed to one or more stressors are at an increased rate for adverse health events. Diabetes accelerates the ageing process and could provide an early pathophysiologic environment for frailty. Frailty in middle-aged people with diabetes is associated with having more disability and functional limitations, worse physical performance.

**Participants:** Forty middle aged adults, 49-65 years old diagnosed with diabetes by endocrine/medicine department were included. Patients with severe mobility issues and other known cause of frailty were excluded. Convenience sampling method was used.

**Methods:** Cross sectional study was conducted to find prevalence of frailty using FRAIL questionnaire.

**Analysis:** Data analysis was done using SPSS v.16. Data was presented as Mean+ SD. Spearman's correlation was used to find the correlation. Sample size was found keeping power of study at 80%.

**Results:** There were 22 males, 18 females with mean age  $55.4 \pm 5.2$  years, Mean HbA1c was  $8.1 \pm 1.8\%$ , years since disease (YSD), FRAIL score  $3 \pm 1.45$ . 24(60%) subjects were found frail, 14(35%) pre frail, 2(5%) healthy. Spearman's correlation coefficient of frailty with severity of diabetes  $r=0.583$ ,  $p=0.01$ , with chronicity of diabetes  $r=0.07$ ,  $p=0.6$ , with YSD  $r=0.07$ ,  $p=0.63$ , with BMI  $r=0.12$ ,  $p=0.43$

**Conclusion:** Prevalence of frailty was found to be 60% with moderate significant correlation between severity of diabetes and frailty. Future studies should aim at detailed assessment of frailty in diabetics.

**Implications:** Overall fitness of diabetics is of utmost importance to decrease the impact or avoid diabetic complications. Early multimodal interventions based on physical exercise and nutrition education should be investigated and implemented with prompt diagnosis of frailty.

**Keywords:** Diabetes mellitus, Frailty, FRAIL.

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**AB No 111: Epilepsy: knowledge and attitudes of physiotherapists- An observational study**

**Authors:** Tejaswee Mandir

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**Purpose:** Purpose of this narrative review is to examine the knowledge and attitudes of physiotherapists towards epilepsy.

**Relevance:** Epilepsy is a common neurological disorder. Neurodevelopment co-morbidities such as developmental delay, learning difficulties and intellectual disability are common with epilepsy. For this reason, many children with epilepsy receive physiotherapy. In most cases seizures are self limiting and short but they can represent a potential emergency. Thus, fundamental knowledge of epilepsy and emergency treatment of seizures is essential for all physiotherapists.

**Methods:** An observational survey was performed in 100 physiotherapist's age between 18-50 years both male and female. Questionnaire contained questions concerning the physiotherapist's experiences with epilepsy, knowledge of disease, emergency management of seizure and attitude towards epilepsy. Questionnaire was sent through Google form.

**Analysis:** Statistical analysis was done using Microsoft Excel.

**Results:** Total 66% physiotherapists stated they had already confronted with epilepsy in any manner in theory or practice. 55% stated their knowledge about epilepsy as average. 34% stated they have not treated people with epilepsy so far. 28% had already witnessed a seizure. 5% stated that they would not know what to do if patient suffers an epileptic seizure in their presence, rest of them suggested they would call an ambulance, try to secure the surrounding, calm the patient and a colleague to help. 95% stated they would like to have more information about epilepsy.

**Conclusion:** Most therapist treat people with epilepsy and some have already witnessed a seizure during their professional life. Majority of them wished for more information on epilepsy. Based on this data acquired, teaching sessions for therapists seem mandatory to improve safety.

**Implications:** Physiotherapists plays a major role in treatment of epilepsy, so there is strong need of abundant knowledge about the condition, emergency action during seizure and relevant information.

**Keywords:** Epilepsy, Knowledge, Attitude, Physiotherapists.

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#### **AB No 110: Immediate effects of different types of high heeled shoes in pelvic alignment angles in adults**

**Authors:** Avantika Bhaskar

**Affiliation:** Physical therapy clinic

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**Purpose:** The objective of this study was to determine the effects of different types of high-heeled shoes on the sagittal pelvic inclination angles in young women.

**Relevance:** Traditionally, women suffering from low back pain are advised to wear shoes that are flat and avoid heels. Wearing heels shifts the line of gravity forward, which then changes the biomechanical alignment of the pelvis and consequently the lumbar spine- increasing the stress on the muscles, ligaments, joint structures and increasing their pain and dysfunction.

**Participants:** 80 health women (18 to 30 yrs.) who routinely did not wear heels were measured after informed consent was received.

**Methods:** The participant's pelvic angle in the sagittal plane were randomly measured on separate days across the following foot-wear conditions: no shoes, block heel, pencil heel and wedge heel. The heel was of the same height (3 +\_ 0.5 inches). Pelvic tilt was measured with the help of pelvic inclinometer. While standing on a pre- defined foot position while they stood with their arms across their chest. Pelvic angle was measured by placing the arms of the pelvic inclinometer on the ASIS and PSIS respectively. Three readings were taken under each condition and averaged for further analysis.

**Analysis:** A repeated measure ANOVA (within factor- four levels no shoes, pencil, block and wedge heel). The level of significance was set as  $p \leq 0.05$ .

**Results:** The result showed that the pelvic inclination a significant reduction (increased anterior tilt), except when block heels (posterior tilt) in pelvic angle (no shoes = 85.7, wedge =84.7, pencil= 82.9, block=88.2). With heels compared to no heels,  $F(3,237)=68.8$ . Post hoc analysis revealed significant differences between all mean comparisons at  $p \leq 0.05$ .

**Conclusion:** The result suggests that women that wear wedge and pencil heels increase their saggittal pelvic tilt angle, in contrast wearing block heels results in a posterior tilt angle. In both the cases the biomechanical stress on the lower lumbar spine increases, may lead to low back pain. Further studies need to evaluate the prolonged use of healed shoes on pelvic angles.

**Keywords:** Pelvic alignment anterior or posterior tilting of pelvis, Inclinomater, Different types of heels pencil block and wedge heel.

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#### **AB No 148: Correlation of pain, two point discrimination thresholds and physical performance in subjects with shoulder dysfunction**

**Authors:** Janhavi Shah

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**Purpose:** The goal of this study is to correlate pain, TPDT's and physical performance of shoulder (closed kinematic upper extremity stability task) (CKUEST) in subjects with shoulder dysfunction. The secondary objective of this study was to assess the intra-rater and inter-rater reliability of TPDT over affected shoulder in subjects with shoulder pain.

**Relevance:** Chronic pain is associated with increased cortical excitation that may significantly contribute to cortical reorganization. Increased two point discrimination thresholds (TPDT) of the body region has been shown to correlate with the extent of S1 cortical reorganization. Correlation of lumbopelvic stability task and TPDT's on the lower back as well as craniocervical flexion test and TPDT's on the neck have been reported. A relationship of TPDT's with shoulder physical performance has been investigated in normals, and the study confirmed that better tactile acuity and body schema integrity of the shoulder region correlates with better performance of shoulder stability tasks. However, such a relationship has not been established in subjects with shoulder pain and a correlation between TPDT's and pain intensity and duration has also not been studied.

**Methods:** 54 subjects with chronic shoulder pain and dysfunction were assessed, 42 subjects included in the study, TPDT and CKUEST was performed on them, their BMI was taken.

**Results:** Results were as follows, there is a negligible correlation between TPDT and pain intensity ( $r=-0.02531$ ), between TPDT and CKUEST ( $r=0.1570$ ) and an excellent positive correlation (significant) between (TPDT's) and pain duration (persistence/severity) ( $r=0.8350$ ). There is a weak

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negative correlation (significant) between pain and CKUEST (-0.3256) and a negligible correlation between pain duration and CKUEST ( $r=-0.08757$ ). There is negligible positive correlation between pain intensity (NPRS) and pain duration (in months).

**Conclusion:** The ICC of inter rater and intra rater reliability of TPDT's on the affected shoulder is good and excellent respectively.

**Implications:** These results can be used in the evaluation of the shoulder, assessment of tactile acuity should be included, and tactile discrimination training can be given to patients with chronic shoulder pain along with other techniques.

**Keywords:** Chronic Pain, Tactile Acuity, Shoulder Dysfunction.

**AB No 151:** Typically developing control in cognitive function of school going children: Systematic review

**Authors:** Maya Devi<sup>1</sup>, Narkeesh Arumugam<sup>2</sup> Divya Midha<sup>3</sup>

**Affiliation:** <sup>1</sup>Apex University, Jaipur, Rajasthan, <sup>2,3</sup>Department of Physiotherapy, Punjabi University, Patiala, Punjab

**Purpose:** To retrieve the literature regarding typically developing controlling cognitive function of school going children.

**Relevance:** Typically developing children and Development disorders are emulate theories of development which are integrated process. Cognitive and Motor function development are linked from an early age. The link is between visual processing abilities and fine manual motor skills.

**Methods:** DATA IDENTIFICATION: this study is a systematic review, this study articles identified according PRISMA guidelines, an electrical search using PubMed, Google Scholar, PEDro, Researchgate, Cochrane Library and Bibliographic reviews of textbooks and articles. STUDY SELECTION: In accordance with the inclusion criteria database collected between 2010 to 2018. The stated purpose is highly addressed to the identified articles. DATA EXTRACTION: It has done using explicit methodological criteria for evaluating the quality of articles. As duplicates were excluded. Total 25 studies were reviewed where 8 studies fulfilled the inclusion criteria.

**Results:** The gathered literature about TDC in cognitive functions in school going children. Included articles showed cognitive functions and motor function found strongly association in 6-13 years of age but departed in gender.

**Conclusion:** A typical developing children are exhibited slow cognitive functions as compared to typically developing children. Cognitive functions and fine motor controls how nclose and stable links throughout childhood.

**Keywords:** Typically developing control, Cognitive function, Motor function.

**AB No 155:** Are western population based reference values of physical fitness applicable for Indian children & youth: A comparative analysis

**Authors:** Sundar Kumar Veluswamy, Rajitha Alva and Ridhi Verma

**Affiliation:** Department of Physiotherapy, Ramaiah Medical College

**Funding:** This work was funded by Rajiv Gandhi University of Health Sciences, Karnataka (17T006; 2017-2018)

**Purpose:** Evidenced by the concerted policy level interventions at both National and Regional levels in India, Physical fitness is finally starting to gets its due recognition within the ambit health and wellness. For any health indicator, population-based norms are crucial for diagnosis, intervention targets and clinical guidelines. In the absence of population-based reference norms for physical fitness, there is little choice but to depend on western population norms. Using the dataset from a funded school health intervention study, this analysis aimed to compare the VO<sub>2</sub> of children and youth with recently published reference norms for the Eurofit tests.

**Relevance:** This analysis could indicate the need for or against the development of population-based physical fitness reference values for Indian children and youth.

**Participants:** Students of 7th to 9th grades from 3 private schools

**Methods:** Following ethical approval, CTRI registration, school and parent consent, 272 children and youth participants of an interventional trial underwent 20-m shuttle run test as per Léger's 1-min protocol to determine VO<sub>2</sub> peak. Each participants' VO<sub>2</sub> peak was compared to determine its percentile scores based on Eurofit tests norms that was recently published. Gender and age specific VO<sub>2</sub> norms for the Eurofit tests were derived from assessment of 4,45,092 children and youth using Léger's 1-min protocol.

**Analysis:** Descriptive statistics was used to summarize, age, gender, VO<sub>2</sub>, and proportion of participants below reference percentiles and percentile. Univariate analysis was performed to analyze interaction between age and gender on percentile scores using general linear model.

**Results:** A total of 268 children (11-15 years of age, BMI: 20.2±4.6kg/m<sup>2</sup>; 54% boys) provided valid VO<sub>2</sub> peak data (40.86±4.6 ml/kg/min). When compared to Eurofit percentile scores, 65% of our study participants were below 20th percentile and 85% children below 40th percentile.

**Conclusion:** Most participants in our study were below 40th percentile of Eurofit norms indicating either poor fitness levels or having different norms.

**Implications:** Western population-based VO<sub>2</sub> peak norms may not be applicable for our children and youth. Until we develop our population norms, studies should target developing correction factor to apply Western norms to our children and youth.

**Keywords:** Cardiorespiratory Fitness, Eurofit tests, 20-m shuttle run test.

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**AB No 156: Outcome measures for motor impairments in pediatric ADHD- A scoping review**

**Authors:** Rucha Gadgil, Arwa Kotwal, Isha Akulwar

**Affiliation:** K. J Somaiya College of Physiotherapy

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**Purpose:** Attention-deficit/hyperactivity disorder (ADHD) is identified as a neurobehavioral disorder characterized by inattention, hyperactivity, impulsivity, and functional impairment.

The co-occurrence of both motor impairments and ADHD has received relatively little attention in research and clinical practice. Motor impairments are rarely part of assessments and typically not included in rehabilitation of ADHD. There is a lack of consensus regarding use of outcome measures to assess improvement of motor impairments, limiting a uniform approach to rehabilitation.

Therefore, a need of review of literature to underline and verify outcome measures for motor impairments in ADHD in pediatric population is keenly felt.

**Relevance:** This review helps to critically appraise and analyze outcome measures used for motor impairments in pediatric ADHD and establish a consensus regarding their use.

**Methods:** A scoping review was conducted following the PRISMA guidelines to assess and categorize outcome measures used for motor impairments in pediatric ADHD population.

Pubmed, Pubmed Central, Embase, and the Cochrane Library were searched for publications between 2009-2019 that reported on Motor impairments in pediatric ADHD and mentioned related outcome measures.

**Analysis:** The data is presented using a 'narrative review' or a descriptive analysis of the contextual or process-oriented data and simple quantitative analysis using descriptive statistics.

**Results:** Two reviewers independently screened the studies and extracted data total 22 studies were included: 4 randomised controlled trials, 11 observational studies, and 7 experimental studies. 9 studies included physiotherapy intervention for motor impairments. The outcome measures found in the studies showed a divided application with no uniformity in their use as a prognostic or diagnostic measure. This study showed paucity of literature connecting outcome measures with motor impairments in pediatric ADHD population.

**Conclusion:** This review highlights the lack of uniformity in the outcome measures used for motor impairments in pediatric ADHD.

**Implications:** Awareness regarding the outcome measures available for motor impairments in pediatric ADHD amongst Physiotherapists.

**Keywords:** Pediatric ADHD, Outcome Measures, Motor Impairments.

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**AB No 163: The effect of dry needling on paraspinal muscles of cervical spine in acute neck strain: a case report**

**Authors:** Vikrant Bhardwaj<sup>1</sup>, Madhvi Awasthi<sup>2</sup>, Kuljeet Singh Anand<sup>3</sup>

**Affiliation:** <sup>1,2</sup>Manav Rachna International Institute of Research and Studies, <sup>3</sup>RML Hospital

**Purpose:** To study the effectiveness of Dry needling in treating neck pain & restoring range of motion in acute neck strain. To evaluate whether dry needling can be a cost effective and more potent therapeutic approach in treatment of neck pain & muscle tightness.

**Relevance:** Research suggests that main cause of work disabilities is neck pain and sitting at a desk in front of a monitor all day is a top cause of neck issues among desk job workers. A big amount of money spent each year on medical treatment for neck issues including neck strain causing neck stiffness, muscle imbalance & pain. People are not designed for an inactive lifestyle but many are required to sit in poor posture in front of monitor or excessive usage of mobile phone. Despite of available treatment, there is no specific cost effective, fast acting and precise treatment available. As the available options are either medicine or therapeutic like physiotherapy which includes electrotherapy & exercise therapy which is sometimes costly and lengthy. There is a definite need of a cost effective and potent treatment option for the same. Dry needling can be an option to be a cost effective and potent treatment approach for the acute neck strain. It is cost effective, as no special environment is required, only a needle and skillful hand can do the job. As Dry needling is invasive so the ethics approval is required.

**Methods:** A case of an acute neck strain was selected randomly with 2 days history of neck muscle tightness & pain. Subject was clinically diagnosed acute neck strain with difficulty in neck movement. Subject was selected for the study, after signing a consent to participate & to be video graph. The methodology of the study was approved by the department's ethical committee. The rom (range of motion) of cervical spine was measured with inclinometer (flexion, extension, side flexion & side rotation). Algometer was used to measure point tenderness. NPRS used for pain readings. After palpation, dry needling was done at tender areas (trigger points) in the paraspinal muscles (including splenius capitis, semispinalis capitis, semispinalis cervicis & multifidus). Localized muscle twitch responses were noted and the muscles were released. The primary outcome measures are: ROM (range of motion) pre and post treatment measured with Inclinometer and pain was measured with NPRS (numeric pain rating scale).

**Results:** All outcome measures were performed at pre- & post treatment & paired sample t test was applied. There was 60% decline in pain score on NPRS.

**Conclusion:** Since value of  $p < 0.05$ , the null hypothesis was rejected. Patient treated with dry needling showed significant improvement in symptoms specially more than 55 degrees of neck side rotation (Range of motion) increased. The pain score declined on NPRS (numeric pain rating scale).

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**Implications:** A noticeable change in range of motion and pain was found. Dry Needling can be a new cost effective and potent intervention for the treatment of neck muscle tightness & pain in acute neck strain.

**Keywords:** Acute neck strain, Trigger points, Dry needling.

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**AB No. 78: Clinical utilisation of rehabilitative ultrasonography imaging by physiotherapists in Asian countries: A systematic review**

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**Purpose:** To identify the clinical utility of Rehabilitative ultrasonography Imaging (RUSI) by physiotherapists in Asian countries.

**Methods:** 213 articles were retrieved from 5 databases & screened by two independent authors, of which 79 were selected as per inclusion & exclusion criteria for analysis.

**Criteria:** Inclusion - Study of Asian origin, Year 1999- 2019, English language, Use of Ultrasonography for Rehabilitation purpose.

**Exclusion -** Studies done on animals, Narrative Reviews, expert opinions.

**Results:** The overall usage of RUSI has grown in the last decade but is still not fully utilised mainly because of lack of awareness and laws pertaining to specific countries.

**Conclusion:** RUSI is not fully utilised.

**Keywords:** Rehabilitative Ultrasonography Imaging, RUSI, Physiotherapists.

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