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Abstract 01

A Literature Review On The Effectiveness Of Invasive Therapy And Manual Physical Therapy Approaches In Management Of Myofascial Pain Syndrome

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Objective and Background

The objective was to analyze the superiority of the upcoming and competing Invasive Therapy over the conventional and Manual Physical Therapy Techniques. Myofascial Pain Syndrome (MPS) is a common, painful musculoskeletal disorder characterized by the presence of Trigger Points. These have been implicated in patients with various other musculoskeletal disorders and systemic disorders. The management of Myofascial pain syndrome includes Manual Therapy procedures and Invasive Therapy, which reduces pain through various physiological means. There are controversy and limited evidences available to support the effectiveness of competing invasive therapy over the conventional management or the combination of both therapies providing better outcome.

Search Methods

There were about 542 articles available for search related to MPS. Out of which studies done through randomized controlled trials, systematic reviews and review of research articles were included in the study. The studies are extracted from Cochrane Database, CENTRAL, MEDLINE, JOSPT and Journal of Manual and Manipulative Therapy. Key words used in the search methods are Myofascial Pain Syndrome, Manual Therapy, Physical Therapy and Invasive Therapy. There were about 22 eligible articles for the research results which specifically address the objective of the review.

Results

This review demonstrates that when Manual Therapy procedures are provided in combination as a Neuromuscular Inhibition Technique it provides better outcome than when provided as a single therapy procedure. This review also demonstrates that the Invasive Therapy is not the only stand alone kind of intervention and it is just one aspect of a Comprehensive Manual Therapy.

Conclusion

Invasive Therapy should be combined with other Manual Physical Therapy Techniques for better relief of pain.

Key Words: Myofascial Pain Syndrome, Trigger Points, Manual Therapy, Dry Needling, Injection Therapy



Abstract 02

Effects Of Application Of A Pelvic Compression Belt On Isokinetic Strength Of The Thigh Muscles In Sportsmen With Hamstring Injuries

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Background

Training to increase core stability has been included as part of a multi-modal rehabilitation programme for sportspeople with hamstring injuries. A Pelvic compression belt (PCB) may also have an effect on hamstring function. The aim of this study was to examine whether wearing a PCB influences isokinetic torque of the thigh muscles in sportsmen with recent hamstring injuries.

Methods

Twenty sportsmen (22.00 ± 1.45 years) with recent hamstring injuries underwent isokinetic testing of the thigh muscles in a seated position on a Biodex™ isokinetic dynamometer. Five reciprocal concentric quadriceps and hamstring contractions, and five eccentric hamstring contractions were performed at an angular velocity of 60°/second, with and without a PCB (in a randomised order). The outcome measures were average torque normalised to body weight (avT/BW) for terminal range eccentric hamstring contractions and body weight normalised peak torque (PT/BW) of concentric quadriceps, concentric hamstring and eccentric hamstring contractions. Paired *t* tests were used to analyse torque differences between injured and uninjured legs based on no belt trials, and the effects of belt conditions (PCB vs. no PCB) on the outcome measures for injured hamstrings.

Results

Compared to uninjured hamstrings, injured hamstrings were found to be weaker during concentric hamstring ($p = 0.020$) and (terminal range) eccentric hamstring ($p = 0.040$) contractions. With the PCB, there was an increase in (terminal range) avT/BW ($p = 0.003$) and PT/BW ($p = 0.025$) of eccentric hamstring contractions of injured hamstrings but no significant changes were found for other variables.

Conclusion

Application of the PCB appears to have a facilitatory effect on eccentric hamstring contractions, particularly in the terminal range. Further research should determine whether the addition of a PCB can improve rehabilitation outcomes for thigh muscle strength following hamstring injuries.

Key Words: Pelvic Compression Belt, Dynamometry, Hamstring, Strain



Abstract 03

Study Of Static Yoga, Repetitive Yoga Versus Exercise Intervention In Management Of Mechanical Low Back Pain - A Comparative Study

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Background

Mechanical low back pain is a common problem in all age population, precipitating with work related stressors, heavy physical demands, sedentary lifestyle. Yoga is a form exercises used from the ancient days in reducing disabilities caused due to various musculoskeletal problems. In the recent past there has been several modifications in the technique of yoga. The objective of this study was to compare the effects of static yoga as mentioned in ancient texts against repetitive yoga and exercise in reducing the disability of mechanical low back pain subjects.

Methods

Total of 150 subjects diagnosed with mechanical low back pain were randomized in to three arms. The static yoga arm (N = 43), repetitive yoga arm (N = 44), and exercise arm (N = 43). The total duration of the study was 8 weeks. Rolland Morris Disability Questionnaire was used to assess the Disability at the beginning of the study and 4th & 8th week.

Results

Static yoga group showed a significant reduction in disability by 56% (p=0.000) when compared to repetitive yoga 42% and exercise 43%.

Conclusion

Static yoga was effective in reducing disability of mechanical low back pain subjects than repetitive yoga and exercise comparatively.

Key Words: Yoga, Exercises, Low Back Pain



Abstract 04

Effects Of Dry Needling Intervention Of Elbow Extensors On Improving Elbow Function In Women With Chronic Unilateral Lateral Epicondylalgia – Single Blinded Randomized Control Trial

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Background

The prevalence of lateral epicondylitis in the general populations is approximately 1.0-1.3% in men and 1.1-4.0% in women. Localized pain over lateral Epicondyle, Myofascial Trigger Point formation in wrist extensors which leads to reduction in elbow function in subjects with unilateral lateral Epicondylalgia. There are various intervention were proposed based on its pathological and biomechanical causes. This study was aimed to find the effectiveness of dry needling on improving elbow function and how long the individuals need to undergo dry needling intervention for the pain free elbow function.

Methodology

44 women with unilateral lateral epicondylalgia were equally divided and assigned in two groups. Experimental group were treated by using dry needling technique for deactivation of myofascial trigger points of elbow extensors. Eccentric exercises were selected to strengthen the elbow extensors after the myofascial trigger points deactivation of extensor muscles dry needling procedure. Dry needling procedures were carried out for 4 sessions at the interval of 48 hours. Subjects in control group were treated by conventional physical therapy interventions. Outcome measure used was Pain related tennis elbow evaluation questionnaire (PRTEE) and handheld Dynamometer.

Results and Conclusion

The results of this study demonstrate that both the dry needling intervention and conventional physical therapy intervention groups experienced significant improvements in pain and function following 2 weeks treatment sessions. Dry needling intervention combined with simple eccentric exercises of elbow extensors is better treatment methods than conventional methods in reducing pain and improving elbow function in women with unilateral lateral epicondylalgia.

Keys Words: Lateral Epicondylalgia, Tennis Elbow, Dry Needling, Myofascial Trigger Points, Conventional Physical Therapy, Eccentric Exercises



Abstract 05

Comparative Study Of Analgesic With Taping Technique Versus Analgesic With Cryotherapy In Unilateral Patello-Femoral Osteoarthritis Of Knee Joint

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Background

Patellofemoral Osteoarthritis (PFOA) is a common form of knee OA and cause of pain and disability in elder people Worldwide. To reduce the side effect associated with NSAIDS, Physical therapy such as Cryotherapy and taping technique are frequently used. It has been cited that use of Cryotherapy and Taping technique has proven to control pain in OA. Objective of this study is to evaluate the effectiveness of Cryotherapy or taping technique in reducing PFOA of knee pain along with analgesic.

Methodology

40 patients with unilateral PFOA of knee joint of both sexes were taken. Patients were randomly divided into Group A and B. Group A treated with Analgesic and taping. Group B treated with Analgesic and Cryotherapy daily for 15 days for 20-25 mins. Patients evaluated with VAS, Goniometer and WOMAC Osteoarthritis index on day 1 and 15.

Results

Statistical analysis done by using Mann Whitney U test, Wilcoxon Signed Rank test, Chi-Square Test, Student t test. It shows that in Group A VAS pain improvement (Mean \pm SD =3.60 \pm 0.94) is significant as compared to Group B (2.30 \pm 0.80) and p value was significant (0.001). WOMAC-Pain in Group A (6.70 \pm 2.34) shows improvement than Group B (4.70 \pm 1.22) with significant p value (0.002). WOMAC-Difficulty also shows improvement in Group A (20.45 \pm 8.24) than Group B (12.60 \pm 5.32) with significant p value (0.001).

Conclusion

The statistical analysis of VAS, ROM and WOMAC-pain, stiffness and difficulty proves that Analgesic and taping is better than Analgesic and Cryotherapy for the treatment of PFOA.

Key Words:Pf Joint, Analgesics, Taping, Cryotherapy



Abstract 06

Comparison Of Ultrasound And Ischaemic Compression On Latent Trigger Point In Upper Trapezius

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Background

Area of hyperirritability located in a taut band of skeletal muscle that is painful on compression and gives characteristic referred pain, tenderness, and an autonomic response to a remote area is term as myofascial trigger point. Trapezius is an antigravity muscle of neck & has type I muscle fibre which has to act continuously to hold the head in the upright position. This sustained activity leads to formation of latent trigger point in this muscle. Objective of this study is to determine the effectiveness of ischemic compression and ultrasound on myofascial latent trigger points in upper trapezius.

Methods

Experimental study with 30 subjects randomly assigned in two groups, group A (n=15) treated with Ultrasound (US) and group B (n=15) with Ischeamic compression (IC) for 7 days daily. The outcome measures were feel threshold, pain threshold, and pain tolerance threshold done by galvanic current before and after 7th day intervention.

Result

Pre and Post intervention mean difference was calculated, feel threshold in US group was 1.8 ± 1.32 and in IC group was 2.2 ± 1.14 , the pain threshold for US was 6.53 ± 2.64 and for IC group 8.4 ± 3.64 , the pain tolerances threshold for US was 8 ± 5.233 and for IC was 12.26 ± 4.3 . Paired t test applied to individual group showed significant improvement with $p < 0.00$. But when both groups were compared it was non-significant.

Conclusion

Both ultrasound and ischaemic compression are equally effective in treating trigger point showing increase in Feel threshold, Pain threshold, Pain tolerance threshold & subsequently reduction in pain sensitivity of trigger point.

Key Words: Myofascial Trigger Point, Ischaemic Compression, Ultrasound



Abstract 07

Power web, Eggercizer exercises and Theraputty exercises for Pinch strength in Dental Professional

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Background

Pinch strength is one of the important characteristics of a normal hand. Grasping or pinching light objects becomes a problem when any item is held for long period of time. The pressure in holding the items can reduce blood flow and strain tendons, leading to hand symptoms. Repetitive motion, such as prolonged grasping, can lead to tendonitis. Hand and wrist pain are most prevalent among dental professionals than the general public, due to the sustained grips and prolonged awkward postures throughout the day. Up to 40% of dentists and nearly 75% of dental hygienists experience frequent hand and wrist pain.

Objectives

To find out the effect of Power web, Eggercizer and Theraputty exercises in improving pinch strength and to compare the effectiveness of Power web, Eggercizer and Theraputty exercises in dental professionals.

Methodology

The subjects were randomly selected from The Oxford Dental College, Bangalore. They were informed about the study and its advantages. The participants who were willing to participate in the study were asked to sign an Informed consent form. They were then screened for inclusion and exclusion criteria and were divided into two groups. Group A underwent exercises involving Power web and Eggercizer while Group B underwent exercises with Theraputty. The duration of intervention was for 20-30 minutes for 3 weeks. The outcome measure was palmar pinch strength, which was evaluated by Pinchometer.

Results

After 3 weeks of intervention significant improvement was recorded in both the groups. There was a significant difference seen in Group A (Power web and Eggercizer group) with the p value of <0.05. Thus, finger exercises with Power web and Eggercizer has better effect than exercises with Theraputty.

Conclusion

Results of the study confirm that finger exercises play a major role in improving pinch strength which helps the dental professionals to overcome finger and hand related musculoskeletal problems.

Key Words: Dental Professionals, Power web, Eggercizer, Theraputty, Pinch Strength, Pinchometer



Abstract 08

Effectiveness Of Kinesio Tape Versus Rigid Tape In Reducing Pain And Improving Shoulder Function In Patient Diagnosed With Rotator Cuff Injury: Randomized Trial

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Back Ground

Rotator cuff tendinopathy is common amongst over-head athletes and in individuals with impaired scapulo-humeral rhythm, pain during overhead activities and painful arc between 70° and 120° is the common presentation. Taping is widely used as prophylactic and an adjunct intervention in rehabilitation. Kinesio tape and Rigid tape (McConnell) improves pain free active ROM immediately after application.

Objectives

To evaluate the effect of Kinesio tape versus Rigid tape, when combined with the structured physiotherapy intervention for the rotator cuff injury.

Methodology

23 subjects (Kinesio 12, Rigid 11) aged 18-55 were randomly allocated by block randomization to each group in this double blinded study. All subjects were blinded on the type of tape intervention and outcome measure was blinded. Both the tapes were applied by a single Physiotherapist trained in taping. The visual analogue scale and disabilities of arm, shoulder and hand (DASH) outcome measure were measured before intervention and one week post intervention.

Results

Between and within group analysis of outcome measures was done by Mann-Whitney U and Wilcoxon Signed rank test. Statistical significance was set at $p < 0.05$. Within group analysis shows significant improvement in VAS and DASH scores, in both the groups. VAS (6.42 ± 1.3 - 4.42 ± 1.5 , $p < 0.04$), VAS (6.09 ± 1.5 - 4.09 ± 1.7 , $p < 0.01$) and DASH (78.67 ± 15.3 - 64 ± 14.2 , $p = 0.013$), DASH (84.73 ± 20.4 - 65.09 ± 24.3 , $p = 0.019$), in Kinesio and Rigid tape respectively. Between groups analysis shows no significant difference between the group with respect to the outcome measures (VAS 4.2 ± 1.6 , $p = 0.542$, DASH 64.52 ± 19.3 mean difference = -1.09 , $p = 0.758$).

Conclusion

In conclusion, this study seems to prove that Kinesio as well as Rigid taping are equally effective in reducing pain and disability in patients with rotator cuff injury. However the rigid tape group improved clinically in compared to the Kinesio tape.

Key Words: Kinesio Tape, Rigid Tape, DASH, Rotator Cuff Injury



Abstract 09

Effect of Patient Education Combined with Physiotherapy Treatment on Fear-Avoidance Belief in Low Back Pain Sufferers

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Low back pain is a common musculoskeletal disorders affecting population worldwide. One of the common factors contribute to low back pain is fear-avoidance beliefs. Fear of pain in low back disorder is closely related to avoidance behavior that leads to anxiety or concern and the long-standing negative functional impact on individual or society. The aim of this study was to determine the effect of patient education combined with physiotherapy treatment on fear-avoidance beliefs for low back pain sufferers. This is a quasi-experimental study design with one hundred participants (n=100) were recruited and randomly allocated into two groups, which were intervention and control groups. The intervention group received physiotherapy treatments plus educational session, meanwhile control group received only physiotherapy treatments. The demographic questionnaires as well as Fear-avoidance Beliefs Questionnaires were given prior to the first session, fifth session and after eighth session to evaluate the participants' belief regarding fear avoidance. The results of FABQ physical showed a non-significant main effects for group [$F(1, 98) = .36, p = .55, \eta^2 = .004$]; time [$F(2, 196) = .33, p = .72, \eta^2 = .003$] and interaction between time x group $F(2, 196) = 1.88, p = .55, \eta^2 = .019$. The results of FABQ work also showed a non-significant main effects for group [$F(1, 98) = .88, p = .35, \eta^2 = .009$]; time [Greenhouse-Geisser adjusted $F(1.66, 162) = 1.43, p = .24, \eta^2 = .014$] as well as interaction between time x group, Greenhouse-Geisser adjusted $F(1.66, 162) = .72, p = .46, \eta^2 = .007$. Overall, the results did not show significant difference between the groups. This study demonstrated that patient education combined with physiotherapy treatment might assist to reduce the fear-avoidance beliefs in low back pain.

Key Words: Education, Low Back Pain, Fear-Avoidance Belief, Physiotherapy Treatment



Abstract 10

Impact Of Anthropometric Measures On Navicular Height In Half Marathon Runners

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Background

The integrity of foot arches plays a vital role in providing shock absorption in runners. Navicular height is a clinically approved reliable representation of medial arch height. Medial arch height is measured by validated navicular height measurement. This study is mainly intended to analyse whether anthropometric measures such as the height, weight (BMI) and truncated foot length have an impact on medial arch height of the feet. Objective of this study is to find the correlation between anthropometric measurements and navicular height.

Methodology

25 half marathon runners (13 females and 12 males) aged between 17 and 22 were selected for this cross-sectional study, using convenient sampling method. The anthropometric measures like height, weight, and truncated foot length were taken. Medial arch height was measured by measuring navicular height in weight bearing position using the standardized protocol. Then navicular height was normalized to truncated foot length. All measurements were taken on both feet and analysed statistically.

Results

Normality test was established by Shapiro-Wilk test. As data followed normal distribution, Pearson correlation coefficient (r) was used to report the association between the variables. BMI correlated negatively to normalized navicular height on both the feet (right $r = -0.23$ and left foot $r = -0.52$ respectively). Weight also correlated negatively to navicular height on both sides (right $r = -0.28$ and left $r = -0.52$). Height correlated negatively to navicular height on both feet (right $r = -0.18$ and left $r = -0.46$). Two tailed independent t-test revealed no statistically significant gender difference on navicular height (right $p = 0.41$ and left $p = 0.15$).

Conclusion

This study revealed minimum to moderate degree of inverse correlation between anthropometric measurements and navicular height on the left side and little correlation on right side.

Key Words: Half Marathon Runners, BMI, Truncated Foot Length, Navicular Height



Abstract 11

Frontal Plane Analysis At Knee In Transtibial Amputation

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Background

In India, patellar tendon bearing (PTB) suprapatellar (SP) cuff suspension and PTB supracondylar (SC) suspension, with SACH foot are commonly used transtibial prostheses. Although many studies have been carried out on transtibial prostheses, gait of persons using two commonly prescribed prostheses with respect to suspension are still poorly understood. Majority of transtibial prosthetic gait studies have focused on the sagittal plane parameters. Whereas frontal plane parameters of transtibial prosthetic gait may reveal important information.

Objectives

To assess and compare the frontal plane kinematics and kinetics at knee in persons with unilateral traumatic transtibial amputation using PTB prosthesis with SP cuff suspension and SC suspension with SACH foot.

Methodology

Instrumented gait analysis was performed in 30 persons having unilateral transtibial amputation of traumatic origin using either PTB prosthesis with SP cuff suspension or SC suspension with SACH foot, were identified. Persons using PTB SP cuff suspension were allocated to group - A and those using PTB SC suspension with SACH foot were assigned in group-B. Both groups walked at their self-selected speed in gait and motion analysis laboratory equipped with 6 infra-red cameras, 2 concealed force- platform and BTS SMART-D High Frequency Digital System. The reports obtained were used for statistical analysis by using student's t-test with CI 95%, p-value <0.05 and by percentage comparison.

Results and Conclusion

Statistically significant differences were found in knee excursion at mid stance ($p=0.02$), 47% of persons using PTB SC suspension have shown abnormal valgus moment at knee at mid stance in frontal plane. Whereas 80% of persons of both group have shown abnormal power generation at knee at weight acceptance. These results demonstrate the deficiencies in current prosthetic components and suggest that further research is needed to enhance prosthesis function and improve gait in persons with amputations.

Key Words: Kinematics, Kinetics, Suprapatellar Cuff, Supracondylar Suspension SACH Foot



Abstract 12

**Clinical Differentiation Between Fibromyalgia And Myofascial Pain Syndrome -
Physiotherapist's Perception**

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Background and Purpose

Fibromyalgia Syndrome (FMS) and Myofascial Pain Syndrome (MPS) belong to the group of chronic non-inflammatory pain syndromes affecting muscles and tendinous insertions. The literature on FMS and MPS has grown considerably since 1985 and generally it has been thought that FMS and MPS are same. According to ACR criteria for differential diagnosis between FMS and MPS are the presence of tender points (TePs) i.e. widespread, nonspecific, soft tissue pain in FMS, and the presence of muscular trigger points (TrPs) i.e. taut bands of skeletal muscle in MPS. The etiology of TePs is still unknown but Myofascial TrPs are found within a taut band of skeletal muscle and have a characteristic "nodular" texture upon palpation. The purpose of this study was to find out the perception of Physiotherapist towards the clinical differentiation between FMS and MPS.

Methods

One hundred (41UG & 59 PG qualified) Physiotherapist from all over Karnataka are randomly selected and interviewed blindly by open ended questionnaire method contains ten questions which explains the criteria, prevalence and features of these pain syndromes.

Results

The result shows that forty five percentage of Physiotherapist had not differentiated between trigger and tender points. They had sound knowledge and awareness about the prevalence and general features between FMS and MPS. But forty five percentage of physiotherapist had no idea about cognitive and autonomic dysfunction of these pain syndromes.

Conclusion

Perception of Physiotherapist in clinical differentiation between tender and trigger points need to be improved.

Key Words: Fibromyalgia Syndrome, Myofascial Pain Syndrome, Trigger points, Tender points



Abstract 13

Prolonged Effect Of Single Versus Multiple Session Of Muscle Energy Technique In Individual With Shoulder Internal Rotation Deficit

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Background

Posterior Shoulder Tightness (PST) is an impairment associated with a variety of shoulder pathologies, it has been suggested to be a causative factor for shoulder impingement & labral pathology particularly common in those who require overhead activities either in sports or vocation. Muscle energy technique (MET) is a manual therapy intervention that can be used to stretch or lengthen muscle that lack flexibility but the lasting effect of muscle energy technique only for few sec to minutes. Hence, the study has been done to analyze the duration and the lasting effect of MET on stature of the individual with single versus multiple sessions of interventions. Objective is to find out the prolonged effect of single versus multiple session of muscle energy technique in individuals with shoulder internal rotation deficit.

Methodology

30 asymptomatic individuals were selected by convenient sampling method and assigned into two groups: group A single application of MET and group B multiple session of MET for glenohumeral joint horizontal abduction and external rotation. The pre test and post test ROM was recorded by using digital inclinometer after the study period of 1day. The post test ROM was measured immediately and subsequently every 10 minutes for 30 minutes.

Results and Conclusion

The group treated with the multiple session of MET for horizontal abductor and external rotators shows significant difference compared to multiple session. A single session of MET was effective but the effect lasted only for ten minutes, there by to improve the flexibility & to check the prolonged effect of MET it was applied three times a day & it was shown to be effective in improving shoulder range of motion.

Key Words: PST, MET, ROM



Abstract 14

Prevalence of Musculoskeletal Pain in School Going Adolescents Using School Bags -

A Co Relational Research

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One of the modes of carrying books to school is by using a school bag and maximum number of students uses it. Children aged 12 - 18 years undergo rapid musculoskeletal development and an application of external forces (school bags) causes postural deviations and musculoskeletal disorders. The aim of this investigation was to assess the prevalence of neck, shoulder and back pain in the 1st term in school going adolescents using school bags. A co-relational research was conducted in Mangalore in the month of June 2013. This study included 316 males and 264 females aged 13 -15 years from 8th- 10th standard. Their bag weight, body weight and height was measured and the subjects having pain either in the neck, shoulder or back were given McGill Melzack pain questionnaire to be filled. Descriptive analysis revealed that the percentage of bag weight on body weight ratio is more in females (mean \pm SD 9.18 \pm 3.71) compared to males (mean \pm SD 8.88 \pm 3.65). 30% of subjects carried bag weight between 10-15% and 6.03% of subjects carried bag weight weighing more than 15%, out of which 8.57% subjects complained of pain either in the neck, shoulder or back. The correlation between bag weight and pain was analysed using Karl Pearson's correlation which is perfect positive (0.78). Analysis of correlation between BMI with percentage of bag weight in males (0.413) is more compared to females (0.086). The prevalence of adolescents having pain in the 1st term of school was 2.93% due to school bags. Hence, it is important to investigate further and take appropriate measures for adolescent problems with the use of school bags as it is a predictor for musculoskeletal disorder in adulthood.

Keywords: School Bag Weight, Musculoskeletal Pain, Children, Posture, Ergonomics



Abstract 15

**Effect Of Conventional Below Knee Prosthesis Versus Modular Below Knee Prosthesis
In Unilateral Transtibial Amputee**

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Aim of this study is to Compare the Effect of 10 meter walk test in conventional below knee prosthesis versus modular below knee prosthesis in unilateral transtibial amputee. Subjects attending physiotherapy outpatient department after transtibial amputation were randomly allotted in to conventional Patellar Tendon Bearing (PTB) and modular PTB group. Both groups received treatment which comprise of 5 sessions per week for 3 weeks along with the stump exercises and prosthetic training. All subjects were assessed before starting the treatment and the primary outcome measure of 10 meter walk test results were compared statistically. At the end of the 3rd week of stump exercises both groups showed a significant improvement on 10 meter walk test. But the effect of modular prosthesis with PTB showed more effective than conventional PTB patients with p less than 0.001. In unilateral transtibial amputees the stump exercises with modular & conventional prosthesis showed significant improvements comparing with both the groups the modular group showed more significant than conventional group.

Key Words: Transtibial Amputation, Stump Exercises, Patellar Tendon Bearing



Abstract 16

Prolonged Effect Of Prone Lumbar Traction And Prone Lumbar Traction With Short Wave Diathermy On Individual Height - A Comparative Study

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Background

Traction has therapeutic effects over bones, ligaments, nerves, joints, intervertebral discs and muscles. The effects include increased mobility, ligament extensibility, muscular relaxation and increased disc height. Shortwave diathermy is proven to produce muscle relaxation, decrease muscle spasm and joint stiffness by increasing the collagen tissue extensibility and decrease tissue viscosity and tension. Hence, the study has been done to analyze the duration of the traction effects on stature of the individual with and without shortwave diathermy.

Method

50 normal college males were selected by simple random sampling method. The pre test height was measured. Initially the subjects receive prone lumbar traction. After 1 week the same subjects received shortwave diathermy and prone lumbar traction. The post test height was measured immediately and subsequently every 10 minutes for 60 minutes. Stadiometer was used to measure the height in millimeters.

Results

The prolonged effect of traction was found to be for 20 minutes and after that it gradually decreased. The prolonged effect of shortwave diathermy and traction remained for 30 minutes and then started reducing gradually. But in both the cases the subjects did not return to the pretest height within 1 hour.

Conclusion

This study showed the effect of prone lumbar traction can be prolonged by applying shortwave diathermy before traction.

Key Words: Lumbar Traction, Stadiometer, SWD, Lumbar Disc



Abstract 17

Validity Of Tamil Version Of Oswestry Disability Index - A Pilot Study

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Background

Oswestry Disability Index (ODI) scale is often used to assess handicap due to Low Back pain. These questionnaires should be administered in the subject's native language to obtain accurate responsiveness. There is very limited information on Oswestry Disability Index in Tamil version. The aim of this Pilot study was to find the Face and Content Validity of Tamil version of Oswestry Disability Index scale.

Methodology

A total of 10 subjects in the age range of 18-25 years were conveniently selected. Face validity of Tamil ODI was tested by administering both ODI-English and ODI-Tamil to 10 of these participants who were equally fluent in English and Tamil. They were given enough time to complete the questionnaire. Content validity was checked by giving these two questionnaires in English and Tamil to expert panel members.

Results

Subjects participated reported that the items were clear. In addition the questions were easy to understand and also they understood what was meant by question. Panel members who reviewed both the questionnaires reported that the questions were equally sufficient to predict the outcome measures.

Conclusion

Tamil version of Oswestry Disability Index Scale has Face validity and Content validity required.

Key Words: Tamil ODI, Low Back Pain, Face Validity, Content Validity



Abstract 18

Effectiveness Of Retro Walking Treadmill Training And Passive Static Stretching In Hamstring Tightness: A Randomized Controlled Trial

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Background & Objective

Recent Studies have reported the outcomes of retro walking and passive static stretching in hamstring tightness. However, it is not known if using a combination of these interventions as a treatment would further improve outcomes in hamstring tightness. Our study is to examine the effectiveness of retro walking treadmill training and passive static stretching in hamstring tightness.

Methods

This 4-week study was conducted on 20 individuals with hamstring tightness that was randomized into 2 groups. The first group underwent Retro Walking Treadmill Training for 5 sessions per week in addition to Passive Static Stretching. The second group received only Passive Static Stretching.

Results

Statistically significant improvements were observed for both the groups with respect to baseline for Sit and Reach test and Hamstring length test. In the first group with Retro Walking, compared with the second group, significantly greater improvements ($P=.001$) were obtained in both the parameters (Sit and Reach test and Hamstring length test).

Conclusion

Additive positive effects of Retro Walking and Passive Static Stretching in Hamstring tightness have been demonstrated. Used in clinical applications, they should be able to increase the flexibility of individuals. Long term studies about efficacy of these exercises are needed.

Key Words: Retro Walking, Passive Static Stretching, Hamstring Flexibility, Treadmill Training



Abstract 19

Effects Of An Elbow Mobilization With Movement Technique On Grip Strength Of Subjects With Lateral Epicondylalgia - A Pilot Study

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Background

This pilot study aimed to check the initial response to a manual therapy technique mobilization with movement (MWM) for lateral epicondylalgia subjects in terms of reduction in pain and improvement in pain free grip strength.

Method

Twenty five subjects with lateral epicondylalgia participated in the study from physiotherapy OPD of Saveetha Medical College and Hospital, Chennai. In a single group pretest and posttest design, we measured (1) pain with active motion, (2) pain-free grip strength and, (3) maximum grip strength before and after a single intervention of MWM.

Results

Results of the study indicate that MWM was effective in allowing 89% of subjects to perform previously painful movements pain-free, and improving grip strength immediately afterwards. Significant differences were found between the grip strength of the affected and unaffected limbs prior to the intervention. Both pain-free grip strength and maximum grip strength of the affected limb increased significantly following the intervention. Pain-free grip strength increased by a greater magnitude than maximum grip strength.

Conclusion

It can be concluded that MWM is a promising intervention modality for the treatment of patients with lateral epicondylalgia. Pain-free grip strength is a more responsive measure of outcome than maximum grip strength for patients with lateral epicondylalgia.

Key Words: Manual Therapy, Mobilization With Movement, Lateral epicondylalgia



Abstract 20

Effects Of Endurance Training Of Trunk Extensor Muscles In Chronic Low Back Pain

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Back is a mechanical structure that supports the individual throughout the life. Back pain is a huge public health issue affecting most of us at sometimes is our lives & causing enormous suffering. Clinicians treating patients with low back pain often use exercise to reduce pain and improve function. The aim of this study was to evaluate effectiveness of trunk extensor endurance training in reducing pain and decreasing disability. Subjects with chronic low back pain in age group of 30 to 50 years and both genders attending physiotherapy clinic were included in the study after signing informed consent. Subjects were randomly divided into experimental and control groups with 30 and 24 in each group respectively. The experimental group received four levels of endurance training, 1st level is bilateral shoulder lifts in a prone position, 2nd level is contra lateral arm and leg lifts in a prone position 3rd level is perform bilateral shoulder lifts with both hands behind the head and 4th level is bilateral shoulder lift with arms fully elevated. Control group received conventional back exercises. The duration of intervention was six weeks for both groups. Visual Analogue Scale (VAS) and Roland Morris Disability Questionnaire (RMDQ) were used as outcome measures and showed significant improvement in experimental group with p less than 0.001. This study concludes that chronic low back pain can be treated with the endurance extensor training.

Key Words: Low Back Pain, VAS, RMDQ



Abstract 21

**Effect Of Thoracic Thrust Manipulation And Neck Flexibility Exercise For Patients
With Mechanical Neck Pain**

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Objective

The objective of the study is to investigate the effectiveness of Thoracic Thrust manipulation for the Patients with Mechanical neck pain in reducing pain and disability.

Methodology

Experimental Study was carried out in Physiotherapy Outpatient Department of Saveetha College of Physiotherapy, Chennai with 60 subjects with Mechanical neck pain selected for study based on Inclusion and Exclusion Criteria and were randomly divided into two Group A and B. Group A (n=30) was receiving Thoracic Thrust Manipulation and Group B was receiving Neck Flexibility Exercise (n=30) for 6 weeks. The Outcome measures used were Neck Disability Index and Fear Avoidance Beliefs Questionnaire for Neck.

Result

The data revealed statistically significant difference between both groups with p less than 0.001. The post test mean (SD) value of Neck Disability Index in Group A is 24.87 (7.96) and in group B is 33.07 (8.90), and the value of Fear Avoidance Beliefs Questionnaire in Group A is 51.27(11.93) and in group B is 57.97 (11.80).

Conclusion

On comparing both the Groups, Thoracic Thrust Manipulation group is more effective than Neck Flexibility Exercises Group in the Management of Patients with Mechanical Neck Pain in reducing Pain.

Key Words: Thoracic Thrust Manipulation Neck Flexibility Exercise Neck Pain



Abstract 22

Effectiveness of Controlled Decline Eccentric Squat Protocol in the Management of Patellar Tendinopathy among Basketball Players

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Background

Basketball as the consequence of the high level of participation has placed the injury rate to its extremely high, with more than twice as many injuries as baseball and 40% more injures than football in one series. Patellar tendinopathy is one of the common and significant syndromes encountered in sports medicine and is an increasing common overuse and degenerative clinical condition commonly affecting the elite professionals and recreational sports persons. Eccentric exercises have emerged as a popular treatment modality for tendinopathy. To determine the efficacy of controlled eccentric decline squats protocol in treatment of patellar tendinopathy in relieving pain and improving functional activity.

Methodology

The study design was a Single group experimental study conducted at Mysore, Karnataka. 17 basketball players (20 tendons, n=20) were selected by random sampling method. The subjects were analyzed for Pain and Function by VAS and VISA-P scales. Controlled decline eccentric squat protocol with a volume of training of 4 weeks, for 5 days per week, of 2 sessions per day with 3 sets of 10 repetitions was advised to the players. A pre and post test at baseline and at 4 weeks was statistically analyzed.

Results

The subjects treated with the Controlled Decline Eccentric squat protocol recorded values with the variables of VAS for pain and VISA-P for the sports function. Analysis for Pain obtained a Calculated Paired t value of 7.2553 at $p < 0.05$ and for Sports Function a Calculated Paired t value of 6.1464 at $p < 0.05$ level of significance. The results showed to be significant for pain and sports function.

Conclusion

It is concluded that there is reduction of pain and improvement in sports function among basket ball players with Patellar tendinopathy treated by Decline Eccentric Squat protocol.

Key Words: Patellar Tendinopathy, Eccentric Exercise, Decline Squat



Abstract 23

Comparison Of Effectiveness Of Active Therapeutic Exercises Versus Active And Passive Therapeutic Exercises In Frozen Shoulder For Functional Hand To Back Activities

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Introduction

Though the management of frozen shoulder includes NSAIDs, ultrasound, TENS, intraarticular steroid injections, manipulation of shoulder under general anesthesia, physiotherapy in the form of active and passive stretching exercises plays a vital role of treatment. Beneficial effects of active and passive exercises have been well established, but whether the combination of both exercises is more beneficial than single exercise alone is still under debate.

Objectives

To clear the idea about the same the present study was undertaken to compare the effects of active therapeutic exercises alone against both active and passive therapeutic exercises on functional hand to back activities.

Method

The present study was cross sectional study conducted on 30 patients within age group of 30-60 years. All the patients were diagnosed as primary idiopathic periarthritis of shoulder and treated previously by analgesics only. Subjects were divided into Group A and Group B. Group A subjects were given active therapeutic exercises alone for 40 minutes, 4 times a week, for a period of 6 weeks. While Group B subjects were given active therapeutic exercises for 30 minutes followed by 10-15 minutes of passive therapeutic exercises, for 4 times a week, for a period of 6 weeks. Pre treatment and post treatment functional hand to back score was measured using ordinal scale.

Result

Mean value of pretreatment and post treatment score for group A were 2.67 ± 0.98 and 4.53 ± 1.19 respectively, while in group B it was 2.93 ± 1.28 pretreatment and 6.8 ± 1.01 post treatment. Group B showed significant improvement in hand to back score as $P < 0.001$.

Conclusion

These results clearly indicate that there is significantly more improvement to achieve functional hand to back activity when treated with active exercises along with passive exercises than active exercises alone. So patients of frozen shoulder should be treated with a combination of both active and passive exercises.

Key Words: Frozen Shoulder, Hand To Back Activity, Active Exercise, Ordinal Scale



Abstract 24

Analysing The Foot Posture - An Observational Study

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Background

Most of the population would have experienced foot problems at some point during their life's journey. The main functions of foot is that it acts as a base that provides necessary stability for upright posture, providing flexibility to uneven terrain, acts as a lever during push off, provides flexibility for absorption of shock .Foot pronation and supination occurs during various day today activities but excessive pronation or supination can alter mechanics of various joints which in turn alters gait. The navicular drop test was first described by Brody in 1982 as a means of quantifying the amount of foot pronation and also useful in assessing patients with overuse symptoms of lower extremity. But only few studies have been done on teenagers. Objective of this study is to analyze the foot posture in teenagers using navicular drop test.

Methodology

38 physical therapy students with age group of 18-21 years (35 females; 3 males) from Sri Ramachandra University participated in the study. Using navicular drop test, difference in navicular drop both in weight bearing and non-weight bearing was measured and difference is expressed in mm using ruler.

Results

Unilaterally excessively pronated or supinated foot posture was found and most individuals had supinated foot than pronated foot. Bilaterally normal navicular drop was found only in 18.42% students.

Conclusion

Though there are many individuals with supinated foot posture and without any foot symptom, knee should also be considered before concluding for foot problems because knee alignment also has an effect on foot.

Key Words: Navicular Drop Test, Pronated Foot, Supinated Foot



Abstract 25

Electrotherapy For Osteoarthritis Knee – A Review Of Systematic Reviews

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Background

Osteoarthritis (OA) is the commonest arthritis that leads to pain, decrease in functional activities and quality of life. There are various treatment options available for clinicians. A review of systematic reviews (SR) on OA knee can help in decision making. Even though the level of evidence of SR is high, it needs an appraisal for its implication by the clinicians. The result of SR has to be validated internally and externally for its applicability and feasibility for our patients in our settings. The objective of this study is to review the evidence of electrotherapy on OA knee and its effect on pain and disability. This study can help us to understand the feasibility and applicability of the evidence of electrotherapy in our settings.

Methodology

The SRs were searched from three electronic Database, PUBMED, PEDRO and COCHRANE. Search terms used osteoarthritis knee, physiotherapy. The total review was 303 from that 44 articles were identified. Seven electrotherapy studies were taken for this review. The quality of SR and its results were assessed by AMSTAR and Grade pro score. The external validity was assessed based on three criteria's such as description of patient, condition and intervention.

Result

The applicability and feasibility of electrotherapy was deemed to be easier. Except for NMES all other modalities can help in decrease in pain. There is inconsistent evidence on measures of physical function and Quality of life. However the quality of the results measured through Grade pro showed low quality of evidence.

Conclusion

The role of electrotherapy treatment in osteoarthritis is ambiguous. The insignificant results on physical function and quality of life shows Electrotherapy treatment can be used as an adjunct to reduce pain.

Key Words: Osteoarthritis Of Knee, Electrotherapy, Physical Therapy



Abstract 26

Effectiveness Of High-Grade Grade Mobilization Techniques In The Management Of Adhesive Capsulitis Of The Shoulder: Randomized Controlled Trial

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Background & Purpose

In many physical therapy programs for subjects with adhesive capsulitis of the shoulder, mobilization techniques are an important part of the intervention. The purpose of this study was to compare the effectiveness of high-grade mobilization techniques (HGMT) with shoulder stabilization exercises (SSE) in subjects with adhesive capsulitis of the shoulder.

Methods

Subjects randomly assigned to the HGMT group were treated with intensive passive mobilization techniques in end-range positions of the gleno-humeral joint, and subjects in the SSE treated with throwers ten exercises based upon available range. . The duration of treatment was a maximum of 12 weeks (24 sessions) in both groups. Subjects were assessed at baseline and at 3 months by a masked assessor. Primary outcome measures included active and passive range of motion and shoulder disability (Shoulder Rating Questionnaire [SRQ] and Shoulder Disability Questionnaire [SDQ]).

Results

Overall, subjects in both groups improved over 3 months. Statistically significant greater change scores were found in the HGMT group Shoulder Rating Questionnaire, total score Mean change HGMT at baseline 37.5 at 3 months 25.8 SSE at baseline 36.5 at 3 months 25.8 Shoulder Disability Questionnaire at baseline 81.2 at 3 months -29.9 SSE at baseline 81.2 at 3 month -22.9 p.033. A statistically significant difference in trend between both groups over the total follow-up period of 3 months was found for SRQ, and SDQ with greater change scores in the HGMT group.

Conclusion

In subjects with adhesive capsulitis of the shoulder, HGMTs appear to be more effective in reducing disability than shoulder stabilization exercises, with the overall differences between the 2 interventions in the management of adhesive capsulitis of the shoulder.

Key Words: Adhesive Capsulitis, High Grade Mobilization, Shoulder Stabilization Exercises



Abstract 27

Effectiveness Of Medial Rotation Mobilization With Movement In Medial Compartment Degenerative Joint Disease Of The Knee

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Background

Degenerative joint disease of Knee is a frequent cause of knee pain which is often managed by a multimodal treatment approach incorporating manual therapy, muscle strengthening, stretching, joint mobility, and home exercises has been shown to be beneficial for the long-term recovery of knee function. Mobilization with movement (MWM) was associated with immediate pain relief and improved knee function but the effects of Rotation MWM have yet to be explored in specific degenerative joint disease of knee. The objectives of the present study is to analyze the effectiveness of Medial Rotation MWM in the medial compartment degenerative joint disease of knee in terms of pain, range of motion (ROM) and functional disability in subjects with degenerative joint disease of knee complex.

Methods

30 Participants were randomly allocated to each of the two treatment groups. Group-A was treated with Interferential therapy (IFT) and Vastus Medialis Obliquus(VMO) strengthening. Group-B (Experimental) was treated with Medial Rotation MWM technique, IFT and VMO strengthening. Total six treatment sessions over a period of one week was administered. The outcome measures were taken before the start of treatment and after the last visit.

Results

Improvements were detected in the Knee Injury and Osteoarthritis Outcome survey (KOOS) functional scores, knee flexion (ROM) and VAS pain scores in both the groups but with more significant improvements in the experimental groups. Significant improvements in post KOOS score Experimental (88.44%±5.5%) from Control group (63.29%±3.1%) ($p<.01$). In post treatment score of knee flexion ROM in degrees Experimental (132.8±6.1) from Control group (120±7.64) ($p<.01$). In post VAS score Experimental (1.00±6.1) from Control group (2.33±0.92) ($p<.01$).

Conclusion

Medial rotation MWM in medial degenerative joint disease of knee has demonstrated immediate pain relief and improved knee functions. Hence, Medial rotation MWM can be suggested for treatment in medial compartment degenerative joint disease along with other forms of physiotherapy.

Keywords: Knee Degenerative Joint Disease, Medial Rotation Mobilization With Movement



Abstract 28

Clinical Implication Of Scapular Dyskinesia On Shoulder Joint Function Among Individuals With Shoulder Dysfunction

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Background

Scapular dyskinesia can be termed as altered scapula motion and position; it deals with the alteration of normal scapular kinematics. It is highly prevalent with most of shoulder injuries, being the potential impairment to shoulder dysfunction. The conclusion from the scapular summit held in Lexington Kentucky 2013 revealed that scapular dyskinesia is present in a high percentage with most shoulder problems, reliable clinical evaluation methods are available and restoring dyskinesia can be effective through a more comprehensive rehab program but the exact role of dyskinesia in creating or exacerbating shoulder dysfunction was not clear. The aim of this study was to observe scapular dyskinesia with the main objective to establish and understand (i)the association between scapular dyskinesia and the clinical symptoms and the lesion (ii)the available clinical evaluation protocol to confirm presence of scapular dyskinesia.

Methodology

30 patients with Shoulder mechanical dysfunction are included and are screened for scapular dyskinesia. Then are grouped into either group A or B as subjects with (n=20) and without (n=10) scapular dyskinesia respectively. Clinical parameters like pain (VAS), range of motion (ROM), muscle strength (dynamometer) are measured and analysed within, between groups and with the lesion.

Results

There was significant association($P<.01$) between scapular dyskinesia and VAS, ROM and strength values in group A and only rotators strength values was significant in group B. Of the significant variables in group A gross ROM deficit is highly significant ($p<.01$), than adductors, internal rotator strength($p<.01$), than pain ($P<.01$). On comparing lesion, dyskinesia is strongly associated among individuals who had impingement with strength than other lesions.

Conclusion

There is a strong association between scapular dyskinesia with clinical symptoms and presence of scapula dyskinesia greatly affects shoulder function. Scapular dyskinesia is varied with lesion type, severity, duration and age. The recommended clinical protocol clearly identifies scapular dyskinesia.

Key Words: Scapular Dyskinesia, Lateral Scapular Slide Test, Shoulder ROM, Muscle Strength



Abstract 29

Effect Of Stretching Of Pectoralis Major, Upper Trapezius And Strengthening Of Lower Trapezius, Longus Coli And Capitus Among Students With Upper Cross Syndrome - A Quasi Experimental Study

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Background

Upper Cross Syndrome is one of the most common postural dysfunction encountered by physiotherapists where one group of muscles goes for weakness and the other group goes for tightness. The purpose of the study is to treat muscle imbalance thereby correcting posture in Upper Cross Syndrome by Strengthening exercise regimen along with stretching.

Method

A sample of 30 students with Upper Cross Syndrome of both sexes with age ranging from 17-24 years were selected and assigned into 2 groups by purposive sampling technique. Group I was intervened with stretching of pectoralis major and upper trapezius. Group II was intervened with strengthening of lower trapezius, longus coli and capitus with stretching of pectoralis major and upper trapezius for a period of 3 weeks and the outcome measure was the distance in inches from acromion process to the floor.

Results and Conclusion

There was significant reduction of muscle tightness in both groups and both groups showed same level of improvement with p less than 0.05. For group I right side, pre test mean 4.01(0.52) and post test mean 3.68(0.53); left side, pre test mean 3.98(0.46) and post test mean 3.66(0.99). For group II right side, pre test mean 4.10(0.59) and post test mean 3.55(0.72); left side, pre test mean 3.85(0.49) and post test mean 3.38(0.74). This study shows that the stretching exercise regimen is effective to treat subjects with Upper Cross Syndrome for a shorter duration.

Key Words: Upper Cross Syndrome, Postural Dysfunction, Stretching, Strengthening



Abstract 30

Effect Of Upper Limb Tension Test Vs McKenzie Exercises In Cervical Disco Genic Pain

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Background

McKenzie exercises have not previously been compared with Upper Limb Tension Test (ULTT) exercise program for patients with Cervical Disco genic Pain. The purpose of this study was to compare outcomes between a McKenzie exercise verses ULTT exercise therapy program.

Methods

A randomized comparative trial was done with 30 subjects with Cervical Disco genic Pain Subjects were randomly assigned to a control group (n-15; 9 female, 6 male; mean age [SD] 54[10] years) and experimental group (n-15, 10 female, 5 male; mean age [SD]52[9] years). Subjects in the control treatment group received ULTT and strengthening exercise, three weeks program period. Subjects in the experimental group received the McKenzie exercise and strengthening exercise three weeks program period. The outcome measures used were the Active Range of Motion (AROM) And Visual Analogue Scale (VAS).

Results & Conclusion

Both groups showed clinically and statistically significant improvements in AROM and VAS scores at 3 weeks. Subjects in the experimental group achieved about twice as much improvement in AROM scores than subjects who performed similar control treatment group. This study concludes that McKenzie exercise and strengthening exercise program is better than ULTT and strengthening exercise program for Cervical Disco genic Pain subjects.

Key Words: ULTT, Strengthening Exercise, McKenzie exercise, Cervical Disco genic Pain, AROM, VAS



Abstract 31

Lumbopelvic, Hip & Ankle Joint Function Influence On Knee Dysfunction - Pilot Study

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Introduction

Knee joint dysfunction often has multiple contributing factors, although knee joint dysfunction happens because of pathological process happening at the patellofemoral, tibiofemoral joint itself many times. And also it could be because of dysfunction happening proximal and distal joints. Hence the influence of lumbo pelvic, hip and ankle dysfunction on the knee joint work to be studied. The purpose of the study is to find out the influence of lumbopelvic, Hip and Ankle on knee joint function. This lightens the awareness of the proximal and distal links in knee dysfunction.

Methods

An observation study has been adopted with sample size of 15 subjects selected purposively. Study subjects included based on inclusion and exclusion criteria. Assessment includes ROM of Lumbar spine, Hip, Knee & Ankle joint, isometric strength of hip, knee, ankle muscles, Q angle measurement, calcaneal malposition measurement & KOOS outcome measurement is used.

Results

Mean age of the subjects was 48.53, height 159.23, weight 66.3, Mean BMI value 26.08. Out of 15 subjects who had knee dysfunction, also found altered function in low back, hip and ankle on analysis. Along with knee pain, 5 subjects had low back pain, 3 subjects with low back, hip and knee pain, 2 subjects with low back, & foot, 1 subjects with hip, knee and foot, 1 subjects with foot pain, rest of the 3 subjects with knee pain alone. There was significant difference in hip muscles strength and weakness in quadriceps and hamstring ($p < 0.01$) comparing to unaffected side. Mean Q angle was 9.69° , denoting reduced Q angle. There is significance co-relation of KOOS values in pain, symptoms, ADL, QOL.

Conclusion

This study found significant influence of lumbopelvic, hip & ankle on knee dysfunction hence in the rehabilitation of knee dysfunction mechanical alteration in proximal and distal joint should be considered.

Keywords: Altered mechanics, Knee dysfunction, Q angle, Isometric Strength



Abstract 32

**Effectiveness Of Anti-Pronation Taping Versus Calcaneal Taping Technique In
Chronic Plantar Fasciitis**

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Background

Plantar fasciitis is a common cause of foot pain, which may occur due to abnormal bio-mechanical position of foot, obesity, abnormal foot wear, etc. It is usually observed in 40 to 60 years of age; and most commonly occurs in females. Typical symptoms include pain under medial heel during weight bearing, especially in morning and at beginning of weight bearing activities. Literature indicates that plantar fasciitis may be successfully treated using a conservative approach. To compare the effectiveness of two different taping techniques anti pronation taping and calcaneal taping in patients with chronic plantar fasciitis.

Methodology

45 female patients with primary complaint of unilateral plantar heel pain were completed self-reported questionnaire including numerical pain rating scale and foot functional index. Patients were divided into three groups. Group A received anti pronation taping (n=15), Group B received calcaneal taping (n=15) and Group C received only exercise and stretching [control] (n=15), Group A and B also attended common exercise and stretching program. Post treatment measures are taken after 4 weeks of regular treatment. Scores were compared using ANOVA test, to find existence of significant difference between the groups.

Results

Statistical analysis using ANOVA one way test reveals that there is a significant reduction in pain (1.47 ± 1.060) and improvement in functional activities (18.6 ± 7.129) in anti-pronation group than calcaneal taping and control group. Post hoc test values reveals difference exist between the groups NPS ($F=37.032$, $P < .05$), FFI ($F= 52.476$, $P < .05$).

Conclusion

Effectiveness of anti-pronation taping technique with exercise and stretching has been proved as the most effective treatment technique for correcting the abnormal biomechanical foot position in chronic plantar fasciitis.

Key Words: Anti-Pronation Taping, Calcaneal Taping, Plantar Fasciitis



Abstract 33

Effectiveness Of Maitland's Mobilization In The Management Of Periarthritis Shoulder

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Background

Shoulder complaints are common in general population. Incidence figures 0.9% to 2.5% have been reported for different age group and 3% of general population is affected by idiopathic loss of shoulder range of motion. A global decrease in shoulder range of motion is called periarthritis shoulder. Periarthritis shoulder is characterized by an insidious and progressive loss of active and passive mobility in the glenohumeral joint presumably due to capsular contracture.

Method

An Experimental Trial was conducted at physiotherapy OPD, Saveetha Medical College and hospital, Chennai. 30 subjects with periarthritis shoulder were randomly divided in to two groups. Experimental group was treated by Ultra sound therapy along with Maitland's mobilization for 4 weeks, half an hour session. Control group was treated by Ultra sound therapy along with standardized shoulder exercises. Numeric pain rating scale, shoulder abduction and external rotation range of motion using universal goniometer measured in degrees used as outcome measures.

Results

The Post Test mean value of ROM in Group A is abduction 141.67 and external rotation 64.17 and in group B is abduction 109.0 and external rotation 42.00 this shows that Abduction and External Rotation ROM in Group A were comparatively more than Group B, $P < 0.0001$. The Post Test mean value of NPRS in group A is 2.40 and in group B is 3.87. This shows that NPRS in Group B were comparatively more than Group A, $P < 0.0001$. Statistical Analysis of post- test for abduction and external rotation, NPRS revealed that there is high statically significant difference seen between group A and group B.

Conclusion

Maitland's mobilization is more effective than active exercise in the management of periarthritis shoulder in reducing pain and improving the range of motion of shoulder abduction and external rotation.

Key Words: Periarthritis Shoulder, Maitland's Mobilization, Numerical Pain Rating Scale, Ultra Sound Therapy



Abstract 34

Reference Value For The Sit And Raise Test In Young Indian Adults

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Background

The balance plays an important role in daily living activities. The balancing ability of a person can be established by the simple Sit and raise test (SRT). But the normal value of SRT in Indians adults is not yet established. Objective of this study is to establish the reference value for SRT in young Indian adults.

Methods

164 healthy young adults, aged between 18 and 30 years were selected for the cross-sectional study by simple random sampling. Anthropometric measurements such as height, weight, waist circumference, hip circumference and true limb length were measured. They were asked to sit cross-legged on the floor, without considering the time taken in getting up from the floor with minimum support using their knees or hands as possible. Similar criteria were followed for getting up from the floor. They were scored according to the support utilized. The data were tabulated and analysed. The normal value was expressed as mean and standard deviations (SD) with 95% confidence interval (CI). Gender differences were established by the Mann-Whitney test of significance.

Result

Young Indian adults recruited have a mean age of 21.01 ± 2.1 years, height of 164.4 ± 9.3 cm and weight of 60.2 ± 13.01 kg. The normal valve of SRT is 7.9 ± 1.6 (7.6 to 8.2). Male scored 8.3 ± 1.5 and female scored 7.2 ± 1.5 with significance difference between them ($p=0.001$).

Conclusion

The normal value of SRT in Indian young adults was established. There is significant gender difference exists between them.

Key Words: Balance, Body Control, Flexibility, Muscle Strength, Risk Of Fall



Abstract 35

**Generalised Joint Hypermobility Prevalence In The Middle And The First Grade
College Students In Karnataka**

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Background

Generalised joint hypermobility (GJH) is associated with many problems such as premature joint degeneration and derangement, recurrent sprains, dislocations, arthralgia and myalgia. As individual with GHS may not seek medical care often, the current literature may underestimate the prevalence of GJH. Objective of this study is to study the prevalence of GJH among the middle school and first grade college students in Karnataka

Methods

The school and college for this cross-sectional study were identified conveniently. A sample of 351 students, aged between 12 and 17 years was recruited by simple random sampling using the software application random number generator. The demographics such as height, weight, waist circumference and hip circumference were recorded. The GJH was estimated using American Academy of Orthopaedic Surgeons (AAOS) recommendations by Beighton score using standardized Beighton protocol. Students scoring $\geq 5/9$ was considered to be GJH. The above collected data was analysed statistically for the prevalence of GJH.

Results & Conclusion

Approximately 37.5% of middle school and first grade college students were found to be GJH in Karnataka with Beighton cut-off score $\geq 5/9$. Current literature underestimated the prevalence of GJH. We reported that more than 37% of the students were GJH in contrary to 11.1 to 35.6% reported earlier. This screening helps in early identification of major students with GJH.

Key Words: Beighton Score, Children, College Students, Hypermobility, Middle School



Abstract 36

Does Design Of Your Bike Influence Back Pain - A Cross Sectional Study

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Conflicting evidence exists regarding relationships among driving posture and back pain in two wheeler riders. This conflicting evidence may partially be due to the presence of multiple and overlapping factors associated with posture and pain. The purpose of this study is to determine type of bike [motor cycle] has less influence to Cause low back pain or prevents low back pain in riders. Adults [n=70] completed a questionnaire regarding information about their bike, characteristics of driving and their experience of low back pain. In addition to this saggital sitting posture in bike, BMI and analysis of lumbar lordosis were made and recorded. From the data collected from questionnaire suggested that there is less incidence of low back pain is seen in individuals using sports type of bike than the individuals using commuter type of bikes. The result obtained in this study is applicable for adults with normal BMI and it may vary in adults having awkward posture while driving, taller or shorter than their bikes desired height, etc., This study demonstrated that individuals who were using bikes, which offers a forward lean sitting posture for the riders has less risk of having low back pain.

Key Words: Low Back Pain, Body Mass Index, Saggital Sitting Analysis, Goniometer, Forward Lean Sitting Posture



Abstract 37

Effectiveness Of Mulligan Mobilization With Movement Technique Vs Ultrasound For Patients With Lateral Epicondylitis

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Background

Lateral epicondylitis is a major challenge, as it is difficult to treat, prone to recurrence and may last for several weeks or months. Many interventions have been used in treating lateral epicondylitis in reducing pain, increasing grip strength & improving functional activities. Mulligan mobilization with movement technique and Ultrasound therapy is one of those interventions. The objective of the study is to compare the effectiveness of Mulligan Mobilization with movement technique versus ultrasound therapy on patients with lateral epicondylitis.

Methodology

30 subjects with age of 25-45 yrs having symptomatic lateral epicondylitis were taken and randomly assigned into two groups. Group A (n = 15) received mulligan mobilization with movement technique whereas Group B (n =15) received ultrasound for a duration over 3 weeks. The outcome measures used were Numerical rating scale, Grip Strength by Sphygmomanometer, Patient Rated Tennis Elbow Evaluation Scale.

Result

The data revealed significant difference in both groups in all three outcome measures and also significant difference between Group A and Group B with p value less than 0.001.

Conclusion

Mulligan Mobilization with Movement [MWM] technique is effective in reducing pain, improving grip strength and functional activities when compared with only ultrasound therapy.

Key Words: Lateral Epicondylitis, Mulligan Mobilization With Movement Technique, Ultrasound



Abstract 38

Effect Of Mc Connell Taping In Reducing Pain And Impairment In Patello Femoral Pain Syndrome

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Background

Patello femoral pain syndrome [PFPS] is one of the most common musculoskeletal disorders and reported to affect 21% -45% of adolescent. The study aims in detecting the effectiveness of Mc Connell taping and quadriceps strengthening exercise, plantar flexors stretching compared to quadriceps strengthening exercise and plantar flexors stretching in the treatment of PFPS.

Method

Experimental study design was used for this study. History of pain for at least one month, lateral shift of patella, pain in walking and squatting with the age of 20-40 years were included. History of patellar fracture and dislocation, patellar rotation and previous injury around the knee were excluded. 30 subjects divided into 2 groups, each group includes 15 individuals. Visual analogue scale and Q angle measurement was used as outcome measure. The data obtained were statistically analysed.

Result

There was a significant decrease in patella femoral pain and also significant improvement in the Q angle ($p < 0.001$) in patients with PFPS who received Mc Connell taping, quadriceps strengthening exercise and plantar flexor stretching and in patient with who received only quadriceps strengthening and plantar flexor stretching. However patellar tapping is found to have a greater effect in decreasing patella femoral pain.

Conclusion

The results of the study indicate that a 2 week session treatment of Mc Connell taping, quadriceps strengthening exercise and plantar flexor stretching is efficacious in the alleviation of patella femoral pain and improving pain PFPS. The combination of Mc Connell taping, quadriceps strengthening exercise and plantar stretching is a more effective treatment than only quadriceps strengthening exercise and plantar flexor stretching in PFPS.

Key Words: Patello Femoral Pain Syndrome, Mc Connell Taping



Abstract 39

Perturbation Exercise as a Suitable Alternative for Comprehensive Exercise Protocol in Conservative Anterior Cruciate Ligament Rehabilitation - Single Case Study

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Background

The biomechanics of the knee are altered after Anterior Cruciate Ligament (ACL) injury. Maximizing the strength of quadriceps to pre injury levels is the key to the positive outcome in ACL deficit Rehabilitation. This strengthening process has to be in line with reduced stress to the injured tissue in the form of Closed Kinetic Chain (CKC) exercises. Just by restoring dynamic knee stability has shown to be insufficient for a satisfactory outcome. Hence neuromuscular training enhances the control of abnormal joint translations during functional activity. Therefore, both mechanical stability and neuromuscular control are important for long-term functional outcome. This study focuses on alternative exercise which uses minimal space, Gadgets to substitute exhaustive protocols.

Methodology

A patient with ACL deficit referred to Physical therapy for pre operative ACL rehabilitation was evaluated for his balance abilities using Eyes Closed static (ECS) balance test and lysholm score for functional ability. A Comprehensive Home exercise program (HEP) was advised and followed up after 6 weeks & was found that his balance abilities and lysholm scores had improved considerably. Moreover he was unable to follow exercise protocols at home town due to lack of resources, but continued wobble board exercises at Home. The individual continued to lead a near normal life without any provocation of either pain or giving way.

Results and Conclusion

There was a considerable improvement in balance skills from 35 to 80 seconds in ECS balance test and lysholm scores improved from 42 to 89. It may be concluded that perturbation training is sufficient enough to train the Neuro Muscular demands caused because of ACL deficiency in nonathletic population.

Key Words: Perturbation Training, ACL Deficit, Conservative Rehabilitation



Abstract 40

Closed Kinetic Chain Exercise - A Patient Administered Technique To Restore Normal Arthro Kinematics In Shoulder Adhesive Capsulitis

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Shoulder adhesive capsulitis (AC), a painful disabling condition that often causes great frustration for patients due to slow recovery. Movement of the shoulder is severely restricted and the Pain is usually constant and worse at night in the initial stages. The gold standard treatment is to restore the normal arthro kinematics. However any treatment approach may turn erratic because of the reduced compliance usually pre disposed by selection of technique, Dosage and the frequency of mobilization. This study focuses on how a Closed Kinetic Chain (CKC) exercises can restore the normal arthro kinematics of shoulder without reversal of Irritability. Patients referred to physical therapy with AC were taken and a regular exercise regime was administered and followed up for a course of 6 months to one year. Base line parameters of mobility, Pain and Functional Ability were assessed by Bubble inclinometer, Visual Analog Scale and Disability of Arm Shoulder and Hand (DASH) respectively. There was a greater rate of drop outs which was carefully reassessed and counseled for a series of progressive CKC exercises. Following CKC exercises a steady reduction of pain and restoration of mobility was noted in subsequent follow up. The outcomes were reassessed analyzed and concluded. There was a significant improvement in ROM following CKC exercises. The mean Flexion increased from 100° to 140° , Abduction increased from 40° to 70° , External Rotation increased from 30° to 45° , Internal Rotation increased from 10° to 20° and Mean reduction of pain (VAS) was from 7 to 4 and DASH severity scoring reduced from 87 to 67. It may be concluded that CKC exercises can be equated to posterior glide in restoring the normal arthro kinematics without reversal of irritability in AC.

Key Words: Closed Kinetic Chain Exercises, Shoulder Adhesive Capsulitis, Arthro Kinematics



Abstract 41

Early Hyperextension - A Key To Prevent Anterior Knee Pain In Post Total Knee Replacement Individuals

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Anterior Knee Pain (AKP) is a common problem encountered following total knee replacement (TKR) is both prevalent and clinically relevant. Even though there are umpteen numbers of highlighted causes it remains to be a common enigma among post TKR individuals. The purpose of this study was to systematically analyze, to identify and assess the different modifiable and non-modifiable determinants that may be associated with the development of AKP in patients following primary TKR. Objective of this study is to establish a criterion in reducing the incidences of AKP in post TKR Individuals. The study involved 90 patients both genders (55 Females, 35Males) with Primary TKR at Department of Physical Therapy, Kurinji Super specialities Hospital, Salem. The control and experimental groups were categorized. Following an inpatient care for a week initially, a follow up at outpatient services for a period of three years was done. The basal parameters were evaluated with Visual Analog Scale (VAS), Range of motion (ROM).The incidence of anterior knee pain along with other parameters were assessed at regular intervals and analyzed. The findings were carefully analyzed and there was a moderate correlation between VAS score and ROM at day 30 ($r=0.396$) and this was statistically significant ($p=0.000$) and there was an excellent correlation between VAS score and ROM at day 45 ($r=0.933$) and this was statistically significant ($p=0.000$). It may be concluded that the hyperextension recovery index as one of the positive criteria overcoming AKP in post TKR.

Key Words: Anterior Knee Pain, Loss Of Hyper Extension, Post Total Knee Replacement.



Abstract 42

Efficacy of Active Release Technique in Improving the Flexibility of Hamstring Muscle

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Background

Active Release Technique is developed by Dr. P. Michael Leahy. It is defined as a soft tissue method that focuses on relieving tissue tension via the removal of fibrosis/adhesion that develops in tissue. This is attributed to the overload of tissue with repetitive use [AndreoSpina]. It is both diagnostic and treatment technique for the disorders which may lead to weakness, numbness, tingling, burning, aching etc.

Aim

To determine if Active Release Technique (ART) would improve the flexibility in Hamstring Muscle.

Method

10 subjects with history of low back pain and hamstring tightness were included for the study. Initially they were evaluated for flexibility in the hamstring using a goniometer by 90 degree approach. The individual's hamstring muscle belly was palpated for tender points and from a shortened position the subject had to actively extend the knee into a lengthened position while the therapist maintains pressure on the fibrosed/adhered area (Andreo Spina). The procedure was repeated for 5 times

Results

The Collected Data was analyzed with SPSS 17.0 version. The normality of data was cross verified with Shapiro-Wilk normality test which is normally distributed. To find the Significance difference between Pre and Post test parametric paired t-test was used. In the above statistical tool the probability value P is .000 was considered highly significant.

Conclusion

The subjects showed significant improvement after receiving Active Release Technique, Active Release Technique Can be used as a treatment for individuals with limited flexibility in hamstring muscle.

Key Words: Active Release Technique, Flexibility, Hamstrings



Abstract 43

Anaerobic Performance Of The Indian Children With Down's Syndrome - A Pilot Study

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Background

Wingate Anaerobic cycling test measures the anaerobic performance of the children in the laboratory. But it became impossible to assess the same in the field. Hence the same was assessed using the muscle power sprint test (MPST) for the children with Down's syndrome. The reliability of MSPT is not established in the children with Down's syndrome.

Objective

To estimate the reliability of MPST and mean anaerobic power of the Indian children with Down's syndrome.

Methodology

Thirteen children with Down's syndrome (8 boys and 5 girls) aged between 8 and 17 years (mean age = years) were recruited by convenience sampling for the reliability study. Anthropometric measurements such as height, weight, hip and waist circumference were measured. MPST were administered to them. The mean of six trials of MPST were calculated. The mean anaerobic power was calculated using the formulae, Power = Force x Velocity; Velocity = 15/mean MPST; Acceleration = velocity/time; Force = body mass x acceleration. Reliability was expressed intra class correlation coefficient (ICC). For reporting test-retest and reliability, two-way mixed model, consistency, ICC_(3,1) was used. Two-way random effect model with absolute agreement, ICC_(2,1) was used in reporting inter rater reliability. Bland-Altman graph displayed the limit of agreement (LOA) by the same rater and between raters.

Results

The mean anaerobic power is estimated to be 46.3 ± 27.9 Watts in the children with Down's syndrome. MPST has excellent test-retest reliability of mean ICC_(3,1) = 0.95 which ranged from 0.79 to 0.99 and inter-rater reliability of mean ICC_(2,1) = 0.96 (0.49 – 0.99).

Conclusion

The mean anaerobic power in the children with Down's syndrome was established using MPST and it has excellent test-retest and inter-rater reliability among them.

Key Words: Anaerobic Power, Exercise Test, Inter Rater Agreement, Muscle Power Sprint Test, Reproducibility



Abstract 44

Dynamic Postural Control Ability In Children And Adolescent With Typical Development

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Background

Dynamic postural control of an individual can be assessed by using Star Excursion Balance Test (SEBT). Various musculoskeletal impairments such as chronic ankle instability, patellofemoral pain syndrome and diminished quadriceps muscle strength are screened by the sensitive tool SEBT. Literature on the baseline values of SEBT on children and adolescent in India are not available. Objective of this study is to estimate the baseline values of SEBT in children and adolescent with typical development.

Methods

109 students, aged between 10 and 19 years, were selected from the recognized schools and colleges identified conveniently. Students who were free from vestibular disorder, cerebral damage and any lower limb injuries in the past 6 months were recruited by the non-random sampling method. Demographic data such as age, height, and weight and leg length were collected. SEBT were performed on them by the standardized protocol. The students were asked to reach the maximum distance along the direction line with one foot by light touching. The farthest point was noted visually from the readings on the tape for 8 directions. After performed three trials in 8-directions, 5-min rest was provided and the test was continued with the stance leg. The data were recorded and mean excursion value of both legs were analysed. The baseline values were reported as mean and standard deviations (SD). Independent t-test reported the gender differences.

Result

The mean baseline values of anterior, anterolateral, lateral, posterolateral, posterior, posteromedial, medial and anteromedial are 96.3 ± 4.3 , 96.3 ± 3.2 , 92.4 ± 3.5 , 98.4 ± 3.8 , 83.7 ± 4.3 , 77.5 ± 4.1 , 68.7 ± 3.6 and 91.3 ± 3.3 respectively. There exists significance difference between both the genders ($p < 0.001$)

Conclusion

Dynamic postural control ability in children and adolescent with typical development was established.

Key Words: Balance Test, Baseline Values, Chronic Ankle Instability, Excursion Balance Test, Reference Values



Abstract 45

Volitional Control Of Center Of Gravity In Children With Down's Syndrome

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Background

Control of center of gravity (COG) is essential for maintaining upright posture. Current literature reported that children with down's syndrome have difficulty in maintaining their COG. But, the quantification of volitional control of COG is not yet estimated in the children with Down's syndrome

Objective

To estimate volitional control of center of gravity (COG) in children with down's syndrome and its reliability.

Method

78 children with down's syndrome were recruited from the special school, identified by cluster sampling. Anthropometrics including height, weight and arm span of children with down's syndrome aged from 8-17 years was recruited. They were asked to perform functional reach test (FRT), to estimate the volitional control of COG in accordance with criteria laid down by Duncan. The maximum distance reached was measured and noted by first rater and the second rater with an interval of seven days independently for estimating inter-rater reliability and by the same rater twice for intra-rater reliability. Intra-class correlation coefficient (ICC) and Bland-Altman graph were used in evaluating the correlation and level of agreement (LOA) between the two raters and the same rater.

Result

The descriptive statistics of the data collected revealed the mean age of 14.5 ± 2.8 years, height of 139.7 ± 15.8 cm and weight of 43.02 ± 12.9 kg. FRT has a reliability of ICC_(2,1) = 0.87 within rater and ICC_(3,1) = 0.85 between raters. The reference value of FRT in the children with down's syndrome is 19.4 ± 2.3 cm

Conclusion

FRT in the children with Down's syndrome has high intra and inter-rater reliability. The reference value of FRT is established in children with down's syndrome which is higher than the children with typical development.

Key Words: Balance, Children, Center Of Gravity, Down's, Functional Reach Test



Abstract 46

**Prevalence Of Lower Limb Length Discrepancy Among Special School Children –
A Preliminary Prevalence Study**

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Background

Limb length discrepancy (LLD) forms a part of regular musculoskeletal assessment. LLDs contribute to compensatory scoliosis, sacroiliac pain believed due to degenerative changes and increased risk of variety of running injuries. Although, the importance of LLD is much more, the prevalence of LLD in the children with special pediatric population was not established.

Objective

To establish the prevalence of lower extremity LLD among the special children in India

Method

The special school was identified by the cluster sampling method for the cross-sectional study. A sample of 103 students, 59 male and 44 female children in special pediatric population, aged 8 to 17 years were recruited. Their anthropometrics were measured. Limb length measurements were standardized. After squaring the pelvis, both true and apparent limb length were measured. The distance between the inferior aspect of ASIS and the inferior aspect of medial malleolus was noted as true limb length (TLL). Similarly, the distance between the umbilicus and the inferior aspect of medial malleolus was recorded as apparent limb length (ALL). Difference of 2 cm or more was considered as discrepancy. Descriptive statistics were reported as mean and standard deviation (SD) and prevalence were reported in proportions.

Results & Conclusion

Demographic data revealed an average age of 14.3 ± 5.1 , height of 145 ± 19.3 and weight of 42.5 ± 32.9 . 22 out of 99 children in special pediatric population demonstrated true LLD while 13 out 99 has apparent LLD of 2 cm or greater. 22.2% of children in special pediatric population have LLDs. This data is three times the prevalence of LLD in normal children.

Key Words: Children, Limb Length Inequality, Lower Limb, Reference Standard, Screening



Abstract 47

Grip And Pinch Strength Reproducibility Among The Children With Down's Syndrome – A Reliability Study

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Background

Grip and Pinch strength forms an important tool in hand injury assessment. Both of them are assessed by means of Dynamometer. At present there are no standardized values of normal grip and pinch strength available for the children with Downs Syndrome. Reliability of grip strength may be influenced by several factors. Hence it has to be established.

Objective

To establish the reliability and normal value of grip and pinch strength by hydraulic dynamometer in the children with Down's syndrome

Methods

Cross sectional study was carried out from sample of 52 children with Downs Syndrome aged between 7-18 years. Anthropometrics such as height, weight, hand width, hand length, forearm length, forearm circumference were measured. Then children were asked to perform the grip and all three pinch (tip, key and palmar) strength test in seated position as recommended by American Society of Hand Therapist. All the measurements were taken twice by the same rater and once by the second rater with a week interval. The mean of 3 successive trials was used for data analysis. Normal values were expressed as mean and standard deviations (SD) and inter class correlation coefficient (ICC) for inter and intra-rater reliability.

Results

Grip strength has a reliability of ICC_(2,1)=0.97 within rater and ICC_(3,1)=0.93 between rater. Tip pinch, key pinch and palmar pinch strength has a reliability of ICC_(2,1)=0.73 to 0.97 and ICC_(3,1)=0.80 to 0.93 within same rater and between the rater respectively. The normal value of grip, tip, key and palmar strength are 7.9±4.1, 2.9±0.7, 2.9±1.1 and 2.8±0.9 Kg respectively.

Conclusion

The grip and pinch strength measurement using the hydraulic dynamometer is highly reliable within and between the raters in the children with Down's syndrome and their normal value is established.

Key Words: Down's, Dynamometer, Grip Strength; Isometric Strength, Pinch Strength



Abstract 48

Chest Physiotherapy In Pediatric Post Cardiac Surgical Patient: A Case Report

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Heart diseases are the most common among congenital defects. With a believed incidence rate of 6-8 per 1, 80,000 children are born with heart defect each year in India. Currently pediatric cardiac surgery has a universe of its own. In this context, the physiotherapists have been requested in the multi-disciplinary team to improve the patient condition, prevent and recover from pulmonary complications. Atelectasis is most common pulmonary complication developing after cardiac surgery. This leads to worsening of oxygenation and decreasing pulmonary compliance which in turn lead to respiratory failure and increased pulmonary vascular resistance. A five month old male baby with 3.2 kg weight was detected to have congenital heart disease. The diagnosis was coarctation of aorta, bilateral SVC, coronary sinus TAPVC, ASD, valvular pulmonary stenosis and surgery done was resection and end to end anastomosis of coarctation, repair of cardiac TAPVC, unroofing of coronary sinus, septation of atrium, pulmonary valvotomy, division of LSVC and anastomosed to right atrial appendage. Baby was extubated on 6th POD and respiratory distress developed on 7th POD. Respiratory sounds reduced over right lower and left middle zone. Spo₂ was 85%. Chest x-ray showed collapsed right lower and left middle lobes, which confirmed atelectasis. Chest physiotherapy was initiated every 6th hour with techniques of postural drainage, percussion, vibration, cough stimulation, manual hyperinflation and positioning. After four sessions there was marked improvement in air entry and saturation. Chest x-ray showed improved lung field. It was observed that the effectiveness of physiotherapy in identifying the risk and treating pulmonary complications caused by surgical procedure in children with congenital heart disease improve surgical outcomes. Physiotherapist a part of multi-disciplinary team contribute significantly to the better prognosis of pediatric patients undergoing heart surgery, as it identifies, prevents and treats pulmonary complications.

Key Words: Pulmonary Complications, Pediatric Heart Surgery, Atelectasis



Abstract 49

**Effect Of Circuit Training Exercise Program On Functional Performance In Children
With Spastic Cerebral Palsy**

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Background

Impairments affecting muscle strength and motor control are major causes of motor performance deficits in children with cerebral palsy. These impairments, together with adaptive changes at neural and musculoskeletal levels, disturb the muscle and bone growth and the learning of motor skills. Hence a focus on training of motor control for the prevention of negative soft tissue adaptations, and to improve the strength, endurance, physical fitness and functional performance is necessary. Objective of this study is to determine the effect of circuit training exercise program on the functional performance of children with spastic type of cerebral palsy.

Methodology

Cerebral palsy children from Department of Paediatric Physiotherapy, PSG Hospitals, Coimbatore where chosen as population and ten children of age group 2-12 years (Toddlers=3children, Preschoolers=3 children, Schoolers=4 children)who were under GMFCS level I and II were selected for the study. The base line data (pre test scores) were taken using GMFM Dimension-D&E, 30 second walk test and the treatment was given for 6 weeks, 2 sessions per week for 1 hour per session. Then the post test data were collected. These pre and post values of (GMFM Dimension D&E, 30 second walk test) were later analyzed and interpreted using paired 't' test.

Result

Based on analysis of data it can be interpreted that there was a significant improvement in GMFM Dimension – D(for Toddlers, Preschoolers and Schoolers with $p=0.01,0.01$ and 0.05) and GMFM Dimension – E($p=0.03,0.002$ and 0.006).Also there is a significant improvement in 30 second walk test with $p=0.007,0.01$ and 0.01 respectively.

Conclusion

This study concludes that the circuit training exercise program has produced significant improvement in gross motor function, muscle strength and endurance. It is evident that such an intervention is effective and it helps in reducing the disability and improves the general functional well being among the children with spastic cerebral palsy.

Key Words: Spastic Cerebral Palsy, GMFM, GMFCS, Circuit Training



Abstract 50

Clam Exercise as an apt program in Improving Gait and Proximal Stability to Reduce Crouching Posture in Spastic Diplegic - A case study

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Crouching is a major challenge in postural correction for diplegics caused due to increased hip and knee flexion by dynamic muscle contraction spasticity, lever arm dysfunction. The hip flexion caused by spasticity of iliopsoas combined with insufficiency of Gluteus pose a threat to the proximal stability, leading to failure of right alignment at the hip which adds on to subsequent changes distally as a kinetic chain sequence. Presently work outs includes, Extensors of Spine, Hip, and Knee and Ankle dorsi flexors to alleviate the lacunas, are incorporated. Objective is to include a suitable exercise to improve the strength and endurance of proximal group muscles there by reducing the crouch to improve the proximal stability among spastic diplegics. An 8 year old spastic diplegic boy with crouch gait referred to physical therapy. His gait was analyzed for using Edinburgh Visual Gait Analysis Interval Testing (GAIT) scale, containing 17 variables of at 6 anatomical levels observation during gait. A series of exercise to correct the crouching was included and followed up for a period of six months a reassessment of baseline parameters was repeated and the outcome was analyzed. After careful analysis “Clam exercise” was included and followed up for a period of six months and reevaluation of base line parameters was done. Pre-interventional score of 26 was 17 after six month of intervention, with an increased magnitude of gluteus medius and maximus activation. It may be concluded that inclusion of “clam exercise” is a useful additive in improving proximal stability of hip there by reducing the crouching among spastic diplegics.

Key Words: Spastic Diplegics, Clam Exercise, Crouching



Abstract 51

Feasibility of application of CIMT in a child with Hemiplegic Cerebral Palsy – A Single Case Study

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Kids suffering from hemiplegic cerebral palsy develop developmental disregard. In addition they fail to comprehend the consequences of nonuse. Hence they continue using their unaffected arm which makes things simpler for them to accomplish. They utility and development of affected upperlimb is affected. Reviews have identified the use of Pediatric CIMT for Upperlimb improvement in hemiplegic Cerebral Palsy. This single case study attempts to identify opportunity for application of pediatric CIMT on a kid with hemiplegic cerebral palsy. To identify the benefits and feasibility of application of Constraint induced movement therapy for improving Quality of upperlimb movement in a kid with hemiplegic cerebral palsy. A 2 ½ year old kid with hemiplegic cerebral palsy visited the OPD with difficulty in walking, not using the right upperlimb for activities and play and a poorer quality of upperlimb movement. Disregard index was calculated to identify the presence of developmental disregard. CIMT was chosen as the kid had above minimal ability to open fingers and extend wrist. A 2 week intervention was designed based on goal oriented, ability specific, kid specific practice of functional tasks. A tape provided constraint. The kid was motivated to play with the affected hand for a period of 1- 2 hours in the OPD and 2 hours at home. Tasks of incremental difficulty was utilised as shaping method. Improvement in quality of movement was measured using QUEST. The Score on QUEST improved from - 22.20 to -16.93 in a period of 2 weeks. The treatment was tailored to accommodate the behaviour of kid. The duration of application and it's continuity was to be altered. The parent especially the mother found it difficult to accept the treatment. Application of CIMT especially massed practice and shaping needs to be individual specific to make it a feasible intervention in paediatrics.

Key words: Constraint Induced Movement Therapy, Pediatrics, Feasibility



Abstract 52

**Effect Of Sensory Integration Therapy And Play Therapy On ADHD Children- A
Single Blinded Randomised Comparative Study**

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Introduction

ADHD is one of the neurobehavioral disorder seen in preschool age children. They have problematic behaviors such as impulsiveness, restlessness and hyperactivity. This disorder can be a trouble in adulthood; hence, effective measures should be taken. Aim of this study is to compare the effectiveness of sensory integration therapy (SIT) and play therapy (PT) in subjects with ADHD.

Methodology

The study was a single blinded randomized comparative study. The study included 30 patients with ADHD of age from 4-6 yrs. They were randomly divided into two different groups. Group A: 15(subjects receiving sensory integration therapy) and group B: 15(subjects receiving play therapy). The outcome measure used after 3months of therapy was Conner's teacher rating scale.

Result

The data was analyzed using statistical package for social sciences 17; with descriptive analysis of Wilcoxon sign rank test for within group difference and Mann Whitney test for between comparison before and after intervention. Significance set at p value less than 0.05. Data analysis for comparison within group for play therapy and sensory integration showed (mean \pm SD 75.67 \pm 11.11) and (mean \pm SD 73.07 \pm 8.79) respectively, before intervention. After intervention, for PT and SI (mean \pm SD 53.53 \pm 11.89) and (mean \pm SD 67.67 \pm 11.45) respectively, which statistically showed significant improvement (p=0.001). Independent comparisons of both the groups with Mann Whitney U test before and after intervention showed homogeneity of group before intervention. After intervention, analysis proves significant improvement in play therapy group compared to sensory integration group (z=2.904, p<0.001).

Conclusion

The results of this study indicate play therapy was more effective than sensory integration therapy in treatment of ADHD.

Key Words: ADHD, Sensory Integration, Play Therapy, Conner's Teacher Rating Scale



Abstract 53

Intra-Observer Reliability Of Static And Dynamic Standing Balance Test In The Children With Down's Syndrome

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Background

The children with Down's syndrome (DS) have specific problems in motor development such as lack of balance, trunk rotation and abnormal movement pattern. At present there is no reliable standing balance measure to quantify balance ability in the children with DS.

Objective

The aim of this study was to determine the intra-observer reliability of timed static and dynamic single limb standing balance measurements in the children with Down's syndrome.

Methods

Nine children with DS, ages ranged from 9 to 17 years were conveniently selected from recognized Special School. The anthropometrics of the children recruited were measured. This study used a repeated-measures design. One rater measured single standing balance, including timed eyes-open static (EOS), eyes-closed static (ECS), eyes-open dynamic (EOD), and eyes-closed dynamic (ECD) balance and the test repeated three time with a week interval. Dynamic balance was measured on a foam surface. Intra-observer reliability was reported as intra-class correlation coefficient (ICC) and cronbach's alpha (α).

Results

Descriptive statistics of the sample recruited has a mean age of 13.4 ± 2.9 years, height of 144.6 ± 6.3 cm and weight of 39.4 ± 11.3 kg. ICC value ranged from 0.85 to 0.96 for the entire static and dynamic standing balance test and cronbach's alpha (α) ranged from 0.88 to 0.97.

Conclusion

Timed static and dynamic balance test is an appropriate and highly reliable clinical measurement for use in children with DS.

Key Words: Abnormal Movement Pattern, Assessment, Base Of Support, Center Of Gravity, Motor Skills, Postural Control



Abstract 54

A Study to Find Correlation between Body Mass Index and Endurance in School Children

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Background

The prevalence of childhood obesity is increasing in India. The adverse health consequences of adult obesity are well documented, but are less certain for childhood obesity. Some of the obese children are active; some obese children are reduced in activity and lazy. This study was conducted to know the actual relationship between body mass index (BMI) and endurance. Objective of this study is to determine the correlation between BMI and endurance in school children aged between 15 and 17.

Method

574 school children were selected from 7 schools in Chennai by simple random sampling method between the age group of 15 and 17. The children were assessed for height and weight to calculate the BMI, and the distance covered 6 minute walk test (6MWT) for endurance evaluation. The data were collected and statistically analysed with Pearson correlation coefficient test. The result states that there is a negative relationship between BMI and endurance with R equal to -0.157. BMI and endurance are inversely related to each other.

Conclusion

Correlation between BMI and endurance (distance covered) for the school children in the age group between 15 and 17 are evaluated and reported. There is an inverse relationship between BMI and Endurance.

Key Words: Childhood Obesity, 6 Minute Walk Test, Endurance, Body Mass Index



Abstract 55

Role Of Constrained Induced Movement Therapy On Obstetric Brachial Plexus Palsy

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The need of the study was to determine the applicability of this intervention to Obstetric brachial plexus palsy children, since constrained induced therapy is a new approach to this condition. The risk of Obstetric brachial plexus palsy is markedly reduced with caesarean section, although it does occur. 4 year old female child clinically diagnosed as Erb's palsy (left side) and confirmed with NCV and EMG by a Physician was treated in Physiotherapy OPD. The child had 2nd degree of injury in Narakas scale. The purpose of study was explained to the child and its parent voluntary decision to participation was asked. The informed consent was obtained. The subject and parents were explained about the effectiveness and result of CIMT. The subject was treated with both conventional and constrained therapy with exercises done in clinic and at home. The hand was constrained for a period of 6 hours a day. The treatment duration was 8 weeks. The subject was reassessed to know the outcome after the therapy. The study was to test the feasibility of a treatment program based on the elements of constraint-induced movement therapy (CIMT) to encourage use of the affected arm of a child with obstetric brachial plexus palsy (OBPP), as well as to document clinical changes observed with this intervention. In this study, Pediatric CI therapy produced major and sustained improvement in motoric function in the young child of Obstetric brachial plexus palsy.

Key Words: Constrained Induced Movement Therapy, Cerebral Palsy, Motoric Function



Abstract 56

**Role of Positive Expiratory Pressure Therapy In Outcome Of Respiratory Efficiency
On Post Valve Surgery Cases**

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The aim of the study is to prove positive expiratory pressure (PEP) therapy for respiratory efficiency in post operative valve surgery patients. Sixty adult post-operative patients who have undergone cardiac surgery in Madras Medical Mission Hospital were included in the study after informed consent and local ethical clearance and randomly allotted in to experimental and conventional groups. In this study subjects were treated for three phased pulmonary rehabilitation method. The therapy was given all three phases of pulmonary rehabilitation program which includes postural drainage, chest percussion, PEP therapy, incentive Spirometry, relaxed deep breathing exercise, mechanical vibration, cough and huff. The subjects in the experimental group who received PEP therapy and graded pulmonary rehabilitation showed reduced intensive care unit stay and hospital stay compared to those subjects in the conventional group. Statistically significant difference was found in PEP group in all pulmonary values with $p < 0.001$ in first phase of rehabilitation. PEP devices have been shown to be better than conventional methods to improve bronchial hygiene and to improve the pulmonary function in post-operative valve patients. The decision to use PEP devices should be made on the basis of other factors like cost effectiveness which needs to be analyzed.

Key Words: Positive Expiratory Pressure, Pulmonary Rehabilitation, Post Valve Surgery



Abstract 57

Relationship Of BODE Index To Daily Living Activities And Upper Limb Strength In Chronic Obstructive Pulmonary Disease

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Background

Chronic Obstructive Pulmonary Disease (COPD) is a progressive disease that reduces functional capacity, deteriorating the ability to perform activities of daily living (ADL). A close relationship between morbidity and mortality with functional limitation is observed in patients with COPD. Objective of the study is to determine correlation between the BODE Index and variables assessed during the ADL and grip strength.

Methods

Sixty six patients in the age of 55±10 years with COPD GOLD 1 to 4 recruited by convenience were submitted to the following tests: spirometry, body mass index (BMI), the London Chest Activity of Daily Living (LCADL) scale, six-minute walking test (6MWT), the Medical Research Council scale and the BODE index was calculated. The total score and the percentage of the total score LCADL were compared between patients of the four quartiles of the BODE.

Results

The eta coefficients showed the strength or the measure of associations with the BODE Index and the Age, Grip strength and LCADL. Spearman's correlation coefficient showed statistically significant inverse association between Grip strength and LCADL with $p < 0.05$. There was statistically significant difference between the quartiles as determined by ANOVA ($F(3,62)=7.804, p < 0.001$). A Dunnett's T3 post-hoc test revealed that LCADL was significantly lower in the higher quartiles. There was significant difference between the quartiles as determined by ANOVA ($F(3,62)=21.449, p < 0.001$). A Dunnett's T3 post-hoc test revealed that Grip strength was statistically significantly lower in the higher quartiles. All the quartiles were significantly different and very highly significantly decreased for the higher quartiles.

Conclusion

ADL limitation and Hand Grip Strength Test has a strong association with the BODE index in patients with moderate to severe COPD and with three of the four variables that composes it. This suggests that these tests can be employed as predictors of physical exercise capacity, perhaps as complementary tests to the BODE Index.

Keywords: Chronic Obstructive Pulmonary Disease, Dyspnea, Activities of Daily Living, Mortality, Hand Grip Strength, BODE Index



Abstract 58

Impact of Body Mass Index and early chest physiotherapy on Lung Function following Coronary Artery Bypass Graft

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Background

Extremely thin (BMI < 18.5) and overly obese (BMI > 30) patients may not tolerate cardiac surgery as well as other patients. They respond differently in hospital inpatient cardiac rehabilitation. Extremely lower and extremely high body mass index (BMI) has been discussed as a substantial risk factor for postoperative pulmonary complications after cardiac surgery. The exact relationship between BMI and postoperative pulmonary complications has not yet been defined. Objective of the study is to find out the relationship between BMI and pulmonary function test values and Arterial Blood Gas Values following CABG.

Methods

Patients posted for CABG are and divided in to 4 groups based on the BMI, each group containing 100 patients. After the surgery Phase I cardiac rehabilitation was administered, ABG and chest X ray is analyzed daily till the fourth day. Pulmonary function tests were performed preoperatively and on the 7th postoperative day. The values were analysed and compared among the groups.

Results

The Forced Vital Capacity (FVC), Forced Expiratory Volume in 1second (FEV1) and Vital Capacity (VC) reduced significantly in all the groups post operatively. The pulmonary function test values and ABG values of Underweight (p= .001) and Obese group (p=.001) reduced significantly postoperatively when compare to the other groups.

Conclusion

There is marked reduction in FEV1 values in underweight and obese groups when compare to the FVC and VC, that shows the restrictive pattern of lung disease in underweight and obese groups.

Keywords: Body Mass Index (BMI), Chest physiotherapy, Coronary artery bypass graft (CABG), pulmonary function test.



Abstract 59

**A Study On Influence Of Thoracic Self Mobilization Technique In Lung Function
Among Normal Subjects**

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Background

Reduction in lung function may be due to thoracic spine motion and costochondral joint restriction might affect the functions of respiratory system. Joint mobilizations are indicated when hypo mobility of a joint is identified and that may influence in improving lung function. However, the impact of thoracic spine self mobilization technique on improving lung function among normal subjects awaits clinical trial. Objective of the study is to find the effectiveness of thoracic spine self mobilization technique on improving lung function among normal subjects.

Methodology

Design Pre and Post test experimental study design all the subjects were taken from SRM College of Physiotherapy, SRM university 30 subjects are included in this study both male and female. All subjects were evaluated to rule out cardio pulmonary, musculoskeletal and neurological deficit. They underwent Maximum inspiratory pressure (MIP) and maximum expiratory pressure (MEP) following which they underwent self mobilization technique to thoracic spine. After the mobilization, lung functions were measured once again using MIP and MEP. Pre and post values were compared.

Results

Data collected was analysed with 95% of confident interval using Wilcoxon signed rank test revealed a statistical significance of increase in MIP Post over MIP Pre $Z = -3.373$, $p = 0.001$ with a medium effort size $r = 0.43$. Similar statistical significance of increase in MEP Post over MEP Pre $Z = -4.39$, $p > 0.01$ with a large effect size $r = 0.57$. Above non parametric test was based on extrapolation of test of normality.

Conclusion

There was a measurable significant improvement in testing variables by self thoracic mobilization.

Key words: lung function, thoracic self mobilization, MIP, MEP



Abstract 60

Effects Of Body Position On Peak Expiratory Flow Rate In Chronic Obstructive Pulmonary Disease

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Background

Chronic Obstructive Pulmonary Disease (COPD) is the second most common lung disorder. Respiratory mechanics of COPD is altered. Changes in lung volumes & biomechanics leads to weak & ineffective expiratory manoeuvres. Objective of this study is to find the effect of body position on peak expiratory flow rate (PEFR) in COPD patients.

Methodology

40 COPD subjects above the age of 45 years were selected through purposive sampling. The subjects were placed in seven different positions namely Standing, Chair sitting, Long sitting, Semi fowler's position, Supine, Side lying, Head down. Following this the subject performed three tests of PEFR with intermittent rest period as preferred by the subject between each trial.

Results

PEFR achieved by subjects with COPD were significantly affected by body position. Standing (161.82) led to results which were significantly higher than all other positions followed by chair sitting (150.079), long sitting (141.495), semi fowler's position (136.746), supine lying (126.829), side lying (120.162) and head low position (107.829) led to results which were significantly lower than all other positions.

Conclusion

PEFR is more in standing and Head down position has the lowest PEFR value. So this study suggests that patient should be placed in an upright position while giving expiratory training & Different techniques of airway clearance.

Key Words: COPD, PEFR, Body Positions



Abstract 61

Efficacy Of Proprioceptive Neuro Muscular Facilitation On Pulmonary Functions In Post CABG Patients -An Experimental Study

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The presences of angina and confirmed reduction in vascularity of myocardium with signs of ischemia are taken as indication of coronary artery bypass grafting. The evolution of cardiac surgery has made median sternotomy one of the gold standard incisions. Though generally considered as this incision with least complications, the post-operative period records morbidity due to splinting. The use of anaesthesia, blood loss coupled with restricted mobility and pain due to the incision primarily effects the oxygen transport leading to suboptimal mucociliary escalation, decreased lung volumes and capacities and increased work of breathing. Objectives of this study are to reduce the postoperative morbidity, to analyze the effects of Proprioceptive neuromuscular facilitation, to improve the pulmonary functions, to reduce pain and to improve posture. 36 patients operated for CABG with in age limit of 50 - 65 years were randomized into two groups. One group underwent purely conventional physiotherapy and other group underwent conventional physiotherapy along with PNF. The treatment session was conducted in CVICU/ cardiac wards for 30 minutes daily. The resultant variables measured on 3rd, 7th day are recorded. Data was analyzed using SPSS for window version. Dependent t-test and Independent t- test is used to analyze whether they show any significant results within and between groups. Level of significance is set at $P < 0.05$. There was statistically significant difference in FVC, FEV1, PEFR, FEF, PIF and VAS. Within treatment analysis showed PNF was effective in increasing pulmonary functions and reducing pain. The result of the study indicates that PNF along with conventional physiotherapy is effective in increasing the lung functions and reducing pain. This technique can be used in post CABG patients according to patient's and physiotherapist's preference.

Key Words: Coronary Artery Bypass Grafting, Proprioceptive Neuromuscular Facilitation, Conventional Physiotherapy



Abstract 62

Effect of Individualised Structured Exercise Protocol for Post CABG Patients with Type II Diabetes Mellitus in a Modified Short Term Phase II Cardiac Rehabilitation

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Background

For post Coronary Artery Bypass Grafting (CABG) Patients phase II Cardiac Rehabilitation is paramount important to get back to normal life style with improved cardio respiratory endurance and Functional Activities of Daily Living (FADL). Phase II Cardiac Rehabilitation spans from 2nd week of post CABG to 12th week. In India it is emerging concept even though this has been a well-established concept. Thus we administered a modified short term Cardiac Rehabilitation Program once the Patients have been discharged from the concern Hospital.

Objectives

To analyse the effect of Individualised Structured Exercise Protocol for Post CABG Patients with Type II Diabetes Mellitus in Modified Short Term Phase II Cardiac Rehabilitation.

Methodology

50 Post CABG Patients referred from Apollo Super Speciality Hospital, Madurai were included in this study with referrals. Study has been conducted in Live Well Life Care Cardiac Rehabilitation Centre, Madurai. 6 Minute Walk Test as a field test was administered to the Patients to get the Cardio Respiratory Endurance level of the Patients. Based on the results Individualised Structured Exercise Protocol with aerobic exercises with Treadmill Walking and Static Bicycling were given for minimum 6 days with two 30 minute sessions per day. Pre and Post Exercise Capacity in METs, 6 Minute Walk Test Distance in meters and Energy Expenditure in calories were measured and documented for statistical analysis. Descriptive Statistics was done with SPSS 20 version for windows.

Results & Conclusion

Statistically significant difference was shown in Exercise Capacity in METs, 6 Minute Walk Test Distance in meters and Energy Expenditure in calories with $p \leq 0.001$. Individualised Structured Exercise Protocol for Post CABG Patients even for a shorter period of 6 days with 12 sessions will be helping the patients to recover quickly and get improved Cardio respiratory Endurance and FADL.

Key Words: CABG, Individualised Structured Exercise Protocol, Short Term Phase II Cardiac Rehabilitation.



Abstract 63

Effectiveness Of Phase II Cardiac Rehabilitation On VO₂ Max And Rate Of Perceived Exertion In Post CABG Population - A Randomised Control Trail

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Cardiac rehabilitation after coronary artery bypass graft (CABG) increases physical fitness, improves the quality of life and decreases cardiovascular mortality. It also helps return to work safely in a timely manner. Dynamic endurance aerobic activities are the basis of cardiovascular rehabilitation programs. Objective of this study is to evaluate the VO₂ Max and rate of perceived exertion in subjects with CABG during phase II cardiac rehabilitation. 30 Male subjects were randomly assigned into two groups. Control group received conventional physiotherapy without any protocol and experimental group received specifically designed cardiac rehabilitation program is given under supervision for two months following CABG. Stastica 7.1 version was used for the analysis of data. There was statistically significant difference on VO₂max and rate of perceived exertion in phase II cardiac rehabilitation in experimental group than in control group with p less than 0.001. This study concludes that there is significant improvement in phase II cardiac rehabilitation on VO₂ max and rate of perceived exertion in phase II cardiac rehabilitation.

Key Words: Cardiac Rehabilitation, VO₂ Max, CABG



Abstract 64

Effects Of Inspiratory Muscle Training In Patients With Bronchial Asthma

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Background

Asthma is the chronic inflammation causes an associated increase in airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. Many asthma patients develop weakness of chest and diaphragm muscles that are used to inspire air, and this sometimes contributes to chronic shortness of breath, or an impaired capability to exercise or otherwise exert them selves. Loss of inspiratory muscle strength could occur in asthma. So this study is aimed to find out the effect of Threshold Inspiratory Muscle Training (IMT) techniques in Asthma patients to improve the inspiratory muscles strength, endurances and quality of life.

Methodology

20 individuals were selected based on the inclusion and exclusion criteria using simple random sampling techniques. Informed consent was obtained from all participants .The level of FEV1 was measured using spirometry, PEFr was measured using spirometry, Six minutes walk test was measured and recorded and administrated as a pretest and inspiratory muscle training was given by using Threshold IMT.

Results

The mean score of FEV1 in pretest is 59.69 was significantly higher in posttest 68.47 ($p < 0.001$). The mean score of PEFr in pretest 61.30 was significantly higher in posttest 68.79 ($p < 0.001$). The mean score of six minute walk test in pretest 269.90 was significantly higher in posttest 285.58 ($p < 0.001$).

Conclusion

Inspiratory muscle strength training in patients with Bronchial Asthma showed increase in inspiratory muscle strength, endurance and quality of life.

Key Words: Bronchial Asthma, Inspiratory muscle training, Threshold IMT



Abstract 65

Effect Of Flutter With Active Cycle Of Breathing Technique In Patients With Chronic Obstructive Pulmonary Disease

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Background

Chronic obstructive pulmonary disease (COPD) is a disease state characterised by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases. COPD is a major cause of morbidity and mortality. In COPD, patients will have more secretion in the lung; there are so many techniques to maintain lung hygiene. Objective of this study is to compare the effects of flutter with active cycle breathing techniques (ACBT) in COPD patients.

Methodology

20 subjects were selected using simple random sampling technique and allotted to Group A and B. Group A performed with flutter and Group B with ACBT. The outcome measures were FEV1 measured by using spirometer, pulse oximeter for SaO₂ and dyspnoea were recorded by using Brog scale in pre and post-test in all participants.

Results

Mean FEV1 score of 74.89 in the Group A was significantly higher compared to 57.68 in the Group B ($p < 0.001$). The mean SaO₂ score of 97.4 in the Group A was significantly higher compared to 80.37 in the Group B ($p < 0.001$). The Group A mean value of modified Borg scale was 0.975 which is significantly lower than the Group B mean of 2.242 ($p < 0.001$).

Conclusion

Using flutter device is more effective for bronchial hygiene than ACBT in patients with COPD.

Key Words: Flutter, COPD, ACBT



Abstract 66

Influence Of Breathing Pattern On Blood Pressure, Heart Rate During Isometric Quadriceps Exercise

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Background

Breathe holding during exercise put unnecessary load on heart. One of the ways to resolve this problem is doing exhalation during contractive phase of exercise. Aim of this study is to find out the effectiveness of pattern on breathing instruction, while performing isometric quadriceps exercise on Blood Pressure (BP) and Heart Rate (HR) using digital sphygmomanometer in young males.

Methodology

Thirty five healthy young males were selected. Their resting HR & BP was recorded. They were made to perform quadriceps isometrics of 2 sets & 5 repetitions with knee 45⁰ flexion. The first set was performed without any instruction on breathing pattern whereas the latter set was performed with instruction on breathing pattern. During the performance of both sets the HR & BP was recorded at the hold time of 5th repetition. The heart rate and BP recorded at rest (1st measurement), while doing exercise without breathing instructions (2nd measurements), while doing exercise with breathing instructions (3rd measurements) were statistically analysed using ANOVA and POST HOC methods.

Result

The 'F' value for ANOVA was 35.159 with a corresponding 'P' value of 0.001, POST HOC comparisons were also made. Hence, there was a significant variation in three readings of blood pressure measuring at different times. There was significant drop in systolic and diastolic blood pressure, mean difference was 3.31 for systolic and 2.14 for diastolic BP when isometrics was performed with breathing instructions than without breathing instructions. But there was no difference in heart rate ($P > 0.05$) between the exercise performed with and without breathing instructions

Conclusion

Practice of breathing instructions during isometric exercise reduces systolic and diastolic blood pressure significantly in comparison with exercise performed without breathing instructions. Hence inclusion of breathing practice while performing isometric training will be highly beneficial to prevent increased demand on cardio vascular systems.

Key Words: Blood Pressure, Isometrics, Heart Rate, Breathing Practice



Abstract 67

Visual Deprivation - An Effective tool to retrain somatosensory system and Motor function in Sub Acute Stroke individuals

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Back Ground

The visual dependence of hemiplegic individuals may originate from a failure of integrated function of balance due to perceptual alteration of proprioceptive sensation caused by motor paralysis after Brain damage. A study reveals that 83% of the Stroke patients have balance disability. In that 7-53% has impaired tactile sensation, 31-89% impaired stereognosis and 34-64% impaired proprioception. The Melinda M Gardner protocol with visual deprivation in Group A and visual cues in Group B were given by 3 times in a week for 2 months, each time carries 30 minutes broken into 3 sessions. To find that the visual deprivation have any impact on the somatosensory and motor function.

Methodology

Quasi-Experimental study in Sub-Acute Stroke individuals with sample of 30 between the ages 40-60 yrs with somatosensory impairment was selected. The base line criteria for selection were above 4/12 in Brunel Balance Assessment. The Group A (15) individuals receives somatosensory retraining with Visual deprivation and the Group B (15) individuals receives somatosensory retraining with Visual cues both on firm and foam surface. Pre and posttest values are evaluated by The Erasmus MC Modification to the (Revised) Nottingham Sensory Assessment for Somato sensation and Brunel Balance Assessment and Berg Balance Scale for motor function.

Results and Conclusion

The p value within Group analysis in Group A is 0.0001 and in Group B is 0.0001. The p value between the group analyses is 0.0146 which states Group A shows significant improvement than Group B. Therefore this study shows that the somatosensory retraining with visual deprivation shown to be more effective in improving somatosensation and motor function than somatosensory retraining under visual cues.

Key Words: Visual Deprivation, Visual Cues, Somatosensory Retaining, Motor function, Sub-Acute Stroke



Abstract 68

Significance of Early Trunk Intervention Following Stroke - A Systematic Review

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Trunk performance has been proved to be major predictor of stroke outcome. If that is the case early Trunk intervention, to what extent can benefit a subject and what are the various functions that may improve due to early trunk training needs a highlighting, so that physiotherapist can prioritise trunk intervention early in their stroke rehabilitation protocol. A computerised data search was done from The Cochrane Controlled Trials Register, PubMed database, DOAJ (Directorate of Open Access Journal) and Google Scholar. Randomised controlled trials, quasi experimental and Pilot Randomised controlled trials were included with adults with a clinical diagnosis of stroke. Physiotherapy treatment approaches aimed at promoting trunk function after stroke was included. Studies done with 10 or more stroke subjects who received trunk exercises and involving at least one outcome measure pertaining to trunk performance were included. There were 53 eligible articles out of 107 searched articles. Various trunk intervention were used in the included trials like physio ball exercises and plinth trunk exercises, Vibrosphere whole body vibrators, specific trunk movements , trunk muscle training. The major outcome measures used were trunk impairment scale, Brunel Balance Assessment and berg balance scale. This review concludes training trunk early after stroke have resulted in improvement of lower limb function, gait quality, sitting and standing balance, functional status and postural quality.

Key Words: Trunk Training, Trunk Intervention, Stroke Exercises, Trunk Impairment



Abstract 69

Effect of Early Mobilization Training on Gross Motor Function and Functional Outcome in Hemi Paretic Stroke Patients

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Objective

Stroke rehabilitation is designed to help the stroke victim to overcome the disability resulting from brain damage and to enable him or her at physical, psychological, social levels despite the disability that remains after all spontaneous recovery from brain damage is ceased. Early administration of physical rehabilitation following acute stroke may improve the functional mobility of patient. The purpose of this study to evaluate the effect of early mobilization training on gross motor function and functional outcome in hemi paretic stroke patients.

Method

20 ischemic acute stroke subjects of both sexes in the age group of 40-60 years were randomly allocated 2 groups. Patients in Group 1 received conventional physical therapy with mobilization training started after a week of stroke onset. And Patients in Group 2 received Conventional physical therapy with early mobilization training started within 24-48 hours of stroke onset for 2 weeks. The outcome measures used were Motor assessment scale for gross motor function and barthel index scale for functional outcome. Comparing the pre and posttest means there is significant differences exist between early mobilization training started within 24-48 hours and mobilization training after a week following stroke on functional outcome in hemiparetic stroke subjects.

Conclusion

Our results demonstrate that early mobilization had a beneficial and not a harmful effect in the acute stage stroke subjects. Thus this may a simple and effective invention, which will improve the gross motor function in acute stroke subject.

Key Words: Gross Motor Function, Barthel Index Scale, Motor Assessment Scale, Early Mobilistaion Patients



Abstract 70

Effects Of Bilateral Versus Unilateral Motor Relearning Program On Upper Limb Motor Performance And Daily Functions In Hemiplegic Patients

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Objective

To compare the effects of bilateral and unilateral motor relearning program (MRP) on improving motor performance of the upper extremity and also functional gains in patients with hemiplegia.

Method

Experimental study design was used in this study. Patients with hemiplegia who fulfilled the selection criteria were recruited for the study. Inclusion criteria were More than 2 weeks to 25 weeks post onset of first cerebrovascular accident of ischemic or hemorrhagic type, Age group : 40-70 years, No serious cognitive deficits (Mini mental scale score ≥ 24), No excessive spasticity in affected upper limb (Modified Ashworth scale score less than 3 in upper limb), Subjects who are able to sit independently. Exclusion criteria were orthopedic condition in upper limb, Neurological disorder other than stroke. A total of 30 subjects were recruited and randomized into 2 groups. Group A received bilateral MRP with conventional treatment and Group B received unilateral MRP with conventional treatment. Motor Assessment Scale (MAS) to assess motor performance of upper limbs and Functional Independence Measure (FIM) to assess self care activities were used as outcome measures.

Result

The paired t-test analysis showed statistically significant difference ($p < 0.0001$) between the pre test and post test values of group-A and also for group-B. For the outcome measures of MAS and FIM, The unpaired t- test analysis showed statistical difference ($p < 0.0001$) between post test values of group-A and group-B for MAS and FIM.

Conclusion

From analysis of results, it is concluded that the bilateral MRP and the unilateral MRP are effective in improving motor performance and daily functions. The findings also conclude that bilateral motor relearning program is more beneficial than the unilateral motor relearning program for functional motor performance of hemiplegic patients.

Key Words: Unilateral MRP, Bilateral MRP, Hemiplegia



Abstract 71

Identification Of Impediments To Transfer Of Exercise Benefit For Community Participation In Stroke - A Phenomenological Case Series

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Background

Patients with Stroke face difficulties in Activity and Participation domain. Reintegration in community life is a hallmark of successful rehabilitation. Community participation is a major contributor to enhanced physical health and QOL. Although exercises to Stroke patients are targeted in improving activities, participation and overall Quality of life, majority of patients encounter significant participation restriction. Hence, exercise benefits do not directly transfer to these domains. The aim of this study is to explore the factors modulating and mediating the efficacy of exercise into community participation improvements in stroke patients.

Method

The primary data collection method was in depth interview of 3 chronic ambulatory Stroke patients. Reintegration of normal living index was used to identify level of community participation in subjects. An interview guide was prepared for identification of perceived physical, psychological and social factors causing participation restriction. In-depth interviews were conducted, recorded, transcribed, and analyzed.

Results

2 Male and 1 Female Stroke patients participated in the study. Among them 1 patient had higher community integration whilst two others had reduced participation. Goal engagement, family support, fear of fall, self image and societal attitude were few of the modulators of participation restriction. These factors variably influenced each person's level of participation.

Conclusion

Multimodal therapy might be needed to address the gap between physical ability and actual participation levels. This would positively influence the impairment, activity, participation and overall wellbeing cycle. Furthermore, physiotherapists should tailor therapy to individual patients' due to the uniqueness of the mediating process.

Key Words: Stroke, Community Participation, Exercise, Qualitative, Phenomenology, Physical factors



Abstract 72

The Effect Of Epley's Maneuver And Brandt And Daraff Exercises In Benign Positional Vertigo

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The Benign Paroxysmal Positional Vertigo is most common cause of peripheral vestibular disorder. It is characterized by brief period of Vertigo that occurs when subject head moved into specific position usually affected ear down. This condition presents as dizziness or Vertigo of sudden onset in Benign Paroxysmal Positional Vertigo and also includes light headedness, imbalance, and nausea during various activities. An Experimental Trial was conducted at physiotherapy OPD, Saveetha Medical College and hospital, Chennai. 30 subjects with benign Paroxysmal Positional Vertigo were selected by convenient sampling method and they were divided into two groups namely Group A and group B with 15 subjects in each group. Epley Maneuver was given to Group A and Brandt-Daroff Exercise was given to group B. The Epley Maneuver performed once a day, Brandt-Daroff Exercise were performed 2 times a day for four weeks. Dizziness handicap inventory (DHI), Motion sensitivity quotient was used as outcome measures. DHI, Motion sensitivity quotient on comparison between the groups the group A revealed statistically significant result with the mean of 46.5 ± 5.4 and P value is < 0.0001 and group B mean is 34.8 ± 6.6 On comparison between the groups mean value of Group A was 46.5 and Group B was 34.8 and mean difference was 11.7 ± 6.0 which showed that there was significant reduction in Group A when compared to Group B in response to treatment. The study concluded that there was a statistical significant decrease in score of Dizziness Handicap Inventory and Motion Sensitivity Quotient in Benign Paroxysmal Positional Vertigo after Epley's maneuver than Brandt-Daroff Exercise.

Key Words: Benign Paroxysmal Positional Vertigo, Epley's Maneuver, Brandt-Daroff Exercise, Dizziness Handicap Inventory



Abstract 73

Low Cost Partial Body Weight Supported Treadmill Training To Improve Gait After Incomplete Spinal Cord Injury

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The need of the study was to determine the applicability of the low cost body weight supported treadmill training to improve the locomotion in incomplete spinal cord injury (T10 – T12) subject in our clinical set up. 34 year old male had undergone surgery for T10 – T12 fracture stabilization. MRI confirmed the incomplete spinal cord injury at T10 – T12 level. The study was explained to the subject and the informed consent was obtained. The subject was ambulated on a modified treadmill with body weight support accessories three times in a week for 4 weeks along with regular treatment protocol. The subject was reassessed to know the outcome after the therapy. Modified Extended Timed Get Up and Go test was used to assess the speed and functional mobilization with calipers. The study tested the feasibility of the low cost instrument's feasibility and applicability at a rural set up. The low cost body weight supported treadmill training showed improvement in the speed and functional movement in incomplete spinal cord injury.

Key Words: Low Cost Body Weight Supported Treadmill Training, Incomplete Spinal Cord Injury



Abstract 74

Does Fear Of Fall Affect Score Of Forward Reach Test - A Pilot Study

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Background

Forward reach test is a commonly used balance outcome measure. Age, strategies of performance and neurological status found to influence the outcome of this measure. Fear of fall which can influence any balance related measure is not evaluated for its influence on this measure. Hence this study is aimed to understand its impact on forward reach distance in this test.

Methodology

30 subjects (age 54.6 ± 10.2) without any neurological or musculoskeletal conditions affecting the performance of forward reach were recruited. Double arm forward reach was performed with three trials. Fear of fall limiting the performance was questioned with a dichotomous answer. Subjects with forward reach score above and below, including 7 inches were grouped for analysis.

Results

15 subjects reported fear of fall. 8 subjects were in low score group. Odds ratio was calculated. Odd of subject not performing due to fear of fall is 1.71. 95% confidence interval was 0.4 and 7.29, implying the non significance of the effect of fear of fall on results of forward reach test. The calculated p value was 0.46 supporting the lack of statistical significance. The risk of subjects performance affected by fear of fall is only 0.76 (Relative risk).

Conclusion

Sense of fear of fall will not affect the performance in forward reach test. Even though the results were not statistically significant during the procedure it was felt that counseling the subjects regarding the procedure and safety measures is mandatory for optimal performance.

Key Words: Fear Of Fall, Forward Reach Test



Abstract 75

Prediction For Risk Of Fall In Community Dwelling Elderly Population: A Survey

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Background

Balance is a serious day to day problem in elderly people. Degenerative changes in joints and musculoskeletal changes, somatosensory deficits, vision and vestibular disturbances causes difficulty for elderly to maintain and sustain balance with different surfaces. There are some tests to predict fall which can help to assess the balance in details and clinically benefit such subject with proper treatment. Time up and go test and Forward reach test can be used to screen the elderly people for the risk of fall. Aim of this study is to find out risk of fall in elderly and which age group is involved more.

Method

100 Subjects were selected randomly with 50 males and 50 females as per the criteria. Inclusion criteria were age group of 60-80 years, both male and female and willing to participate. Exclusion criteria were subjects with recent illness, recent trauma or injury, any neuro deficit.

Result

As assessed by time up and go test, 14% of subject has risk of fall out of which 6% male and 8% were female and 86% subject did not have the risk of fall. And as assessed by Forward reach test 67% subjects had risk of fall out of which 29% were male and 38% were female and 33% were not having risk of fall.

Conclusion

This study concludes that 71% elderly people were under the risk of fall. And age group of 65-75 years was more at risk of fall.

Key Words: Balance, Fall, Elderly



Abstract 76

**Effects Of A Behavioural Program And Exercise Training On Muscle Strength In
Community-Dwelling Older Persons**

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Background: Muscle strength is an important component of physical fitness, and plays a key role in maintaining physical functioning in older persons. Older persons who present with muscle weakness particularly the upper and lower limbs may have difficulties in performing activities of daily living such as walking and climbing stairs. Exercise training to improve physical fitness may yield only short term effect due to poor compliance to exercise participation. Thus, it is hypothesized that a behavioural program combined with physical exercise may increase their participation thus improve their functional strength. **Objectives:** This study determined the effects of a behavioural program combined with exercise training on muscle strength in community-dwelling older persons. **Methodology:** Sixty-three participants (Age=63.8±4.5 years) enrolled in this quasi-experimental study. They were divided into 3 groups; 1) EBG, performed 6 weeks of exercise training followed by a 5-week behavioural program, 2) EG, performed exercise training similar to EBG, and 3) CG, the control group who continued to be sedentary. Three research assistants who were blinded to the assessment outcomes measured the data for the three groups. Muscle strength [upper limb (30-sec arm-curl test); lower limb (30-sec chair-rise test)] were measured at baseline, 6th, 12th, 18th and 24th weeks. **Results:** Analysis of data showed significant main effect for time factor in right upper limb [$F(1,60) = 11.237, p < 0.01, \eta = .158$] and lower limb [$F(1,60) = 51.634, p < 0.01, \eta = .463$] but not significant for the left upper limb [$F(1,60) = 1.293, p = .260, \eta = .02$]. A significant main effect for group factor was also found for right upper limb [$F(2,60) = 50.058, p < 0.01, \eta = .625$], left upper limb [$F(2,60) = 40.349, p < 0.01, \eta = .574$.] and lower limb [$F(2,60) = 67.465, p < 0.01, \eta = .692$] with the EBG showed the highest improvement in all variables. **Conclusion:** Behavioural program combined with exercise training may yield superior effects on muscle strength compared to exercise training alone.

Key Words: Behavioural Program, Muscle Strength, Older Persons



Abstract 77

Correlation Between Fear of Fall and Proprioception, Functional Mobility, Flexibility, Balance and Ankle Range of Motion in Geriatric Population

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Background & Objectives

Older people who have suffered a fall are at increased risk of falling again. Falls are the leading cause of injury-related hospitalization in persons aged 65 years and over. Many factors were originally considered as possible risk factors for falls based on review of currently available literature. The aim of this study was to explore the relationship between fear of fall and risk factors of falls.

Methodology

This study included hundred older adults subjects, age 65 and above. They were asked to express their overall feel of fear of falling by Visual Analog Scale. Other risk factor variables are assessed and documented by Joint Position Sense test for Proprioception, Time Up and Go test for Functional Mobility, Sit and Reach test for Flexibility, Berg Balance Scale for Balance and Goniometric assessment for Ankle Range of Motion.

Results

The study reveals fear of falling has a strong negative correlation with balance ($r = -0.85$, $P < 0.001$), ankle dorsiflexion ($r = -0.54$, -0.56 , $P < 0.001$), flexibility ($r = -0.52$, $P < 0.001$) and small negative correlation with ankle plantar flexion ($r = -0.28$, $P < 0.05$). The functional mobility and proprioception have a strong positive correlation ($r = 0.732$, $P < 0.001$) and moderate positive correlation ($r = 0.45$, $p < 0.001$) with fear of falling respectively.

Conclusion

This study concludes that the fear of fall in older adults is strongly associated with balance, flexibility, ankle range of motion, functional mobility and proprioception

Key Words: Fear of Falling, Older Adults



Abstract 78

Effects Of Balance Training On Foam Platform Vs On Floor In Geriatric Population

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Background

Balance training exercises are beneficial for improving balance and reducing the risk of fall in elderly people. This study aimed to find out and compare the effect of balance training on foam platform and on floor. Objective of this study is to find out and compare the effect of balance training on foam platform and on floor in geriatric population.

Methodology

22 geriatric subjects aged above 60, of both gender were participates in this study with their informed consent. The subjects were equally divided into two group, Group A and Group B. Group A subjects were received balance training on foam platform and Group B subjects were received balance training on floor for 30 minutes, 5 days a week, for a period of 4weeks. All the subjects dynamic balance were assessed by using Functional Reach Test (FRT) on first and final day of training. The FRT values are statistically analysed to find out the effect of balance training on foam platform and on floor.

Result

Both Group A (t value 18.84, $p < 0.05$) and Group B (t value 7.95, $p < 0.05$) subjects shows statistically significant improvement in their FRT scores. Group A shows significantly better improvement in their FRT scores compared to Group B participants, with t value of 4.388 and a significant $p < 0.05$.

Conclusion

Based on this study, it has been concluded that although both balance training on foam platform and balance training on floor shows improvement in balance in elderly adults, balance training on foam platform shows greater improvement than balance training on floor.

Key Words: Balance, Measuring Tape, FRT, Foam Pad



Abstract 79

Effectiveness Of Dual Task Training On Improving Balance In Young Old Elderly Adult

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The objective of the study is to enlighten the effectiveness of single task and dual task on balance training in young old elderly adults. 30 young old elderly adults with balance impairment of both gender with the Berg balance score of 52 or less and a Mini Mental State Score of 24 and high and who were able to walk 10 m without assistance were included in the study. Subjects with previous history of Cerebro - vascular accident, medical or surgical history of lower extremity diseases, neurological conditions like Parkinson's disease, Vestibular dysfunction, Postural hypotension were excluded from the study. Samples of were divided into two groups, Group A and Group B with 15 patients each by closed envelope method. They were assigned to single task and dual task training respectively. The paired and unpaired t tests were used for intra group and inter group analysis by SPSS. The results showed significant improvements in within group analysis. Inter group analysis showed insignificance Balance training in elderly population could be done with single task and dual task training. There were no significant changes between group results.

Key Words: Single Task, Dual Task, Berg Balance Scale



Abstract 80

Awareness Of Legislative Issues On Disability Among Physiotherapists – Cross Sectional Survey

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Introduction

A disability is restriction or lack of ability to perform an activity in a manner or within the range considered normal for a human being. The prevalence of disability is 7 per 1000 live births in India. 20% are not aware about the legal issues for person with disability in developing countries. It has never received adequate attention from physiotherapists or any other professionals. Ignorance, lack of awareness and lack of knowledge make the disability invisible. Most of the authorities appointed the legislation are not fully functional. Objective of this study is to find out awareness of legal rights of person with disability among physiotherapists to ensure dignity and legal rights.

Methodology

A Cross sectional survey was conducted among working physiotherapists (BPT/MPT) in Surat, who are volunteering to participate in survey after signing informed consent form. A total of 281 physiotherapists surveyed among which 264 physiotherapists responded. Survey was conducted through schedule method with a questionnaire about disability and acts (Person with disability act, mental health act, united nation convention of person with disability and national trust act) of Indian constitution including awareness. The questionnaire consisting of 20 questions about these acts were content validated for these purpose. The data were analyzed by using percentage values to make interpretation.

Results

Out of 264 surveyed 22.32 % did not know about the Indian constitution for disabled people. Remaining 77.68 % knew about the acts but never approached for legal rights for person with disability.

Conclusion

The awareness about legislation among physiotherapists is less and needs immediate attention to improve quality of life and rehabilitation of persons with disabilities.

Key words: Physiotherapists, Person With Disability, Legal Rights



Abstract 81

Educating Patients With Arthritis: Experiences Of Accredited Social Health Activists In Rural India

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Background

Educating patients with arthritis is the main stay of long term management in rehabilitation. Medical professionals in India are not actively involved in arthritis education in the community because of time constraints and accessibility issues. Reaching the community through the Accredited Social Health Activists (ASHAs) is the plan of action presently operational in India. There is a need to explore the barriers these community health workers might face while implementing an educational program before using them extensively at national level. Objective of the study is to identify the experiences and barriers faced by ASHAs while implementing a patient education program for adults with arthritis.

Methodology

A conceptual framework was developed based on which three focus group discussions of ASHAs were conducted in two geographically similar villages. The data was transcribed and analysed using inductive coding. Themes, categories and codes derived from focus group discussions were established.

Results & Conclusion

The study involved capacity building of the people with arthritis and community mobilization through training of ASHAs who functioned as stakeholders for these people. A qualitative study helped us to have an in-depth insight into the problems while implementation of the program. The main problems experienced by ASHAs are poor accessibility to community, lack of incentives, negative attitude of patients towards ASHAs and lack of on-field demonstrations and. The problems can be rectified in future studies or during community practices by various rehabilitation professionals. We found training ASHAs will help in large-scale implementation of programs and ensure long-term reinforcement, thereby increase adherence and improve functional status among individuals with arthritis. Community rehabilitation professionals can identify the requirements in their vicinity and implement programs that are simple by involving ASHAs.

Keywords: Community, Patient Education, ASHA, Exercises, Older Adults, Barriers



Abstract 82

A Review on Perspectives of Para-Athletes: The Unknown Heroes of India

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Background

Wheel chair bound paraplegics spend a sedentary life and one hesitates to assign vigorous physical exercises to them, owing to their many physiological handicaps. Need for recognition and inclusiveness has always been a struggle for differently able body. Even with disadvantages faced by paraplegics, their great enthusiasm in wheelchair sports has highlighted their benefits on physical, immunological, and psychological aspects. Failure of recognition of wheelchair athletes has led the future of wheelchair sports at jeopardy. Objective of the study is to highlight on the benefits, precautions and feasibility of wheelchair sports in India.

Methodology

A systematic search was conducted on Medline for articles published from 2000 until September, 2013. Three reviewers selected the articles based on title and stratified as per the objectives of the review. All the articles were quality rated separately by the reviewers. Limited articles were found on Indian scenario. Hence information was collected from various grey literatures.

Results

There is a huge dearth in literatures published on Para-athletes from India compared to Western countries. The benefits, precautions and feasibility of wheelchair sports in India will differ from other countries due to factors likes lack of resources, climatic conditions, etc. Few issues faced by Indian athletes with disability are unavailability of wheelchair lanes, only architectural modification done at public buildings are ramps, expensive training equipments and aids. A major setback in India is that the focus is only on upper class disabled like army veterans. Various beneficial factors and precautions have been enumerated.

Conclusion

The review shows that there is a need for research on Indian athletes with disability. Each athlete with disability has some specific needs for sports participation. Rehabilitation professional roles are to mobilize resources, develop barrier free environment, train and provide less expensive aids and appliances for sports.

Keywords: Disability, Spinal Cord Dysfunction, Wheelchair Sports, Wheelchair Athlete, Paralympics



Abstract 83

Employee Fitness Program For Auto Rickshaw Drivers: A Feasibility Study

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Background

Commercial drivers are exposed to various health risks like addiction, occupational stress, pollution, and work-related musculoskeletal disorders. In the recent years, there has been a huge inflation of auto rickshaws in India and the younger generations are opting it as profession. A major challenge lies in taking health care facilities like worksite wellness programs to these people. Objective of the study is to determine the health profile of auto rickshaw drivers and feasibility of conducting worksite wellness programme for them.

Methodology

The health profiles of 139 drivers were collected using a pre developed questionnaire. The questionnaire was based on health issues in drivers as reported in previous studies. Worksite wellness programs were then conducted at various auto rickshaw stands and at a community health centre. The program included relaxation techniques, stretching, strengthening, endurance exercises for large muscle groups, aerobics, de-addiction strategies, and dietary habits. Feasibility was determined using percentage adherence to the program using log book.

Results

The analysis showed 65.25% of study participants complained of musculoskeletal pain, the highest being back pain (35.69%). Other commonest ailments reported were gastritis, diabetes mellitus, hypertension, ocular problems. 31.35% of participants are addicted to various forms of tobacco. More than 60% adherence was achieved after 3 weeks of training program.

Conclusion

Worksite wellness programs have always concentrated on sedentary workers like computer professionals. But it is challenging to include commercial drivers like auto rickshaw drivers who spend almost 12 hours in job and have no rest sessions. The programs can be included as a part of outreach program making it more feasible. The strategies and techniques should include materials available within their working environment.

Keywords: Drivers, Pain, Stress, Worksite Wellness Program, WRMSDS, Fitness



Abstract 84

Awareness about Physical Activity of School Going Children among Primary School Teachers in Moodbidri, Karnataka: A Qualitative Research

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Background

Childhood obesity has become the major concern in developing countries. Sedentary lifestyle and behavior patterns are found to be the main cause of obesity. The risk factors from obesity such as hypertension, diabetes mellitus are prevalent among the young generation. These risk factors affect a child's physical and psychological conditions at a very young age. In order to minimize these risk factors, Government is taking interventions to control the obesity through the help of various schools. Teachers in primary schools play a major role in influencing the actions of a child. The objective of the study is to determine the awareness about physical activity and school health programs among primary school teachers.

Methodology

A qualitative study was carried out at primary schools in Moodbidri, Karnataka. The schools were categorized into government, government aided and private schools and the teachers from each school were grouped into homogenous convenience samples. 8 focus group discussions of teachers were conducted. The discussions were then transcribed in Kannada and analyzed using inductive coding to develop themes, categories and codes.

Results & Conclusion

The teachers though were aware about the alarming rise in childhood obesity in India but they did not consider it as a major health problem. Few major concerns reported were an increase in burden, small playgrounds, unavailability of physical education teachers and parents' role. A qualitative analysis helped us to get a detailed knowledge about the awareness and concerns of primary school teachers in increasing physical activity. A teacher can play a substantial role in motivating a child for increased physical activity. Physiotherapists can educate, train and provide assistance to teachers and help alleviate the future health risks among children.

Keywords: Children, Childhood Obesity, Playground, Schools, Physical Fitness



Abstract 85

Prevalence Of Central Obesity Among The South Asian Physiotherapy Students

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Background

Central obesity is a major modifiable risk factor for non-communicable diseases such as diabetes, hypertension and stroke. Physiotherapists have a key role in modifying central obesity. But they are not aware how many of them are obese. The objective of this study was to report the prevalence of central obesity among south Asian physiotherapy students.

Methods

The cross-sectional study was carried out on 263 physiotherapy students, comprising both under graduate and post graduate students from four physiotherapy colleges. The study was conducted in the month of September, 2013. The recruited subjects were screened for central obesity using the anthropometric measurements including height, weight, waist circumference (International Diabetes Federation recommendations for Asians), hip circumference, Neck circumference (NC), Waist to hip ratio (WHR) and waist-to height ratio (WHTR), Body Adiposity Index (BAI) and Body Mass Index (BMI). The mean and standard deviation (SD) of the above data were analysed for continuous variable and relevant proportions were reported for qualitative data.

Results

The prevalence of central obesity using waist circumference is 14.28 %. In male and female it is 11.47% and female 17% respectively. Using WHR central obesity is 17.34% while in male and female it is 17.24% and 15.78% respectively. In terms of NC central obesity is 14.79% overall and in male and female it is 19.67% and 15.8% respectively.

Conclusion

Approximately 20% of male and 18% of female physiotherapy students are central obese.

Keywords: Abdominal Obesity, Incidence, Obesity, Neck Circumference, Physical Therapy, Waist Circumference



Abstract 86

Role Of Exercise Intervention On Health Benefits During Gestational Diabetes Mellitus

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Background

Women attain numerous benefits from physical activity during pregnancy. However, because of physical changes that occur during pregnancy, special precautions are also needed. Studies have investigated the effect of exercise during pregnancy and maternal and neonatal health outcomes. Very few studies have provided insights about perceptions of being active during pregnancy in the overweight and obese population. There is a need for a detailed description of physical activity patterns during pregnancy in women. This study is aimed to examine the effect of regular moderate intensity exercise on gestational diabetes mellitus (GDM).

Methodology

A total of 10 subjects with primigravida 2nd trimester to beginning of the third trimester with GDM eligible to undergo exercise intervention were included in the study who are referred by department of obstetrics & gynecology. The outcome measures used were Blood Pressure, Heart Rate, VO₂ max and Oral Glucose Tolerance Test. The subjects were prescribed with warm up exercises, aerobic exercises for 20 minutes at room temperature and 60 -65% of VO₂ max. This was followed with cool down exercises for 3 times /wk for 4 weeks for 50 mins/ session.

Results

Resting VO₂ (mL.kg-1.min-1) was approximately 6.5% greater during pregnancy compared with after exercises with a $p < 0.05$. The VO₂ HR was used to measure the O₂ uptake which showed significant differences at rest and after activity. The flex HR was considered which is determined by averaging the values during the lowest exercise intensity and the highest value during rest. Statistical analysis for the OGTT was determined which showed $p < 0.001$ as compared in the pretest levels.

Conclusion

This study shows that exercises has significant improvement in the production of insulin even the exercise was of short duration intervention as the glycemic control was comparatively at a less score than in the pretest levels.

Key Words: Pregnancy, Physical Activity, Intervention, GDM



Abstract 87

Awareness Of Urinary Incontinence In First Trimester

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Introduction

Incontinence has been defined as the involuntary or inappropriate passing of urine or feces or both that has an impact on social functioning or hygiene. Pregnancy, childbirth, diabetes and increased body mass index are associated with an increased risk of Urinary incontinence. Urinary incontinence was seen in 25.8% women during pregnancy as compared to 8.2 % prior to pregnancy as per study. Since we are moving from treatment of illness to promotion of health at individual and community level. Women are not willing to seek treatment due to embracement they feel when talking about the problem. Thus it is important to assess awareness regarding Urinary Incontinence. Objective of this study is to find awareness of urinary incontinence in 1st trimester

Methodology

This was a cross sectional survey based study carried out among 60 primigravida first trimester in reproductive age group which were selected by purposeful sampling. Subjects were assessed for awareness by a self made questionnaire which was pre tested for reliability and validity.

Result

From this study, it is revealed that the total number of women having awareness is very less, 86.66 % females are thinking that after pregnancy incontinence will get control.

Conclusion

This study concludes that urinary incontinence is common problem need to create awareness among 1st trimester primigravida women to prevent further complications.

Key Words: Awareness, Urinary Incontinence



Abstract 88

Efficacy of Pelvic Floor and Core Exercise for Primary Dysmenorrhea in College Students

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Background

Primary Dysmenorrhea is one of the most common complaints and gynaecological problem worldwide among young females. Objective of this study is to find the efficacy of pelvic floor and core exercise for primary dysmenorrhea in college students in reducing pain.

Method

30 college students randomly selected based on selection criteria. Pretest is done using VAS scale to measure pain on the first day of menstruation, which is followed by exercise prescription. Exercise consists of pelvic floor exercise with core exercise which is done for duration of 45 minutes daily till the onset of next menstruation. Post test is done on the first day of the menstruation.

Result

The statistical analysis was done by statistician. From the value of pain evaluated using visual analogue scale the pre-test mean for the group was calculated to be 5.9032 and the post-test mean was calculated to be 3.7097. The mean difference from the above mentioned values is then 2.1935. From the Pre-test and Post-test values, using paired “t” test the calculated “t” value for VAS was 5.8934, at $p < 0.000$ at 0.05 value of significance.

Conclusion

Pelvic floor exercise and core exercise is an effective non-pharmacological, non-invasive therapy which helps in pain reduction in Primary Dysmenorrhea.

Key Words: Primary Dysmenorrhea, VAS Scale, Pelvic Floor and Core Exercise



Abstract 89

An Observational Study on the Pattern of Mobility Loss in Shoulder Following Modified Radical Mastectomy and Radiotherapy

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Breast cancer is the most common type of Cancer constituting more than 40% of total diagnosis. Following surgery (MRM), Chemotherapy and Radiotherapy; a routine basis of treatment is continued. Positioning for radiotherapy (RT) irradiation is a challenge, owing to the loss in shoulder mobility. Survivors who manage with difficulty end up with permanent stiffness after RT due to fibrosis. This study focuses on the pattern of mobility loss in the survivors, and if an early physiotherapy (PT) intervention can reduce mobility loss and gain functional ability in post MRM Patients. Objective of this study is to study the Pattern of loss of mobility in shoulder following MRM and RT. 40 patients (Post MRM) with a mean age of 47 ± 5 years referred to PT section JIPMER Hospital, on random basis were evaluated thoroughly for mobility loss (ROM) by Bubble inclinometer along with Functional disability evaluation by Disabilities of the arm, shoulder and hand (DASH) questionnaire. These patients were followed up after RT for re-evaluation of mobility and functional disability scoring following three weeks of PT regime with mobilization and positioning. The pattern of mobility loss and DASH questionnaire scoring were Re-evaluated and analyzed. Results showed that there was a significant loss of mobility, along with a reduced functional ability. It may be concluded that there is a significant loss of ROM in the order of abduction, flexion and external rotation on the ipsilateral shoulder associated with functional disability involving overhead movements.

Key Words: Breast Cancer, Shoulder Mobility, Post MRM



Abstract 90

Development of Clinical Evidence for Indian Physiotherapist Preliminary results of Phase I

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Background

The health care provided by more than 30,000 physiotherapists across the country is as diversified as the Country's people owing to a multitude of factors involving Clinical practices and curricular disparities. The repercussion of this includes both imperative variation, that is patient and set up directed and needless variation involving habitual and unscientific practices. A growth towards clinical research driven practice will assist the provision of optimally efficacious treatments, judicious use of our limited resources and more importantly protect the profession's development. Aim of this study is to develop scientific clinical practice guideline applicable to Indian Physiotherapy practice.

Method

It is a multiphase project. The first phase involves development of Clinical Evidence document for various diagnostic groups. Systematic Review of interventions are analyzed using AMSTAR and Quality of Evidence through GRADE approach. The applicability, relevance and equity issues of the Interventions and outcomes are interpreted for Indian setup. The findings will be communicated explicitly to prevent fundamental organizational, patient and therapist related factors antagonizing with the recommendation. The work will be coordinated by 3 Institutes assisted by expert groups from the field. Further phases will involve field testing and improving congruence of clinical practice to scientific evidence.

Results & Conclusion

Common condition and outcomes expected were identified from multiple set ups and recommendation developed for selected intervention for OA. The result of the preliminary finding points towards important deficiencies in providing clear guidelines for practice. Nevertheless, there are clues for future direction to research and clinical practice. Comprehensive inclusion of further research designs is warranted at the current point of time. In addition there is a compelling need for high quality Indian literature to guide practice.

Key Words: Evidence Based Practice, Physiotherapy Evidence.



Abstract 91

Does Answer Key Influence the Theory Paper Evaluation - A Pilot Study

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Background

Assessment plays an important in education as it drives learning. Among three domains of learning knowledge component has been given more important in physiotherapy education in India, though the other two domains are more important in learning. Theory paper evaluation is a routine practice conducted for evaluating the student's knowledge and understanding of the particular subject. There are lots of variations in the evaluation process and which affects the quality. Introducing answer key may bring the uniformity in evaluation. This pilot study aimed to identify the effect of answer key in students assessment.

Methodology

A total number of 25 answer sheets of an internal exam papers were corrected by the same assessor twice with and without answer keys. The student identity was blinded by allotting a separate registration number. The assessor marked the answer sheets by using structured worksheet. The marks were documented and compared. The assessor was asked about her perception. The answer key was prepared by the same teacher who prepared the question paper, and specialized in the same subjects.

Results

The mean score was 25 without answer key and it was 20.7 with answer key. Though the difference was not statistically significant the mean difference of 4.3 marks in internal exams may affect the judgment of the students performance. The assessor perceived that the correction easier with the mark sheet and it reduces the subjectivity to an extent. The marks obtained by the students with answer key were also comparable with their previous performance.

Conclusion

Answer keys should be added as a part of theory valuation in order to achieve the uniformity and reduces the subjectivity.

Key Words: Answer Key, Theory Paper Evaluation



Abstract 92

Effectiveness of Exercise and Yoga Therapy in Rehabilitation of Drug Addicts

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Background & Objective

Drug addiction or substance abuse has been a social menace worldwide. Owing to various reasons the occurrence of drug addiction related problems cannot be done away completely by any country. But, as a responsible society every community, nations or administration cannot turn its face on this social evil. A major observation of the programs of rehabilitation centers revealed complete negligence to therapeutic effect of exercise and yoga for the purpose of rehabilitation. So this pilot study had an objective to find out the effect of therapeutic exercises and yoga in rehabilitation of drug addicts.

Method

This study was conducted at 4S De-Addiction Center Bangalore, 35 males with the mean (SD) age of 28.4 (6.15) years were randomly assigned into experimental or control group. Subjects in experimental group were treated with exercise and yoga along with conventional de-addiction program while those in control group received only conventional treatment for six weeks. Agnihotry's Self Confidence Inventory (ASCI) and Parasar's Optimistic Pessimistic Attitude Scale (POPAS) were used as Outcome measures.

Results

In experimental group the mean(SD) for ASCI before intervention is 41.90(5.86) and after intervention is 7.50(4.11), for POPAS before intervention is 20.95(2.91) and after intervention is 33.85(2.60). In control group the mean(SD) for ASCI before intervention is 42.35(5.91) and after intervention is 20.80(5.20), for POPAS before intervention is 19.65(2.71) and after intervention is 27.70(2.79). Within group analysis showed statistically significant improvement in both groups, between group analysis showed significant improvement in experimental group than control group with $p < 0.001$.

Conclusion

This study concludes that exercise and yoga therapy along with conventional de-addiction program is effective in the rehabilitation of drug addicts.

Keywords: Drug Addicts, Yoga, Exercise



Abstract 93

Validation Of The Tamil Version Of Fear Avoidance Belief Questionnaire - Pilot Study

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Background

Chronic low back pain is associated with excessive fear for movement, limited physical activity and distorted beliefs. FABQ is the most reliable instrument for measuring fear, avoidance beliefs amongst chronic low back pain. The aim of this study is to translate the FABQ (English version) into the regional language Tamil and investigate its psychometric properties.

Methodology

The English version of FABQ questionnaire was translated into Tamil by means of forward translation and in turn backward translation was done. A review by the expert committee for acceptance of the Tamil translation was obtained. This pre-final version of Tamil FABQ was checked for its correspondence to the English version. A sample of 30 chronic low back pain patients are recruited. On initial evaluation Pain severity using visual analogue scale, FABQ questionnaire and Ronald -Morris disability questionnaire were administered. After 5days the test measures were repeated. All 30 patients completed the re-test measures.

Results

The pilot study included 30 individuals with the mean age of 44.62(23-72 years) of which 20 males and 10 females. The mean duration of the disorder was 9.8months (3months-24months) mean pain score was (6.62/10). The mean score of FABQ –physical activity 17.3(0-27) and FABQ-work was 18.87(0-60) and the mean Ronald -Morris disability score was 7.75(5-13). The content validity was high and test-retest reliability was moderate to high (ICC-0.61 and 0.77of work and physical activity subscales respectively).

Conclusion

The results seem to show high impact of fear and avoidance in physical activity subscale than work subscale of FABQ. FABQ-Tamil showed adequate psychometric properties for use in Tamil speaking population with chronic low back pain.

Key Words: Chronic Low Back Pain, Fear Avoidance Belief Questionnaire, Validity, Reliability



Abstract 94

Physical Therapy Management For Dengue Fever Induced Calf Pain

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The characteristic symptoms of dengue are sudden-onset fever, headache (typically located behind the eyes), muscle and joint pains, and a rash. Treatment of acute dengue is supportive only. The role is physiotherapy in relaxing and reducing the pain is inevitable. Four year old female child diagnosed as dengue fever and confirmed with laboratory findings was treated as Physiotherapy in patient in our hospital. The child had severe pain in the both calf. She had difficulty to sit and stand due to blood pressure variations. Rashes found throughout the body. Child was averse to take food due to nausea and vomiting. Child refused to move the limbs due severe pain. The informed consent was obtained. The subject and parents were explained about the effectiveness and result of physiotherapy. The subject was treated with physiotherapy exercises and manipulation. VAS was used to assess the pain and range of motion of knee and ankle were assessed by goniometer. The study was to test the feasibility of a treatment program based on the elements of physiotherapy to encourage use therapy for dengue fever, as well as to document clinical changes observed with this intervention. In this study, Physiotherapy produced major and sustained improvement in range of motion and reducing the pain in dengue fever.

Key Words: Dengue Fever, Physiotherapy, Calf Pain