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“A STUDY TO COMPARE THE EFFECTIVENESS OF SQUARE STEPPING EXERCISES VERSUS ELASTIC TUBING EXERCISES TO IMPROVE BALANCE IN ELDERLY”

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Background: A serious problem faced by older adults and their family members is the increased prevalence of falls and fall-related problems in adults aged 60 years or more. Decreased functional fitness such as poor lower limb muscle power, balance, and agility decreases the ability of older adults to prevent falls. Balancing reactions to rapid stepping or reaching movements are critical in preventing falls.

Aim: Present study intends to investigate and compare the effectiveness of square stepping exercises and elastic tubing exercises to improve balance in elderly.

Methodology: 40 individuals aged between 60 to 85 years were selected and included in study based upon who fulfilled the inclusion criteria and allocated equally into two groups, Group A and Group B respectively. Group A was given square stepping exercises. Group B was given elastic tubing exercises. Both the groups received interventions for 4 weeks, thrice a week. Primary outcome measures of treatment with relative parameters such as, TIMED UP AND GO TEST.

RESULTS: The statistical analysis showed the mean pre-test score of Group A is 13.5 (SD = 2.09) and that of Group B is 13.85 (SD = 1.69), while the mean post-test score of Group A is 9.55 (SD = 1.28) and that of Group B is 9.8 (SD = 1.11).

Conclusion: We conclude that both the treatments (ETE and SSE) are individually effective in improving balance in elderly.

Keywords: Balance, Aging, square stepping exercises, Elastic tubing exercises.



Abstract 2

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**MECHANOTHERAPY IN ADVANCED PHYSIOTHERAPY INTERVENTION
A PILOT STUDY FOR REGENERATIVE REHABILITATION SUBJECTS**

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Background: The scope and efficiency of Physiotherapy would improve if our understanding of the cell biology that participates in mechanics could be improved. Volumetric muscle loss is the substantial treatment challenge with resultant functional impairment. Regenerative medicine is the therapeutic option for the management of VML. Physical Therapist plays a role both after and during the regenerative process. The role of mechanical force in various therapies is Mechanotherapy. Synergizing regenerative medicine with rehabilitation opens a new era in the field of regenerative rehabilitation.

Objective: To find out the effectiveness of duration of exercises as a tool in regenerative rehabilitation

Methods: It's a Pilot study for subjects (n=10) who underwent extracellular matrix scaffold transplantation in a volumetric muscle loss of quadriceps. Group A (n=5) got postsurgical Physiotherapy exercise within 24hrs and Group B (n=5) got postsurgical physiotherapy exercise after 1 week. We have given a mechanotherapy for a total of 8 weeks study duration

Outcome measurement:

- 1.) LEFS – Lower extremity functional scale, 2.) Active knee extension range of motion,
- 3.) Maximum isometric strength of the knee extensors using hand-held dynamometer,
- 4.) Single-leg squats, 5.) Single hop for distance 6.) Triple hop test and 7) Single leg stance.

Results: After interpretation of data, we hypothesized that, the group A shows significantly appreciable functional task performance when compared to group B. The early phase regenerative rehabilitation improves functional outcomes.

Conclusion: It is undoubtedly that specific rehabilitation protocols with a better understanding of the underlying cellular and molecular responses to mechanical stimulation maximize the functional outcomes. Even earlier the regenerative rehabilitation will improve the performance and outcome of subjects.

Keywords: Mechanotherapy, regenerative rehabilitation, volumetric muscle loss

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EFFECT OF PECTORAL STRETCHING ON IMPROVING HORIZONTAL EXTENSION RANGE OF MOTION AND DYSPNOEA IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASES

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Chronic obstructive lung disease [COPD] is a characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. Most of the COPD patients suffer with restricted shoulder movements due to tightness of the shoulder and chest muscles. Focus on these muscles is very less which needs to be considered in the management of pulmonary rehabilitation. Studies focusing on these areas are very minimal, so this study aims to analyze the effect of muscle stretching technique in shoulder horizontal extension range of motion and improving level of dyspnea in patient with COPD. Study is a single group pretest- posttest experimental study design with 15 patients diagnosed with mild COPD was included. Subjects were explained about the study procedure and consent form was obtained from the individual patients. All the subjects underwent thoracic mobility exercises, shoulder horizontal extension, pectoralis stretching and Hold and Relax for the Pectoral muscles. Outcomes selected in the study were shoulder horizontal extension and rate perceived exertions which are measured using goniometer and dyspnoea with Borg's scale respectively. Following 8 weeks of training the results were analyzed using paired 't' test by SPSS 20.1. The study result shows that there was a significant differences in dyspnoea level at 10.2 with $p < 0.05\%$ and shoulder horizontal extension with 16.6 with $p < 0.05\%$ following thoracic mobility exercises, shoulder horizontal extension, pectoralis stretching and Hold and Relax for the Pectoral muscles. Thus the study concludes that the exercises play a role in improving Shoulder range and reduction of Dyspnoea in patients with COPD.

Keywords: COPD, Shoulder Range of motion, Dyspnoea, Borg's scale, Goniometer. Thoracic mobility exercises Hold and Relax for the Pectoral muscles



EFFECT OF ACTIVE, PASSIVE AND DYNAMIC MUSCLE STRETCH ON JOINT RANGE OF MOTION (ROM) AMONG HEALTHY, NON-ATHLETIC POPULATION

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Background: Muscle stretch is a technique where a sustained stretch (25-30s) is applied to a particular group of muscle to its maximum physiological limit. Muscle stretch is widely used in Physical medicine, Sports medicine to improve flexibility of a muscle. Muscle stretch is of three types - Active, Passive & Dynamic. There is a dearth of studies regarding the effective form of stretch in healthy, non-athletic population

Aim:-To assess the efficacy of active, passive and dynamic stretching on Joint Range of Motion (ROM) among healthy, non-athletic population.

Material and Methods: The study is a pilot study. Participants were healthy, non-athletic subjects between age group 18-30yrs. (*n*-30). Participants were divided in to three groups – Active, passive and dynamic group. Joint Range of Motion (ROM) was measured using Goniometer. Hip flexor muscle stretch was taught to the active and dynamic group and was performed to the passive group by Physiotherapists. The stretch was performed for 3 weeks and ROM was measured at the end of each week.

Results & Discussion: The data were statistically analyzed using SPSS software version 17.0. The data were expressed in Mean±S.D with $P < 0.05$. At the end of three weeks AROM was 98 ± 9.4 , 99.5 ± 10.1 and 89.5 ± 19.2 in active, passive and dynamic group respectively. PROM was 102 ± 15.12 , 100 ± 13.54 and 95 ± 14.72 in active, passive and dynamic group respectively. There was a significant increase in both AROM & PROM in all the three type of stretches.

Conclusion:-The current study shows that all the three types of stretches are highly effective in increasing Joint Range of Motion (ROM) among general population.

Keywords: Muscle stretch, Range of Motion (ROM), non-athletic population.



A STUDY TO COMPARE THE EFFECTIVENESS OF ALTERNATE NOSTRIL BREATHING EXERCISE VERSUS BEE BREATHING EXERCISE ON RESPIRATORY COMPONENTS IN AIR CONDITIONER USERS

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Background: Modern lifestyles of living in urban areas have been considered to be potentially responsible for the development of airway problems especially due to the intensive use of air conditioners, which has caused the increased inhalation of cold dry air for long periods makes the airway smooth muscles more sensitive ultimately leading to an alteration in the pulmonary functions. The respiratory tract of the subjects who are exposed to air conditioners is hyper-responsiveness and the patency of the airway is decreased resulting in decreased peak expiratory flow rate, chest expansion and increase in respiratory rate. The present study is to compare the effect of alternate nostril breathing exercise and bee breathing exercise on PEFR and chest expansion and respiratory rate in air conditioner users.

Methods: This study included 50 subjects with age of 20-50 years, those who were working in air-conditioned environment for 8-10 hours/day. Patients were selected based upon who fulfilled the inclusion criteria and the subjects were randomly assigned into either Group A (Alternate nostril breathing exercise) or Group B (Bee breathing exercise). The subjects in both groups practiced 6 sessions per week for 4 weeks. The parameters PEFR, chest expansion, respiratory rate were measured before and after practice of breathing exercise.

Results: The statistical analysis result shows that the mean improvement on PEFR (A=34 & B=32.8), chest expansion (A=0.32 & B=0.28) and reduction in respiratory rate (A=3.7 & B=3.52) of group A is very closer to group B.

Conclusion: we conclude that both the treatments (A & B) are equally effective in improving PEFR and Chest Expansion and reducing Respiratory Rate in air conditioner users.

Keywords: Alternate nostril breathing, bee breathing exercise, PEFR, chest expansion, respiratory rate.



A COMPARATIVE STUDY ON EFFECTIVENESS OF NEURAL MOBILIZATION VERSUS APPLICATION OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION AT SPINAL ROOT LEVEL FOR SCIATIC PAIN

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Background: Sciatica is a common term usually given to any painful condition of the great sciatic nerve. It is also called as sciatic neuralgia (Pressure on the nerve) or sciatic neuritis (inflammation of the sheath or connective tissue surrounding the axons). Objective of the study is to find out the effectiveness of neural mobilization Vs Application of TENS at spinal root level for sciatic pain. Many separate studies were done to find out the effects of neither TENS nor neural mobilization in the management of sciatica, but no other studies were done to compare the effects of these two techniques.

Methodology: Subjects diagnosed with sciatica were referred to department of Physiotherapy, SVMCH & RC at Ariyur, Puducherry, were randomly assigned into two groups: Group A & Group B with 30 subjects each. Pre-test and post-test were done based on the outcome measures NPRS for pain intensity and goniometer for range of motion (SLR), after the two weeks of intervention period

Result: Group A, who received neural mobilization showed more significant difference in reducing in pain and improvement in range of motion (SLR) than Group B.

Conclusion: This study concludes that neural mobilization showed significant difference in reducing in pain and improvement in range of motion (SLR) than Group B.

Keywords: Sciatica, Neural mobilization, TENS, Straight Leg Raising (SLR), Numerical Pain rating Scale (NPRS)



Abstract: 7

WHICH TYPE OF EXERCISE IS IMPORTANT FOR WEIGHT LOSS AMONG MILD TO MODERATE OBESE FEMALES?-A COMPARATIVE ANALYSIS

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Back ground: Obese people have difficulty in engaging daily activities due to the increased body weight. Exercises have been the tool for obesity management for years. Aerobic exercise involves larger muscle groups for a sustained period of time. When we exercise aerobically our body uses glycogen and fat as fuel. This low to moderate level of exertion can be sustained over long periods. Anaerobic exercise relies on energy sources that are stored in the muscles. Calisthenics is a form of anaerobic exercise that is usually done without weights and helps increase strength and flexibility. Diet is the important factor to reduce weight and it must be strictly followed during weight reduction program.

Introduction: Obesity which is a global threat for the all other medical conditions is a constant challenge for medical professionals including physiotherapists across the globe. In effective management of a given medical condition managing obesity in the form of exercises has gained a lot of importance and needs careful consideration both from the patient themselves and the medical care giver. This paper focuses the importance on the type of exercises and effective diet management in managing obesity and its related co-morbidities.

Methodology: 10 female patients between the age group of 18-35 years with mild to moderate obesity were selected at the government college of physiotherapy Trichy. Two groups, Group A for aerobic exercise with diet and another set of 5 patients for Group B for anaerobic calisthenics with diet were taken. They were followed up for a period of 4 weeks. The outcome parameter was body weight in kilograms.

Results: On following 4 weeks of aerobic exercise program Group A had reduced 1.5kg on average and Group B had reduced 0.65kg on average.

Conclusion: It may be concluded that the aerobic exercises along with carefully tailored diet therapy are the effective means in weight reduction program among mild to moderate obese female patients.

Keywords: Obesity, Aerobic exercise, Calisthenics, Weight Loss.



EFFECT OF SLOW DEEP BREATHING EXERCISE ON PEAK EXPIRATORY FLOW RATE AMONG PETROL PUMP WORKERS

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Background: Air pollution from vehicles is an inescapable part of the urban life. Occupational exposure to petrol and diesel vapours affects the functioning of different systems of the body. Several studies have shown a high prevalence of work related respiratory symptoms and reduced peak expiratory flow. Breathing exercises are the most important in increasing the pulmonary function and to regain the most efficient breathing pattern.

Objective: The aim of this study was to investigate the effect of deep breathing exercise on PEFr among petrol pump workers.

Study Design: Experimental study

Methods: 50 nonsmoker male petrol pump workers aged between 20 - 40 years with work duration from 1 – 15 years were selected. Their PEFr was assessed at their work place before and after deep breathing exercise (6 breathes/min) for 10 minutes twice daily for a week.

Results: This study has used the paired t test and the results showed that there was significant increase in means in PEFr before and after 1 week of deep breathing exercise (the value of the paired t-test is 3.979 and its related p value (.000) less than 0.05 and there was a strong positive correlation between the pretreatment and post treatment.

Conclusion: Regular practice of deep slow easy breathing exercise is an effective way of lifestyle to improve the health of the workers⁵.

Keywords: Slow deep breathing exercise, peak expiratory flow rate, petrol pump workers.



AN EFFECT OF TIBIOFEMORAL GLIDE ON POSTURAL SWAY IN PATIENTS WITH OSTEOARTHRITIS KNEE

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Background: Osteoarthritis (OA) is a progressive degenerative disorder of the joints. It not only affects the intra capsular or periarticular tissue but also affects the joint proprioceptors. OA knee subject impaired proprioception which result in increased postural sway (includes pain and muscle strength may particularly influence the postural sway).

Objective: To evaluate the effectiveness of tibiofemoral glide mobilization over the isometric Quadriceps exercise regimen on postural sway in patients with Osteoarthritis

Methods: Patients were randomized into two groups using a pre/post experimental design. On the day 0 and day 21st (i.e. pre and post treatment) patients were administered in Lord's Sway meter for postural sway analysis and a simple reporting instrument Visual Analogue Scale for quantify a patients subjective pain were completed using validated outcome measures. Group A (Experimental) received tibiofemoral glide mobilization and another Group B received Isometric Quadriceps exercise regimen. Paired t and unpaired t test were used to compare the postural sway and level of pain within the group and between the groups respectively on the day 0 and 21st.

Results: The data showed that with the use of intervention tibiofemoral glide mobilization and isometric Quadriceps exercise regimen for 3 weeks duration on alternate days, with a minimum of 3 session per week showed a significant difference between the post values of postural sway and Visual analogue scale on 21st day between group A and group B, but more improvement was seen in group A. i.e. significant difference in reduction of postural sway and level of pain by using tibiofemoral glide mobilization than isometric Quadriceps exercise regimen.

Conclusions: This study concluded that the tibiofemoral glide mobilization on the Osteoarthritis knee improves the Postural stability and reduction in the level of pain.

Keywords: osteoarthritis, lord, s sway meter, visual analogue scale, postural sway, tibiofemoral; glide



TO STUDY THE EFFECTS OF ISOMETRIC VERSUS ISOTONIC QUADRICEPS EXERCISE TRAINING ON FUNCTIONAL CAPACITY AND SYMPTOMS OF PATIENTS WITH UNILATERAL OSTEO-ARTHROSIS (OA) KNEE.

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Participation: Twenty patients with unilateral osteo-arthritis knee, ages 40 to 80 years. Patients were randomly selected assigned in two groups: (isometric n=10 and isotonic n=10).

Method: All the patients undergone with a similar heat modality of wax bath for a 10 minutes session followed by exercise training programme in a day. The Isometric group and isotonic group were subjected to the experimental protocol of performing two isometric exercises and two isotonic exercises respectively. Isometric group undergone 20 minutes exercises training session performing 12 isometric quadriceps muscles setting training exercise and 12 isometric resisted pain free exercises. Isotonic group undergone 20 minutes exercise training session performing 12 isotonic quadriceps free exercises and 12 isotonic pain free resisted exercises. One session in a day for a period of 2 weeks.

Main outcome measure: Functional capacity (raising from a chair, walking, stair climbing and descending) and pain during rest and activities of subjects were tested before and after training in two groups.

Result: The result suggests that both isometric and isotonic exercise is useful to improve functional capacity and decrease pain in patients with OA Knee. There is no significance difference in reduction of pain in both the groups (isometric pre-treatment =4.6 and post-treatment =3.25; isotonic pre-treatment =4.625 and post-treatment =3.45). In functional capacity the isometric group shows significant improvement in raising from chair (isometric t=6.709 and isotonic t=9.006) and isotonic groups shows marked improvement in ascending (isometric t=8.573 and isotonic t=8.579) and descending the staircase (isometric t=6.004 and isotonic t=3.162).

Conclusion: Both isometric and isotonic quadriceps training is helpful in reducing pain and improving functional capacity in patients with OA Knee.

Keywords: Isometric Quadriceps Exercise, Isotonic Quadriceps Exercise, Functional Capacity, Osteo-arthritis knee.



EFFICACY OF CERVICAL AND SCAPULOTHORACIC STABILIZATION EXERCISES WITH MUSCLE ENERGY TECHNIQUE FOR CERVICAL RADICULOPATHY

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Background and Objective: Cervical radiculopathy is one of the most common health related complaints. It is a disorder of a nerve root which can be either ventral or dorsal cervical vertebra. The purpose of this study was to find the efficacy of cervical and scapulothoracic stabilization exercise with muscle energy techniques on pain, improve ROM, functional activity.

Design: Experimental study.

Methodology: 30 Participants were allotted into two groups using random sampling method. Group A received cervical traction and scapulothoracic stabilization exercises and group B received cervical traction and scapulothoracic stabilization exercises with muscle energy technique for 2 weeks. The outcome measure was neck disability index scale and numerical pain rating scale.

Result: It was observed that group B participants who received cervical and scapulothoracic stabilization exercises with muscle energy technique exercises were extremely significant. NDI ($t=9.470;p<0.0001$), NPRS ($t=4.77;p<0.0001$) compared to the control group.

Conclusion: This study concludes that application of cervical and scapulothoracic stabilization exercises with muscle energy technique was effective than stabilization exercises for patients with cervical radiculopathy for decreasing pain and improving functional ability.

Keywords: Cervical radiculopathy, neck disability index, numerical pain rating scale, cervical and scapulothoracic stabilization exercises, muscle energy technique exercises.



A STUDY ON IMPACT OF PHYSIOTHERAPY SESSIONS IN NORMAL SCHOOLS IN IMPROVING FITNESS OF PRIMARY CLASS CHILDREN

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General fitness of school going children has become a challenge despite of physical education activities in schools. The aim of the study was to identify the impact of including physiotherapy sessions in normal schools for improving the fitness of children. A pragmatic quasi-experimental study design was utilized. Children between ages of 5 to 10 who failed in fitness test (n=45) during a general fitness screening test of around 150 children studying primary classes were selected for the study. The Euro fit – fitness test items like flamingo balance, plate tapping, sit-and-reach, standing broad jump, sit-ups, bent arm hung, and 20m shuttle run were used to assess performance at baseline and after the training sessions. The selected children were given physiotherapy sessions in group with activities similar to fitness test items. The main findings show that there was a significant improvement in fitness of children after physiotherapy sessions. Thus this study provides evidence to support the need of physiotherapy service in normal schools to enhance the fitness and health of school going children.

Keywords: Physiotherapy in Schools, Children Fitness Test, Euro Fit Test, Co-Ordination, Flexibility, Flamingo Balance.



Abstract: 13

A STUDY TO FIND OUT THE EFFICACY OF FOSTER'S MANEUVER VS. BRANDT - DAROFF EXERCISE IN PATIENTS WITH POSTERIOR CANAL BPPV

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Background: Posterior canal Benign paroxysmal positional vertigo is the most common form of vertigo, affecting the adults of any age. It usually leads to dizziness with changes in the head positions. It is usually confirmed using Dix- Hall pike test.

Objective: To compare the efficacy of Foster's Maneuver with Brandt-Daroff exercise in patients with posterior canal BPPV.

Methodology: 30 subjects with posterior canal BPPV were taken for the study and divided into two groups. 15 subjects of group A received Foster's maneuver with modified Epley's maneuver and 15 subjects of group B received Brandt- Daroff exercise with modified Epley's maneuver. Dizziness handicap inventory [DHI] score was used as outcome measure.

Results: The results shows that group A is very much significant than the group B in reducing the severity of dizziness.

Conclusion: A combination of modified Epley's maneuver and Foster's maneuver was more effective than the Brandt- Daroff exercise and modified Epley's maneuver in treating posterior canal BPPV.

Keywords: Posterior canal benign paroxysmal positional vertigo, Dix – Hall pike's test, Foster's maneuver, Brandt – Daroff exercise, modified Epley's maneuver, Dizziness Handicap Inventory Score.



**EFFECT OF MASSED PRACTICE VERSUS DISTRIBUTED PRACTICE ON BED MOBILITY
IN ACUTE STROKE PATIENTS**

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Background: For ages, there have been varied numbers of practice methods to train motor skills. These practices are used to enhance the motor learning. Some authors believe that in patients, distributed practice is better in acute stage and massed practice is better in later stage of rehabilitation. To validate these views there is lack of studies. Therefore in this study we examine which of these practice methods is effective in re-training bed mobility skills in acute stage of stroke.

Objective: To compare the effectiveness of massed practice and distributed practice in improving the bed mobility of acute stroke

Study Design: Quasi Experimental Design - Pre and Post Test Design with Two Comparison Treatments.

Participants: A total of 12 hemiplegic participants were chosen as samples for the study

Intervention: A total of 12 hemiplegic participants were assigned into 2 groups. Group A -6 participants receiving distributed practice. Group B -6 participants receiving massed practice. Interventions were given for 7 days.

Outcome Measures: Outcome measures were movement time and FIM's score.

Results: All patients showed significant improvement in both outcome measures. In FIM's score both group A and B pretest and posttest mean difference were 5.3 and 4.6 respectively. The calculated 't' value using paired 't' test for both group A and B were 25.29 and 22.13 ($p < 0.05$) respectively. In comparing group A and B, the calculated 't' value using independent 't' test were 2.5 ($p < 0.05$). In movement time except for supine to left in all other tasks there was significant difference between the groups. Hence distributed practice group showed significant improvement than massed practice group for movement time in bed mobility.

Conclusion: It is concluded that distributed practice method can be used in the acute stage of the stroke patient to have a better learning of the task

Keywords: Massed Practice, Distributed Practice, Bed Mobility, Stroke.



EFFECT OF CRYOTHERAPY WITH TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION ON PAIN IN DELAYED ONSET MUSCLE SORENESS

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Delayed onset muscle soreness (DOMS) is a common symptom which results from excessive activity, poor warm up and during eccentric exercises. Variety of treatment strategy has been introduced in the management of DOMS of alleviate the pain, but the appropriate treatment measure for pain reduction was not significantly found. Although various literatures support on the application of Cryotherapy in the management of DOMS but the evidences are lacking. TENS is one of the common pains relieving modality which always used in physiotherapy practices. But combining TENS & Cryotherapy is not adequately done. So this study aims to find out the effect of Cryotherapy in the combination of Tens on pain reduction in DOMS. Quasi experimental study with 20 healthy populations was selected for the study. A clear explanation was given to all the subjects about the study and written consent was obtained. All participants divided into two groups. Eccentric exercises were given for all the participants Quadriceps muscle to facilitate DOMS. Group A with 10 participants underwent Cryotherapy for 15mins followed by stretching exercises for 10mins, whereas Group B with 10 participants underwent Cryotherapy for 15mins with TENS for 10mins of duration followed by stretching exercises for 10mins. Pain was the outcome measured using numerical pain rating scale. At the end of the study the data were analyzed using Student 't' test with SPSS 20.1 version. The result of the study shows that there was a significant reduction of pain in both groups 4.93. $p < 0.05\%$, whereas group with Cryotherapy and TENS shows significant improvement with 19.36 $p < 0.05\%$. Thus the study concludes that adding TENS with Cryotherapy produce a better effect in pain reduction in subjects with DOMS.

Keywords: DOMS, Cryotherapy, TENS, Stretching exercises, Quadriceps muscles.



THE EFFECT OF RECREATIONAL BASED WORKOUT TO REDUCE ABDOMINAL OBESITY IN COLLEGE GIRLS

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Background: Obesity is an important health problem worldwide. Its prevalence is increasing with changes in dietary habits & activity level. The individuals with abdominal obesity are prone for several cardio metabolic risk factors. The prevalence of risk factors in general is higher in south India Recent study from North India shows a remarkable high prevalence of obesity & abdominal obesity in young Indians.

Objectives: To find out the effect of recreational based activities to reduce abdominal & to reduce the abdominal obesity in college girls

Methodology: The quasi experimental study was carried out on 30 students, comprising U.G students from Sri Venkateshwaraa College. The recruited subjects were screened for abdominal obesity using the anthropometric measurements including height, weight, BMI, waist circumference, waist-hip ratio. They were divided into two groups, group-A underwent static cycling with recreational activities (throw ball, volley ball, disc throw) while Group-B underwent static cycling with abdominal exercise. The duration of intervention was for 45 mints/session for 3 months. The outcome measure was waist circumference & waist- hip ratio.

Result: After 3 months of intervention, significant improvement was recorded in both groups. The groups A waist circumference mean& SD value (34.76+2.29) was significant as compared to group-B (36.6+2.73) &with significant p- value (0.0001).Waist- hip ratio in group A (0.71+0.11) shows improvement than group B (0.86+0.02) with significant p-value (0.0001). The group-A t value of waist circumference & waist-hip ratio was 6.47 which is significantly lower than group-B t value of 8.67, p< 0.0001.

Conclusion: The result demonstrated that the effect of Static cycling with recreational based workout was effective in reducing waist circumference and waist-hip ratio in abdominal obese subject when compared with static cycling with abdominal exercise.

Keywords: Abdominal obesity, waist circumference, waist-hip ratio, abdominal exercise, static cycling, recreational based workout.



CASE STUDY REPORT ON EFFICACY OF VITAMIN D IN PHYSIOTHERAPY

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Introduction: It is well known that minerals and vitamins are most important for musculoskeletal function.

Aims & Objective:

1. To analyze the efficacy of Vitamin D in physiotherapy.
2. To evaluate clinical implications of Vitamin D with pain and exercises.

Methodology: 40 year male with pain and stiffness in cervical region was treated with exercises, with an increased fatigue, repeated stiffness recurrence of pain; we have referred the subject for Vitamin D evaluation and treatment to physician

Results: As Vitamin D was only 10, the subject with due medicine, has shown clinical improvement.

Conclusion: Thus clinical manifestations of physical sign are of most importance with physiotherapy is evident.

Keywords: Vitamin D, Exercises, Musculoskeletal Function



A COMPARATIVE STUDY ON GONG'S MOBILIZATION VERSUS MOVEMENT WITH MOBILIZATION FOR LIMITED ANKLE DORSIFLEXION IN PATIENTS WITH POST TRAUMATIC STIFFNESS.

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Background: Patients with PTS ankle are rehabilitated by joint mobilization techniques to avoid contracture and deformity. Gong's mobilization is technique is used to improve joint ROM in open kinematic chains & it improve ankle kinematic during gait phase. This technique involves small sliding movements of the bone surfaces into the direction of restriction. Gong's mobilization & movement with mobilization (MWM) techniques are assumed to induce various beneficial effects including Neuro physiological; biomechanical and mechanical effects. The aim of the study is to compare the effectiveness of Gong's mobilization and MWM for limited ankle dorsiflexion in PTS.

Methods/design: This protocol describes a comparative study where 30 participants of PTS are recruited. Participants are randomly selected within the age group of 20-50 years with limited ankle dorsiflexion and separated into 2 groups. Gong's mobilization and MWM. This is done to the participants in alternate days of 10session. Outcome measures are ROM and NPRS.

Objective: The findings of this study determine whether the Gong's mobilization technique is effective in increasing ankle dorsiflexion ROM in PTS when compared to MWM in PTS.

Result: ROM and NPRS in pre and post treatment showed that dorsiflexion was significantly increased in group A; ROM (11.867±2.356); NPRS (3.667±0.724).

Conclusion: The study concludes that Gong's mobilization showed marked improvement in ankle dorsiflexion ROM and NPRS scores where reduced than group B for PTS.

Keywords: PTS; limited ankle dorsiflexion; Gong's mobilization; MWM; Goniometer; NPRS.



**EARLY RETURNS OF A VOLLEY BALL PLAYER AFTER ANTERIOR CRUCIATE
LIGAMENT RECONSTRUCTION –A SINGLE CASE STUDY**

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Background and Objectives: In many sports ACL injuries the players are back into their sports activities after 6 months of ACL Reconstruction has been stated in several studies. This is to find out the effect of early mobilization in ACL Reconstruction to regain back the players earlier in sports activities.

Methods: A Volley ball player with 18 years of age who has undergone ACL Reconstruction with patellar tendon graft is taken for this study, we applied recent mobilization techniques on early phase of Rehabilitation and assess with LEFS score on twice monthly basis.

Results: The effect of early mobilization technique on ACL Reconstruction with patellar tendon graft shows improvement on LEFS score range 61-76 within 14-18 weeks.

Conclusion: The result shows the effect of early mobilization on ACL Reconstruction determines the player's readiness for earlier returning sports activities.

Keywords: ACL - Anterior Cruciate Ligament, LEFS – Lower Extremity Functional Scale, Patellar Tendon Graft, Reconstruction, Rehabilitation, and Mobilization.



A STUDY TO COMPARE THE EFFECTIVENESS OF INSTRUMENTAL ASSISTED SOFT TISSUE MOBILIZATION VS MANUAL MYOFASCIAL RELEASE TECHNIQUE IN SUBJECTS WITH PLANTAR FASCIITIS

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Background: Plantar heel pain is defined as pain arising from the insertion point of the plantar fascia, with or without heel spur and has been experienced by 10% of the general population. This condition is often referred to as plantar fasciitis, is an inflammatory process. Various physiotherapy treatment protocols have been advocated in the past such as rest, taping, orthosis, night splints, silicon heel cups, electrotherapy and MET. Instrumental assisted soft tissue mobilization (IASTM) is a new range of tool which enables physical therapist to efficiently locate and treat individual diagnosis with soft tissue dysfunction. And the manual Myofascial release technique is also climb to be effective for variety of purpose including release the fascia restriction, softness and lengthen the fascia. Hence the present study is to compare the effectiveness of IASTM and manual Myofascial release technique in the treatment of plantar fasciitis.

Methodology: 30 sample subjects were selected with informed consent based on the inclusion and exclusion criteria and including both male and female gender. The selected subjects were randomly allocated into 2 groups. Group A (IASTM along with ultrasound) and Group B (manual Myofascial release technique along with ultrasound). All subjects were evaluated with NPRS (pain) and Goniometer (ROM) before and after intervention. The period of intervention is twice a week for one and half month

Results: Unpaired 't' test was used to compare the significant difference between group A and group B. The level of significance was stated at $p < 0.005$. Between the group analysis shows that there is statistically extremely significant changes in group A - NPRS ($t = 8.52$; $p < 0.0001$); active dorsiflexion ROM ($t = 2.83$, $p < 0.0001$) than the group B

Conclusion: This study concluded that the IASTM can be useful in decreasing pain and improve ROM than that manual Myofascial release technique in subjects with plantar fasciitis

Keywords: Plantar fasciitis, IASTM, Myofascial release.



**A STUDY TO ASSESS THE EFFECT OF UPPER THORACIC JOINT MOBILIZATION
ALONG WITH NERVE GLIDING EXERCISE ON CERVICAL RADICULOPATHY**

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Background: Cervical radiculopathy is a pain or sensor motor deficit syndrome that is defined as being caused by compression of a cervical nerve root. It is common in general population with an annual incidence of approximately 83.2 per 100,000 persons. Upper thoracic mobilization has been one of the physical therapy given in the thoracic conditions that cause gliding movement in the thoracic spine. The thoracic vertebrae are closely connected to the axial skeleton in order to be neurologically connected with the proximal parts. There by affecting the neck bones and lumbar vertebrae. Nerve gliding exercises that aim to mobilize the peripheral nervous system have been advocated as a part of the management of various upper limb entrapment syndrome especially cervical radiculopathy. Hence, the present study was undertaken with the intention to assess the effect of upper thoracic joint mobilization along with nerve gliding exercise on cervical radiculopathy.

Methodology: An experimental study design was used to examine the effect of upper thoracic joint mobilization along with nerve gliding exercise to improve the range of motion and relieve pain in cervical radiculopathy. 40 subjects were included in this study and they were randomly divided into two groups. Control group (n=20) subjects were treated with nerve gliding exercise. And the experimental group (n=20) subjects are treated with upper thoracic joint mobilization along with Nerve gliding exercise. Subjects were evaluated over two sessions per week over a period of two month interval. In each session the subjects were evaluated with NDI, NPRS and Goniometer (ROM) before and after intervention.

Results: Between the group analysis shows that there is a statistically extremely significant changes in unpaired t test value of Experimental group (NDI (t=9.48; p<0.0001), NPRS (t=4.6; p<0.0001), ICR-ROM (t=12.78; p<0.0001)) than the Control group

Conclusion: It was concluded that the upper thoracic joint mobilization along with nerve gliding exercise showed significant improvements, which was noted 4 weeks of pre and post intervention in all the clinical parameters.

Keywords: Cervical radiculopathy, Neck Disability Index, Numerical Pain Rating Scale, Goniometer, Upper Thoracic Joint Mobilization, Nerve Gliding Exercise.



**EFFECTS OF MODERATE INTENSITY PROGRESSIVE EXERCISE PROGRAM ON
SELECTED ANTHROPOMETRIC MEASURES AND FITNESS LEVELS OF ADOLESCENT
OBESE SCHOOLCHILDREN**

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Background & Purpose: Childhood obesity and its consequences have an increasing prevalence and health risks among Indian population. School based data shows an obesity range of 5.6 to 24% for children and adolescents. There is insufficient research data regarding the nature and type of exercise that can bring about beneficial clinical outcomes in childhood obesity.

Methods: Exercise or increasing physical activity is one of the cornerstones of pediatric obesity management. Various forms of physical exercises have proven to have beneficial effects on childhood obesity levels. Moderate Intensity Progressive Exercise program (MPEP) program is an exercise intervention program which includes aerobic, muscular strength and endurance exercise. The program consisted of a 5 days a week, 8 week school based field routine including MPEP. Pre and post test measurements of anthropometric data, including Height, weight, Body mass Index and Percentage body fat were taken. Fitness levels before and after the programs were analyzed by using Brockport Fitness tests and compared using FITNESSGRAM reference values.

Results: All 30 subjects completed the 8 week MPEP program ensuring 100% compliance. Body Weight and Body mass index improved significantly at 8 weeks. Fitness levels including aerobic fitness, muscle strength and endurance, and flexibility significantly improved in all the participants ($P \geq 0.05$). No significance was observed in the control group.

Conclusions: Body Weight, Body mass index and fitness levels improved significantly at 8 weeks. Therefore PEP program can be used effectively to prevent and reverse childhood obesity in clinical intervention as well as school based fitness programs due to its progressive nature, variety of options and moderate intensity levels

Keywords: Progressive Exercise Program, Anthropometric Measures, Body Mass Index.



IMMEDIATE EFFECT OF C1-C2 MULLIGAN'S SUSTAINED NATURAL APOPHYSEAL GLIDE (SNAG's) VERSUS CONSERVATIVE MANAGEMENT ON REDUCING PAIN IN CERVICOGENIC HEADACHE PATIENTS

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Introduction: Cervicogenic headache is a syndrome characterized by chronic hemi cranial pain that is referred to the head from either bony structures or soft tissues of the neck.

Purpose: To compare the immediate effect of C1-C2 Mulligan Sustained Natural Apophyseal Glide (SNAG's) versus conservative management on reducing pain in Cervicogenic headache.

Study design: Quasi experimental study design

Study method: Thirty subjects were enrolled in this study and randomly assigned into two groups; Group A received Sustained Natural Apophyseal glide (SNAG's) mobilization technique and Group B received only medication. Headache disability index and visual analogue scale was used to record the values. This measurement was taken before and after the treatment.

Results: Statistical analysis was done using paired and independent's test. The analysis interpreted that both group had improvement in their outcome measures. The group which received Sustained Natural Apophyseal glide (SNAG's) mobilization showed more improvement than the group which received only medication.

Conclusion: Sustained Natural Apophyseal Glide (SNAG's) and conservative management both were found to be effective but SNAG's mobilization was more effective.

Keywords: Cervicogenic headache, Mulligan's, SNAG, conservative management



A STUDY TO COMPARE THE EFFECTIVENESS OF TISSUE SPECIFIC STRETCHING EXERCISE AND ULTRASOUND THERAPY TO COMPARE WITH MASSAGE THERAPY AND ULTRASOUND TREATMENT IN PATIENTS WITH PLANTAR FASCIITIS

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Objective: To compare the effectiveness of tissue specific stretching exercise and ultrasound therapy to compare with massage therapy and ultrasound therapy in patients with plantar fasciitis

Methodology: The present study was comparative study and clinical Randomized trial .40 subjects were randomly assigned to two groups. Each group consisting of 20 subjects. Group A received Tissue stretching exercise [hold the stretch for 10 sec, 10 repetition, 3 times/day over 4 week]and therapeutic ultrasound (frequency 1MHZ,1w/cm², pulsed mode 1:2,8min ,5 times/week for 4weeks). Group B received Massage therapy (30 min sessions over 4 week) and therapeutic ultrasound therapy (frequency 1MHZ, 1w/cm², pulsed mode 1:2,8min for 5 times/week for 4 weeks).

Outcome Measures: NPRS (numerical pain rating scale) and FFI (foot functional index scale)

Result: Group A which received stretching and ultrasound therapy showed great improvements from at end of the 4 weeks of treatment on pain intensity and foot function assessed using NPRS and FFI. After analysis group A showed significance with P=0.001 than GroupB

Conclusion: Stretching and ultrasound therapy, massage and ultrasound therapy both showed effectiveness in reducing the pain intensity and increase foot function but stretching and ultrasound therapy showed superior hand over massage and ultrasound therapy.

Keywords: Plantar fasciitis, ultrasound therapy, stretching and massage



OTAGO EXERCISE PROGRAM IN REDUCING THE RISK OF FALL AMONG ELDERLY POPULATION- A SYSTEMATIC REVIEW

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Introduction: Falls are common in people aged 65 years and older and are the leading cause of injury in this age group. They can have serious consequence, including trauma, pain, impaired function, and loss of confidence in carrying out everyday activities, loss of independence and autonomy and even to death.

Background: The ‘Otago exercise programme’ (OEP) is a strength and balance retraining programme designed to prevent falls in older people living in the community. The aim of this review was to evaluate the effect of the OEP on the fall rates and to explore levels of compliance with the OEP in older adults.

Methods: A systematic review Clinical trials where the OEP was the primary intervention and participants were community-dwelling older adults (65+) were included. Outcomes of interest included number of falls, number of injurious falls and compliance to the exercise programme.

Result: The research evidence has showed that the Otago exercise program among elderly people prevented the injurious fall and reduced the frequency of fall. They also maintained confidence in being alone and be able carry out daily activities without falling.

Conclusion: The OEP significantly reduces the risk of death and falling in older community-dwelling adults.

Keywords: Otago exercise programme, Balance retraining programme, Fall.



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**ROBOTIC ASSISTIVE THERAPY IN STROKE
UPPER LIMB REHABILITATION**

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Introduction: Stroke remains the leading cause of severe long-term disabilities worldwide, hemiplegia associated with abnormal muscle activation and co-ordination, muscle weakness, spasticity and loss of dexterity and precision being the major contributors to the disabilities. While almost 70% of stroke survivors are able to regain walking ability within six months, recovering of the paretic upper extremity is still challenging. Robotic assistive therapy is effective to reduce motor impairments in stroke patients. Robotic therapy provides for long periods, without fatigue; can be programmed to perform in different functional modes, can be automated for many functions. It emphasizes intense active movement, repetition as well as attention, speed, force, precision and timing, and includes virtual reality games.

Objective: To obtain an evidence for the use of robotic assistive therapy on upper limb rehabilitation in stroke.

Methodology: A search was made on Pub med, Google scholar using following criteria. Search limits: English articles published between 2010-2016. Related 18 articles were found.

Conclusion: It is concluded that hand robotic therapy improves hand function, muscle strength and provides upper limb rehabilitation and additional hand motor recovery. Reviews have shown that there is a potential effect of robotic assistive therapy which enhances upper limb functions in stroke patients.

Keywords: stroke, stroke rehabilitation, assistive therapy, robotic rehabilitation in upper extremity.

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A STUDY TO COMPARE THE EFFECT OF JAW MOBILITY EXERCISE VS ROCABADO'S EXERCISE FOR TEMPOROMANDIBULAR JOINT DYSFUNCTION.

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Background: A Temporo-mandibular joint is described as a Gingly morthrodial joint consisting of mandibular condyles articulating with the TM disc & glenoid fossa of the Temporal bone, together this joint performs tasks such as chewing, talking and yawning. The TMJ is greatly affected by malocclusion. This can certainly results from congenital mandibular or maxillary Malformations, Trauma, Vertebral Subluxation, dental Malocclusion or bite misalignment secondary to poor biting in the equine or abnormal stress pain the TMJ also reduces mastication from joint pain as well as from local muscle spasm. Physical therapy can help relax the muscles, increase joint flexibility there as Jaw Mobility Exercise and the Rocabado's exercise. This study carried over to find the effect of Rocabado's exercise vs. Jaw Mobility Exercise for the treatment of TMJ dysfunction.

Methodology: A Comparative study was carried out on 30 patients diagnosed of TMJ dysfunction and referred for physiotherapy at SVMCH & RC. Total 30 subjects were allowed into 2 groups A & B Group-A Received (Jaw mobility exercise), Group-B Received (Rocabado's exercise). The outcome measures are NPRS & ROM.

Results: The results of the study shows that there is improvement in Group A who received Temporo-mandibular Exercise showed significant Improvement in the ROM (0.387 ± 0.1060) & (0.92 ± 0.1207) and NPRS (7.13 ± 1.125) & (0.933 ± 1.175) with significant P-value (0.0001).

Conclusion: In the study it have been concluded that GROUP-A shows a significant improvement in the pain and range of motion the GROUP -B, Which means Jaw Mobility Exercise group shows better results than Rocabado's exercise group

Keywords: TMJ Dysfunction, Rocabado's exercise, Jaw Mobility, Range of Motion, Numerical pain rating scale.



EFFECTIVENESS OF TANZBERGER EXERCISE ALONG WITH IFT IN RELIEVING THE URINARY STRESS INCONTINENCE IN POSTNATAL WOMEN

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Stress incontinence is the involuntary loss of urine when the intravesical pressure exceeds the maximum urethral pressure in the absence of detrusor contraction. It is a frequent early post natal problem and is caused by distention and weakening of the pelvic floor musculature. Focus on these muscles is very less which needs to be considered in the management of stress incontinence. Studies focusing on these areas are very minimal, so this study aims to analyze the effect of pelvic floor muscle strengthening through Tanzberger exercise with IFT. Study is a single group pretest and post experimental study design with 10 subjects with stress incontinence. Subjects were well explained about the study procedure and consent form obtained from the individual subjects. All subjects underwent Tanzberger exercise for 15mins along with IFT for 15mins. Outcomes selected in the study are pelvic floor muscle strength which is measured with pelvic floor muscle grading. Following 8 weeks of training the results were analyzed using paired t' test by SPSS 20.1. The study result shows that there was a significant difference in pelvic floor muscle strength 6.7082 $p < 0.05\%$ following Tanzberger exercise along with IFT. Thus the study concludes that Tanzberger exercise along with IFT play a major role in relieving the urinary stress incontinence in postnatal women.

Keywords: Tanzberger exercise, IFT, Stress Incontinence, Postnatal Women, Pelvic Floor Muscle Strength.



A COMPARATIVE STUDY ON EFFECTIVENESS OF SLING EXERCISES VS BACK ISOMETRIC EXERCISES ALONG WITH SHORT WAVE DIATHERMY IN PATIENTS WITH CHRONIC LOW BACK PAIN

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Background: A back pain radiating towards one side without referring below the knee is called mechanical low back pain. It is caused by muscular strain, poor posture, Ligament sprain etc., Most of the studies have investigated the effects of sling exercise and back isometric exercise for chronic low back pain separately, but none of the study is to compare the effects of sling exercise and back isometric exercise. The aim of the study is to compare the effectiveness of sling exercises vs. back isometric exercises along with short wave diathermy in patient with chronic low back pain

Methodology: A comparative study on adults between 25 to 65 years who had been diagnosed of mechanical low back pain and referred for Physiotherapy at SVMCH&RC. Total 30 subjects were allotted in two groups A & B. Group A received (SWD & BACK ISOMETRIC EXERCISES), Group B received (SWD & SLING EXERCISES). The outcome measures are Oswestry Disability Index (ODI) & Numerical pain rating scale (NPRS).

Result: It was observed that Group B who received SWD and sling exercises showed significant improvement in ODI (Pretest mean = 54.57 & Posttest mean = 15.73) and NPRS (Pretest mean = 8.67 & Posttest mean = 4.87).

Conclusion: In patient with chronic low back pain, short wave diathermy and sling exercises were more effective in relieving pain and reducing disability.

Keywords: Oswestry Disability Index, Numerical Pain Rating Scale, short wave diathermy



A STUDY TO COMPARE THE EFFECTIVENESS OF KINESIO TAPING WITH MCKENZIE EXERCISES VS ULTRASOUND THERAPY WITH MCKENZIE EXERCISES IN DE QUERVAIN TENOSYNOVITIS

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Background: De Quervain's disease is a stenosing tenosynovitis of common tendon sheath of abductor pollicis longus and extensor pollicis brevis muscles. Due to the superficial positions it can easily lead to mechanical injuries of tendons and their sheaths. The disease more often affects women over 40 years old and people with certain professions who intensively use hand and fingers in their daily work. Pathological changes consist of sheath's fibrous layer thickening. The clinical condition develops gradually with the pain of varying intensity. It is localized above the radial styloid process and radiates from the back side of the thumb.

Aim: The present study is to compare the effectiveness of kinesio taping with McKenzie exercises versus ultrasound therapy with McKenzie exercises in dequervain tenosynovitis.

Methodology: In this study 30 subjects with age of 18-65 yrs., who were clinically diagnosed dequervain tenosynovitis. Patients were selected based upon who fulfilled the inclusion criteria. Subjects were randomly assigned into either of kinesio taping with McKenzie exercises (GROUP A) versus ultrasound therapy with McKenzie exercises (GROUP B) for 4 weeks. Comparison between inter group and intra group.

Result: The statistical analysis showed the mean difference of NPRS (A=4.87 & B=4.33), GRIP Strength (A=140.33 & B=139.33), Hand function. (A=45.27 & B=45.73).

Conclusion: We conclude that both the treatment are equally effective in reduce pain, and improve grip strength, hand function in dequervain tenosynovitis

Keywords: Dequervain tenosynovitis, Kinesiology tape, Ultrasound therapy, Grip strength, Hand function.



A STUDY TO ASSESS THE EFFICACY OF FIXED PRIORITY INSTRUCTIONS VERSUS VARIABLE PRIORITY INSTRUCTIONS IN DUAL -TASK TRAINING FOR PRESBYCUSIS PATIENTS WITH BALANCE IMPAIRMENT

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Objective: To investigate the efficacy of two different approaches of dual-task balance training for the Presbycusis patients with balance impairment.

Methodology: A randomized - two group comparative study. The subjects were allocated into two groups consisted of 15 subjects each: Group A and Group B. All participants were received approximately 45-minutes training sessions, 3 times a week for four weeks. The participants were instructed to spend three minutes on each task: *Group A* was given dual task training under fixed priority instruction set. *Group B* was given dual task training under variable priority instruction set.

Outcome Measures: Self-selected gait speed and Berg balance scale were done. The measurements were collected at baseline and after the training period.

Result: There were no significant differences in self-selected gait speed among the two groups. While the Berg Balance scale was significantly higher in the group B than the group A.

Conclusion: The results show that variable priority instructions in Dual-Task are more effective than fixed priority instructions in Presbycusis patients with balance impairment.

Keywords: Dual-task: Fixed priority and variable priority instructions, Presbycusis, Balance impairment, Berg Balance scale, Self-selected gait speed.



“EFFECTIVENESS OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) ON ACUPRESSURE POINT WITH MUSCLE STRETCHING IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS”

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Background: Chronic obstructive pulmonary disease is a progressive condition characterized by airflow limitation which is not fully reversible (WHO). Acu-TENS is a low rate category of TENS which gives acupuncture like strong low frequency stimulus. Acu-TENS aids in improving energy flow to the lungs through neural stimulation and also facilitating release of endogenous opiates which are respiratory depressants. Hyperinflation of the chest places the Pectoralis major in a shortened position, increasing resistance of the chest wall to expansion, further increasing the work of breathing and demand placed on respiratory muscles. Stretching aids in the elongation of this muscle and thereby decreases the work load on respiratory muscles.

Design& Methodology: Pretest – Posttest with comparative Treatment (Quasi experimental)

Participants: A total of 30 COPD patients who have not received bronchodilator for the past 6 hours prior to data collection. Age more than >30 years

Intervention: Group A-15 participants received Acu-TENS and muscle stretching technique with duration of 45 minutes (single session) and Group B-15 Participants received muscle stretching technique with duration of 20 minutes (three repetitions).

Outcome Measures: FEV₁ using Digital peak flow meter and Modified Borg dyspnea scale

Results: The patients in Acu-TENS with muscle stretching group showed the mean difference in FEV₁ and dyspnea were 0.62 and 4.46 respectively. The patients in muscle stretching group alone showed the mean difference of FEV₁ and dyspnea were 0.54 and 2.54 respectively using paired ‘t’ test. The FEV₁ of patients in Acu-TENS with stretching and stretching group showed a mean difference of 0.08 and dyspnea in Acu tens with stretching and stretching showed a mean difference of 1.93 using independent ‘t’ test.

Conclusion: This study reveals that there was significant improvement in the group who received Acu-TENS along with muscle stretching than the group who received muscle stretching alone.

Keywords: Acu-TENS, Muscle stretching, Digital peak flow meter and Modified Borg dyspnea scale.



EFFICACY OF ADDUCTOR PULL BACK EXERCISE ALONG WITH CORE MUSCLE STRENGTHENING EXERCISE ON PAIN AND FUNCTIONAL DISABILITY OF SACROILIAC JOINT DYSFUNCTION

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Background: Sacroiliac joint has been implicated as a source of low back pain. Ligamentous and capsular tension, innominate share force, hypo mobility and hyper mobility, aberrant joint mechanism and imbalance of the muscle and kinetic chain pattern, are those which might leads to sacroiliac joint pain. Adductor pull back exercise is designed to regain the asymmetrical postural pattern back to its proper position.

Study design: It was a randomized control study.

Objective: To find out the effect of adductor pull back exercise along with core muscle strengthening exercise on pain and functional disability on sacroiliac joint dysfunction.

Methodology: 30 patients with sacroiliac dysfunction were taken for the study and were divided randomly into two groups. 15 patients of group a received SWD, core muscle strengthening exercise and adductor pull back exercise. 15 patients of group B received SWD, and core muscle strengthening exercise.

Result: On reassessing the patient after 3 months of intervention using tools such as NPRS and Oswestry disability Index, the statistical analysis showed that the experimental group A for NPRS (mean difference = 3.54) was much significant than group B (MD=6.47) On comparing the ODI, group A (MD= 36.06) was very much significant than group B (MD= 30).

Conclusion: The study concluded that adductor pull back exercise along with core muscle strengthening exercise showed significant effect on reducing pain and functional disability for subject with sacroiliac joint dysfunction.

Keywords: adductor pull back exercise, sacroiliac joint dysfunction, core muscle strengthening, NPRS, ODI.



CUPPING THERAPY, A RECENT TREND IN PHYSIOTHERAPY

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Introduction: Cupping therapy is one of the oldest and most effective methods of releasing toxins from body tissues and organs

- Practice applying partial vacuum by means of suction in a suction cup to parts skin which draws up and swell increasing blood flow to the area
- This diverts toxins and other harmful impurities
- The blood which is diverted allows fresh steam of blood to that area

History: Developed in western world and Middle East in 1150 BC mainly in EGYPT

Types: Dry Cupping, Wet Cupping

Methods: Weak, Medium, Strong, Moving, Needle cupping, Moxa-cupping, Empty cupping, Full cupping, Herbal cupping.

Physiology

- Vacuum created through partial vacuum suction
- Blood flow increases, draws impurities and toxins away from the body and nearby tissues and organs towards the surface for elimination
- Cupping draw inflammation and pressure away from the deep organs towards the skin
- It diverts toxins and other harmful impurities from the vital organs towards the less vital skin before expulsion
- The blood which is diverted allows the fresh steam of blood to that area

Benefits: Reduces pain, Increase blood flow, Reduces swelling, Removes Toxins and strengthens skin.

Conclusion

- It is found that cupping therapy is effective in reducing musculoskeletal pain, swelling and improve blood supply.
- It has several indications and is
- Been widely used in recent physical therapy field.

Keywords: Cupping, vacuum suction, Blood flow, Pain.



A STUDY TO ASSESS THE EFFICACY OF POST ISOMETRIC RELAXATION TECHNIQUE VS. POSTERIOR TO ANTERIOR LUMBAR JOINT MOBILIZATION IN SUBJECTS WITH NON-SPECIFIC LOW BACK PAIN

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Introduction: Low back pain (LBP) is the fifth most common reason for physician visits, which affects nearly 60-80% of people throughout their lifetime. Non-specific (Simple or Mechanical) low back pain is the general term that refers to any type of back pain in the lumbar region that is not related to serious pathology and/or does not have a specific cause. Many studies show that lumbar joint mobilization affects the Neuro physiological and mechanical aspects of pain and pain arc or muscle spasm. Similarly the post isometric relaxation technique also effect in pain relief, but there is no study to compare the post isometric relaxation technique and joint mobilization technique in acute and sub-acute nonspecific low back pain. Hence there is a need to compare the efficacy of post isometric relaxation technique and the posterior to anterior lumbar joint mobilization in subjects with acute and sub-acute nonspecific low back pain.

Methodology: A comparative study design was used to examine the efficacy of post isometric relaxation technique and lumbar joint mobilization in subject with non-specific low back pain. 30 sample subjects were randomly divided into two groups. The sample subjects of Group A (n=15) were treated with postro-anterior lumbar joint mobilization along with shortwave diathermy and the GROUP B (n=15) were treated with post isometric relaxation technique along with shortwave diathermy. The pre and post intervention outcomes were evaluated by Oswestry Disability Index (ODI) Scale and Numerical Pain Rating Scale (NPRS) for 2 month interval.

Result: The paired t-test data result was found to be more significant between pre-post interventions in both groups [Group A: NPRS (t=29.93), ODI (t=7.03) and Group B: NPRS (t=12.01), ODI (t=12.72)]. Between the groups analysis shows that, there is statistically extremely significant changes in unpaired t-test value of Group B [NPRS (t=3.01; p<0.005) ODI (t=3.247; p<0.01)] than the Group A

Conclusion: From this study, it was concluded that post isometric relaxation technique showed significant improvement in pain, reduction of muscle spasm in non-specific low back pain as in term of NPRS, Oswestry Disability Scale (ODS).

Keywords: Non-specific low back pain, Post isometric relaxation technique, Lumbar joint mobilization, Oswestry Disability Index (ODI) Scale and Numerical Pain Rating Scale (NPRS).



“PUBLIC AWARENESS ON PHYSIOTHERAPY” – A SURVEY

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Background: Physiotherapy is a profession which provides services to people and to develop, maintain and restore maximum movement and functional ability throughout the life-span. It is essential to study the awareness of profession on regular basis to understand a clear identity and to correct misconception and to create more effective marketing services. Therefore, this study is initiated to know the awareness and perception of physiotherapy among peoples

Objective: To study the awareness and perception about physiotherapy in general population

Setting: Community setting (Chidambaram).

Study Design: A Cross Sectional Survey

Participation: 150 individuals who are all fulfilling the selection criteria will be randomly assigned in this study.

Method: The questionnaire is modified and adapted from the previous studies (*Thusharika D. Dissanayaka, ShayamaBanneheka 2014, Olajide A. Olawle et.al 2003*). The questionnaire is prepared in English and as well as in local language Tamil. The questions focus on the general information about physiotherapy, which will assess the awareness of physiotherapy. The questionnaire is distributed randomly to 150 individuals in a periodical manner at common places such as Temple, Shopping complex, Market, Hospitals etc.. The data collected from the respondents are compiled for statistical analysis.

Result: Among 150 participants 90% (n=180) heard about physiotherapy. Among the respondent the Urban population (n=117) scored 16/20 (80%) and the Rural population (n=63) scored 12/20(60%).The overall results shows that the mean score is 14/20(70%).This reveals that the participant in the study demonstrate high level of awareness on physiotherapy.

Conclusion: The study shows the level of awareness about physiotherapy is high in general population. However; theurban population awareness is high when comparing to rural population.

Keywords: Awareness, Physiotherapy, Public



A STUDY TO FIND OUT THE EFFECTIVENESS OF HIGH INTENSITY AEROBIC EXERCISE IN SLEEP QUALITY AMONG COLLEGE GOING STUDENTS WITH SLEEP PROBLEMS

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Background: Many studies have shown the effects of aerobic exercise training to improve sleep quality among the middle age and older adults. Several systemic reviews have reported that hypnotics, non-pharmacological treatments are effective as pharmacological therapies for older patients in Insomnia. But no other study has proved the effect of aerobic exercise among the college going students with sleep problems

Objective: To find out the effectiveness of High intensity aerobic exercise in sleep quality among college going students with sleep problems.

Methodology: Out of 418 college going students, 50 participants were selected after screening through PSQI questionnaire having scored more than 5 from Sri Venkateshwaraa Group of Institutions were included in this study. Participants were randomly assigned into two groups: Experimental group A (n=25, Aerobic Exercises) and Control group B (n=25, non- physical activities). Participants received 30 minutes of Aerobic exercise training for 1 month. Pittsburg Sleep Quality Index was a used as outcome measure for this study.

Result: Group A shows more significant than the Group B.

Conclusion: this study concluded that the high intensity aerobic exercise shows better results than the non-physical activities or passive recreational activities for college going students who have decreased sleep quality

Keywords: High intensity aerobic exercises, PSQI, college students, sleep quality, sleep problems.



THE EFFECTS OF PILATES IN CHRONIC NON-SPECIFIC LOW BACK PAIN

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Background: Back pain is a common musculoskeletal condition among young population. The weight bearing and stress on lumbar vertebra, increased loading across the joint results in low-back pain. This study is to analyze the effect of Pilates in chronic non-specific low-back pain. Articles were selected using the Medline, EMBASE, Pedro, CINAHL, and SPORTDICUS databases. The criteria used for inclusion is chronic non-specific low-back pain were therapeutic treatment was based on the Pilates method. The analysis was carried out by two independent reviewers using ODI and VAS scales. The results of the study is analyzed all demonstrate positive effects such as improved functional status and reduction of pain when applying the Pilates method in treating chronic non-specific low-back pain in subjects.

Objectives: To reduce pain, improve functional activities and to assess the effects of Pilates in chronic non-specific low-back pain subjects

Design: Pre-test and post-test of single group – Quasi Experimental design.

Methodology: 30 subjects with chronic low- back pain age ranges from 17-32, selected from PSG Hospitals, assigned in one group (n=30) were given corresponding Pilates exercise protocol. They were assessed for pre-test using parameters such as ODI, VAS, post-test for the same done after 4weeks.

Results: ODI, VAS shows statistical improvement in their pre-test and post-test values. Paired' test $t=12.23$ (VAS), 23.85 (ODI). $p<0.001$ shows significant improvement in reduction of pain and functional activities.

Conclusion: Hence with the 4 weeks duration of Pilates treatment, there shows significance in non-specific chronic low-back pain subjects.

Keywords: Pilates, Non-Specific Low Back Pain, ODI, VAS.



A COMPARATIVE STUDY TO ASSESS THE EFFICACY OF PILATES EXERCISE AND TASK ORIENTED EXERCISE IN MANAGING KINESIOPHOBIA IN CHRONIC LOW BACK PAIN

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Background: Chronic low back pain is pain, muscle tension or stiffness localized below the costal margin & above the inferior gluteal folds, with or without sciatica, and persists for more than 12 weeks. The aim of the study is to compare the efficacy of Pilates exercise & Task oriented Exercise for the patients with Kinesiophobia in Chronic Low Back pain.

Objective: To compare the efficacy of Pilates exercise & Task oriented Exercise for the patients with Kinesiophobia in Chronic Low Back pain.

Methodology: This study is a comparative study, where 30 participants were taken by using TAMPA, NPRS. The period of intervention is 3 sessions per week in alternative days for 1 month

Result: Pre-treatment and Post treatment score for TAMPA and NPRS, in Group A (28.933 ± 11.139 & 6.2 ± 7.75) and in Group B (21.067 ± 12.32 & 3.667 ± 9.76). Pilates exercise followed by SWD and Back isometric exercises resulted in more significant improvements in TAMPA and reduction in pain.

Conclusion: This study result concludes that Pilates exercises shows greater improvement than Task oriented exercises while on assessing with NPRS & Tampa. This implies the use of Pilates exercises to find better improvement in Clinical practice

Keywords: Chronic low back pain, Kinesiophobia, TAMPA scale, NPRS, Pilates. Short wave Diathermy, Isometric back exercises.



MEASUREMENT OF PROPRIOCEPTION IN ANTERIOR CRUCIATE LIGAMENT DEFICIT KNEE USING POSTURAL SWAY METER - A CASE SERIES

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Study Objective and Background: Loss of stability is a very common problem encountered in anterior cruciate ligament deficit (ACL) knee. The major cause for the loss of stability may be mechanical discontinuity, muscle weakness and loss of proprioception. Proprioception in the knee following an injury to anterior cruciate ligament has been well documented. This study was aimed to measure the proprioception of the ACL knee using the postural sway meter.

Methods: 13 patients reporting to the SVMCH&RC physiotherapy OPD were selected with unilateral ACL injury. These patients were carefully evaluated with Weight Bearing Postural Sway on single leg stance by Postural Sway meter. Their proprioception scores were carefully documented and analyzed.

Results: The data collected for sway in all four directions was analyzed in both eye opened and eye closed condition. For these 13 patients mean value of sway anterior was 0.13 cm; posterior was 0.17 cm; right lateral was 0.25 cm; left lateral was 0.23 cm in eyes opened condition. Whereas the same test was performed in eyes closed condition the mean value of sway anterior was 0.21 cm; posterior was 0.20 cm; right lateral was 0.34 cm; left lateral was 0.31 cm.

Conclusion: This study supports the usage of sway meter as a clinical tool for measuring joint proprioception in ACL deficit knee. It may be concluded that ACL patient's sway was more in eye closed condition than eye opened condition and lateral sway were predominately higher than the anterior and posterior sway.

Keywords: Proprioception, Anterior Cruciate Ligament, Postural Sway Meter



A STUDY TO COMPARE THE EFFECT OF SENSORY RE-EDUCATION Vs BALANCE TRAINING ALONG WITH SENSORY RE-EDUCATION ALONE TO IMPROVE BALANCE IN DIABETIC NEUROPATHY.

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Background: Diabetic Neuropathy is a family of nerve disorders that occurs as common complication of diabetes. This occurs when blood sugar is high for a long period of time. There will be decreased balance and physical activities for elder peoples having diabetes. So far many studies have been done on the effect on sensory re-education which improves balance in patients with Diabetic Neuropathy. None of the studies have proven the effect of balance training along with sensory re-education to improve balance impairments in patients with Diabetic Neuropathy.

Objective: To compare the effect of sensory re-education Vs balance training along with sensory re-education alone to improve balance in diabetic neuropathy

Methodology: 30 participants with diabetic neuropathy were selected. The Semme-weistein mono filament and berg balance scale are the tools that are used for this study. Participants were divided into two groups. Group A (n=15, sensory re-education and balance training) and Group B (n=15, Sensory re-education). Group A received 14 balance training exercises with 5 times repetition of each exercise, 5 days/week with sensory re-education. Group B received Sensory r-education for 5 days/week. BBS and SWMF testing are used as outcome measure for this study.

Result: shows that Group A shows much significant than the Group B.

Conclusion: From the statistical analysis it have been concluded that balance training along with sensory re-education shows better result than the sensory re-education alone and hence null hypothesis is proved.

Keywords: Diabetic Neuropathy, Sensory re-education, Balance training, BBS, SWMF.



RECENT EVIDENCES IN THE PHYSIOTHERAPEUTIC MANAGEMENT OF CANCER PAIN –A REVIEW

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The objective of this narrative review is to provide information about the recent evidences in physiotherapeutic management of cancer pain. The incidence of new cancer patients in India is about 10 lakh every year. The incidence of pain in advanced stages of cancer approaches 70% to 80%. One of the major fears of patients with cancer is pain, which can occur as a result of the cancer itself or its treatment or from other causes. [1,2] The two areas which are difficult to control cancer pain are cancer-induced bone pain and neuropathic pain. The principles of pharmacological pain management should usually follow those set out in the World Health Organization (WHO) analgesic ladder for cancer pain relief. [2] Cancer-related pain is complicated and multifactorial but the mainstay of cancer pain management has predominantly used a biomedical approach. There is a need for non-pharmacological and innovative approaches. Non-pharmacologic methods used in conjunction with analgesics have as their goal to help the patient with cancer pain or maintain functionality and restore a sense of psychological control. These approaches ordinarily have no negative side effects. [3] Thus, the physiotherapists have a significant role to play in holistic care of patients diagnosed with cancer. Many authors [3, 4, 5] have recommended Non pharmacological management options for acute and chronic cancer pain. They are relaxation, deep breathing, Visual imagery, Biofeedback, therapeutic exercise, walking, transcutaneous electrical nerve stimulation [TENS], Postural Re-education, Soft Tissue Mobilization, Heat and cold therapy, Graded and Purposeful Activity and lifestyle adjustments. To Conclude, Physiotherapy management of cancer pain is integral to the successful management of the cancer patient. The principles of the WHO analgesic ladder should be followed and combined with other aspects of care. This review outlined the management options available for cancer pain with recent evidence of physiotherapeutic management for symptomatic relief and toward better quality of life among those living with cancer pain.

Keywords: Cancer Pain, Quality of Life, Physiotherapeutic.



A STUDY TO COMPARE THE EFFECT OF STRUCTURED NEUROMUSCULAR POSTURAL TRAINING VERSUS ISOMETRIC EXERCISE FOR BALANCE IMPAIRMENT IN PATIENT WITH OSTEOARTHRITIS KNEE

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Background: osteoarthritis is a chronic degenerative disease which is evolved by progressive deterioration of articular cartilage and hypertrophy of the bone margins. This is characterized by musculoskeletal pain, joint line tenderness, and impairments in proprioception. This study is aimed to find out the effect of structural neuromuscular postural Training vs. isometric exercise for balance impairment in osteoarthritis knee patients.

Objective: osteoarthritis generates much impairment in adults and elderly people. Impairment of balance is recognized in many patients with OA. This study was to observe the balance impairments in adults and compare the efficacy of two treatment strategies, (SNPT) and isometric exercise along with conventional therapy.

Method: This study was a comparative study. 30 subjects were evaluated for balance variable such as viz. Western Ontario and McMaster universities arthritis index (WOMAC), Tinetti scale. The period of intervention is alternative days for 3 weeks Follow up evaluation was done at 1 month after beginning the programme. Data were analyzed to determine the efficacy of treatment.

Result: Mean value of pre-treatment and post treatment score for group A were (tinetti: 16.93 ± 1.94 & 26.87 ± 1.68) and (WOMAC: 23.73 ± 2.21 & 13.47 ± 2.23) respectively, while in group B it was (tinetti: 19.40 ± 1.76 & 24.20 ± 1.42) and (WOMAC: 23.47 ± 4.12 & 17.80 ± 4.42) Group A showed significant improvement in tinetti and WOMAC scale score as $p < 0.0001$.

Conclusion: This study concluded that structured neuromuscular postural training improved the balance impairments in osteoarthritis knee subjects than compared with isometric exercise alone for OA knee.

Keywords: osteoarthritis, WOMAC, tinetti, SNPT, isometric exercise



**IMPLEMENTING THEORY BASED GOAL SETTING AND ACTION PLAN FRAMEWORK
FOR PRE-EMINENT STROKE REHABILITATION**

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Introduction: Stroke is also called ‘brain attack’. It is a leading cause of disability international guidelines recommended that rehabilitation provided for patients with stroke related symptoms in restore independence and maximize participation in the goal setting.

Objective: To improve and evaluate rehabilitation outcomes. To enhance autonomy and meet funder professional requirement

Methods: Goal setting and action plan framework were analyzed the statistically to investigate views of its implementation, accessibility and perceived benefits.

Conclusion: Goal setting and action plan frame work is effective way of providing stroke rehabilitation. It can implement in all aspects of stroke rehabilitation. With the support of team work of all health professionals it can direct in efficient wayand with the goal action plan training patient could perform well. Finally goal setting in stroke rehabilitation is a pre-eminent method to attain desire goal

Keywords: stroke rehabilitation, goal setting, process evaluation, multi-disciplinary team.



EFFECT OF BREATHING TECHNIQUES ON PERCEPTION OF LABOUR PAIN AMONG PRIMIGRAVIDA WOMEN

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Background: The childbirth is a painful process. Various complementary methods are used to relieve pain. Breathing technique is form of pain relief that can allay anxiety, encourage relaxation and positive attitude, provides a distraction from pain tension.

Objective: The aim of the present study was to assess the effect of breathing techniques on perception of labour pain among primigravida women throughout their labour.

Methodology: Quasi experimental, post-test only study was conducted to assess the effect of breathing techniques on perception of labour pain among the primigravida women during both first and second stage of labour at PSG Hospitals, Coimbatore. 20 primigravida women were purposefully selected and they were randomly allocated 10 each in experimental and control group. The experimental group participants were taught about the breathing techniques before the onset of labour and they performed during their labour. The pain score after labour was recorded by using Verbal Response Scale (Short-Form McGill pain Questionnaire) for both the groups the next day following delivery.

Results: The mean difference of VRS values between Group A and Group B is with a standard deviation of 4.27. The calculated independent 't' value was 1.174 which is less than the table value of 2.101 at $p > 0.05$.

Conclusion: The study concluded that, though there is clinical significance between the groups, there is no statistically significance difference on perception of labour pain among the primigravida women in both first and second stage of labour

Keywords: Breathing Techniques, Verbal Response Scale, Primigravida women.



**CASE STUDY REPORT ON HEMIPARESIS WITH RECENT INNOVATIONS IN
PHYSIOTHERAPY**

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Introduction: An increased global prevalence of stroke along with the role of physiotherapists getting highlighted.

Aims & Objectives: This study evaluates efficacy of recent innovations physiotherapy in Stroke Rehabilitation.

Methodology: This subject following Left Hemiparesis is employed following 6 months of Rehabilitation with combined physiotherapy techniques treated at our college center. However as Physiotherapy student innovative addition of mirror therapy and Robot assisted Therapy could be of great help if these concepts can be delay to enhance his recovery.

Results: Pupil physiotherapists an updated knowledge in clinical skill and recent procedures are most eminent.

Conclusion: Developing skills and knowledge of recent innovation in various fields of medicine and physiotherapy keeps us professionally enriched and glowing is prudent for our self and society.

Keywords: Hemiparesis, Mirror therapy and Robot Assisted Therapy



STUDY OF GENDER VARIATION IN MUSCLE FUNCTION AMONG YOUNG ADULTS

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Background: Muscles are the only tissue in the body that has the unique ability to contract which helps in movement of other body parts. Physical activity is one of the important factors which affect the skeletal muscle function. In the current life style activities, regular physical activity is recommended to improve the physical and mental well-being in younger age groups.

Aim: To assess the gender differences in muscle functions by using Hand grip dynamometer, Mosso'sergograph, bicycle ergo meter, respiratory endurance in young adults.

Methods: Anthropometric measurements, like chest circumference, chest expansion was taken and the following muscle function tests were done to all the study subjects. Maximum voluntary contraction was assessed by Hand grip dynamometer and Work done was assessed using Mosso'sergograph and bicycle ergometer. Respiratory endurance was assessed by 40 mmHg endurance test.

Results: Maximum voluntary contraction, work done using Mosso'sergography and bicycle ergometer and respiratory endurance test was significantly higher in males when compared to females ($p < 0.05$).

Conclusion: Based on our results we conclude that both upper and lower extremity muscle strength, power and respiratory endurance seen among higher in males compared to females. This could be mainly due to genetic factors and hormonal differences. Physical training is the one plays a role to influence muscle functions. So encouragement should be done to increase the physical activity in females in today modern world to lead a quality life

Keywords: Gender, Muscle strength, Endurance, Young adults



EFFICACY OF ISOMETRIC NECK EXERCISE ALONG WITH BRAHMAMUDRA IN IMPROVING PROPRIOCEPTION AMONG DATAENTRY OPERATORS TO REDUCE MECHANICAL NECK PAIN – A RANDOMISED CONTROLLED STUDY.

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Background: Mechanical neck pain (MNP) is a common complaint with a prevalence of 51% among the computer employees. Neck flexion, forward head posture, scapular retraction, forward stooped postures are some of the faulty postural alignments resulting in neck pain and alteration of proprioception.

Objective: To assess the effectiveness of brahma mudra and isometric neck exercise in reducing neck pain among DEO.

Methodology: Thirty subjects with positive cervico cephalic relocation test are taken for the study and divided into 2 groups. 15 subjects of group A received isometric neck exercise and brahma mudra and 15 subjects of group B received isometric neck exercise.

Result: After 6 weeks of treatment, the patients were reassessed, and on analyzing the values statistically, it was found that the group A showed greater improvement than group B in reducing pain and improving proprioception.

Conclusion: Hence, Isometric neck exercise along with brahma mudra was more effective than the isometric neck exercise in treating neck pain.

Keywords: Mechanical neck pain, data entry operators, isometric neck exercise, brahma mudra.



Abstract: 49

A COMPARATIVE STUDY ON EFFECTIVENESS OF MULLIGAN BENT LEG RAISING Vs SLUMP STRETCHING ALONG WITH SHORT WAVE DIATHERMY IN MECHANICAL LOW BACK PAIN

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Background: Low back pain is the most frequent, self-reported type of musculoskeletal pain. Eighty percentage of LBP are due to mechanical low back pain. Unilateral pain with no referral below the knee is called “Mechanical Low Back Pain or Lumbago”. Aim of this study is to compare the effects of Mulligan Bent Leg Raising with SWD & Slump Stretching with SWD for mechanical low back pain.

Methods/Design: A comparative study done at Department of Physiotherapy, SVMCH&RC, Ariyur, Puducherry. Totally 30 patients selected based on Inclusion and Exclusion criteria. Participants were randomly divided into two Groups, Group-A (n=15) patients treated with SWD & MBLR, and Group-B (n=15) patients treated with SWD & Slump Stretching. Pre and posttest were done based on the outcome measures for Passive Straight Leg Raising by Goniometer and Pain by Visual Analogue Scale

Results: Group A showed reduction in Pain and improvement in PSLR range (VAS: 46.66 & PSLR: 21.93) than Group B (VAS: 38.66 & PSLR: 14.93).

Conclusion: This study concludes that Mulligan Bent Leg Raising is effective than Slump Stretching along with SWD in mechanical low back pain patients.

Keywords: Mulligan Bent Leg Raising, Slump Stretching, Passive Straight Leg Raising (PSLR), Visual Analog Scale (VAS), Short Wave Diathermy (SWD).



**TRAINING OF BALANCE IN A PATIENT WITH LATERAL MEDULLARY SYNDROME
A CASE REPORT**

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The lateral medullary syndrome is caused by occlusion of the cranial segment of vertebral artery or posterior inferior cerebellar artery, MR.Thangavel. A 47years old male,diabetic and hypertensive for 6 years, and smoker presented with sudden onset of giddiness, vomiting, slurring of speech and weakness of left upper and lower extremity. He is clinically and radiologically diagnosed as a case of lateral medullary syndrome right side. Balance is one of the most important impairment in Wallenberg syndrome. In this study balance is assessed using Berg Balance Scale and Biodex Balance System (postural stability and limits of stability), balance training was given using Biodex balance system. The patient showed improvement in balance components after training with Biodex balance system

Keywords: Lateral medullary syndrome, Berg Balance Scale, Biodex Balance System, Balance training.



A STUDY TO COMPARE THE EFFECTIVENESS OF ISCHEMIC COMPRESSION Vs MYOFASCIAL RELEASE IN THE TREATMENT OF CHRONIC TRAPEZITIS.

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Background: Neck pain is the common problem in general population with prevalence of 10-15%. So far several studies showed that the physical therapy will be effective in Trapezitis pain. There are various modalities like Ultrasound, LASER and IFT available. There are many studies done on Myofascial Release and Ischemic Compression on Trapezitis. But there is no study done on comparing the effectiveness of Myofascial Release and Ischemic Compression along with Ultrasound for the subjects of Chronic Trapezitis.

Purpose: The aim of the study is to compare the effectiveness of Myofascial Release with Ischemic Compression for the treatment of chronic Trapezitis.

Methodology: 30 Patients with Chronic Trapezitis subjects were selected. The NPRS and NDI are included in this study. Participants were randomly divided into two groups. Group A (N=15, Ischemic Compression and Ultrasound) Group B (N=15, Myofascial Release and Ultrasound). Participants in Group A receive Ischemic Compression 1time/day for 10 sessions and Group B receives Myofascial Release 3repetitions/day for 3sessions/week for 2weeks. The NDI and NPRS were used as outcome measures for this study.

Result: The paired t-test data result was found to be more significant between pre-post interventions in both groups [Group A: NPRS (t=20.088), NDI (t=56.164) and Group B: NPRS (t=18.500), NDI (t=59.071)]. Between the groups analysis shows that, there is statistically significant changes in unpaired t-test value of Group A [NPRS (t=8.21; p<0.0000001) NDI (t=24.89; p<0.0000001)] than the Group B.

Conclusion: This study concluded that the Ischemic Compression technique can be useful in decreasing the neck pain and improving the functional ability as shown in terms of NPRS and NDI which was performed on 30 subjects of chronic trapezitis.

Keywords: Chronic Trapezitis, Ischemic Compression, Myofascial Release, Ultrasound, NPRS, NDI.



Gut Brain and Physiotherapy – A Meta-Analysis

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Background: The gastrointestinal tract (GIT) of mammals hosts a high and diverse number of different microorganisms, known as intestinal microbiota. Many probiotics were originally isolated from the GIT, and they were defined by the FAO/WHO as "live microorganisms which when administered in adequate amounts confer a health benefit on the host".

Aim: The aim of this review is to compile the correlation between altered intestinal microbiota and associated disorders like brain degeneration disorder and musculoskeletal problems.

Methods: Data base for this study were collected from PubMed/Medline Embase and scholar.google.com. The specific benefits discuss in this paper include among others those elicited directly through dietary modulation of the human gut microbiota. Probiotics exert their beneficial effects on the host through four main mechanisms: interference with potential pathogens, improvement of barrier function, immune modulation and production of neurotransmitters, and their host targets vary from the resident microbiota to cellular components of the gut-brain axis. However, in spite of the wide array of beneficial mechanisms deployed by probiotic bacteria, relatively few effects have been supported by clinical data. In this regard, different probiotic strains have been effective in Antibiotic-Associated Diarrhea or Inflammatory Bowel Disease for instance.

Conclusion: The results reveal that poor integration between Gut and Brain can lead to various disorders right from Brain degeneration to Muscular disorders.

Keywords: Gut microbiota, Health effects, Probiotics, Myalgia.



**THE EFFECTS OF MANUAL THERAPY AND STRENGTHENING EXERCISE IN
CERVICAL RADICULOPATHY**

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Background: Cervical radiculopathy is a common disorder characterized by neck pain. The causes of pain and anatomical structures responsible in cervical radiculopathy are poor posture, dysfunctions of joints, muscles and nerves. Changing the symptoms with electrotherapeutic modalities or treating the individual cause only looks at the tip of the iceberg.

Aim: The aim of the study was to assess the effects of manual therapy techniques and strengthening exercise for cervical radiculopathy patients.

Materials and Method: 60 subjects with unilateral cervical radiculopathy, who were found suitable for the study according to inclusion and exclusion criteria, are randomized to two groups. Group A receives manual therapy techniques such as cervical lateral glide, neural mobilization, muscle energy technique and strengthening exercises. Group B receives strengthening exercises. The duration of the treatment was 3 week. The outcome measures are numerical pain rating scale and cervical range of motion.

Results: Analyzing statistically the 'P' value for Wilcoxon matched test is significant for all the outcome parameters for both groups ($P < 0.01$), indicating within group analysis shows significant improvement following treatment. Between groups comparisons (Mann-Whitney 'U' test) is again significant ($P < 0.01$) for all the outcome parameters representing group A treatment is more effective than group B treatments.

Conclusion: The study result concludes that combination of manual therapy techniques such as cervical lateral glide, muscle energy technique, neural mobilization with strengthening exercise shows greater improvement then strengthening exercise alone while on assessing with NPRS and cervical range of motion.

Keywords: Manual Therapy Techniques, Strengthening Exercise, Cervical Radiculopathy.