



Conference Proceedings



BCIPCON -2K22

*"Physiotherapeutic Approach to a Patient
with Traumatic Brain Injury"*



Editor- Ms. Nidhi Kalra

BCIPCON-2K22

“Physiotherapeutic Approach to a patient with Traumatic Brain Injury”



BANARSIDAS CHANDIWALA INSTITUTE OF PHYSIOTHERAPY

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BCIPCON-2K22

“Physiotherapeutic Approach to a Patient with Traumatic Brain Injury”

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PREFACE

Dear Readers,

It is a feeling of contentment, when I again connect myself with the scholars and researchers of my field through the release the BCIPCON 2K22 national level conference proceedings. I must thank my editorial team for bringing together two important aspects of physiotherapy namely “change’ and “practice”. While we are still in process of evolving standards of best practices; I am sure, our proceedings provides a medium for researchers to put forth new ideas and facts for emerging technologies in the field of physiotherapy. Valid evidence is all that is required to reinforce scientific basis of physiotherapy and combat challenges faced by our profession. A local resource with data, information and guidelines is being consolidated by every intellectual work published in journals or other resources. I am happy that many researcher and professionals are contributing to its development story. The research ideas and initiatives happening around and coming across are quite encouraging. I congratulate all authors for their valuable inputs and contributions. Our unsung editorial team remains the powerhouse behind our modest attempts and initiatives and I realize it at every stage of this publication. I stand behind my editorial team to keep it erect against all odds.

On behalf of this my colleagues & contributors of this publication, Welcome!

Organizing Team

CHIEF GUEST

Dear Readers,

Over the years Banarsidas Chandiwala Institute of Physiotherapy, New Delhi, has grown from its humble beginnings to become an institution of excellence, imparting high quality education and contributing significantly towards the overall development of the students.

As we know that Traumatic brain Injury (TBI) covers a large spectrum from concussion to severe TBI. If we talk about brain Injury, No brain injury is too mild or too severe to lose hope, rehabilitation plays a vital role in sustaining health and returning back to life after head trauma. This Conference is going to be a dynamic platform where experts from Medical and Paramedical fraternity will be discussing about various aspects of Traumatic Brain Injury and its Rehabilitation. This conference is a very good opportunity for students, researchers to learn about the overall care of traumatic brain injury patient.

The role of the institute in nurturing and molding the highly impressionable and inquisitive minds of children cannot be over emphasized.

I am extremely happy to note that BCIP, New Delhi has done an excellent job of imparting a balanced mix of academics, extra-curricular, sports and developmental education to its students, preparing and enabling them to take on the rigors and challenges of modern-day world. And as we stand on the threshold of the next decade, it is indeed our youth who will come to the forefront of the events and valuable investment in them would be worth every penny and sweat.

I take this opportunity to congratulate the Director and all the faculty members for their untiring efforts, patience and professionalism in taking the institute to the pinnacle of success. I wish and pray that our practices should be at par at any global standards or even better.



CHIEF GUEST

Dr. Patanjali Dev Nayar

Medical Officer-Public Health, World Health Organisation

GUEST OF HONOUR MESSAGE

I believe that learning is a never-ending phenomenon. Today, our children need to rediscover the joys of learning. In this growing materialistic world, children need education that fosters love for mankind, develops character and empowers them to contribute to the society as a whole. Education is a creative process and its objectives are to develop the capacities latent in an individual, help hone one's interest, capabilities and instill a sense of commitment to serve the best interest of the community.

It is laudable that Banarsidas Chandiwala Institute of Physiotherapy, New Delhi, provides myriad avenues which enable the students to become active participants in the creation just and harmonious world order.

It is our responsibility that our services should help the patients in remote area also and they should get benefited from physiotherapy. As one of the core health science stream, physiotherapy should be promoted equally at all levels of health care i.e. for Prevention, for Treatment and for Rehabilitation equally.

I know it is a difficult job to do the conference of this level, but I am sure that due to strong continuous perseverance of Organizing committee this conference will achieve its goal of strengthening the base of physiotherapy.

The magazine of any institution mirrors its ethos and encapsulates the soul of the institution. The edition of the institute's magazine showcases the intrinsic potential and the innate feelings of the students. The plethora of activities undertaken during the course of the year has given them the impetus to give expression to their creative abilities and emerge holistically accomplished. I congratulate the Director and all the faculty members and extend my best wishes to the institute as it forges ahead in its pursuit of excellence.

As the need of physiotherapy is growing day by day in our society I am sure this conference will prove a milestone in journey of physiotherapy and will help physiotherapists to learn new horizon, and many patients will also be benefitted by this event. I wish all the best to the Organizing committee and everyone associated with this conference a great success.



GUEST OF HONOUR

Dr. V.P. SINGH

Chairman, Institute of Neurosciences, Medanta Hospital, Gurugram

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SECTION -I: SPEAKERS ABSTRACTS

ROLE OF NEUROSURGERY IN TRAUMATIC BRAIN INJURY

Dr Rajendra Prasad

Senior Consultant Neuro & Spine Surgeon, Indraprastha Apollo Hospital

Neurosurgeons have to manage raised intracranial pressure following TBI starting in the ED itself. Attention has to be paid to ABCD. Management often involves surgery to remove intracranial haematomas. Neurosurgeons also have to deal with the associated SCI seen in approximately 20% cases. Poly-trauma has also to be managed by the neurosurgeons to help prioritise management of injuries. Complications of TBI like epilepsy, spasticity, dystonia, pain etc. have also to be managed, in some cases by surgery. Associated injuries like cranio-facial injuries and brachial plexus injuries have to be managed simultaneously. Neuro-rehabilitation is essential for recovery from serious TBI and should start while the patient is in ICU and continue following discharge.

TRAUMATIC BRAIN INJURY AND ITS CLINICAL PRESENTATION

Dr. Pushendra Nath Renjen,

Senior Consultant Neurologist and Academic Advisor, Institute of Neurosciences, Apollo Hospital, Delhi

An outside force that impacts the head hard enough to cause the brain to move within the skull which creates damage to the brain Examples: motor vehicle collisions, falls, gun-shot wounds, sports, physical violence, etc. TBI cited to co-exist with traumatic SCI (Spinal Cord Injury) in 25% – 55%. Primary insult includes Acceleration, Deceleration, Rotation, Shearing, Penetrating, Coup and Countercoup. Secondary insult includes the injury that Occurs after the primary trauma and can result in further damage: Cerebral Edema, Hemorrhage, Increased ICP, Hypoxia, Hypotension, Hyperthermia, Electrolyte Disturbance, Seizures, and Infections. Characteristics of Severe TBI are the Injuries are combination of focal and diffuse spread throughout the cortex and brainstem. Deficits are widespread, severe and long duration. Most will have permanent residual deficits involving cognition, swallowing, speech, mobility and/or bladder/bowel function. Neuro-medical Stabilization and Manage medical issues. Pharmacologic Intervention Includes Remove Medications that can sedate or can delay neurological and cognitive recovery, BZDs, Narcotics. Agents that may hasten Neuro-recovery: Methylphenidate, Dextroamphetamine, Dopamine agonist, Amantadine.

MANAGING COGNITIVE AND PERCEPTUAL PROBLEMS IN TBI PATIENTS.

Dr. Anwesh Pradhan (PT)

Ph.D. Scholar, MPT (Neurological & Psychosomatic Disorders)

Cognition is processing of knowledge whereas Perception is the integration of various sensations into information that is meaningful in terms of psychology. The difficulty of separating perceptual and cognitive deficits is readily apparent, both in patient behavior and conceptualizations of these two domains of function. Cognitive and perceptual deficits are one of the causes of poor rehabilitation progress for patients who have sustained brain damage, even among those whose motor skills have returned. In any rehabilitation program geared toward achievement of maximum independence, there is a compelling need for therapists to learn to recognize behavior related to perceptual deficits. Unilateral spatial inattention, a visual perceptual dysfunction, asymmetries in performance occurring most frequently in patients who have traumatic brain injury, may be detected by. Management of these type of patients requires combination of approaches, guiding selection by their clinical expertise and the patient's response to the interventions. There are five approaches which are majorly used are The Retraining Approach, The sensory Integrative Approach, The Neurofunctional approach, The Quadraphonic and the Cognitive Approach, the Rehabilitatory/ compensatory Approach. . Prosthetics, in the form of computer technology, are used to compensate for the individual's impairments by altering the environment for optimum function. Without knowledge of the perceptual and cognitive requirements of a patient the task cannot be successful, the therapist can simplify the task for the patient and progressively upgrade it. Progress may be slow, depending upon the severity of disability, individual motivation, family support, etc. Cognitive-perceptual rehabilitation truly requires a trans disciplinary approach.

Keywords: Cognition, Perception, Rehab Intervention, TBI

WHEELCHAIR TRANSFER & SKILLS TRAINING

Dr. Snehal K. Patel (PT) (M.P.T.- NEURO)

Chief physiotherapist Midway home, Gorai, Borivali,
Mumbai, India

Wheelchair Chair Transfer & skills is very important for functional Independence in post-Traumatic Brain Injury. A transfer is a method of moving a patient from one surface to another, where the patient is capable of helping with the transfer and is able to bear weight on at least one of his or her legs. Equipment is a core component in effective moving and handling programmers, together with risk assessments, the use of correct techniques, staff training and appropriate facility design. The proper use of equipment is essential for the safety of both patients and caregivers and improves the quality. Different types of transfer devices & techniques were present. Transfer Belt, Transfer Board, Sliding Sheet Different techniques are Wheelchair to bed, backward transfer, WC to floor, Bed to floor, into/ out of car, bike, train transfer etc. Wheelchair skills: Many wheelchair users live and work in places where it is difficult for them to get around, for example areas where the ground is rough, sandy or muddy, or where there are steps, kerbs or small cramped spaces. Training in wheelchair skills can help wheelchair users to tackle some of these obstacles, either independently or with assistance. Effective training of wheelchair skills in rehabilitation and community settings is key to increasing participation by individuals with mobility limitations and may also reduce the incidence of pain and chronic overuse injuries. Wheelchair skills are

necessary to move outdoor environment. As per ISWP World Health Organization Wheelchair service training package reference manual for participants - basic level. 2012.

Basic skills are pushing, turning, Up and down the slope, Wheelie, fall prevention, Up and down the step/curb unassisted, up and down the step assisted.

ROBOTIC GAIT TRAINING IN TBI ; EVIDENCE BASED PRACTICE

Dr Tarun Lala (PT)
Zonal Head – Max hospital Saket & BLK-Max hospital
MPT (Neuro), CNR-Italy, HCPC-UK , C/NDT – US , MIAP

Traumatic brain injury, like many other causes of death and disability has been around since the beginning of time. This presentation describes an interdisciplinary research project aimed at developing and evaluating effective and user friendly robotic rehabilitation for patients with TBI. This technology assisted therapy is designed to be safe and affordable and relies on human robot interaction methods for recovery of patients with TBI, SCI, Stroke, and C.P. The movement initiation includes end effector system and natural gait pattern. The benefits include the strengthening of muscles and bones, Gait training, symmetrical weight bearing and offering core rehabilitation as well. Various scales were used to assess the disability and been worked upon. The clinical evidence shows that the patients who received robot- assisted device for gait training along with conventional therapy had reach independent walking. The studies examining the efficacy of intervention shows that patient who are not able to walk seem to benefit most from robotic rehabilitation. A decrease in impairment after the treatment has been found in evidence that has been done on patients in MAX hospital, Saket.

ROLE OF ASSISTIVE DEVICES IN TBI REHABILITATION

Dr. Gaurish Kenkre (PT),
Neuro Physiotherapist, Lilavati Hospital & Breach Candy Hospital, Mumbai

Treating a traumatic brain injury patient is one of the most challenging tasks for a Neuro Rehab therapist as due to the diffused axonal injury there are too many underlying impairments and abnormalities in structure and body functions. By using assistive devices/technology these impairments can be partly addressed to achieve early independence as well as early mobilization. These devices are prescribed based on the clinical experience of the therapist as well as the available evidence and can be customized to patient's needs. These devices can be used by therapist in the clinic for therapy sessions whereas few other devices can be used by patients at home for activities of daily living to achieve early independence. Role of Assistive devices should be evaluated at differing stages of recovery, ranging from inpatient rehabilitation to outpatient rehabilitation to community re-entry to long term living.

PHYSIOTHERAPEUTIC ASSESSMENT AND GOAL PLANNING

Dr. Manit Dixit (PT)

Principal, Pacific College of Medical Sciences, Gorakhpur, UP

Detailed assessment is key to successful treatment. It is very crucial to conduct the thorough examination of the patient before planning the intervention. Assessment and rehabilitation can be categorized into

1. Severe to moderate TBI in early stage: Day 1 includes getting complete knowledge about the patient, examining arousal, attention, ROM, Reflex integrity of subject
2. Severe to moderate TBI in active stage
3. Mild TBI: Detailed assessment includes: Aerobic capacity, Arousal attention and cognition, Behavioral status, Cranial nerve Integrity, Gait locomotion and balance, Muscle performance, Neuromotor development, Pain, Posture. Various scales like Coma recovery scale, Ranchos Los Amigos scale, Berg balance scale, Functional independence scale also aid the assessment.

Goals of treatments include - Improving physical function & reducing risk of secondary impairments like keeping the head of patient and also maintaining proper position of all the body parts, casting is also recommended for 4-5 days and Improving motor control and postural control.

ICU MANAGEMENT OF TBI PATIENTS FROM PHYSIOTHERAPIST LENS

Dr. Partha Sarathi Kommineni (PT)

Chief of Neuro Rehabilitation, Ramaiah Memorial Hospital, Bangalore

A patient with TBI presents a wide spectrum of symptoms including the orthopedic system, cardiorespiratory system etc. That has actually led to the TBI. ICU management can be divided into primary and secondary care. Primary care consists of neurosurgeons, neurologists, intensivists ICU Nurses and secondary care consists of physiotherapist, Occupational Therapist, speech therapist, psychologist etc. Secondary management under the headings of various symptoms like COMA, paralysis, DVT, heterotrophic ossifications, bed sores, subluxation, imbalance and incoordination.

CRUCIAL PSYCHOTHERAPEUTIC STRATEGIES FOR REHAB OF TBI PATIENTS: AN ABRIDGEMENT

Dr. Harsh M Rajdeep (PT)

In charge, Department of Physiotherapy, MBS Hospital, Government College, Kota, Rajasthan

Both physiotherapeutic as well as Psychotherapeutic approaches play an important role in the mechanism of injury in TBI patients.

Mental health is also very important along with physical health. 5 Dimensions of TBI related irritability i.e., Affective, Behavior, Cognitive, perceptual, Relational, Environmental. It is important for a physiotherapist to have an empathetic approach towards patient

Psychotherapeutic techniques like Cognitive behavior therapy (CBT) cognitive rehabilitation and restructure. These approaches should be applied in daily treatment protocols because according to him CBT is the best remedial as well as compensatory approach for a person who has a negative framework.

Supportive psychotherapy encourages and provides guidance to the person who is suffering from TBI.

MANAGING BOWEL AND BLADDER DYSFUNCTION

Dr. Dhara Sharma (PT)
Principal, Khayati College of Physiotherapy, Gujarat

Urinary symptoms are often undiagnosed and untreated, it is within the scope of physiotherapists to treat and diagnose hence improving QOL and interaction within society. Functions of the bladder are controlled by higher centers like cortex and pons. Cortex sends inhibitory signals to the bladder whereas pons acts as coordinator among sympathetic and parasympathetic systems.

Injury to cerebral cortex leads to loss of inhibitory response and leakage of urine referred as overactive bladder whereas damage to the pontine micturition phase disturbs sync between SNS and PNS leads to detrusor sphincter dyssynergia. Screening is must and should always be done prior to assessment

In ASSESSMENT few points should be emphasized like Age, habits, lifestyle, chief complaint, biochemical analysis, maintain diary etc. Secondly, the most important assessment tool Het's mmt can be used to assess contractile as well as relaxation ability of pelvic floor muscle was discussed.

In rehabilitation, important interventions are: Pelvic floor muscle relaxation, Palpation, Release of taut muscle structure, Conscious relaxation of structures, followed by pelvic floor muscle training. In the rehab part, mental imagery technique, IFT, TENS and NEMS, EMG biofeedback, Behavioral modification.

MANAGING DYSPHAGIA AND DYSARTHRIA IN TBI PATIENTS

Dr. Vidhi, Speech Language Therapist
Max Hospital, Saket, Delhi.

Dysarthria is difficulty in oral articulation and motor speech function. In addition to impaired communication, dysarthria is characterized by poor voluntary oromotor control, inability to process a food bolus and trigger a normal reflexive oropharyngeal swallow mechanism declining quality of life associated with dysarthria and dysphagia, there is an increased risk of aspiration and its devastating consequences. Both dysarthria and dysphagia are prominent in cerebrovascular diseases and stroke, traumatic brain injuries (TBI), and neuromuscular diseases such as Amyotrophic Lateral Sclerosis (ALS), Multiple Sclerosis (MS), Myasthenia Gravis (MG), and Parkinson's disease (PD).

In patients with TBI, dysphagia & dysarthria are commonly present. In a quest to manage these, an accurate assessment to avoid aspiration, malnutrition & other dysphagia related medical complications is the first and foremost step to proceed with. Objective, subjective & instrumental investigation should be used depending on the need and to assess the structural abnormalities & mobility disorders. Thus, an intensive & specific dysphagia & dysarthria rehabilitation is necessary to improve the functional outcomes and quality of life of the individual with TBI. Regarding the treatment, a multi disciplinary approach should be implemented and the treatment programme should be tailor made.

SECTION II RESEARCH ARTICLES

IMMEDIATE EFFECT OF MYOFASCIAL RELEASE TECHNIQUE VERSUS PASSIVE STRETCHING ON CALFFOR ANKLE DORSIFLEXION ROM IN HEALTHY YOUNG ADULTS: AN EXPERIMENTAL STUDY

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ABSTRACT

Background: Loss of joint range of motion (ROM) is a common dysfunction in physically active people and may be a predisposition to musculoskeletal injury. Cause of restricted dorsiflexion (DF) is lack of flexibility within the triceps surae. So, here arises the need to see the immediate effect of Myofascial release technique compare with Passive calf stretching to increase weight bearing Ankle Dorsiflexion ROM by improving calf muscle flexibility in young adults. **Methodology:** 32 young adults age 20-25 years were included in this study, both male and female should asymptomatic healthy subjects with no pathology in back and lower limb. Group 1 were given MFR on calf muscle. Group 2 were given Passive calf stretching technique. Outcome was Weight bearing Ankle lunge test used to measure ankle dorsiflexion ROM. **Results:** Data analysis was done by SPSS 22. There was significant improvement in both group in case of within group analysis ($p < 0.05$) and in case of between group analysis, there were no statistically significant difference ($p > 0.05$). **Conclusion:** In conclusion, both interventions mentioned in the study are equally effective in increasing ankle dorsiflexion ROM by improving calf muscle flexibility in young adults.

KEY WORDS: Dorsiflexion, Flexibility, MFR, ROM, Stretching

INTRODUCTION

Loss of joint range of motion (ROM) is a common dysfunction in physically active people and may be a predisposition to musculoskeletal injuries. A lack of ankle DF can predispose a healthy person to injuries and conditions such as genu recurvatum, early heel lift, excessive subtalar joint pronation, metatarsalgia, ankle sprains, medial tibial traction periostitis, medial tibial stress syndrome, Achilles tendinopathy, plantar fasciitis, anterior knee pain, gastrocnemius strains, and anterior cruciate ligament injury.¹

Restricted ankle dorsiflexion also alters the kinematics of walking by causing heel-off to occur earlier at the end of the stance phase and increasing knee extension, which together increase stress and pressure on the forefoot.² One cause of restricted DF is lack of flexibility within the triceps surae.¹ The muscle and tendon may also

play an important role in passive ROM. It has been shown that increased muscle stiffness (i.e., resistance to stretching) can contribute to reduced ROM and impaired function. In addition to these contractile structures, non-muscular structures (e.g., nerves and fasciae) can limit passive ankle DF ROM.³

Static stretching is well accepted as an effective form of stretching to increase flexibility and ROM and considered a safer form of stretching.⁸ The primary effect and expected outcome of a program of stretching exercises is to restore or increase the extensibility of the muscle-tendon unit and, therefore, regain or achieve the flexibility and ROM required for necessary or desired functional activities.^[8] Stretching takes soft tissue structures beyond their available length to increase ROM.⁸ The therapist manually controls the site of stabilization as well as the direction, speed, intensity, and duration of stretch.⁸

Having less than 20 to 30 of closed chain DF impedes normal gait and may cause compensatory gait patterns, leading to pathologic conditions throughout the foot and ankle and up the kinetic chain.¹

Myofascial therapy can be defined as “the facilitation of mechanical, neural, and psychophysiological adaptive potential as interfaced via the myofascial system”.¹¹ Myofascial release is a soft tissue manipulation technique, where myo “ means muscle and fascia is located between skin and the underlying structure of muscle and bone throughout the body.⁴ Compressive myofascial release (CMR) is a form of soft tissue stretching that involves applying compression and sustained myofascial stretches to the target area produce a release.¹ To and fro motion of deep pressure is provided which help to release the muscle tension, break scar tissue, and lead to its elimination.⁴

Many studies have been done to seek immediate effect self MFR versus self-Stretching on calf for ankle DF ROM in young adults. However, very few studies evaluate passive Myofascial release versus Passive calf stretching in young adults. So, this study focuses on Immediate Effect of Myofascial Release Technique versus Passive Stretching on Calf for Ankle Dorsiflexion ROM in Healthy Young Adults. As a Physiotherapist, we know more how much force and duration rather self-stretching.

METHODOLOGY

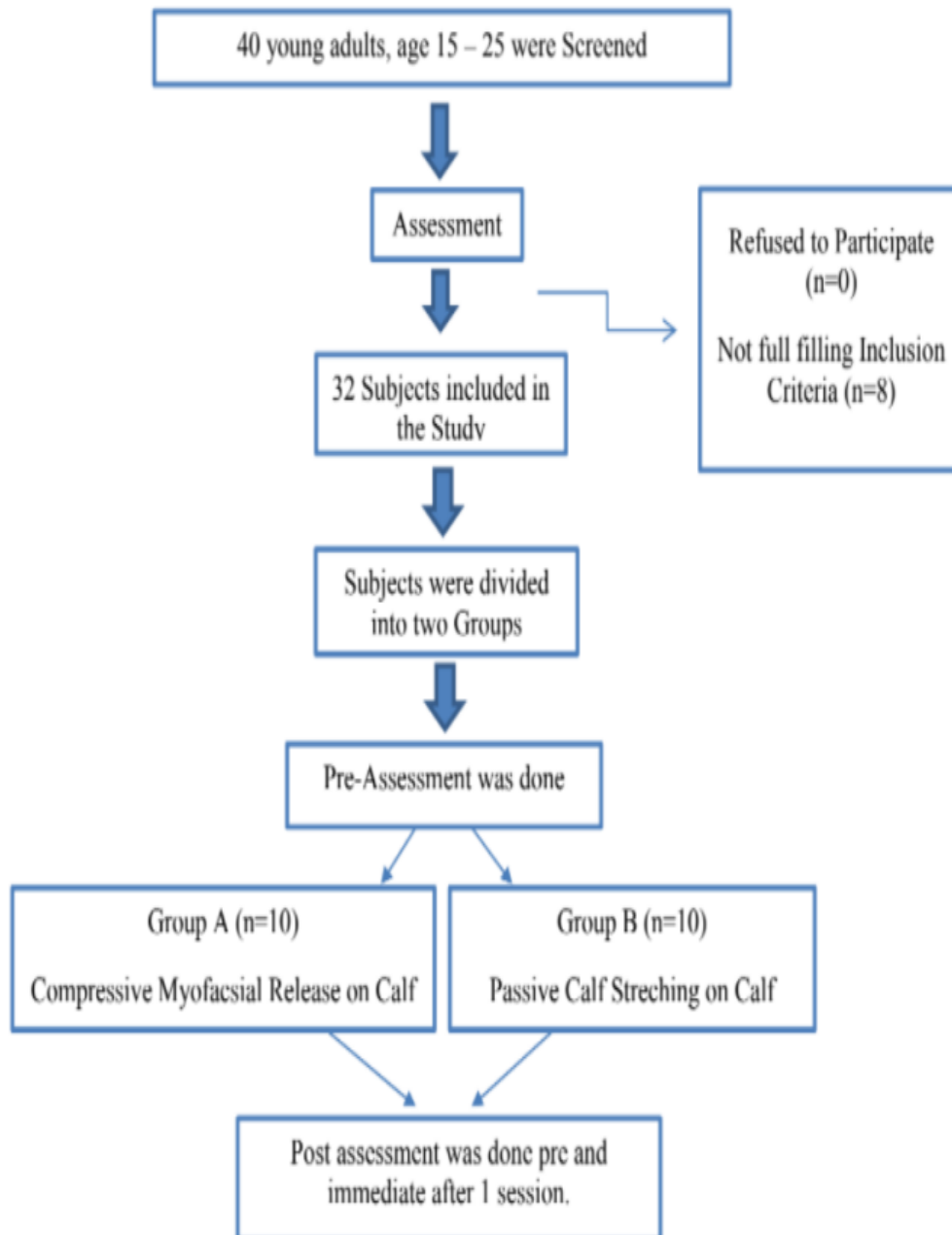
On the basis of inclusion and exclusion criteria, 32 healthy young adults of Ahmedabad with age group 15 – 25 years (22 female, 10 male) were selected. 32 participant divided into two groups,16 in Group A (Compressive Myofascial release on Calf) and 16 in Group B (Passive Calf Stretching). Outcome measure which were selected for the study – Ankle Lunge Test (ALT).

Inclusion Criteria: Age group of 15 – 25 years, Male and Female, Asymptomatic healthy subjects

with no pathology in spine and lower limb, Calf tightness should be present on Ankle lunge test, Willingness of subject to participate.

Exclusion Criteria: Calf or Achilles tendon dysfunction, Surgery related to low back, Hip, knee and Ankle, Cardiovascular and neurological diseases, Subjects who were involved in any kind of exercise program and sports activity Skin lesions in lower limb, Limb length discrepancy, Body mass index (BMI) > 30kg/m².

FLOW CHART



PROCEDURE

Healthy young adults were assessed as per the inclusion and exclusion criteria. They were briefly stated the nature of the study and intervention and written consent was taken from them. Demographic data and baseline values of study were taken prior to starting the study. The subjects were divided into two group and intervention performed on dominant leg. Dominant leg choose by asking subjects “Which leg do you use to kick a ball”⁷ and which Foot taking the first step to initiate gait”.⁷ Intervention were given for 1 session and outcome measure assess pre and immediate after intervention.

Assessment of Ankle Dorsiflexion ROM using Ankle Lunge Test:⁹

Subjects placed their dominant foot on a ruler fixed to the ground and stood with their foot approximately 10 cm away from and perpendicular to the wall. The participants were then instructed to lunge forward, flexing their knee until their knee touched the wall. If the knee touched the wall and the heel remained firmly on the ground, it was considered a successful manoeuvre. The subjects were then instructed to move their foot back and attempt to touch their knee to the wall again if their knee had successfully touched the wall in the previous attempt. This process was repeated until their knee was just touching the wall with the heel on the ground, indicating the limit of their ankle ROM. Measured the distance between their great toe and the wall at the limit of their ROM. After the MFR and Stretching intervention, immediately measured ankle dorsiflexion ROM.

Figure 1: Compressive Myofascial Release (CMR) on Calf Group B



Figure 2: Procedure of Ankle Lunge Test



Group A: Compressive Myofascial Release Technique (CMR) ^[1]

Patients Position: Prone lying on the treatment table with their feet off the end of the table. The knee was fully extended.

Application of method: CMR was performed on the medial and lateral sides of the Achilles tendon for 1 minute, followed by the musculo-tendinous junction for 2 minutes. Treatment consisted of broad strokes applied with the clinician’s knuckles to release superficial restrictions, followed by more specific strokes applied with the clinician’s thumb to any located restrictions. Strokes were applied at a contact point of to the tissue, with pressure directed from distal to proximal.

Figure 3: Passive Calf Stretching (PST) on Calf



Patient Position: Supine lying, edge of the treatment table.

Method of Application: Grasp the patient’s heel (calcaneus) with one hand, maintain the subtalar joint in a neutral position, and place forearm along the plantar surface of the foot. Stabilize the anterior aspect of the tibia with other hand. Dorsiflex the talocrural joint of the ankle by pulling the calcaneus in an inferior direction with thumb and fingers while gently applying pressure in a superior direction just proximal to the heads of the metatarsals with forearm. PST was given for 3 repetitions, 30 second hold with 10 second rest in between repetition.

RESULTS:

The data was analysed using statistical software SPSS 22 version and Microsoft Excel 2010. Before applying statistical tests, data was screened for normal distribution using Shapiro wilk test and the p value found was greater than 0.05 for Group A and less than for Group B.

Table 1: Gender and Age Distribution

Group	Gender	Mean Age	Standard Deviation
Group A	16 (4 M, 12 F)	22	±2.30
Group B	16 (6 M, 10 F)	20.75	±1.00

Among 32 subjects, 16 subjects include in Group A (4 male, 12 female) and 16 subjects include in Group B (6 male, 10 female)

Among 32 subjects, the mean age of Group A was 22 ± 2.30 years, and the Group B was 20.75 ± 1 .

Graph 1: Mean Age of Subjects

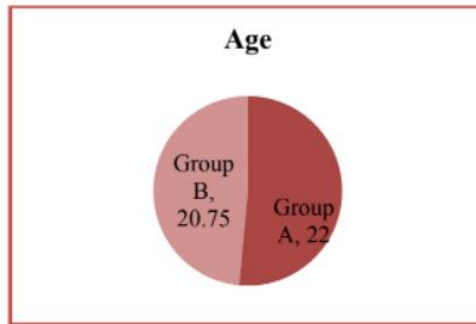


Table 2: Within Group analysis for the Outcome of Ankle Lunge Test (Group A)

Group A	Pre treatment		Post treatment		't' value	'p' value
	Mea n	S D	Mea n	S D		
					6. 15	0.001
CMFR	8.67	3. 74	10.0 6	0. 41		

Table 3: Within Group Analysis for the Outcome of Ankle Lunge Test (Group B)

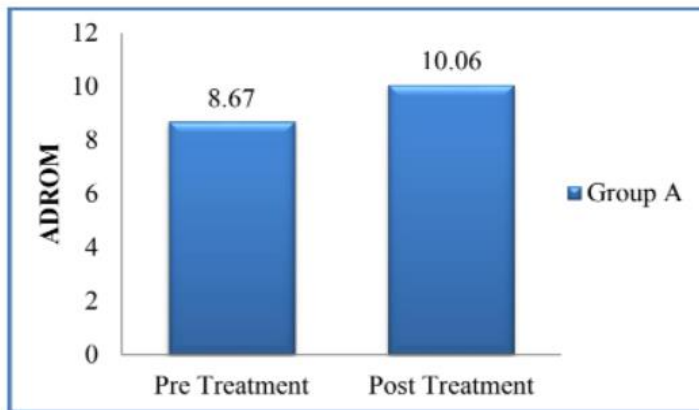
Group B	Pre treatment		Post treatment		Z value	'p' value
	Mea n	SD	Mea n	SD		
PS T	7.78	0.44	9.66	0.57	3. 52	0.001

Here, within group comparison of ankle lunge test was done using Wilcoxon Z test in Group B. Where the „p” value of Group B is <0.05 which is statistically significant. Group B improved immediate after intervention.

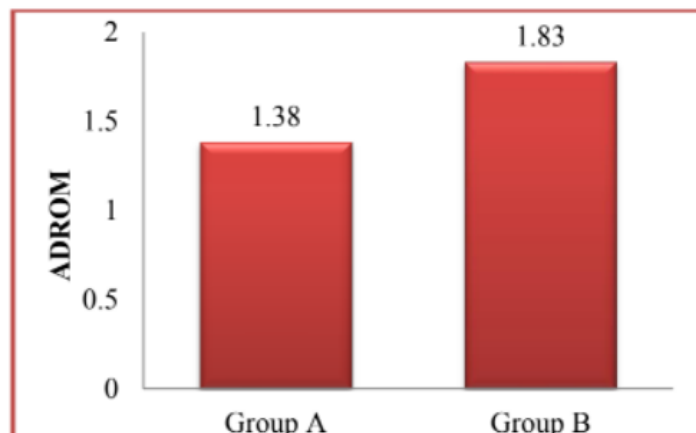
Table 4: Between Group Analysis for the Outcome of Ankle Lunge Test

Difference in ADROM Score	Mean	SD	U value	‘p’ value
Group A	1.38	0.90	1.07	0.282
Group B	1.83	1.05		

Graph 2: Changes in Mean ADROM Before and After Intervention



Graph 3: Changes in Mean ADROM Before and After Intervention



DISCUSSION

The present study was conducted to find out Immediate Effect of Myofascial Release Technique versus Passive Stretching on Calf For Ankle Dorsiflexion ROM in Healthy Young Adults. Total 32 participants falling in age group 15 - 25 years were divided into 2 groups. 16 participants with mean age of 22 ± 2.30 years were there in Group A and were given Compressive Myofascial Release. 16 participants with mean age 20 ± 1.0 years were there in Group B and were given Passive Calf Stretching. The intervention was given for 1 session. The data was taken before intervention and immediate after intervention.

Myofascial release is a rehabilitation technique commonly applied to restore optimal soft tissue length, decrease pain, and increase function. We used a slightly more aggressive form of myofascial release that localizes and treats restrictions as clinicians use their knuckles to apply compression.^[1] Some research suggested that immediate changes within the soft tissue may be due to a neurologic response that causes relaxation of the smooth or striated muscle fibres, which may also affect the metabolic ground substance within the immediate area.¹ The goal of myofascial release is to release fascia restriction and restore its tissue. This technique is used to ease pressure in the fibrous bands of the connective tissue function, or fascia. Gentle and sustained stretching of myofascial release is believed to free adhesions and softens and lengthens the fascia.⁴ By freeing up fascia, myofascial release helps in improving circulation and nervous system transmission and normalizes the connective tissue by softening, lengthening, and realign the fascia. According to Xiaoting Chen's study, after release of fascia, muscle tension around joint would be more balanced, the joint would be placed in a better position, and the biomechanical effects of force would be improved.¹³ Vijay Kumar at al. (2019) conducted a study and concluded that CMR plays a slightly more significant role in improving DF

ROM than IASTM. Justin Stanek at al. (2018) concluded that single CMR treatment was more beneficial than a single GT treatment for improving ankle DF.¹

Stretching works on lengthening of the shortened muscle fibres while MFR works on remodelling the muscle fibres and associated fascia to restore the normal length tension relationship.⁵ The underlying mechanisms for stretch-induced gains in ROM include biomechanical and neural changes in the contractile and non-contractile elements of the muscle-tendon.⁸ These changes are thought to be the result of increased muscle extensibility and length or decreased muscle stiffness (passive muscle-tendon tension).⁸ Immediate changes within the soft tissue may be due to a neurologic response that causes relaxation of the smooth or striated muscle fibres, which may also affect the metabolic ground substance within the immediate area. According to Colby Kisner (6th edition, manual stretching increases muscle length and ROM in non-impaired subjects.⁸ Ji-Hyun Lee at el., (2021) concluded that myofascial release and stretching both were effective in increasing active and passive dorsiflexion angles and decreasing muscle tone.^[6] Diulin Muniz at el. (2018) studied a systemic review and meta-analysis and conclude that chronic stretching is an effective way of improving ankle mobility in young individuals, especially when it contains a static component.¹² Meta analysis studied by Chen and Chen at el (2019) and concluded that muscle stretching is more effective than facial muscle release to improve ROM.¹³

CONCLUSION:

The present study statistically demonstrates that both the technique is highly effective in improving the weight bearing ankle Dorsiflexion ROM in young adults. But when comparing the mean values it was found that there was mean significant improvement in patients treated with passive stretching than compressive myofascial release.

CLINICAL IMPLICATION:

In addition to improving flexibility and ROM, stretching exercises routinely are recommended for warm-up prior to or cool-down following strenuous physical activity for a fitness purpose, prevention or reduction of the risk of soft tissue injuries, reduced post exercise (delayed onset) muscle soreness, and enhanced physical performance, to improve gait economy and enhance the performance of physical activities, such as sprinting and jumping abilities. Myofascial release use to restore normal flexibility of calf muscle thus prevents calf strain in young subjects, improved gait parameters, reduce risk of heel pain and other biomechanical imbalance.

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KNOWLEDGE OF CHILDHOOD AUTISM AMONG BACHELOR OF PHYSIOTHERAPY STUDENTS

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ABSTRACT

Introduction: Autism spectrum disorder refers to a range of life-long conditions (onset occurs before 3 years of age) characterized by some level of impaired social behaviour, communication, and language and a narrow range of interests and activities that are unique to an individual and undertaken repetitively. Children with autism spectrum disorder are less likely to participate in physical activity than their age-related peers, and it has been suggested that physiotherapists could potentially facilitate their participation. Poor knowledge and awareness about childhood autism, especially among health workers can compromise early recognition and interventions which had been known to improve prognosis in children with autism. Because of that the need arises to find out the knowledge of Childhood Autism among bachelor of Physiotherapy students. **Method:** Study was conducted among 70 Students and an online survey was conducted by Google form. Inclusion criteria's were undergraduate students of physiotherapy. **Outcome measure-** Knowledge about Childhood Autism among Healthcare Workers (KCAHW) Questionnaire. **Result:** 20% students had good knowledge, 77.14% students had fair knowledge, and 2.85% students had poor knowledge of childhood autism.

KEYWORDS: Childhood Autism, Knowledge about Childhood Autism among Healthcare Workers (KCAHW), Physiotherapy students

INTRODUCTION

There had been observation that the prevalence of childhood autism and Autistic Spectrum Disorder (ASD) were on the increase worldwide. This prevalence increase had also been thought to be attributable to increased knowledge and awareness among health workers and possible adoption of broader criteria in making the diagnosis¹

Knowledge about childhood autism in health care settings Earlier survey on knowledge about childhood autism among health care workers had been by Stone². The study found that the specialists' views on childhood autism were consistent with the prevalent views in research literature then, but it was also found that individual disciplines studied displayed variation and misconceptions regarding social, emotional and cognitive aspects of autism. Diagnostic criteria

were found to also differ among the groups of health care workers studied.

Research consistently suggests that physical activity (PA) participation for children and youth (hereafter children) with autism spectrum disorder (ASD) has a number of positive physical, psychosocial, and cognitive benefits. As noted by Jachyra and Gibson (2016)³, PA participation can be conceptualized as any bodily movement that expends energy and can include physical fitness exercise, sports, performance arts, play, and active transport. Participation in PA can be structured (organized programs, sports) and unstructured (free play, going for a walk), and is influenced by social, scientific, economic, political, geographical and individual mechanisms that shape bodily movement(s). For children with ASD, PA can increase aerobic capacity, enhance strength, improve motor control, and improve overall fitness⁴. Furthermore, PA can facilitate the

creation of routines and schedules, reduce stress and anxiety, increase self-efficacy and self-esteem, and enhance overall psychological well-being^{5,6,7}. PA participation has also been shown to have positive benefits in managing some symptoms and behaviors^{8,9}. For example participation in jogging, martial arts, and horseback riding has demonstrated reductions in stereotypical behaviours such as rocking and hand flapping^{10,11}. Similarly, moderate to vigorous PA has been shown to improve attention, enhance performance on cognitive tasks, enhance communication skills, and decrease self-stimulating/self-injurious behaviours seen in children with ASD^{9,12,13}.

The role of the physiotherapist is to take care of autistic children with motor impairments in the body (for instance; issues with respiratory control and coordination level, improvement in posture, and addressing misalignment in the musculoskeletal system including chest wall deformities).

Aim: The aim of this study was to determine the level of knowledge that Physiotherapy students possess about childhood autism.

METHOD: Study was conducted among 70 Students and an online survey was conducted by Google form. They were made to fill the KCAHW questionnaire Inclusion criteria's were undergraduate students of physiotherapy.

Outcome measure:

Knowledge about childhood autism among health workers (KCAHW) questionnaire
KCAHW Questionnaire (Appendix 1 and 2)

This is a self-administered questionnaire that contained a total of nineteen (19) – item questions. Each of the item questions has three (3) options to choose from with only one of these three options being correct. The correct option on each item question attracts a score of one (1), while the other two options that are incorrect attract a score of zero (0) each.

The KCAHW questionnaire is further divided into four (4) domains:

Domain 1 contained eight (8) item questions that addressed the impairments in social interaction usually found in children with childhood autism. A maximum and minimum score of 8 and 0 respectively are possible in this domain.

Domain 2 Contained only one (1) item question that addressed impairment in area of communication and language development, which is part of symptom presentation in children with childhood autism. A maximum and minimum score of 1 and 0 respectively are possible in this domain.

Domain 3 Contained four (4) item questions that addressed area of obsession and compulsive pattern of behaviour found in children with childhood autism, a pattern of behaviour which had been described as restricted, repetitive and stereotyped. A maximum and minimum score of four (4) and zero (0) respectively are possible in this domain.

Domain 4 Contained six (6) item questions that addressed information on what type of disorder is childhood autism, possible co-morbid conditions and onset of childhood autism in affected children. A maximum and minimum score of six (6) and zero (0) respectively are possible in this domain.

Therefore, a maximum and minimum total score of nineteen (19) and zero (0) respectively are possible when the four domain scores are added together.

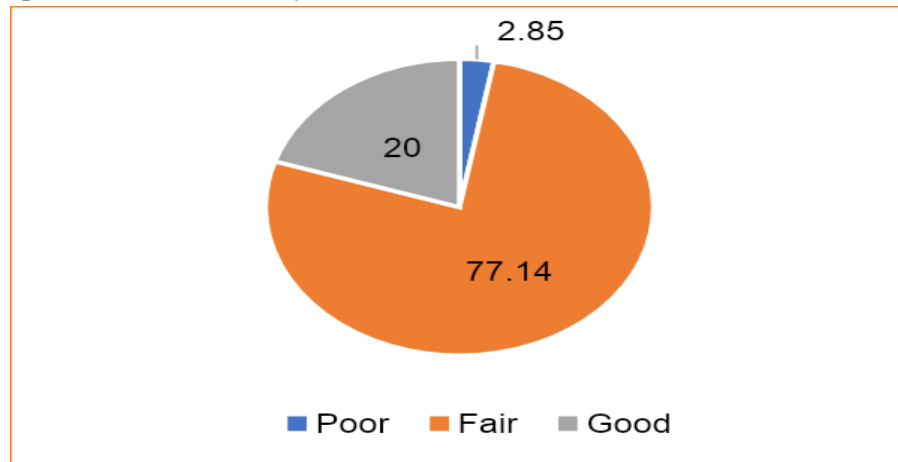
The content of the questionnaire and the scoring system are shown in Appendix 1 and 2.

The mean total score on KCAHW questionnaire among a particular sample population or community is a measure of level of knowledge about childhood autism among that particular sample population or community.

RESULT

Statistical analysis was done using Microsoft Excel 2007.70 students participated in the study. 20%

students had good knowledge, 77.14% students had fair knowledge, 2.85% students had poor knowledge of childhood autism.



Graph 1: Prevalence of KCAHW

DISCUSSION

Present study was conducted on 70 bachelors of Physiotherapy students.

Result shows that, 20% students had good knowledge, 77.14% students had fair

Knowledge, 2.85% students had poor knowledge of childhood autism, out of which 35 were third Year students and 35 students were from final year. The percentage for students having good knowledge of childhood autism were 5.71 and 15.71 of third year and final year respectively, for fair knowledge 34.28 and 41.42 and for poor knowledge 0 and 2.85 for students of third year and final year respectively.

As the students who participated in the study were of third year and final year who were not further differentiated on the basis of their interest in the field of autism. Although final year students are expected to have more knowledge about childhood autism and to provide effective counselling to the families of patients and evaluate patients in holistic manner as compared to that of third year students. This

difference is attributable to the fact that the syllabus covered in the third year along with the duration of clinical experience is less to that of final year students. Therefore this is explained that final year students have higher score in this study.

CONCLUSION

This study concludes that the students have fair knowledge of childhood.

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COORELATION OF FORCED EXPIRATORY VOLUME IN ONE SECOND WITH FORWARD HEAD POSTURE IN YOUNG ADULTS

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ABSTRACT

Background: Forward head posture is the extension of the upper cervical vertebra and flexion of lower cervical vertebra. It usually is seen in individuals who have an increased use of laptops, phones etc. or study for prolonged hours. The assumption of this posture leads to weakening of the accessory muscles of respiration which indirectly or directly may affect the pulmonary functions of the individual as these muscles undergo shortening. So here the need arises to correlate the forced expiratory volume in one second with forward head posture. **Methodology:** 66 individuals with forward head posture participated in the study as per the inclusion and exclusion criteria. Tragus to wall distance measured for forward head posture and forced expiratory volume in one second measured by spirometry as per the ATS guidelines. **Results:** The correlation coefficient 'r' is found to be 0.161 indicating a very weak positive correlation between forced expiratory volume in one second and forward head posture. **Conclusion:** The individuals with forward head posture have reduced forced expiratory volume in one second and there exists a very weak positive correlation between forward head posture and forced expiratory volume in one second but the individuals are asymptomatic and do not suffer from any kind of respiratory problems.

KEYWORDS: Forward head posture, forced expiratory volume in one second.

INTRODUCTION:

Body posture can be defined as a state of alignment of the body for a specific amount of time, while ideal posture describes a state of maintaining balance in the body using minimal musculoskeletal activity without causing pain or discomfort.⁵

Forward head posture is the anterior positioning of the cervical spine which is affecting a large number of the population in the recent years. Forward head posture affects the cervical range of motion which may lead to an increase seen in the thoracic kyphosis. This kind of posture occurs due to the extension of upper cervical vertebra and flexion of the lower cervical vertebra.

Forward head posture is also called as 'text neck', 'wearied neck' and 'scholar's neck'.

The constant assumption of this posture causes abnormal compression on the posterior

zygapophyseal joints and narrowing of the intervertebral foramina in the lordotic areas. The cervical extensor muscles may become ischemic because of the constant isometric contraction required to counteract the larger than normal external flexion moment and maintain the head in its forward position.¹

The fulcrum of the head on the spine is through the occipital or atlas joints. The COG of the head is anterior to the joint axis and therefore has a flexion moment. The weight of the head is counterbalanced by the cervical extensor muscles.²

It is assumed that individuals who experience postural stress to head and neck have developed fatigue and more tension in the cervical extensors i.e. upper trapezius and cervical erector spine.

The forward head position is one in which the neck extensors are in a shortened position and

are strong and the neck flexors are in an elongated position and are weakened.

Respiration is a very complex process and it takes place by the combination of mechanical and non-mechanical factors. It is affected by age of an individual, his or her lifestyle, and posture. During a normal quiet inspiration the muscles that are active are the diaphragm and the external intercostal whereas the expiration is a passive process. Muscles that attach the ribcage to the shoulder girdle head and vertebral column or pelvis may be classified as accessory muscles of ventilation.¹ During active or forced breathing that occurs with increased activity or pulmonary pathologies accessory muscles of both inspiration and expiration are recruited to help meet the increased demands for ventilation.¹

Forward head posture leads to an imbalance as accessory muscles of respiration are weakened which may hinder the normal respiratory function of an individual. Further if there is an affection in the pulmonary functions of an individual he or she may be prone to have reduced lung capacities and vitals and may have a reduced cardiopulmonary endurance.

METHODOLOGY:

The study has been approved by the institutional research and ethics committee and was done in different colleges and localities of Ahmedabad for 3 months. As per the inclusion and exclusion criteria individuals were screened for the study.

Inclusion criteria:

- Male and female between the age group of 18 to 25 years having tragus to wall distance more than 10cm
- Subjects willing to participate

Exclusion criteria:

Individuals with:

- Any cardiopulmonary disorders
- Any recent cardiopulmonary surgeries
- Smokers and ex-smokers
- Chest deformities and other cervical deformities

- Systemic illness
- Obesity

So here the need of the study arises to assess the pulmonary functions of individuals with forward head posture.

Pulmonary functions test are used to test if any type of respiratory dysfunction is present in individuals affected with forward head posture and in this process a lot of parameters are measured which help us to differentiate between an obstructive or a restrictive disease.

66 individuals out of 100 individuals matched the inclusion criteria and they further took part in the study after signing a consent form.

In tragus to wall test, the individual is asked to stand against the wall with the heel touching the wall, the knees straight and back touching the wall and chin tucked in and the distance from the wall to the tragus of the ear is measured. Larger distance from the wall indicates worse cervical or spinal posture. The distance is to be measured by a steel tape measure.^[13]

Pulmonary function tests of the individuals were performed as per the American Thoracic Society guidelines by the means of clarity spirometer and the best of three manoeuvres was recorded.

RESULTS

The data was analysed in Microsoft excel version 2103 and SPSS version 20. The forward head posture was checked by the tragus to wall test where if the distance between the tragus of the ear and the wall was 10 cm or more was considered a forward head posture. The average tragus to wall distance found was 11.17cms.

Normality of the data was checked by applying the kolmogorovsmirnov test and the p value found was less than 0.05.

The correlation was done between forced expiratory volume in one second to the tragus to wall distance and the r value was found to be 0.146.

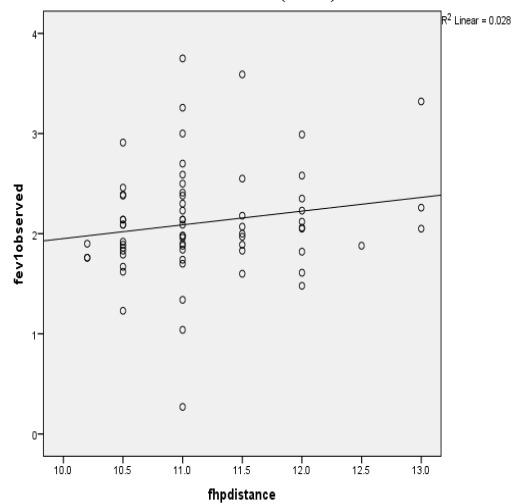


Figure 1 – tragus to wall test

Table 1– shows the correlation coefficient between the tragus to wall distance (twd) and forced expiratory volume in one second (fev_1)

			TWD	fev1 observed
Spearman's rho	TWD	Correlation Coefficient	1.000	.161
		Sig. (2-tailed)		.196
		N	66	66
fev1 observed	fev1 observed	Correlation Coefficient	.161	1.000
		Sig. (2-tailed)	.196	
		N	66	66

Graph 1- shows the scatter plot of forced expiratory volume in one second (fev_1) and tragus to wall distance (two)



DISCUSSION:

The study was carried out in Ahmedabad where 66 individuals between the age of 18 to 25 years of age with forward head posture performed pulmonary function tests and the forced expiratory volume in one second of these individuals was recorded. The results obtained showed that there exists a positive correlation between the two parameters that means as the value of the tragus to wall test increases so will forced expiratory volume in one second.

Baghery Hojat et al.,¹⁴ in 2011 studied the effect of different sitting posture on pulmonary functions in students and found that there are differences in pulmonary functions when they were performed in three different postures such as slumped, kyphotic, normal and standing posture where the slumped posture showed the lowest values in FEV1, FVC. They explained the reasons as the slumped posture causes an increase in the intra-abdominal pressure which makes it difficult for the diaphragm to descend downwards as the ribs get approximated towards the pelvis.

Hamayun Zafar et al.,¹⁵ in 2018 studied the effects of different head and neck posture on respiratory functions in healthy males and found that there are differences seen in the values of pulmonary functions when an individual is asked to assume a forward head posture and a torticollis posture. There seems to be an immediate effect on the respiratory function of the individuals because of the induced different head and neck postures. The decrease in values in pulmonary functions in an induced forward head posture may be attributed to a variety of reasons such as, the forward head posture has a bearing effect on chest expansion and respiratory muscle activity leading to reduced alveolar ventilation. Other one reason may be due to the entrapment of the phrenic nerve when the forward head posture is assumed.

This study showed a very weak positive correlation between the two parameters which

can happen because due to assumption of forward head posture the upper cervical vertebra goes into extension and the lower cervical vertebra goes into flexion and the centre of gravity shifts anteriorly due to which the neck flexors have to work more efficiently to stabilize the spine. This in turn leads to changes in spine mobility and shows reduced thoracic mobility due to which the pulmonary functions are affected.

A study done by Jeong;-il Kang Et Al¹¹ in 2017 stated that a positive correlation is found between forced vital capacity (FVC) and craniovertebral angle (CVA). They explained that forced vital capacity (FVC) reduces with the forward head posture and the activity of sternocleidomastoid, anterior scalene increases. The individuals though showing a reduction in the values of the pulmonary functions do not show any clinical symptoms or reduction in chest expansion.

CONCLUSION:

The study concludes that there exists a linear relationship between forward head posture and forced expiratory volume in one second but the individuals do not show any kind of clinical symptoms or reduction in chest expansion.

CLINICAL SIGNIFICANCE:

Individuals with forward head posture may have a decreased cardiopulmonary endurance which should also be taken into account when an exercise protocol is being prescribed and also postural correction exercises should also be added.

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KNOWLEDGE OF PELVIC FLOOR DISORDERS IN YOUNG ADULT FEMALES

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ABSTRACT

Introduction: Pelvic Floor Dysfunction such as urinary incontinence, pelvic organ prolapse are common conditions among adult females. In India research has reported prevalence rate of 21% with 19.02% of the women experiencing urinary incontinence and 1.99% experiencing pelvic organ prolapse. Females suffer significant physical and emotional distress from PFDs, including depression, loss of self-esteem, and social isolation. Compared to females who seek care, non-care-seeking women are more likely to believe that PFDs are normal part of aging and teleport that they are unaware of available treatment options. AIM-The aim of the study is to assess knowledge of PFDs among young adult females. Need of study-Insufficient knowledge and misperceptions about PFDs are thought to represent largest barriers to seeking care. Our current understanding of women's knowledge of PFDs obtained using validated tools is limited. Thus arises need for study. **Method-**Study was conducted among 127 young adult females; with age group of 18-35yrs and involved in nonmedical fields - an online survey was conducted by Google form. **Outcome measure:** Prolapse and Incontinence Knowledge Questionnaire. **Result-** 45.66% females had good knowledge, 48.81% females had fair knowledge, 5.51% females had poor knowledge of PFDs. **Conclusion-** There is average knowledge of Pelvic Floor Disorders in young adult females.

KEYWORDS-Knowledge, Young adult females, Pelvic floor disorders (PFDs) Pelvic organ prolapse, Urinary incontinence

INTRODUCTION:

Pelvic floor disorders (PFDs) are a broad category of disorders in the gynaecological, lower urinary and gastrointestinal tract that affect the structure and function of organs in the female pelvis. Pelvic Floor Dysfunction (PFD) is defined as presence of any of the symptoms such as

'Urinary Incontinence (UI)', 'Faecal Incontinence (FI)', 'Pelvic Organ Prolapse (POP)', 'sensory or emptying abnormalities of the lower urinary tract', 'defecation dysfunction', 'sexual dysfunction' and 'chronic pain syndromes', which can present separately or coexist. Pelvic floor disorders (PFDs) such as urinary incontinence (UI), faecal incontinence (FI), and pelvic organ prolapse (POP) are common conditions seen among adult women.

In India research studies have reported prevalence rate of '21% with 19.02% of the women' experiencing urinary incontinence and 1.99% experiencing pelvic organ prolapse. The prevalence of incontinence was found to be

'18.6%' in another study where the prevalence was reported in '12.5% of prime mothers' as compared to '26.4% in multiple child births'.

Vaginal delivery has been repeatedly mentioned as one of the main contributing factor for affecting normal structure and function of female pelvic organs. Reviews have showed that women who have vaginal delivery are having more risk for 'pelvic floor dysfunction' than women who have caesarean birth and also it increases with 'multiple child births'. Pelvic floor dysfunction can affect quality of life in women. These problems affect the women's health very badly and disrupt the quality of life of women as they get older. Women suffer significant physical and emotional distress from PFDs, including depression, loss of self-esteem, and social isolation. Additionally, UI and FI are common motivating factors for placing family members in nursing homes.

Insufficient knowledge and misperceptions about PFDs are thought to represent the largest barriers

to seeking care. Compared with women who seek care, none care-seeking women are more likely to believe that PFDs are a normal part of aging and to report that they are unaware of available treatment options or that they fear the need for invasive procedures. Moreover, many individuals do not consider UI symptoms to be a medical problem and thus may not provide information about their symptoms to their providers.

Our current understanding of women’s knowledge of PFDs obtained using validated tools is limited. Most studies focus only on UI or on women already seeking care. They create a significant economic burden and negatively affect a woman's quality of life. Effective treatments exist, and early awareness of the existence of these disorders might help in the development of primary prevention strategies. Addressing the prevalence and awareness of these disorders among adolescents might help reduce the burden of these disorders among women as they age and empower women to seek early and proper treatment.

METHODOLOGY:

Study design: An observational study was conducted in young adult females with age group between 18 to 35 years; individuals not involved

Graph 1- Showing the number of respondents to their age between 18 to 35 years



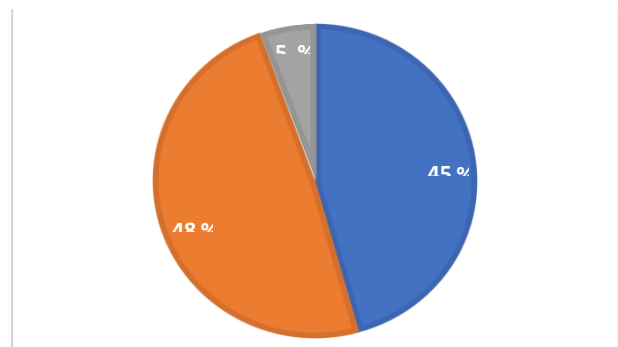
in medical or paramedical practices. A total of 127 young adult females fulfilling required needs participated in this study. A self-administered Prolapse and Incontinence Knowledge Questionnaire (PIKQ) was filled by participants via Google form.

Study measurements and outcomes: Participants’ knowledge about UI and POP was assessed by previously validated PIKQ, a 22 item questionnaire that includes 12 questions focused on UI knowledge (UI scale) and 10 questions focused on POP knowledge (POP scale). Each question had 2 possible responses- agree and disagree. As per scoring criteria 1 point was allotted for each correct response and 0 point for each wrong response. All the questions were required. Demographic information obtained included name, age, education, marital status, menstrual status, parity.

RESULT:

Overall; 127 respondents completed the questionnaire and the mean age of respondents is 25 within the age group of 18 to 35 years.

Graph 2 – Showing percentage of knowledge of PFDs in young adult females



As per the scorings; the results were divided into 3 groups- consisting of good knowledge, fair knowledge and poor knowledge. Of which, 45.66% females had good knowledge, 48.81% females had fair knowledge, 5.51% females had poor knowledge about Pelvic Floor Disorders.

DISCUSSION:

The high prevalence rates of PFD in females are an important medical and socio-economical problem. It is seen that women are reluctant to seek help even if they have any pelvic floor related problems. The present study evaluated the knowledge of pelvic floor disorders in young adult female's ages 18 to 35 years and involved in non-medical fields. From those who responded to online survey-revealed those overall 48.81% females had average knowledge about pelvic floor disorders. All the respondents were educated as per their educational demographic data. Though 45.66% females had good knowledge; still education about pelvic floor disorders in particular perspectives is required. Like, knowledge about treatments available for urinary incontinence, multiple births causes urinary incontinence, blood tests in pelvic organ prolapse.

Mellville et al. found an interesting relationship between knowledge and behaviour; women who believe that the cause of their UI is out of their control (e.g. part of being female, due to childbirth) may believe that nothing can be done to treat it).

Hermansen et al. showed that 76% of women who experienced UI after delivery were convinced that they had become incontinent due to weakened PFM and because they had not performed sufficient PFM exercises. One may assume that knowledge about PFM and PFD could positively affect care-seeking behaviour.

Our study shows that knowledge and/awareness about pelvic floor related treatments and

disorders is required in up to some extent. Thus it can help to get a better quality of life. Knowledge about pelvic disorders in young females can help them get a better quality of life throughout their life i.e. in their old age; which can reduced care and dependency in basic activities in life.

CONCLUSION:

Our study concludes that there is average knowledge in most of the young adult females.

Also awareness in particular area pelvic disorders is required in them.

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SECTION III RESEARCH ABSTRACTS OF PAPER PRESENTED

EFFECT OF TRANSCRANIAL DIRECT CURRENT STIMULATION IN PLAYERS WITH ANKLE SPRAIN.

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INTRODUCTION: Ankle sprains are the most common sports injury that projects a huge burden to the players psychologically as well as financially. Injury at the ankle joint causes local as well as distant defects in the central nervous system. The interventions modulating defects centrally as well as peripherally can be of great significance to treat the condition. **OBJECTIVE:** The present study aims to estimate the effect of Transcranial Direct Current Stimulation on Pain, Range of Motion and Balance in Players with Ankle Sprain. **METHODOLOGY:** The present study was a randomized, controlled participant blinded trial. Twenty players aged between 16 to 30 years with the history of ankle sprain were recruited and were assigned in two groups. Group A received active tDCS stimulation and Group B received sham stimulation of 2mA for 20 min for five consecutive days. The outcome variables were pain (VAS), range of motion at the ankle joint and balance measured by Y-balance test measured at the baseline and post intervention. **RESULT:** There was significant reduction in pain ($p = 0.039$) and significant improvement in range of motion in dorsiflexion ($p = 0.043$) and plantar flexion ($p = 0.019$) at the ankle joint when between group comparisons were done. Whereas, no significant improvement in balance ($p = 0.502$) was observed when between group comparisons were done. **CONCLUSION:** The application of tDCS is effective in decreasing pain and improving range of motion but ineffective for improving balance in players with ankle sprain. Exercises that can improve balance and proprioception can be added in conjunction with tDCS to improve the performance in players with ankle sprain. **KEYWORDS:** Ankle injuries, Anodal stimulation tDCS, Visual analogue scale, Joint flexibility.

PHYSIOTHERAPY MANAGEMENT IN BENIGN PAROXYSMAL POSITIONAL VERTIGO: A SYSTEMATIC REVIEW

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OBJECTIVE: To gather the literature available on the Brandt Daroff exercises as Physiotherapy Management in Benign Paroxysmal Positional Vertigo. **DATA SOURCE:** PubMed, Cochrane Library and Google Scholar. **ELIGIBILITY CRITERIA:** RCT's focusing on Physiotherapy management of BPPV, articles published in English language till June 2021. **INTERVENTIONS:** Brandt Daroff exercises alone or in combination with other repositioning manoeuvres and habituation exercises used as a management of Benign Paroxysmal Positional Vertigo. **RESULTS:** 10 articles out of 563 articles were included in the study and the result showed that 7 out of 10 studies were in favour of Brandt Daroff exercises and have shown that Brandt Daroff exercises are an effective manoeuvre in improving the symptoms of BPPV patients but 3 studies disagree with the effectiveness of these exercises. **CONCLUSION:** Brandt Daroff exercises are an effective manoeuvre in improving the symptoms of Benign Paroxysmal Positional Vertigo patients.

KEYWORDS: BPPV, Brandt Daroff exercises, Repositioning manoeuvres

DEVELOPMENT, PSYCHOMETRIC EVALUATION AND TRANSLATION OF QUESTIONNAIRE TO EXPLORE KNOWLEDGE, BARRIERS, FACILITATORS AND PREFERENCES TO PHYSICAL EXERCISE IN CANCER SURVIVORS

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BACKGROUND: Physical exercises have been found to reduce the risk and commodities faced by the cancer survivors but it has been reported that there is a decline in the participation of physical exercises because of many factors. Thus, there is a need to develop and validate a questionnaire to study these factors. Moreover, these factors are not studied in Indian population for which there is a need to translate the developed questionnaire in Hindi language. **AIM:** To develop, validate and translate a questionnaire to explore knowledge, barriers, facilitators and preferences to physical exercise in cancer survivors. **PARTICIPANTS:** The content validity was established with a panel of five (5) experts. The experts were Physiotherapist, who had minimum of three years' experience exclusively in academic /clinical practice on cancer survivors. The item-reliability was established with hundred (100) cancer survivors. **MATERIALS AND METHODS:** The draft questionnaire were formulated by the investigator after extensive literature review and through in depth qualitative interviews. A Delphi process was done to validate the developed questionnaire, after which the questionnaire was tested for internal consistency by testing it on 100 cancer survivors. It was then translated into Hindi language which was again tested for internal consistency by getting the response from 100 cancer survivors. **STATISTICAL ANALYSIS:** The content validity ratio was calculated based on the responses of the experts. The Chronbach's alpha was calculated for internal consistency for both the original English as well as the translated version by using Microsoft Excel 2010. **RESULTS:** The content validity ratio for each domain was between 0.7 to 1, for the complete original English questionnaire was 0.88. The Chronbach's alpha was 0.99 and 0.98 for the original English and the translated version respectively. **CONCLUSION:** The questionnaire can be used as an effective valid and reliable tool to explore knowledge, barriers, facilitators and preferences to physical exercise in cancer survivors.

KEY WORDS: Cancer survivors, Knowledge, Barriers, Facilitators, Preferences, Physical exercise

EFFECTIVENESS OF A REHABILITATION PROTOCOL POST DECOMPRESSIVE CRANIOTOMY FOR IMPROVED FUNCTIONAL OUTCOMES- A CASE REPORT

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OBJECTIVE: Traumatic Brain Injury tends to be the most common cause for inflow of patients in any Neurosurgical department. Among these neurosurgical treatment strategies the most invasive technique is Decompressive Craniotomy, which has its own disadvantages and associated comorbidities. Patients were seen to be associated with arousal abnormalities, chest infections, motor abnormalities and prolonged immobilization or hospitalization. Such patients are generally referred for physiotherapy interventions after development of comorbidities within an ICU based setting. However, through this case report we tend to emphasise the effect of early physiotherapy intervention in such cases. **CASE DESCRIPTION:** A 27 year old male underwent an Invasive traumatic brain injury after which he was taken to Neurosurgery department of an esteemed hospital. There he underwent Decompressive right FTP Craniotomy. The patient was subjected to physiotherapy intervention from the first day post-surgery after ensuring that the vitals were stable and a rehabilitation protocol of 15 days consisting of intervention strategies like chest physiotherapy, limb physiotherapy, sensory and motor re-education was devised for early recovery of patient. The treatment was rendered for 60 minutes once a day and was divided into 4 sections. The primary outcome assessed was Early Functional Ability Scale to assess the overall functional outcomes and secondary outcomes Glasgow Coma Scale (GCS), Coma Recovery Scale- Revised (CRS-R), Medical Research Council (MRC) Scale, Modified Ashworth scale (mMas), Sensory Modality Assessment Rehabilitation Technique (SMART) and Montreal Cognitive Assessment Scale (MoCA) were used. The pre-test readings were taken on the very first day post-surgery post consent from patient's family and post readings were calculated after completion of 15 days of protocol. **RESULT:** There was a major difference between the pre-test and post-test values of scales like EFA, GCS, CRS-R, SMART, and mMas which showed that the outcomes were significantly improved with the help of rehabilitation protocol. However the values of MoCA did not show any significant differences. **DISCUSSION:** The functional outcomes enhanced significantly within a span of 15 days from the day of surgical intervention. There was also marked reduction in development of comorbidities like bed sores, flaccid muscle tone and slow arousal from unconscious state as compared to patients who did not receive the Rehabilitation protocol. However the results were not in favour of improved cognitive abilities which are due to improper treatment regime provided specifically for improving cognition. At the time of discharge, the patient was advised with some home exercises program and was discharged on the 20th day of surgery which was lesser as compared with those without the rehabilitation program intervention. **CONCLUSION:** The rehabilitation protocol was not only feasible but it reduced the period of hospitalization of the patient and improved his functional outcomes also.

KEYWORDS: Consciousness, Craniotomy, ICU, Physical Therapy, Traumatic Brain Injury

EFFECTIVENESS OF DIFFERENT BEHAVIORAL INTERVENTIONS ON GESTATIONAL WEIGHT GAIN AND POST-PARTUM WEIGHT RETENTION IN PREGNANCY

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BACKGROUND: The antenatal and postnatal periods are important stages in the reproductive life of females. Pregnancy leads to many physical changes in a female's body such as water retention and excessive weight gain. The aim of this study was to find out the effectiveness of various behavioural interventions during pregnancy to prevent the excessive gestational weight gain and post-partum weight retention. **METHODS:** One hundred fifty pregnant women were randomized into five groups (N= 30 in each group): (A) Control; (B) Supervised exercise; (C) Pedometer; (D) Text message; and (E) Pedometer and text message group. Pregnant women with gestational age of less than 16 weeks, having singleton pregnancy, a BMI ≥ 18.5 kg / m² and an availability of mobile phone were selected for the study. Group B received four supervised exercise sessions per month up to delivery at the hospital, group C and E were encouraged to improve physical activity levels, focusing at a step count of at least 5000-7500 steps per day assessed by pedometer on seven consecutive days per month and group D received standard SMS related to physical activity, diet, motivational, and educational specific. **RESULTS:** The result of the study reports a greater reduction in PPWR in the supervised exercise group as compared to the other groups (p<0.05). The supervised exercise sessions along with the use of pedometer and text messages were found to increase the levels of physical activity during pregnancy. **CONCLUSION:** It can be concluded that the supervised exercise sessions is an effective approach to reduce excessive post-partum weight retention.

KEYWORDS: Pedometer, Supervised exercise, Text message, Gestational weight gain, Post-partum weight retention.

COMBINED EFFICACY OF NEUROMUSCULAR EXERCISE AND NEUROMUSCULAR ELECTRICAL STIMULATION IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS: CASE REPORT

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INTRODUCTION: This report entails a case of 50 years old female suffering from grade III bilateral knee osteoarthritis managed with neuromuscular exercises (NEMEX) and Neuromuscular electrical stimulation (NMES) with conventional methods for 6 weeks and follow up period was of 10 weeks. **CLINICAL FINDINGS:** Patient was suffering from pain, decreased range of motion in extremities, crepitus and mild swelling. Patient also complained of altered balance and mobility skills. **OUTCOME MEASURES:** Outcome measures used were VAS, KOOS, DGI, CBM&S and TUG and knee joint range of motion (ROM). **CONCLUSION:** After 6 weeks of treatment there was reduction in pain measured on VAS from 8/10 to 2/10. ROM increased from 90.4° to 102.5° in R leg and 110.7° to 121.6° in L leg. KOOS total score was improved from 157 to 296. Falls prediction by DGI scoring was also improved from 13 to 19. Balance and mobility by CBM&S was improved from 29 to 58. Timing for TUG also reduced from 21 seconds to 13 seconds. So it can be suggested that NEMEX and NMES can be used as first line of treatment in patients with knee osteoarthritis.

KEYWORDS: Osteoarthritis, NEMEX, NMES, Balance, KOOS, Case report.

EFFECTIVENESS OF PEMF IN DIFFERENT MUSCULOSKELETAL DISORDERS: A NARRATIVE REVIEW

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BACKGROUND: Musculoskeletal disorders are increasing continuously according to data achieved from various studies conducted in last few years and various methods of their management are available. Electromagnetic fields (EMFs) have been increasingly used as an alternative or adjunctive treatment option for musculoskeletal disorders (MSDs) like fractures, arthritis and osteoporosis. Pulsed electromagnetic fields (PEMFs) are known to be a non-invasive, safe and effective therapy agent without apparent side effects. **OBJECTIVES:** To appraise the literature by summarizing the findings of current evidence on effectiveness of PEMF in management of different musculoskeletal disorders. **METHODOLOGY:** We included English journal articles that focused on various musculoskeletal disorders managed by PEMFs. A database search was conducted using the following resources: PubMed, Google Scholar, Cochrane, and SCOPUS. **RESULTS:** PEMF illustrates lots of possibility to become a separate or complementary management method for treating various musculoskeletal conditions, due to its high efficacy and minimum risk factors. **CONCLUSION:** Several issues remain unresolved. Prior to their widely clinical application, further researches from well-designed, high-quality studies are still required to standardize the treatment parameters and derive the optimal protocol for health-care decision making. In this review, we aim to provide current evidence on the mechanism of action, clinical applications, and controversies of PEMFs in musculoskeletal disorders.

KEYWORDS: Musculoskeletal Disorders; Electromagnetic field; PEMF, Management; Bone fracture; OA; osteoporosis; Fibromyalgia ;LBP; Patellofemoral pain; Mechanism of Action.

IMPAIRMENT OF MEMORY IN STROKE: A COMPARATIVE STUDY

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INTRODUCTION: Stroke occurs due to narrowing or bursting of blood vessels around the brain leading to various consequences, one of which is cognitive impairment. **OBJECTIVE:** The objective of this study was to find out impairment of memory in patients with and without stroke. Also to find if there is any relation of memory with acute or chronic stage and gender. **METHODOLOGY:** A survey was performed on eighty subjects, 40 stroke, and 40 normal subjects of same age group (25-85 years). The primary outcome measure used was Post Graduate Institute Memory Scale. No intervention was used. **RESULT:** Result suggests that there is statistically significant difference in memory between Stroke patients and normal subjects of same age. There is insignificant difference in memory between Acute and Chronic stroke subjects. There is insignificant difference while comparing memory in males and females suffering from stroke but there is significant difference in memory while comparing memory in males suffering from stroke and normal male individuals. Similarly, there is significant difference in memory while comparing in females suffering from stroke and normal female individuals. Effect on various domains of memory is also evaluated. **CONCLUSION:** Study suggests that stroke plays a significant role in affecting the memory.

KEYWORDS: Stroke, Memory, Cognitive impairment, Retentions.

PHOTOBIMODULATION THERAPY IN TRAUMATIC BRAIN INJURY

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BACKGROUND: Skull fractures, intracranial haemorrhages, raised intracranial pressure, and cerebral contusion are all examples of traumatic brain injury (TBI). Despite stroke, which is frequently associated with the elderly, TBI primarily affects young people. TBI, whether caused by accident or caused, is a significant health and socioeconomic issue all over the world. Laser (or light) therapy is used throughout the clinical for a variety of medical purposes, including cell and tissue death prevention, injury healing and repair stimulation, and pain, oedema, and inflammation reduction. The pro-angiogenic impact of laser therapy, which has been widely documented in wound healing and other research, may be essential in TBI. An additional mechanism of action leading to improved outcomes following transcranial laser therapy to the brain could be neurogenesis or neuroplasticity (synaptogenesis). Increased expression of neurotrophins like Brain-derived neurotrophic factor (BDNF) and Nerve growth factor (NGF) may drive these processes (NGF). The purpose of this scoping review was to identify and synthesize literature on dosage variables on the efficacy of low-level laser therapy (LLLT) for traumatic head injury conditions. **METHODS:** A scoping literature review was conducted by searching the following databases: the Cochrane Library, pubmed, scopus, and online guidelines. We have used “arksey and o'malley framework” for reviewing the available studies on laser therapy in head injuries for this scoping review. Articles were included if LLLT was used in any treatment group for a neuromusculoskeletal complaint with dosage and effectiveness reported. This was tabulated by source, dosage variables, conditions, outcome measures, and conclusions. Data were charted in Excel format. Frequency counts were performed on ordinal data. Descriptive statistics were computed for the continuous data. **RESULT:**A total of 14 articles were included in the review. They revealed a use of laser therapy in neurological conditions and diverse dosage parameters. Four individual articles were found that would alter the dosage. Although duration of application is an independent clinical factor, the negative-outcome studies were inconsistent in duration. Statistical significant differences were noted between the dosage parameters and efficacy. **DISCUSSION:** A statistically significant improvement in functional outcome was obtained in patients with head injury Patients with a mild TBI do not show any evidence of intracranial pathologies such as bleeding, subdural or epidural hematoma and/or cranial fracture on standard imaging HILT is known to boost metabolism and accelerate blood circulation, resulting in the reabsorption of stored tissue and the rapid elimination of exudates. **CONCLUSION:** Study provides possible intervention approaches for head injury patients HILT intervention is depend on site of stimulation, duration of intervention etc.

KEYWORDS: Laser therapy; Head injury; Rehabilitation.

IMPACT OF EXERCISE ON BONE HEALTH OF PERI-MENOPAUSAL FEMALE

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BACKGROUND: The reduction of ovarian function during peri-menopause has profound impact on female skeletal health. Most studies have been done regarding post- menopausal female's health while only fewer investigation have focused specifically on peri-menopausal bone health and it's prevention through exercise intervention. **Purpose:** The aim of this literature review is to determine the impact of exercise on bone health of peri-menopausal females and provide information of effective exercise intervention to improve bone health. **METHODOLOGY:** A systemic review of literature was conducted using a number of electronic databases: Pub-med, Ingentaconnect.com, Europepmc.org and Cambridge.org, published between 2001 to 2020. Following studies were searched by using keywords peri-menopausal female, exercise and bone health. Total of 21 articles were taken out of which 4 were excluded, as they lacked evidence in peri-menopausal female study, again 17 were reviewed, out of which 4 were excluded on the basis of exercise intervention and remaining 13 were reviewed again where 5 were excluded for not specifying about bone health and remaining 8 article were confirmed having evidence on peri-menopausal female, exercise intervention and their bone health. **RESULTS:** Total of 8 articles were included into study for the literature review in which 5 studies strongly defends that exercise have positive effect on bone mass density, 3 studies support that exercise prevents bone loss and 1 justifies exercise contribute to increase in bone mass density. **CONCLUSION:** This study concludes, exercise can prevent osteoporotic condition, stress fractures and even improves the quality of life.

KEYWORD: Peri-menopause, bone health, exercise.

EFFECT OF JANDA’S APPROACH VERSUS CORE STABILITY EXERCISE IN CHRONIC NON-SPECIFIC LOW BACK PAIN – A COMPARATIVE STUDY

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BACKGROUND - Non-specific low back pain is the pain that is not because of the determined known pathology. It is typically associated with pain, soreness and/or stiffness in the lower back region and functional disability in the patients. ‘S’ shaped posture of the lower back identified by tight hip flexors and back muscles paired with weak abdominal muscle and gluteus Maximus muscle is defined as lower crossed syndrome. Janda’s approach of treatment is based on the lower crossed syndrome in which stretching of tight muscles and strengthening of weak muscles are given. **METHODOLOGY** - Comparative study was conducted between 2 groups and consent of the patient was taken prior to the study. Group A (n=20) was the janda’s approach group and group B (n=20) was the core stability exercise group. Exercise performed for 3days/ week for 4 weeks. Pre and post treatment NPRS and MODI scale were taken. **RESULT** - Unpaired t-test was used and p- value is 0.000 so, statistically proven that there was significant difference between **GROUP A AND GROUP B** in patients with non-specific low back pain **CONCLUSION** - This study concluded that janda’s approach and core stability exercise both are the effective treatment for chronic non-specific low back pain but janda’s approach is more effective than core stability exercise in reducing pain and improving function.

KEYWORDS: - non-specific low back pain, janda’s approach

**EFFECT OF CERVICAL CORE STABILITY TRAINING ON ACTIVATION SCORE,
PERFORMANCE INDEX AND GRIP STRENGTH AMONG YOUNG ADULT CRICKETERS: A
RANDOMIZED CONTROL TRIAL**

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BACKGROUND: Cricket is a game of strength and endurance, which demands high level of fitness and skills like upper limb power, and grip strength. The most common types of injuries are fractures, dislocations and contusions, especially finger injuries. Improvement of hand strength is very essential for better performance in sports that involves hand activity. Cervical core muscles are important for maintaining normal posture and stability of cervical spine and shoulder posture which transfer the forces to upper extremity and improve athletic function. **AIM AND OBJECTIVES:** The aim of present study is to investigate the effect of cervical core stability training on cervical core strength (AS), endurance (PI), grip strength in young adult batsmen. **METHOD:** Total 36 cricket players (Batsmen) were selected for study. Participants were divided into experimental group and control group, eighteen players in each group. Group A were given cervical core stability training and grip strengthening exercises and group B were given grip strengthening exercises for 5 days per week to 4 weeks. Hand held dynamometer for grip assessment and pressure biofeedback unit for the core strength and endurance were taken as an outcome measure for the study. **RESULT:** For statistical analysis, within group comparison Wilcoxon signed rank test and between group comparisons Mann-Whitney U test was applied. The result shows group A and group B were significantly effective, but group A has shown statistically more significant improvement in grip strength and cervical core strength and endurance than group B. **CONCLUSION:** The study concluded that Both the techniques cervical core stability training and grip strengthening were individually effective however, the cervical core stabilization group was suggesting more improvement in all outcome than control group.

KEY WORDS: Cervical core, Batsmen, Gripping, DCF, AS, PI

**TITLE: EFFECT OF SMARTPHONE OVERUSES ON HAND GRIP STRENGTH IN
PHYSIOTHERAPY STUDENTS.**

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BACKGROUND: We are in the twenty-first century, also known as the information age. The use of smartphones has grown tremendously in recent years, which can affect the physiological and psychological changes. Smartphone users frequently experience these symptoms, including headaches, hand tremors, and finger numbness etc. There is a need to investigate the relationship between smartphone usage and hand strength because there is a paucity of literature regarding the relationship between smartphone addiction and its effect on the musculoskeletal system and peripheral nerves. **METHOD:** Smartphone users were assessed by smartphone addiction scale-short version (SAS-SV) and allocated in two groups according to SAS-SV score. 100 students were taken and divided into 2 groups. Group A which had score <84 and group B which had >84 score. NPRS and DHI scales were taken. Hand grip strength was measured in dominant and non-dominant hand by using Hydraulic jamar hand dynamometer. **RESULT:** There is significant difference of p value <0.05 in high and low smartphone users of right dominant hand grip strength to left dominant hand grip strength within the groups. **CONCLUSION:** There is decreased hand grip strength of right dominant hand subjects in both groups compare to non-dominant hand. The left dominant hand grip strength of low and high smartphone users is increased compare to non-dominant hand. In between the groups there is no changes in hand grip strength.

KEY WORDS: Smartphone addiction scale, hand grip strength, High smartphone users, Low smartphone users.

EFFECTS OF PLYOMETRIC TRAINING ON POWER AND AGILITY IN FOOTBALL PLAYERS

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INTRODUCTION: Plyometric training is defined as a quick, powerful movement involving an eccentric contraction, followed immediately by an explosive concentric contraction. A systematic and progressive plyometric training program is a vital component of any integrated training program. Plyometric or stretch shortening cycle exercises are a very popular training tool for the development of explosive strength and power in a wide variety of athletes. **MATERIAL:** Pen, data collection form, measure tape, cones, chalk, stopwatch. Experimental study was done in school of physiotherapy, R.K. University convenient sampling method was taken between age group 18 to 25 years Study Sample was 30subjects Study Duration was 1 month. **METHOD:** Samples selected based on inclusion and exclusion criteria. Informed consent of participants was taken priory. Education was given verbally to participants. Pre assessment of each participant was taken on day 1. Plyometric training was given for 3 weeks and post assessment of each participant was taken at end of 3rd week. Inclusion criteria: Gender: male Age – 18 to 25 years previous history of playing football for one year continued football training three to four times per week were not involved in any type of plyometric training at the time of the study free of lower extremity injuries Exclusion criteria: any history of fracture or suffered any pain during the regime or if they were irregular. History of any cardiovascular, musculoskeletal, neurological problem. **RESULT:** Result analysis was done by using graph prism software. Pre and post comparison of all participants for vertical jump test and T test was done by Paired t test. **CONCLUSION:** Study concluded that there is significant Effect of plyometric training on power and agility in football players.

KEY WORDS: Football players, Vertical jump test, T test, Plyometric training.

EFFECT OF ILIOPSOAS AND HAMSTRING PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION STRETCHING ON LUMBAR RANGE OF MOTION IN CHRONIC LOW BACK PAIN AMONG STUDENTS EXHIBITING PELVIC CROSSED SYNDROME – AN EXPERIMENTAL STUDY

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BACKGROUND: Students tend to spend most of the time in sitting. Due to faulty postures, it results in pelvic crossed syndrome characterized by tight hip flexors and back extensors paired with weak abdominals and gluteal muscles leading to low back pain. **PURPOSE:** The purpose of the study was to evaluate the effects of PNF stretching of iliopsoas and hamstring muscles among students with chronic low back pain. **SUBJECT AND METHOD:** Total 30 subjects aged 18 to 25 years with low back pain were included in the study. Out of which 15 were treated with PNF stretching and 15 were given no intervention for 3 days/week for about 2 weeks. They were assessed with Schober's test and Oswestry Disability Index before and after the treatment. **RESULTS:** There was significant decrease in ODI and improved lumbar range of motion after 2 weeks of treatment program. **CONCLUSION:** As per the results, iliopsoas and hamstring PNF stretching exercises are proven to be effective among college students with chronic low back pain.

KEY WORDS: Pelvic crossed syndrome, PNF stretching, Low back pain, Students.

**EFFECT OF GROSS MYOFASCIAL RELEASE COMBINED WITH FOCUSED MYOFASCIAL
RELEASE VERSUS CAPSULAR STRETCHING ON PAIN AND RANGE OF MOTION IN
INDIVIDUALS WITH ADHESIVE CAPSULITIS: A COMPARATIVE STUDY**

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BACKGROUND: -Adhesive Capsulitis is a condition marked by persistent pain, active and passive inability leading to functional inadequacy at shoulder. It results from contraction of the glenohumeral capsule which adheres to the head of the humerus. Combined release is a myofascial release technique in which Gross Myofascial release and Focused Myofascial release techniques are combined. Stretching intervention can be used less frequently at high intensity levels to enable time for tissue recovery. **METHOD:** -In this study there are total 30 individuals with adhesive capsulitis who have age between 40-65 years will randomly divided 15 into group A with Gross Myofascial release combined with Focused Myofascial release and 15 into group B with Capsular Stretching. Intervention was given for 5 days per week for 3 weeks. Outcome measures were NPRS, SPADI, and Range of motion. **RESULT:** -Statistically in within Group both groups had a significant difference in outcomes ($p < 0.05$) but no significant difference between groups in outcomes. **CONCLUSION:** -Gross Myofascial Release combined with Focused Myofascial Release versus Capsular Stretch were found to be beneficial in decreasing pain, improving functional activities, and increasing range of motion in people with adhesive capsulitis.

KEYWORDS: -Capsular stretching, Gross Myofascial release combined with Focused Myofascial release, Range of motion, Adhesive capsulitis, SPADI, NPRS

**EFFECT OF SWISS BALL EXERCISE TRAINING PROGRAMME ON CARDIOVASCULAR
PARAMETERS IN PHYSICALLY INACTIVE YOUNG ADULTS.**

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BACKGROUND: Inactivity is now becoming a major health concern in modern society. Increase risk of cardiovascular problems in physically inactive individuals is 90% of an individual spending 3.6 hours per day as inactive. The present study was designed to evaluate the effect of Swiss ball exercises training in physically inactive young adults. Swiss ball training programs are most popular trends in physiotherapy and strength and conditioning programs. So, the present aims to determine the effect of swiss ball training programme on cardiovascular parameters in physically inactive young adults. **PURPOSE:** To evaluate the effect of swiss ball training on cardiovascular parameters in physically inactive young adults. **METHODOLOGY:** Experimental study was conducted 30 physically inactive subjects were conveniently selected with age group between 18 to 28 years. Subjects were given IPAQ and with the low score were selected. Swiss ball exercise was given for 4 weeks. Pre and post parameters i.e. BP, HR, CUT, MST was taken.

RESULT: Results were presented as a mean \pm SD. Paired t-test was used for all the outcome measures. Findings indicates significant differences in all the parameters. **CONCLUSION:** Swiss ball exercise training is beneficial to improve cardiovascular fitness and core muscle strength in physically inactive young adults.

KEYWORDS: Physically inactive, cardiovascular parameters, CUT, MST, swiss ball training

EFFECTIVENESS OF TELE-PHYSIOTHERAPEUTIC CONSULTATIONS IN MUSCULO-SKELETAL CONDITIONS- A SYSTEMIC REVIEW

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BACKGROUND: Since past two years, as Covid Era hit the world, we have seen a gradual progress in Rehabilitation studies and technological development. Although the term Tele- Rehabilitation is known for decades but it got the spotlight in this era. The term Telerehabilitation can be defined as the use of internet or telecommunications to provide physical, occupational or speech therapy to patient in their homes.

PURPOSE: The purpose of this research is to determine the effectiveness of Tele-Rehabilitation Strategies in patients with musculoskeletal disorders. **METHODOLOGY:** A comprehensive systematic review of literature was conducted using a number of electronic databases: Google scholar, PubMed, Science Direct published between April 2007 and January 2021. The studies examine the validity reliability patients' feedback and satisfaction of tele-rehabilitation-based Physiotherapy assessment and treatment. **RESULTS:** A total of rehabilitation-based 18 Researches were taken into study related to Tele-Rehabilitation and Musculoskeletal disorders. 15 studies presented the increased acceptance and better results of tele physiotherapy. 3 studies portrait certain limitations in assessment of lumbar spine posture, Orthopaedic special test, neurodynamic test and scar assessment. **CONCLUSION:** TR based physiotherapy was found to be more feasible with good validity and reliability but certain specialized test and treatments require face to face mode of operation.

KEYWORDS: Tele-Physiotherapy; Tele-Rehabilitation; Musculoskeletal; Physiotherapy; Tele-communication; Disorders.

EFFECTIVENESS OF PULSED ELECTROMAGNETIC FIELD IN ONCOLOGY: A LITERATURE REVIEW

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INTRODUCTION: Cancer accounts for a large number of deaths worldwide. Available treatments are associated with many side effects and only a low percentage of patients achieve complete remission. Therefore, there is an urgent need for new therapeutic strategies. For this need, PEMF) therapy presents many advantages which includes non-invasiveness, safety, lack of toxicity for non-malignant cells, and the possibility of being combined with other available therapies. Indeed, various doctors have been using PEMF stimulation for past 2 decades in various cancer types including skin, breast, prostate, hepatocellular, lung, ovarian, pancreatic, bladder, thyroid, and colon cancer in vitro and in vivo. At present, only limited number of applications of PEMF in cancer has been documented in humans. **METHODOLOGY:** In this ROL, we review the experimental and clinical evidence of PEMF therapy discussing future perspectives in its use in oncology. **RESULT:** Studies showed all treated groups showed slower tumour growth rate if compared with untreated control group, confirming that PEMF therapy can modulate the physiology and electrochemistry of cancer cells and influence cell membrane systems and mitosis but the frequency and intensity of every type of cell tumour is different. **CONCLUSION:** These studies have clearly shown that PEMF therapy may exert inhibition in proliferation and disruption in mitotic spindle formation, block the neovascularization development essential for tumour supply and worsen the genetic instability by reducing the completion of the late-cycle (G2) checkpoint. While chemotherapy is non-specific to any kind of cell and targets all rapidly dividing cells PEMFs exert selective cytotoxic effect on cancerous cells making this therapy a highly

promising strategy. **KEYWORDS:** Cancer, electromagnetic therapy, oncology, pulsed electromagnetic fields, tumour-specific frequencies, metastasis.

POSTURAL CHALLENGES FACED BY PEOPLE WORKING FROM HOME (WFH) DURING PANDEMIC; A REVIEW OF LITERATURE.

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OBJECTIVES: The word “covid” has created a chaos and fear in people across the world. Globally, people started new lifestyle during pandemic, which is a new normal. Working from home is one among those which has changed the work from home outline entirely since the same area is utilized for both domestic space as well as workplace. There are high chances of developing WMSDs due to lacks of ergonomic like work place. The aim of this study is to point out the postural issue faced by people working from home during covid era.

METHODOLOGY: A literature review was done using a number of electronic data bases: Google Scholar, journal of comprehensive health, which are published between JUNE 2020- JANUARY 2022 to find the prevalence of postural challenges faced by people who are working from home during pandemic. Total 13 articles were taken for the study. Inclusion criteria are age and no history of any postural issue before starting WFH.

RESULTS: All the 13 articles which were taken for the study explained the postural challenges faced by people working from home and related to WMSDs, concluded that working from home with improper ergonomic setup has an effect on the postural and musculoskeletal health of the participants. **CONCLUSION:** This study shows the remarkable prevalence of postural discomfort encountered by participants working from home during pandemic due to lack of proper ergonomic setup at home despite of being aware of ergonomic posture.

KEY WORDS: Covid-19, WFH, Ergonomics, Pandemic Posture, Musculoskeletal and WMSDs.

COMPARATIVE OF STATIC AND DYNAMIC BALANCE EXERCISE ON PAIN AND BALANCE PERFORMANCE IN SUB-ACUTE ANKLE SPRAIN

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BACKGROUND: Ankle injury is one of the common injuries in athletes & sedentary persons, can cause ankle sprain. Ankle sprains incidence of 61 per 10,000 persons/year. They are the common injury sustained by high school and collegiate athletes, accounting up to 30% of sports injuries in this commonly lateral ligament injury is seen and it rates 75% and 85% of all ankle injuries. **AIMS & OBJECTIVE:** To compare the effect of static and dynamic balance exercises on pain and balance performance in sub-acute ankle sprain.

METHOD: A 36 patients were selected & divided into two groups of 18 patients in each group. Group A treated with Static balance exercise and Group B treated with dynamic balance exercise for 5 sessions/week for 4 weeks. Outcome measures are NPRS, SEBT, FAAM. **RESULT:** The result reveal that both exercises are individually effective to reduce pain measuring with NPRS ($P < 0.05$) and improve balance measuring with SEBT ($P < 0.05$) and FAAM (< 0.05) while comparing both the groups there was no significant difference in-between the groups ($P > 0.05$). **CONCLUSION:** The study shows that both groups were individually effective in improving the pain and function. While comparing both the techniques dynamic balance exercise is more effective in reduction of pain, and improvement of functional ability and balance in ankle sprain.

KEYWORDS: Static balance exercise, dynamic balance exercise, ankle sprain

TO COMPARE THE EFFECT OF CORE STRENGTHENING WITH PHYSIO BALL AND WITHOUT PHYSIO BALL IN PRIMARY DYSMENORRHEA

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BACKGROUND: Dysmenorrhea is one of the gynaecological disorders prevailing in the women. Dysmenorrhea means painful menstruation. Primary dysmenorrhea is one where there is no identifiable pelvic pathology. Core stability exercise is beneficial intervention for management of several medical problems. Core strengthening causes the muscles surrounding the lumbar spine to strengthen and become stronger, allowing them to manage daily demands of normal biomechanics even when the body is stressed by the menstrual cycle.

PURPOSE: To see the effectiveness of core strengthening with physio ball and without physio ball in patients with primary dysmenorrhea. **METHODOLOGY:** Total 40 female students were taken. Subjects were selected on the basis of inclusion criteria and exclusion criteria and questionnaire (modified moos menstrual distress questionnaire) that was filled by the subjects. The subjects were divided into two equal groups by simple random sampling namely group A core strengthening with physio ball and group B core strengthening without physio ball. **RESULT:** The data was entered and analysed by using SPSS software version 25. Significance tests for difference in means was done using paired t tests. **CONCLUSION:** According to the results we can conclude that both the groups, group A-core strengthening with physio ball and group B- core strengthening without physio ball are effective in reducing menstrual pain and strengthening of core muscles but group A was more effective than group B.

KEYWORDS: primary dysmenorrhea, core strengthening, physio ball, menstrual pain intensity, VAS.

EFFECTUALITY OF THERAPEUTIC EXERCISES FOR LUMBAR SPINAL STENOSIS

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INTRODUCTION: Spinal stenosis is a condition in which the nerve roots are compressed by a number of pathologic factors, leading to symptoms such as pain, numbness, and weakness. The degenerative process can be controlled by changes in lifestyle and exercises. **PURPOSE:** To elucidate effectiveness of therapeutic exercises in improving the quality of life of lumbar spinal stenosis patients. **CASE DESCRIPTION:** A 47 years old female, complains about shooting pain, weakness and numbness in left lower limb since past 1 year with difficulty in walking for a longer duration. Visual Analogue Scale at rest is 1 and during activity 8. Forward Head Posture and mild scoliosis towards left was also observed. A positive Straight leg raising, Slump and Quadrant test were found. **OUTCOME MEASURES:** VAS, Oswestry Disability Index (ODI), 6 Minute Walk test (6MWT), SF-36. **RESULTS:** After 10 days, sensation returned and VAS reduced (0 at rest, 4 during prolonged activity) and tandem walking improved. After 25 days, Scores on ODI and 6MWT improved. Patient can walk for 253m without any pain or discomfort, VAS =0 and quality of life improved and patient discontinued the treatment. **CONCLUSION:** Thus, Lumbar spinal stenosis treated with physiotherapy with emphasis on therapeutic exercises achieved satisfactory results and quality of life improved.

KEYWORDS: Lumbar spinal stenosis, physiotherapy, quality of life, therapeutic exercises

TRAUMATIC BRAIN INJURY- A CASE REPORT

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BACKGROUND: Maintaining physical activity is one of the method to prevent disability. TBI is a key cause of death and disability in young adults and becoming more prevalent. In India approximately 1 million cases per year. Annually, these injuries result in approximately 100,000 deaths. **AIM:** A specific physiotherapeutic approach would create significant improvement. The basic purpose of this study was to assess the applicability of an exercise protocol in such a patient. **MATERIALS AND METHODS:** A 40 years old male with a history of road traffic accident had a fracture of frontal bone on left side, after which patient went into coma for 3 months. Patient comes to us after a year with the complaint of difficulty in walking, difficulty in balance and difficulty in speech. We find weakness present on left side of body. And diagnosis is left hemiparesis balance and gait impairment. The physiotherapy protocol was of 8 weeks duration and changed every weeks depending upon patient progress, the protocol aimed at improve the balance and postural abnormalities along with conventional physiotherapy. **OUTCOME MEASURES:** The scale used to identify the patient's condition is Berg Balance Scale, Functional independence measure (FIM), and Barthel index. The scale we used to identify the patient condition. **RESULT:** Patient is having significant changes in balance and gait. Pertaining to the fact that institution based or clinical based rehabilitation is much effective when compared to follow up. **CONCLUSION:** The protocol effectively reduced patient's symptoms and enhanced balance and stability. This case highlights the unexpected recovery of patient which propels that it could be used effectively in future for such cases.

KEY WORDS: TBI, Berg balance scale, FIM, Barthel index

PREVALENCE OF PHYSICAL ACTIVITY AMONG HEALTHY YOUNG ADULTS – AN OBSERVATIONAL STUDY

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BACKGROUND: Physical activity is one of the leading health indicators. WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity refers to all movement including during leisure time, for transport to get to and from places or as part of a person's work. Despite all the health benefits of physical activity, most adolescents worldwide are physically inactive. Low levels of physical activity in young people have been linked to increased rates of obesity, cardiovascular disease and poor mental health. **METHODOLOGY:** Total 100 subject of age 18-35 years were included in study. A standardized "International Physical Activity Questionnaire (IPAQ)" was filled by young adults and submitted through Google forms. **RESULT:** The study was conducted on 100 young adults with mean age 24.88±3.75 years. Data was analysed by Microsoft office excel. 25% showed high levels of physical activity, 45 % showed moderate level & 30% showed low level of physical activity. **CONCLUSION:** It is concluded that majority of young adults are having moderate level of physical activity.

KEYWORDS: Physical activity, IPAQ, young adults

EFFECTIVENESS OF MUSCLE ENERGY TECHNIQUES IN LOW BACK PAIN- A LITERATURE REVIEW

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BACKGROUND : Low back pain (LBP) is responsible for considerable personal suffering due to pain and reduced function. Societal burden due to cost of health care and reduced work productivity makes it even more detrimental. Muscle energy technique (MET) is a manual therapy treatment technique used predominantly by osteopaths and physiotherapists which involves alternating periods of resisted muscle contractions and assisted stretching. It is unclear whether MET is effective in reducing pain and function status in people with LBP.**METHODOLOGY:** A comprehensive literature review was conducted using a number of electronic databases: PubMed, Web of Science and Science Direct published between 2015 and 2020. The initial search yielded 22 articles in which 9 studies were excluded, in which 3 having duplicate articles and 6 are having MET studies for other than low back pain and remaining 13 studies were included for review which having MET studies in low back pain. The following data was searched using the term low back pain, Muscle Energy Techniques and quality of life. Randomized controlled trials assessing the effect of MET on pain or disability in patients with non-specific LBP were included to determine the effectiveness of Muscle Energy Techniques on Low Back Pain.**RESULTS:** A total of 13 experiment-based Researches were taken into the study related to MET and LBP. There were 5 Randomized Controlled Trial in which 3 studies are MET and rest are not showing any significant result, 6 were comparative studies in which 4 studies presented increased acceptance and better results in association with others Manual therapy Techniques than alone and rest having no significant results. Two case studies in which results are in favour of MET. **CONCLUSION:** There is moderate to high validity evidence that supports MET. MET can be more useful with some other techniques in providing improvement in pain reduction, increase muscle strength, improve quality of life and to increase muscle length.

KEYWORDS: muscle energy techniques, low back pain and quality of life.

AN INTEGRATED PHYSIOTHERAPY APPROACH TO UNSPECIFIED CHRONIC ORCHIALGIA – A CASE STUDY

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INTRODUCTION: The term “Chronic Orchialgia” is defined as Testicular Pain (intermittent or constant) of duration 3 months or more, that is significantly bothersome to the patient. **OBJECTIVE:** A single case study design was used to evaluate the effectiveness of Integrated Physiotherapy Approach in a 25-year-old male software engineer with a one-year history of Orchialgia with Left side dominant pain. The patient received treatment from 3 different urologists & was diagnosed differently each time with Varicocele Grade 1, Grade 2 & Epididymitis respectively during the course of 1 year. He also took medications for the same but showed little to no improvement, thereafter referred for physiotherapy evaluation. **METHODOLOGY:** The study involved a duration of 3 months with Release Techniques, Stabilization exercises and Functional Rehabilitation. Two outcome measures Pain Impact Questionnaire and COSI Index were taken for patient’s evaluation. Reading of the outcomes was taken by an independent assessor at baseline and after three months. **RESULTS:** The values of parameters are Pain Impact Questionnaire (pre = 21; post = 10) and COSI Index (pre = 19; post = 6). **CONCLUSION:** Considerable improvements were seen in Pain intensity, Functional Capacity and Quality of life after the physiotherapy rehabilitation. It was observed that the integrated physiotherapy protocol helped in improving the patient with Chronic Orchialgia.

KEYWORDS: Chronic Orchialgia, Testicular Pain, COSI, Pain Impact Questionnaire

THE EFFECTS OF PROGRESSIVE MUSCLE RELAXATION EXERCISES ON THE ANXIETY AND SLEEP QUALITY OF COVID-19 PATIENTS – A LITERATURE REVIEW

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OBJECTIVE: Isolation treatment will cause patients with Corona virus Disease 2019 (COVID- 19) to feel high levels of anxiety and poor sleep quality. Memory, learning, emotions, behaviour, immunological response, metabolism, hormone levels, and many other physiological systems are all affected by a lack of sleep. As a result, sleep has an impact on the prognosis and outcome of COVID-19 patients. Progressive muscle relaxation is simple to learn, does not necessitate a set time or location, and does not necessitate the use of any special technology or equipment. The goal of this study is to see how gradual muscle relaxation affects sleep quality and anxiety in COVID-19 patients. **METHODOLOGY:** An electronic database search (Pubmed, Google scholar, Research gate) was performed from the year 2012-22. Total 25 literatures were found among which only 7 were included for this study. The outcome measures are The Spiel Berger State-Trait Anxiety Scale (STAI), Sleep Condition Self-Assessment Scale (SRSS), and Richards–Campbell Sleep Questionnaire (RCSQ). **RESULT:** Out of the 7 articles, 5 are randomized control trial, 1 observational study, 1 single blind clinical trial the finding suggests that there were significant in eliminating the level of anxiety and the quality of sleep is improved. **CONCLUSION:** patients who contracted Covid-19 were facing many challenges like isolation, treatment and hospitalization and were found to be suffering from sleep deprivation and increased anxiety levels. Progressive muscle relaxation techniques had a positive effect which improved the quality of sleep and reduced anxiety levels among patients suffering from covid-19.

KEYWORDS: Covid-19, anxiety, sleep deprivation

NECK PAIN AND DISABILITY AND ITS CORRELATION WITH SPORTS PERFORMANCE SATISFACTION IN YOUNG BASKETBALL PLAYERS

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BACKGROUND: Basketball is a contact team sport that requires high amounts of strength, flexibility and endurance. Game also carries a high potential of acute and overuse injuries as compared to other sports. Neck pain is common in athletic and non-athletic population and occurs from simple sprains and strains to complex cervical spine injuries. Players have to repeatedly utilize neck movements in attempt to score and aim for the highly placed basket producing resultant neck pain. Pain is also attributed to psychosocial factors such as motivation, anxiety, performance etc. This study correlates neck pain and subjective sports performance satisfaction in young basketball players. **METHODS:** Online survey containing Neck Disability Index (NDI) and Athlete's Subjective Performance Scale was created and link to the survey was sent to different groups of basketball players to fill. Prior to filling, consent was taken. Form contained demographic details and the two mentioned outcomes. 86 players were included according to the age 18-26. Data was obtained in MS Excel and analysed in SPSS v26. **RESULTS:** 86 players (F= 32, M= 54) with mean age of 20±2.0 years participated and filled the online survey. Mean NDI score in % was 18.37±10.13 which suggest mild neck pain and disability and mean ASPS score was 45±7.8 suggestive of good performance satisfaction among basketball players. Spearman correlation indicates negative correlation between the two outcomes ($r = -.639$, $p < 0.001$). **CONCLUSION:** Mild neck pain and disability exist in young basketball players with good performance satisfaction however there is negative correlation between the two.

KEYWORDS: basketball players, neck pain, disability, sports performance, correlation.

EFFECT OF STRENGTHENING EXERCISE TO PREVENT DIASTASIS RECTI IN ANTENATAL WOMEN- A LITERATURE REVIEW

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BACKGROUND: During most of the pregnancies there is a separation seen at the rectus abdominis muscle at linea alba, which is called Diastasis Recti Abdominis (DRA). DRA decreases the abdominal pressure which affects the proper functioning of core muscles and stability of lumbopelvic rhythm during pregnancy, which further leads to difficulty in normal vaginal delivery. Thus strengthening of core muscles in antenatal women has been effective role in preventing DRA. **METHODOLOGY:** A review of literature was conducted using a number of electronic databases; PubMed, science direct, PEDro published between the years 2000 – 2022. Total 25 articles were taken, out of which 7 were excluded for lacking evidence in antenatal women. Then 18 were reviewed, out of which 5 were excluded for not relating with strengthening exercise. Remaining 13 were reviewed again and 5 were rejected due to lack of specification of diastasis recti and finally 8 articles were confirmed which had evidence on antenatal women, core strengthening exercises and prevention of DRA. **RESULT:** 8 evidence-based articles were taken into study for the literature review. 4 articles support that core strengthening exercise had positive effect on preventing DRA. While other 4 clarifies that along with core strengthening, pelvic floor and back postural muscles strengthening were also beneficial. **CONCLUSION:** The study concluded, strengthening exercises prevents DRA and improved lumbopelvic instability. Besides, exercise also minimized the complication during labour improving postnatal recovery.

KEY WORDS: Antenatal, lumbopelvic instability, linea alba.

TO DETERMINE THE EFFECTIVENESS OF PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION (PNF) VERSUS BRAIN GYM EXERCISES TO IMPROVE BALANCE IN DIABETIC NEUROPATHY.

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BACKGROUND: Diabetic neuropathy is linked to a higher risk of falling in the elderly. People with diabetes-related peripheral neuropathy frequently exhibit balance problems, and their postural sway is enhanced, especially when their eyes are closed. Proprioception deficiency can cause poor balance. Movement strategy impairment, biomechanical structural impairments, and disorientation can all contribute to balance issues. **METHOD:** A total of 50 patients were chosen for the investigation. The participants were separated into two groups, each with 25 patients. For four weeks, Group A was given Proprioceptive Neuromuscular Facilitation activities and Group B was given Brain Gym exercises. The Berg balancing scale and the Time up and go test were utilized as outcome measures before and after intervention. **RESULT:** Result were statistically analyzed using paired t-test within group, there was significant improvement in BBS and TUG with $p < 0.05$, an unpaired t-test used in between groups there was significant improvement in Berg balance scale and Time up and go in group A(Proprioceptive Neuromuscular Facilitation) rather than group B(Brain Gym Exercise). **CONCLUSION:** This study concluded that PNF training for four weeks was found to be more beneficial than Brain gym activities for diabetic neuropathy patients with impaired balance.

KEYWORDS: Proprioceptive Neuromuscular facilitation (PNF), Brain Gym Exercise, Diabetic Neuropathy, Balance

EFFECTIVENESS OF LUNG EXPANSION THERAPY IN COVID-19 AFFECTED ADULT POPULATION WITH PRESENTING COMORBIDITY MILD CYSTIC FIBROSIS – AN INTEGRATED CARDIOPULMONARY REHABILITATION

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BACKGROUND: Severe Acute respiratory Syndrome Corona virus 2 (SARS-CoV-2) is a highly contagious single stranded ribonucleic acid (RNA) encapsulated new Coronavirus that emerged in 2019 and causes Coronavirus Disease 2019(COVID-19), it presents influenza-like illness and respiratory tract infection demonstrating fever, cough, fatigue, sore throat and shortness of breath. Based on recent data's infants, geriatric and adult population with at least one co-existing comorbidity like Cystic Fibrosis, Chronic Respiratory Disorders including Chronic Obstructive Pulmonary Diseases, occupational lung Diseases, sleep apnoea syndrome, pulmonary hypertension, cardiovascular diseases, diabetes and cancer are at higher risk of developing disease. Lung Expansion therapy is an active deep breathing technique performed by the patient to facilitate maximal inspiration, proprioceptive feedback, and thoracic mobility and can be used to improve ventilation, loosen and clear secretions to improve the effectiveness of cough. It can be used in conjunction with Covid Awake Repositioning Protocol (CARP). We explored the efficacy of lung expansion therapy on improving chest expansion, lung volume and capacities, and cardiopulmonary endurance. Cystic Fibrosis is one of the most common autosomal recessive Life-limiting condition characterised by defect in the CFTR Gene. Clinical features are characterised as defective muco-ciliary clearance, hyper secretion and hyper inflation of the mucous secreting glands. Cystic Fibrosis patient infected with covid-19 would be at risk. **METHOD:** Treatment was received by 10 patients it was a post covid cystic fibrosis rehabilitation done in the outpatient department of the Clinic. Subjects performed Lung Expansion Therapy according to the cardiopulmonary approach prepared by the physical therapist 2 times a day for 3 weeks, at that time of rehabilitation programme both pre and post measures of chest expansion, lung volume and capacities and

cardiopulmonary endurance were taken. Outcome measures used are inch-tape, breath hold test and 1- min step up test. Lung Expansion Therapy include breathing Control, thoracic expansion exercises, Forced expiratory techniques and which were given in conjunction with positioning(CARP) so as to improve chest wall mobility, improve ventilation, mobilize and clear secretions. RESULT: Lung expansion therapy with the integrated cardiopulmonary rehabilitation programme showed a significant overall improvement in lung volumes and capacities, chest expansion, cardiopulmonary endurance and helped in the cessation of further progression of the disease. CONCLUSION: 3-week Treatment programme showed a significant improvement in the lung volumes and capacities as well as cardiopulmonary endurance and stopped the further progression of disease hence lung expansion therapy with an integrated cardio pulmonary approach is an effective intervention.

KEY WORDS:Sars-covid-19, Cystic fibrosis, Lung expansion therapy, Covid Awake Repositioning Protocol (CARP)

CORRELATION OF FORCED EXPIRATORY VOLUME IN FIRST SECOND(FEV₁) WITH DURATION OF EXPOSURE AMONG STREET FRUIT VENDORS

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BACKGROUND: Street fruit vendors are an integral part of economics and they work daily selling their fruits on the streets and considered at most risk for developing lung disease. As they get exposed to environmental an pollutant which contains dust particles and noxious gases such as Nitrogen Oxide (NO₂) and carbon monoxide (CO) and even of vehicular emission, increases the prevalence of developing lung diseases. The pulmonary function tests help in evaluating the functions of the lung by measuring parameters such as FEV₁. So, this study is done to correlate forced expiratory volume in first second with duration of exposure (DOE) among street fruit vendors. METHODOLOGY: This study was done in Ahmedabad city, Gujarat. 100 street fruit vendors were included as per inclusion and exclusion criteria. Then written consent was taken and procedure for performing PFT was explained to the subjects. The parameters such as forced expiratory volume in first second (FEV₁) was measured by spirometry and duration of exposure was mentioned. Statistical analysis was done by SPSS 22.2 and Microsoft excels 16.RESULT:100 vendors aged 20-40 years (mean \pm SD= 31.86 \pm 6.02) were included in the study. It shows that among 100 street fruit vendors 85 were non-smokers and 15 were smokers. The present study shows that 98% had altered pulmonary function. The correlation is done by using Pearson's correlation test which indicates weak negative correlation of FEV₁ and duration of exposure. CONCLUSION: From the present study, it can be concluded that there is a statistically weak correlation between FEV₁ and duration of exposure. It indicates that there is inversely proportional relationship between FEV₁ and duration of exposure, states that as the duration of exposure increase the value of FEV₁ decreases.

KEYWORDS: Fruit vendor, pulmonary function test, environment pollution

PREVALENCE OF STRESS, ANXIETY AND NECKPAIN AMONG YOUNG SOCIAL MEDIA USERS -AN OBSERVATIONAL STUDY.

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BACKGROUND: Social media use is a “global consumer phenomenon” with an exponential rise within the past few years. Social media technology that’s designed to bring people closer together, spending too much time engaging with social media can actually exacerbate mental health problems such anxiety and depression. Stress is not the likely cause of neck pain, but it can certainly bring out the symptoms of underlying neck pain. **METHODOLOGY:** “Perceived stress questionnaire”, “Beck Anxiety Inventory” and VAS for neck pain was filled by 80 young individuals and submitted through Google forms. **RESULT:** 84%, 13%, 3% individuals had low, moderate, severe anxiety respectively. 30% individuals had moderate stress level. 55%, 34% and 11% had low, moderate and severe neck pain respectively. **CONCLUSION:** There is mild anxiety, stress and neck pain in young social media user.

KEYWORDS: Social Media, Stress, Anxiety, Neck pain.

IMPACT OF HYPERKYPHOSIS ON PHYSICAL PERFORMANCE

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BACKGROUND: Post Pandemic world with its digital surge and increased dependence on virtual technologies has determined modification in people’s behaviour’s making individuals more sedentary with poor body habits. Posture is the signature of a person’s confidence and wellbeing. Postural Hyper kyphosis is one of the negative consequences of the posture. It is an exaggerated anterior curvature of the thoracic spine , sometimes referred to as hump or gibbous deformity. The classic old age hump involves osteoporosis, muscle weakness, degenerative disc and vertebral fracture. Along with its unattractiveness, the hump impair mobility, contribute to pain and increased risk of fall And fractures Females suffer more as compared to males. **METHODS:** A 62 years old man retired from desktop job comes with the complain of pain and hump in the upper back for last 10 years. Dyspnea And fatigue on climbing stairs. Visual Ana log scale (VAS) during rest 6 and 8 after sleeping or activity. The primary outcome was the prevalence of thoracic hyper kyphosis estimated according to the angle of kyphosis which was measured by tragus to wall test. The secondary outcomes were the effects of thoracic hyper kyphosis on physical performance measured by One-leg Standing Test (OLS), Timed Up AND Go Test (TUG), Chest Expansion Test (CE), Six Minutes Walking Test (6MWT), 5 Times sit to stand, STOP BANG. **RESULTS:** The Finding showed poorer scores in outcome measures than its normal range for his age (13.5 tragus to wall , 34 sec in 5 Times sit to stand). Moreover scores improved after therapeutic intervention and hyper kyphosis reduction.

KEYWORDS: case report, dowager’s hump, functional mobility, thoracic Hyper kyphosis, Quality of life .

Manual Therapy and Therapeutic interventions in patient with temporomandibular joint ankylosis: A unique patient report

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INTRODUCTION- Temporomandibular joint ankylosis is more significant problem in developing countries and it is a pathological condition which accompanied by limitation in mouth opening, difficulties in mastication and oral hygiene as well as inadvertently influencing the health factors and psychological factors of the patient. **CASE REPORT-** A 64 years old female patient referred to Physiotherapy with the history of one month, the patient could not open her mouth and lower jaw deviated to ipsilateral side. She had tenderness on her cheeks and neck muscles. **OBJECTIVE-** Describe the effectiveness of manual therapy and therapeutic interventions to restore the functions of temporomandibular joint ankylosis. **METHODS-**The patient received physiotherapy intervention included postural re-education, stretching, strengthening exercises and manual therapy to the temporomandibular joint. At the end of the session the patient was able to open your mouth without deviation and able to eat solid food without any pain. **CONCLUSIONS-** Giving special emphasis to the physiotherapy intervention used and concluding that manual therapy and exercises would be the best options to improve maximum oral opening in patient with temporomandibular joint ankylosis.

KEYWORDS- Ankylosis, Case report, Mastication, Temporomandibular joint.

Adjuvant Effect Of Cognitive rehabilitation and Balance training among patient with Post Head Injury: A Case Report

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BACKGROUND-Head Injury in children is a serious cause of morbidity and mortality globally. Falls are the most common type of injury, followed by motor vehicle-related accidents and child abuse. In all types of head injuries, brain injuries mostly lead to permanent disability or death. These types of head injuries lead to impaired memory, balance issues, increased muscle tone and cognitive dysfunctions. **PURPOSE-** In cases of post head injury, the symptoms of balance and cognitive dysfunction worsening day by day. In this case study possible intervention discusses for enhancing balance and cognitive function. **METHODOLOGY-** A 16-year-old male child with history of head injury at age of 3 years had an attack of seizure after 6 month of head injury, after which his symptoms start appearing and progresses day by day. He had difficulty in maintaining dynamic balance, had impaired memory. The pre intervention examination findings show impaired memory, impaired cognitive functions, balance issues, and increased tone in both left and right upper limb and lower limb. For evaluating patient progress outcome measures were used which includes:

Pediatric Balance Scale, Mini Mental State Examination Screening Tool, Modified Ashworth Scale. Patient received task specific balance training, cognitive training, strength and flexibility exercises for 6 days in a week up to 4 weeks. RESULTS- There is significant improvement seen in tone of muscle, balance and cognitive functions after 4 weeks of intervention. CONCLUSION- This rehabilitation protocol is effective in enhancing balance and cognition which propels that it could be used in future for post head injury children. KEY WORDS- Child, Male, Cognitive dysfunction, Morbidity, Seizure

Learning Disability associated with Traumatic Brain Injury

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BACKGROUND- Traumatic brain injuries (TBIs) are a leading cause of death and disability in both children and adults. The unenviable distinction of having the world's highest rate of head injury belongs to India. In India, over 1 million people suffer from traumatic brain injuries, and one out of every six trauma sufferers dies, while others suffer from disabilities. Many people with brain injuries experience distinct learning disabilities (LDs) like Dyslexia and Dysgraphia. AIM: The aim of this case report was to assess the tailor-made physiotherapy protocol in patient with Traumatic Brain Injury METHOD- A 16-year-old boy has had a fall on the ground since he was three years old. For ten years, he has had trouble walking, speaking, writing. The neurobiological components of reading development, implicated in pre-reading skills, single and complex text reading, and reading and writing fluency, have all been extensively studied. The use of supportive learning technologies, particularly in task-oriented activities and smartphones-based applications, aided. The physiotherapy protocol was of 4 weeks and was altered every sixth day based on the patient's improvement. The technique was designed to allow the patient to improve their reading and writing abilities. RESULT- Following the post-reading examination, there was a significant improvement in writing and reading. CONCLUSION- Taking into account the methods and strategies used by each approach, concluded that dysgraphia might be changed with a well-structured and effective intervention. It is hoped that this work would help children with Dysgraphia and Dyslexia overcome their difficulties.

KEYWORDS: Learning disability, Traumatic brain injury

PHYSIOTHERAPY FOR COMPLETE MOTOR RECOVERY IN 4 YEAR OLD CHILD WITH GUILLAIN BARRE SYNDROME- A SINGLE CASE STUDY

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AIM- To bring a complete motor recovery with physiotherapy in a 4 year old child with sub-acute Guillain Barre Syndrome (GBS) after discharge from the hospital. CASE REPORT- This study was conducted in 4 yr old male child in sub-acute stage of GBS for 12 weeks in a local clinical setup after discharge from the hospital completing IVIG dose. Physiotherapy was given for 12 weeks, 5 days in a week of 1 and half hour session with rest periods between the session. Physiotherapy intervention includes passive – active exercise, resisted exercise, weight bearing exercise, mat activities, breathing exercises, task oriented exercise, balance and coordination exercise, abdominal strengthening, gait training, and play activities. Outcomes used before and after the intervention are Manual Muscle Test (MMT), Five Times Sit To Stand Test (FTSST), Functional independent Measure (FIM), Time Up and Go test (TUG) and Hand dynamometer to find out the effects of physiotherapy intervention. RESULT- Result showed improvement in his muscle power, walking speed, sit to stand test and his grip strength . Improvement in day to day life activities was also observed. He started going school after 12 weeks of intense physiotherapy treatment. CONCLUSION- This study concluded that there was a significant improvement in patient motor function and independence after a effective physiotherapy treatment. There was a complete motor recovery after 12 weeks of physiotherapy.

KEYWORDS- Guillain Barre Syndrome, motor recovery, functional independent measure, physiotherapy.

Effectiveness of Back School protocol v/s Muscle energy technique on pain, functional disability and Range of motion in patients with Chronic Mechanical low back pain.

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BACKGROUND- Low Back Pain is the most appropriate form of musculoskeletal disorder. It is a discomfort/pain detected from the 12th rib down to the gluteal area. It acts on annually 5 - 10% of the adult population. Mechanical low back pain is a major cause of illness and disability in people of working age. AIMS & OBJECTIVES- To check the effectiveness of back school protocol versus muscle energy technique in patients with chronic mechanical low back pain. METHOD- 38 patients were selected & divided into two groups. Group A received Muscle Energy Technique; Group B received Back School Protocol. Both groups underwent a common conventional treatment. Treatment was given 3 times / week for 4 weeks. Outcome measures are NPRS, MODQ &MMST. RESULT- The result showed that both interventions are individually effective to reduce pain measuring with NPRS ($p<0.05$), functional disability measuring with MODQ ($p<0.05$) and improve lumbar ROM measuring with MMST ($p<0.05$). While comparing both the techniques Group A is more statistically significant. CONCLUSION- Muscle energy technique is more effective compared to the Back School protocol in terms of pain reduction, improved functional ability, and range of motion in patients with chronic mechanical low back pain.

KEYWORDS- Mechanical, Low Back Pain, Muscle Energy Technique, Back School Protocol

A COMPARATIVE STUDY OF CAWTHRONE COOKSEY EXERCISES VERSUS CONVENTIONAL PHYSIOTHERAPY EXERCISES FOR THE PATIENTS SUFFERING FROM MIGRAINE WITHOUT AURA.

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BACKGROUND- Migraine is an incurable, episodic predominant headache. Migraine is assumed to be a neurovascular pain. Symptoms commonly last for several hours i.e., 4- 72 hours and may be unpleasant. An aura means fortification spectrum seen in few patients. Vestibular exercise like Cawthrone Cooksey exercise does the practice of eyes movement and head movement for the patients having dizziness. This exercise provokes the symptoms of the patients. Vestibular exercises tire the vestibular reaction which is the main aim of this exercise. This reaction is enrolled in CNS and makes the system to adapt the symptoms. Aerobic exercise like cycling, jogging, Nordic walking or swimming can also the pain of migraine When physiotherapy is combined with other therapies can get better result with more effect and more benefit. **METHOD-** Group A (n=15) Cawthrone Cooksey exercises and Group B (n=15) conventional physiotherapy exercise. The participants with age limit of 18-85 years. In initial sessions the patients will be interviewed and baseline outcome measures of migraine without aura will be obtained. **RESULT-** 30 patients suffering from Migraine without aura are taken for this study and the results show both the protocols were equally significant. **CONCLUSION-** The result concludes that Cawthrone Cooksey exercises and Conventional physiotherapy are equally effective.

KEYWORDS- Cawthrone Cooksey exercises, Migraine without aura, Migraine Disability Index Scale.

EFFECT OF MUSCLE ENERGY TECHNIQUE AND ECCENTRIC EXERCISE ON CALF MUSCLE FLEXIBILITY IN YOUNGER ADULTS: A PILOT STUDY

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BACKGROUND- Muscle stiffness in the lower limb and the consequential decrease in the joint flexibility are considered to be major etiological factors in the calf muscle dysfunction. Calf muscles (plantar flexors) are prone to tightness because of prolong periods of sitting in modern sedentary lifestyle. This tightness is associated with a decrease in ankle dorsiflexion. Reduced ankle dorsiflexion range of motion (DFROM) can affect gait and physical activity and is associated with falls. The study intended to ascertain the effectiveness of a Muscle energy technique and Eccentric exercise to improve the flexibility of calf muscle. **METHODOLOGY-** 20 subjects were divided into two groups. Group-A received muscle energy technique (n=10) and Group-B trained with eccentric exercise (n=10). Both groups received training of 5 sessions per week for 5 weeks. Treatment outcomes were assessed by static ankle flexibility test and ankle dorsiflexion range of motion. **RESULT-** Result was statistically inspected using t-test by SPSS version 25. After 5 weeks of training period, both the group showed significant improvement for calf muscle flexibility but Group-B had more improved scores than Group-A. **CONCLUSION-** This study concluded that Eccentric exercise was found more effective in improving the flexibility of calf muscle than Muscle energy technique.

KEYWORDS- Eccentric exercise, MET, calf flexibility, static ankle flexibility test, ankle dorsiflexion ROM, younger adults.

EFFECT OF PILATES EXERCISE ALONG WITH CONVENTIONAL THERAPY AND CONVENTIONAL THERAPY ALONE IN COLLEGE GOING STUDENTS WITH TEXT NECK SYNDROME: A COMPARATIVE STUDY.

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BACKGROUND-Smartphones cause risk of musculoskeletal problems due to its prolonged use. College going students, have maximum usage of mobile phones. In Text neck a person has their head flexed for prolonged periods of time in turn leading to repetitive stress injury or overuse syndrome. The present study aimed to assess the comparison of the effectiveness of Pilates exercise along with conventional therapy and only conventional therapy in Text neck syndrome. **METHODOLOGY-** 30 subjects for the study were selected from Ahmedabad Physiotherapy College. Subjects with age of 18-26 years were taken. The subjects were divided into 2 groups, Intervention group and control group. The total treatment will be for 4 weeks and 3 days/week. Treatment time was 60 minutes/day. **RESULT-** The data was analysed by SPSS version 25, Significance tests for difference in means was done using paired t-tests. For group A and group B both have significant effect on ROM and VAS but when comparing both groups, intervention group has more effect on ROM than control group whereas both the groups are equally effective on VAS. **CONCLUSION-** It concludes that both groups are effective in decreasing neck flexion range and pain but group A was more effective.

Keywords- Text neck syndrome, neck pain, VAS, ROM

EMERGING ROLE OF PHYSIOTHERAPY IN MANAGEMENT OF HYPOVITAMONOSIS D INDUCED PROXIMAL MYOPATHY: A CASE REPORT.

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BACKGROUND- Vitamin D is a group of fat-soluble pro hormones which has two major biologically inert precursors known as vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol). Given the high rate of bone development early in life, adequate serum concentrations of vitamin D are crucial for the developing child. In patients with cases of vitamin D deficiency (hypovitaminosis D. The aim of this report is to discuss the key aspects related to vitamin D deficiency, its effect on proximal muscle weakness, medical and physiotherapy management. **CASE REPORT-** A pre-schooler aged female child came with complain of waddling gait, difficulty in sitting to standing, positive Gower's sign and unable to do stair climbing. Investigation confirmed diagnosis of Hypovitaminosis D induced-proximal myopathy. Our patient showed significant weakness with dramatic recovery after appropriate medical and physiotherapy treatment. **METHODOLOGY-** To Determine Balance Impairment Level And As Well As Functioning Skill Level, The Paediatric Balance Scale (PBS) was used. Second Test Used To Check Functional Mobility. The Timed Up And Go Test (TUG) which Is A Simple Test That Requires Both Static And Dynamic Balance **DISCUSSION-** The studies from the literature are consistent with a good prognosis for Hypovitaminosis D induced proximal myopathy, although recovery following repletion of vitamin D is slow and variable. Also, physiotherapy plays significant role in improving muscle strength, balance and reduce risk of falls and fatigability in such condition. **CONCLUSION-** In conclusion, vitamin D deficiency should be considered in the deferential diagnosis of any child with delayed motor milestones and muscle weakness without neurological involvement. This case study highlights an unusual and unexpected cause of proximal myopathy which can be fully reversible when properly treated with supplements and physiotherapy. **RESULT-** Physiotherapy plays integral part of management of such conditions. It has a beneficial impact on managing and preventing further progression of Hypovitaminosis D induced Proximal Myopathy.

KEYWORDS- Vitamin D, Gower Sign, Paediatric Balance Scale (PBS), Proximal Myopathy

CASE PRESENTATION ON POST-TRAumatic CEREBRAL ATROPHY

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INTRODUCTION- Traumatic brain injury, a form of acquired brain injury Occurs when a sudden trauma cause damage to brain. In India, approximately one million cases per year. Annually, these injuries result in approximately 100000 deaths. **PURPOSE-** In this case report with severe head injury after being in a road traffic accident. The care of severe traumatic brain injuries is challenging and dynamic. A specific physiotherapeutic approach would create significant improvement. The basic purpose of this study was to assess the applicability of treatment protocol in such a patient. **METHODS:** A 29 year old male with a history of Road Traffic Accident with intra-ventricular and subarachnoid haemorrhage, Diffuse Axonal brain injury after which patient went into coma for 3 months. Patient comes to us after 3 years with the complaint of Difficulty in maintaining balance, cannot walk or stand without assistance, difficulty in speech and back pain. On observation we find weakness of bilateral upper and lower limb tremors in left upper limb, improper co-ordination of limbs. Assessment taken by Modified Ashworth Scale, Berg Balance scale etc. The physiotherapy protocol was of 8 weeks duration and changes every 1.5-2 weeks depending upon patient's progress

The protocol aimed at improving the muscle tone, balance, co-ordination and postural abnormalities along with conventional physiotherapy. Tinetti's (POMS) and Time Up and Go Test were assisted as outcomes at the baseline and after every 2 weeks of intervention till 8 weeks. **RESULTS-** Post reading, demonstrate significant changes in co-ordination, strength, balance and gait of patient-the improvement is noticeable. Pertaining to the fact that institutional based and clinical based Rehabilitation is much effective when compared to follow ups. **CONCLUSION-** The protocol effectively reduced patient's symptoms and enhanced balanced and stability which propels that it could be used effectively in future for such cases.

KEYWORDS- RTA, Cerebral Atrophy, Traumatic Brain Injury, Time Up and Go Test.

EFFECT OF KINESIO TAPING AND KABAT REHABILITATION ON THE PATIENT WITH BELL'S PALSY – A CASE REPORT

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BACKGROUND: Bell's palsy is an idiopathic, acute peripheral palsy of the facial nerve and is the most common cranial nerve motor neuropathy. This facial palsy leads to the weakness of facial muscles, loss of facial expression, drooling of saliva, involuntary movements. Bell's Palsy is a debilitating condition that worsens the quality of life of the individual. Usually, in 70% of the cases, individuals fully recovered but 30% are left with residual effect. **CASE:** This report presents a case of a 45-year-old female patient who presented with numbness and earache on the right side of the face. There was no obvious cause and had a history of sudden onset. She had symptoms of deviation of the face towards the right side. For evaluating the Grades of Bell's Palsy and Quality of Life outcome measures were used that include: Sunnybrook Facial Grading System and SF-36. Physical therapy intervention includes Electrical Muscle stimulator, Facial Kinesio taping, and Kabat Rehabilitation Method was given for 6 days up to 4 weeks. **RESULT:** These interventions showed significant improvement in facial asymmetry, facial weakness, and voluntary control in movements after 4 weeks of intervention. **CONCLUSION:** This physical therapy intervention has a good prognosis and concludes that Facial Kinesio taping and Kabat with an electrical stimulator would be the best intervention choice to improve facial asymmetry, muscle weakness in patients with Bell's palsy.

KEYWORDS: Quality of life, Facial nerve, Earache, Bell's Palsy, Prognosis

HOME BASED SUPERVISED REHABILITATIVE TRAINING FOR PATIENTS WITH CHRONIC STROKE: CASE SERIES

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BACKGROUND- The most challenging aspect of stroke rehabilitation is in continuity and cost values. In this regard, numerous home-based supervision rehabilitation programs have been developed. The purpose of this case series was to investigate the effects of home-based supervised rehabilitative programs on upper limb functions, balance and quality of life in patients with chronic stroke. **CASE-** Included in this case series were five patients with stroke who visited outpatient department and undergone supervised home rehabilitation training for 4 weeks. The upper limb functions, balance and quality of life of the patients were assessed by Fugl Meyer assessment, Modified Ashworth scale, Brunstorm stage and functional independence measure. **METHOD-** Five patients diagnosed with a stroke participated in this study. Home- based supervised rehabilitation training exercises has been delivered to all the patients. All the outcomes were assessed at the baseline and after 4 weeks of the intervention. **RESULT-** Statistical significance ($p < 0.05$) was reported among the outcome measures of upper limb functions, balance and quality of life in patients with chronic stroke. **CONCLUSION-** The result of case series study shows that home based supervised rehabilitation training for patients with chronic stroke was effective and low-cost values in upper limb functions, balance and quality of life.

KEY WORDS - functional status, stroke, stroke rehabilitation, upper extremity, quality of life.