



Society of  
Indian  
Physiotherapists

# 6<sup>th</sup> ANNUAL CONFERENCE

April 29,30 & May 1, 2022

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*Celebrating the*  
*100<sup>th</sup> Birth Anniversary of*  
*Dr. M.S. Ramaiah*  
*1922-2022*

**A great visionary, who saw the distant future  
& achieved the impossible**



**Visionary  
Ideas**  
that transformed  
**millions  
of lives**

**‘Karma Yogi’  
Dr. M.S. RAMAIAH**

On the birthday centenary of our visionary founder, Dr. M.S. Ramaiah,  
we pledge to continue to work towards transforming the lives of our fellow citizens.  
We are indebted to you, forever.

**Proud Members of The RAMAIAH Group**

- |  |   |   |
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| 10. Ramaiah College of Law                           |   | 29. Ramaiah International Centre for Public Health Innovation |

## MESSAGE



I am happy to learn that the Society of Indian Physiotherapists (SIP) is holding the 6th Annual Conference (SIPCON) on April 29th to 1st May, 2022 in Chennai with an aim to Connect Collaborate & Innovate with focus on Movement for Health.

Physiotherapy is a health care profession concerned with identifying and maximising quality of life and movement potential within the spheres of prevention, treatment/intervention and rehabilitation. I am sure the deliberations at the conference would generate newer thinking on optimistic and innovative education programmes and patient care using technological advances. I understand around 300 Physiotherapists and professionals and PG students will benefit by attending this conference.

I wish the Conference SIPCON all success!

**Dr. P.V. VIJAYARAGHAVAN**

## MESSAGE FROM THE PRESIDENT

### Fellow Delegates



On behalf of the SIPCON 2022 organizing Committee and the Society of Indian Physiotherapists, it gives me great pleasure to welcome you to the great city of Chennai – deemed the 'safest city' in India by a quality of living survey; a city of Kollywood (Tamil Cinema) dreams, a city infused with rich Tamil heritage and culture. A city of authentic, and the original birth place of mouth-watering Rasam, Idli, and Dosa - cuisine that has titillated the taste buds of people world over.

Finally we come to Chennai – after a delay of 12 months. The enthusiasm of the Chennai organizing committee is commendable – especially in the face of the ugly, new variant -OMICRONON!

The one thing that humans need to understand is that these viruses and their variants are here to stay – and the loud and clear message to us individuals is to acquire healthy life styles, and to Governments around the world is the need to strengthen their healthcare systems at least by a factor of three (3). In addition, and importantly, is that health initiatives need to be globally coordinated as there are NO real physical boundaries – somebody sneezing in the Fiji islands is going to impact somebody living in Coimbatore, London, and or New York. In other words containment efforts limited to a single country is a myth – we need a synchronised global effort, which is evidence based – possible led by an organization such as the WHO.

India along with the rest of the world is dealing with the advantages and disadvantages of info tech/social media – what one reads on Facebook/google is taken as the absolute truth. The advantage of infotech is that information is available 24X7 at a click; the disadvantage is that one 'thinks' it is true and uses it. Additionally, an AI program takes control and continues you down this path – of 'false truth'. In healthcare this is a dangerous trend as we now have google doctor questioning all decisions, which in some cases could lead to further problems, and diluting the 'trust' and 'confidence' factor that needs to develop between a patient and clinician.

The advancement of Biotech has led to a great many advancement in the medical sciences. However, 'big data' and AI has also quelled innovation – hence technology and machines have replaced the human factor – the clinician and or the scientist. The greatest discoveries were driven by scientists pursuing a scientific methodology of 'doing' and 'discovering' – sometimes serendipitously – from trial to trial. With the over reliance on technology – we will progressively remove the human innovation factor – making us useless!

A technological revolution happening - NOW! The technological bullet has left the gun – there is no turning back. Also the generation of millennials, x, y, z etc. – our patients of today expect immediate technological solutions – technology is wired to their brains – it is an extension of their 'self'. They would want a solution 'whatsApped' to their phones. Hence, our reality as clinicians is starkly clear – let's use technology as a tool, which it is, to improve our services – but also more importantly to innovate and come up with new solutions and discoveries to address the complexities and challenges of an ever evolving healthcare environment. Clinicians need to become active solution partners and use the full power of technology rather than become passive users – like couch potatoes when using the TV remote.

The Scientific committee has organized a program that consists of key notes, invited talks, symposia, panel discussions, and free workshops - on a plethora of traditional and contemporary topics. I know that these sessions will lead to informal, healthy, passionate discussions among delegates, and hopefully the generation of new ideas.

As always we would like to extend our heartfelt thanks to all our esteemed sponsors and industry partners, who help create cutting edge technological solutions, that allow us to deliver contemporary care to our patients. We thank them for their generous support. I urge all delegates to visit the stalls in the exhibition area – interact with our vendors and form long term partnerships.

Finally, enjoy and learn – I know I am going to! After almost two years I get to meet my colleagues and friends, and will get an opportunity to make new ones. This meeting of minds energises me! Hope you feel the same.

With warm Regards

**Raju K Parasher**

FORM THE DESK OF ORGANIZING SECRETARY



“தொட்டனைத் தூறும் மணற்கேணி மாந்தர்க்குக்  
கற்றனைத் தூறும் அறிவு.”

THIRUKURAL – 396

Water will flow from a well in the sand in proportion to the depth to which it is dug, and knowledge will flow from a man in proportion to his learning.

Welcome to the 6th Annual Conference of the Society of Indian Physiotherapists to be held in Chennai - the Capital City of enchanting Tamil Nadu. During the independence era the city of Chennai was known as Madraspattinam and later as Madras. As the fourth largest city of our country, Chennai has the rich culture and known for its hospitality.

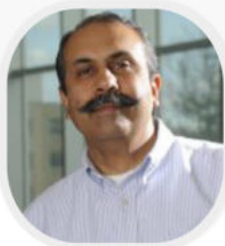
Our organizing team worked meticulously to shape the conference and scientific programme. We are confident that the scientific deliberations during the conference will facilitate learning and reflections among participants. The crafted scientific sessions will provide ample opportunities for discussions and deliberations under the theme connect, collaborate and innovate.

I take this opportunity to thank all our sponsors, knowledge partners and industry collaborators for their generous support. I express my sincere thanks to all the speakers and participants for being part of SIPCON2022.

We request all the delegates to strictly adhere to COVID prevention protocol.

NARASIMMAN SWAMINATHAN

## GOVERNING BODY (2021-24)



Raju Parasher  
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Savita Ravindra  
Vice President



Nitesh Bansal  
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P.P. Mohanty  
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Kshitija Bansal  
Special Invitee



V. Sundar Kumar  
Special Invitee

## ORGANIZING COMMITTEE

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Catering Committee	<b>Pitchaimani</b>

6 <sup>th</sup> Annual Conference of Society of Indian Physiotherapists				
Scientific Programme				
Day 1, (April 29, 2022; Friday)				
0900 to 0930	Registration for workshop			
0930 to 1230	Pre Conference- Free Work shop			
	Transitioning an athlete with chronic ankle instability from rehab to sports. Speakers: Yuvraj Singh, Apurva Mathankar	Mobilization and the follow up management of the SI Joint. Speaker: PP Mohanty	Gait Analysis Speakers: Experts from Qualysis Motion	Visceral Manipulation Speaker: Prem Ventakeshan
1300 onwards	Conference Registration			
	Hall I	Hall II	(Hall III)	
1400 to 1430	Invited Talk			
	—	Identification of Sensory processing dysfunction in Neuro developmental disabilities. Speakers: Asha Chitnis, Murali Krishnan Chair: Sundar Kumar	Lateral Epicondylagia: Neuromotor control and Management. Speaker: Nagarajan M (online session) Chair: Devarajan Subramaniam	
1445 to 1530	Key Note Address			
	Incorporating Balance Training Strategies within the Task: allow for internal as well as external perturbations? Speaker: Tanvi Bhatt Chair: Gillian Webb			
1530 to 1600	Walk through Poster Gallery Networking & Tea/ coffee Break			
1600 to 1700	Focused Symposia			
	Overcoming barriers to exercises – despite knowing its benefits. Speakers: Abhijeet Divate, Harihara Prakash, Perna Mohan Saxena Moderator: Madhavi	When should we stop OA rehab? Why do we not use maintenance rehab as an important option in OA rehab? Speakers: Monalisa Patnayak, Manoj Abraham Manoharlal, Gaurang Baxi, Amit sharma Moderator: Deepak Kachalia	Role of physiotherapy in primordial and primary prevention of Cardiovascular disease in India. Speakers: Priya Chockalingam, Arun Maiya, Abraham Samuel Babu. Moderator: Shobika J.	
1700 to 1730	Invited Talk			
	Assessment of Movement Dysfunction with Neurokinetic Therapy Speaker: Sneha Ramchandani Chair: Savita Ravindra			
1900 onwards	Inauguration			
	Inaugural Ceremony			
	Inaugural Lecture Role of Hope in health care Prof Sanjeev P Sahani Chair: Raju K. Parasher/ Prof. P.V. Vijayaraghvan			
2030 onwards	Gala Dinner			
Day 2, ( April 30, 2022; Saturday)				
0800 to 0845	Breakfast Session			
	Challenges of Postgraduate Research V. Sundar Kumar		Relevance of Vitamin D to Physiotherapy practice? Shabnam Agarwal	
	Hall I	Hall I	(Hall III)	
0900 to 1000	Free Paper Chair: Bhavna Gadhavi	Free Paper Chair: Deepa Metgut	Free Paper Chair: Jeba Chitra	
1000 to 1030	Invited Talk			
	Are we focusing on wrong significance: Minimum significant difffernce Vs Statistical Significance? Speaker: Mark Elkins Chair: Dr. Shabnam Aggarwal			
1045 to 1130	Key Note			
	Evidence-based practice in Electrophysical Agents: New models for energy control. Prof.Goh Ah Cheng (online session) Chair: Savita Ravindra			
1130 to 1200	Walk through Exhibition and Poster Gallery Networking & Tea/ coffee Break			

1200 to 1300	Focused Symposia		
	In this era of manual therapy - Have we forgotten the art of exercise prescription? Speakers: K. Ganesan , Neeraj Singh, PP Mohanty, Ananda Jothi Moderator: Maneesh Arora	System specific physical anomalies as a result of long COVID: suggestions for management Speakers: Vinuta Deshpande, Narasimman Swaminathan, Veenu Kumar Moderator: V. Sundar Kumar	Diaphragmatic breathing, Pelvic floor control and back pain – have we ignored important contributors to its rehabilitation? Speakers: Jeyanthi S, Prem Venkateshan Anand Mishra Moderator: Satya-prabha
1300 to 1330	Invited Talks		
	Community Based Early Intervention Model: The ASSA Experience Speaker: Sankar Sahayaraj Chair: Deepa Metgud	Simple movement strategies to control aberrant behaviour in children with autism spectrum disorder. Speaker: Anubha Goel Chair: Asha Chitnis	Role of Physiotherapy in natural birthing. Speakers: Jayshree Jaya Krishnan, Kavitha Gautham Chair: Gillian Webb
1330 to 1430	Networking & Lunch		
1430 to 1530	Panel Discussion		
	Entrepreneurship skills requirement for Physiotherapists. Speakers: Devarajan Subramaniam, UT Ifthikar Ali, Asha Chitnis, Gillian Webb Moderator: Nitesh Bansal	Is virtual tele PT practice here to stay? Lessons from the Lock down. Speakers: Chandramohan.R, V. Sundar kumar, Narasimman Swaminathan Moderator: Aarti Prasad	Constraint Induced Movement therapy (CIMT) revisited – why is it not used as often? Speakers: Narkeesh Arumugam, Jui Dave, Harpreet Singh, Sampada Jahagirdar Moderator: Siva Kumar
1530 to 1600	Invited Talks		
	Agility training in rehab. Speakers: Yuvaraj Singh, Apurva Mathankar (Practical Demonstration) Chair: Deepak Kachalia	Balance and coordination solutions for patient with cerebellar ataxia Speaker: John Solomon Chair: Jui Dave	Contemporary Theories on Musculoskeletal Pain: Passive or Active Solutions. Speaker: Ramakrishnan Mani (online Session) Chair: Leo Antony Asir
1600 to 1645	Walk through Exhibition and Poster Gallery		
1645 to 1715	Networking & Tea/ coffee Break		
	Invited Talks		
		Do we need to consider socio-economic	Focus Stroke rehab on the Task:
	Are we over emphasizing core stability in sports rehab? Speaker: Anand Mishra Chair: Dharam Pandey	status on rehabilitation of children? Speakers: Kshitija Bansal, Monalisa Pattnayak Chair: Veena Nambiar	Does everything else a waste of time? Speaker: Hari Ohm Chair: R Sivakumar
1715 to 1830	Paper Presentation	Paper Presentation	Paper Presentation
	Free Papers Chair: Prem Venkatesan	Free Papers Chair: Snehal Dharmayat	Free Papers Chair: Abraham Samuel Babu
1845 onwards	6 <sup>th</sup> Annual General Body Meeting (AGM) of SIP - Open for all Delegates		
2000 onwards	Networking & Dinner		
	Day 3, (May 1, 2022; Sunday)		
	Breakfast Session		
0800 to 0845	Challenges to Academia. John Solomon	Why do we have so less patents in field of Physiotherapy? Ramesh Debur	
	Hall I	Hall I	Hall III
0900 to 1000	Free Papers Chair: Amit Sharma	Free Papers Chair: Kaushal Bhatt	Free Papers Chair: MS Satish
1000 to 1100	Panel Discussion		
	Physiotherapy Rehabilitation after head and Neck Onco- Surgery. Speakers: Balasubramanian Venkitaraman, Satish, Chandralekha Sakthivel Moderator: V. Sundar Kumar	Does technology based rehab translate into a real world setting: are we wasting time and money on Hi-tech rehab units? Speakers: Lenny Vasanthan, Arun Maiya, Veena Nambiar Moderator: Ramesh Debur	Need for Entry level Physiotherapy curricular reformation. Speakers: Jui Dave, Shabnam Agarwal, Deepa Metgud, Narasimman Swaminathan Moderator: Savita Ravindra.
1100 to 1130	Invited Talk		
	Knowledge of AFO and foot wear tuning is critical for successful gait Training in children- Clinical appraisal Speaker: Sundar Kumar Chair: PP mohanty	Development of a measurement tool for the Ergonomic Evaluation of Farmers. Speaker: Bhavna Gadhavi Chair: Harihara Prakash	Shoulder rehabilitation in Bowlers: Spin vs a pace Bowler. Speakers: Prakash & Geetha (Practical Demonstration) Chair: Manish Arora
1130 to 1200	Walk through Exhibition and Poster Gallery		
	Networking & Tea/ coffee Break		
1200 to 1230	Invited Talk		
	Clinical Gait analysis: High tech/ low tech strategies and Solutions Speakers: Ramesh Debur & Nidhi Singh Chair: Narkeesh Arumugam	Long COVID- Challenges to Physiotherapy Rehab. Speaker: Abraham Samuel Babu Chair: Anand Mishra	Physiotherapy solutions for Psycho-social aspect of Chronic pain. Speaker: Leo Antony Asir Chair: John Solomon
1245 to 1315	Concluding Ceremony		
1315 to 1430	Networking and Lunch		
1430 to 1730	Post Conference- Free Workshop		
	ACL injury Rehabilitation – An overview Speaker: K. Ganesan, Okendro Singh	An Introduction to Osteopathic manipulation of the Spine: hands- on workshop. Speakers: Maneesh Arora, Narkeesh Arumugam	

**Day II- Physiotherapy in Musculoskeletal & Sports conditions**

**Saturday, April 30, 2022; 9.00 AM**

ABSTRACT NO.	TITLE	AUTHORS	Hall	Time
27	RELATIONSHIP BETWEEN CLINICAL VARIABLES AND HIGH SENSITIVE C REACTIVE PROTEIN IN STRATIFIED GROUPS OF LOW BACK PAIN	P ANTONY LEO ASEER	1	9.00 AM
115	A PILOT STUDY ON THE EFFECT OF CUSTOM MADE ORTHOTIC INSOLES ON PLANTAR PEAK PRESSURE IN ATHLETES	HUMEIRA PAYAK	1	9.00 AM
163	EFFECT OF MANUAL DIAPHRAGM RELEASE TECHNIQUE ON TRANSVERSUS ABDOMINIS ACTIVATION, PULMONARY FUNCTION AND CHEST EXPANSION- RANDOMIZED CONTROL TRIAL	RITAMBHARA YADAV, TARUN KUMAR AND JEYANTHI S	1	9.00 AM
82	THORACIC SPINE MANIPULATION AS AN ADJUNCT IN THE TREATMENT OF CERVICAL RADICULOPATHY- A RANDOMIZED CONTROLLED TRIAL	ANAND HEGGANNAVAR AND YESHA PARIKH	1	9.00 AM
90	TACTILE ACUITY AND TEMPORAL SUMMATION AS A MEASURE OF CENTRAL SENSITIZATION IN INDIVIDUALS WITH ADHESIVE CAPSULITIS-A CROSS SECTIONAL STUDY	SHOBHALAKSHMI S, SAYLI RAJADHYAKSHA AND RAMYA H S	1	9.00 AM

**Day II- Physiotherapy in Neurological conditions**

**Saturday, April 30, 2022; 9.00 AM**

ABSTRACT NO.	TITLE	AUTHORS	Hall	Time
174	PREVALENCE OF PSYCHOSOMATIC PAIN AND ITS CORRELATION WITH ANXIETY, DEPRESSION AND INSOMNIA IN YOUNG ADULTS – AN OBSERVATIONAL STUDY.	SAILEE PAI KANE, BASAVARAJ MOTIMATH, GAURANG BAXI AND TUSHAR PALEKAR	2	9.00 AM
179	IS ASSESSMENT OF BALANCE IMPORTANT IN SARS –COV-2 SURVIVORS BEFORE DISCHARGE?	JAQUILINE NONGPOH, NISCHITHA R.RAO, REJISHA.T.R	2	9.00 AM
168	EFFECT OF MOON SALUTATIONS ON BALANCE AND FLEXIBILITY IN YOUNG ADULTS – A PILOT STUDY	MAYURI KHATAVKAR, POTHIRAJ P AND VRUSHALI PANHALE	2	9.00 AM
150	EFFECT OF BIOENERGY LASER ALONGWITH ACTIVITY-BASED THERAPY AND SURFACE SPINAL STIMULATION IN SUB-ACUTE CERVICAL COMPRESSIVE MYELOPATHY IN MIDDLE-AGED POPULATION: A RANDOMISED CONTROLLED TRIAL	SHARANJEET KAUR AND DR.NARKEESH ARUMUGAM	2	9.00 AM
153	EFFECT OF INTEGRATED APPROACH IN FEEDING DIFFICULTIES IN CHILDREN WITH DEVELOPMENTAL DELAY: CASE SERIES	MADHULIKA SETHIYA AND NARKEESH ARUMUGAM	2	9.00 AM

**Day II- Physiotherapy Education & Health**

**Saturday, April 30, 2022; 9.00 AM**

ABSTRACT NO.	TITLE	AUTHORS	Hall	Time
161	IDENTIFICATION OF GRADUATE ATTRIBUTES AND CORE COMPETENCIES FOR AN INDIAN PHYSIOTHERAPIST: A MODIFIED DELPHI SURVEY	<b>GAURANG BAXI</b> , TUSHAR PALEKAR, SEEMA SAINI AND SUDHIR JADHAV	3	9.00 AM
17	DEVELOPMENT AND PSYCHOMETRIC ANALYSIS OF HEALTH QUESTIONNAIRE FOR CLASSICAL DANCERS	<b>GOPI MISTRY</b> AND SWEETY SHAH	3	9.00 AM
164	IMPACT OF THE COVID-19 PANDEMIC ON THE SOCIAL AND EDUCATIONAL ASPECTS OF INDIAN STUDENTS' LIVES	NEHA, JEYANTHI S, <b>MANSI MITTAL</b> AND AMIT PRASHAR	3	9.00 AM
83	WHAT IS THE SCOPE OF PHYSIOTHERAPY IN RESEARCH GRANTS FOR PHD IN INDIA?	<b>JHARBADE</b> <b>MEENAKSHI</b> , R. SIVAKUMAR, V. SHANKAR AND SOLOMON JOHN	3	9.00 AM
170	KNOWLEDGE, ATTITUDE AND PRACTICE OF PAIN NEUROSCIENCE EDUCATION AMONG PHYSIOTHERAPISTS: A CROSS SECTIONAL SURVEY	ANAND HEGGANNANAVAR AND <b>SHREYA DESHMUKH</b>	3	9.00 AM

**Day II- Physiotherapy in Musculoskeletal & Sports conditions**

**Saturday, April 30, 2022; 5.15 PM**

ABSTRACT NO.	TITLE	AUTHORS	Hall	Time
127	RESTRICTED LUMBAR RANGE OF MOTION- CAN IT BE A PREDICTOR OF EARLY LUMBAR INJURY IN ADOLESCENT CRICKETERS?	<b>SINDUJA DOCHIBATLA</b> AND GEETHASUDHA UMAPATHY	1	5.15 PM
70	ASSOCIATION OF MUSCULOSKELETAL PAIN, BODY PART AND POSTURE WITH USE OF VARIOUS ELECTRONIC DEVICES IN STUDENTS OF AGE 14-18 YEARS-A CROSS SECTIONAL STUDY	SHUKRA CHIVATE, RUCHITA JAMNANI, RUTUJA BALOLIA AND <b>KAUSTUBH JADHAV</b>	1	5.15 PM
180	EFFECTS OF STATIC VERSUS DYNAMIC MYOFASCIAL DECOMPRESSION ON GASTROSOLEUS MUSCLE POWER AND LATENT TRIGGER POINT PAIN	<b>GAURANG BAXI</b> , KEERTHANA R. DIVYA GOHIL AND TUSHAR PALEKAR	1	5.15 PM
46	EFFECT OF LOW INTENSITY TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) ON VASTUS MEDIALIS OBLIQUES MUSCLE ACTIVATION FOR REDUCTION IN PAIN AND IMPROVEMENT IN FUNCTION IN PATIENTS WITH CHRONIC OSTEOARTHRITIS OF KNEE JOINT	MAMTA SHETTY AND <b>RUCHA PRADHAN</b>	1	5.15 PM
175	EFFECT OF MATRIX RHYTHM THERAPY ON PAIN AND HAND INTRINSIC MUSCLE STRENGTH IN STUDENTS WITH NOMOPHOBIA	<b>TUSHAR PALEKAR</b> , SANJANA CHAKRABARTY, PRAMOD PALEKAR AND GAURANG BAXI	1	5.15 PM

*Day II: Stroke Rehabilitation*

*Saturday, April 30, 2022; 5.15 PM*

<i>ABSTRACT NO.</i>	<i>TITLE</i>	<i>AUTHORS</i>	<i>Hall</i>	<i>Time</i>
11	IDENTIFYING POST-STROKE PHYSIOTHERAPY PRACTICE IN INDIA USING A DELPHI APPROACH	<i>HARPREET SINGH, SAMPADA JAHAGIRDAR AND JASPREET SINGH VIJ</i>	2	5.15 PM
103	CORRELATION BETWEEN FUNCTIONAL INDEPENDENCE, DEPRESSION ANXIETY AND COMMUNITY INTEGRATION IN SUBJECTS WITH POST STROKE HEMIPARESIS.	<i>PRIYA DARJI AND SHRADDHA DIWAN</i>	2	5.15 PM
176	INFLUENCE OF INFORMATION PROCESSING SPEED (IPS) ON GAIT ASYMMETRY IN UNILATERAL STROKE SURVIVORS	<b>ANANYA RAKESH SHARMA, RAMESH DEBUR VISWESWARA AND ADITI BHANDARKAR</b>	2	5.15 PM
124	DO KINEMATIC VARIABLES HAVE AN ADDED ADVANTAGE OVER CLINICAL VARIABLES IN PREDICTING UPPER EXTREMITY MOTOR RECOVERY POST-STROKE?	<i>SANJUKTA SARDESAI, JOHN M SOLOMON, ELTON NAZARETH AND SENTHIL D KUMARAN</i>	2	5.15 PM
148	THERAPEUTIC EFFECT OF MULTITARGET NON INVASIVE CORTICAL STIMULATION ON COGNITIVE, MOTOR DOMAINS AND COGNITIVE, MOTOR DOMAINS AND GAIT IN SUBACUTE STROKE SURVIVORS- CASE SERIES	<i>DIVYA MIDHA AND DR NARKEESH ARUMUGAM</i>	2	5.15 PM

**Day II: Physiotherapy in Sleep, Medical, Gynecological & Cardio-respiratory conditions**

**Saturday, April 30, 2022; 5.15 PM**

<b>ABSTRACT NO.</b>	<b>TITLE</b>	<b>AUTHORS</b>	<b>Hall</b>	<b>Time</b>
159	DEVELOPMENT AND VALIDATION OF A SCREENING TOOL TO DETERMINE THE PREVALENCE OF URBAN WOMEN PREDISPOSED TO POLY CYSTIC OVARY SYNDROME (PCOS)	<b>JEYANTHIS AND RAJU K PARASHER</b>	3	5.15 PM
68	FUNCTIONAL DISABILITY IN PATIENTS AFTER CHIKUNGUNYA – AN OBSERVATIONAL STUDY	<b>RACHANA PANDYA AND MEGHA SHETH</b>	3	5.15 PM
107	IMMEDIATE EFFECT OF KAZOO ON LUNG FUNCTION, RATE OF PERCEIVED EXERTION AND OXYGEN SATURATION IN OBESE COLLEGIATE STUDENTS: A PRE- AND POST- CLINICAL TRIAL	<b>GANESH B.R. AND RIA GONDHALI</b>	3	5.15 PM
125	IMPACT OF NOMOPHOBIA (NMP) ON INSOMNIA AND PHYSICAL ACTIVITY LEVELS AMONG PHYSIOTHERAPY UNDERGRADUATE STUDENTS	<b>TEJUVARSHINI V, VEENA KIRAN NAMBIAR AND DIANA RODRIGUES</b>	3	5.15 PM

*Day III: Physiotherapy in Musculoskeletal conditions*

*Sunday, May 1, 2022; 9.00 AM*

<i>ABSTRACT NO.</i>	<i>TITLE</i>	<i>AUTHORS</i>	<i>Hall</i>	<i>Time</i>
8	EFFECTIVENESS OF HOLISTIC APPROACH ON OSTEO-FASCIAL REMODELING IN ADOLESCENT IDIOPATHIC SCOLIOSIS - SINGLE CASE STUDY	DIKSHA SAINI AND NARKEESH ARUMUGAM	1	9.00 AM
12	CLINICAL TESTS USED TO MEASURE POSITIONAL FAULTS OF THE SHOULDER GIRDLE: A RELIABILITY STUDY	NEERAJ SINGH, PRAGYA KUMAR AND RAJU PARASHAR	1	9.00 AM
156	ANKLE DEFICITS IN PATIENTS WITH AND WITHOUT KNEE OSTEOARTHRITIS - A COMPARATIVE STUDY	AVNI JOSHI, PRERNA SAXENA AND RAJU K. PARASHER	1	9.00 AM
28	STUDY ON CORRELATION OF UPPER QUARTER Y BALANCE TEST WITH SHOULDER RANGE OF MOTION AND CORE STRENGTH AMONG YOUNG CRICKETERS	VENIPPRIYA NEELAKANDAN	1	9.00 AM
87	INFLUENCE OF DIFFERENT WALKING SURFACES (SOFT, CEMENT, TAR, GRASS, MIXED) ON SYMPTOMS AND FUNCTIONAL DISABILITY ASSESSED USING CRD WOMAC IN KNEE OSTEOARTHRITIS PATIENTS WEARING SPORT SHOES OF AGE 55-75 YEARS: AN OBSERVATIONAL-CROSS SECTIONAL STUDY	POOJA PATIL AND NAMRATA BHADBHADE	1	9.00 AM

*Day III: Physiotherapy in Pediatric conditions*

*Sunday, May 1, 2022; 9.00 AM*

<i>ABSTRACT NO.</i>	<i>TITLE</i>	<i>AUTHORS</i>	<i>Hall</i>	<i>Time</i>
66	KNOWLEDGE, ATTITUDE AND PRACTICE OF PARENT TOWARDS PREVENTION OF COVID-19 IN CHILDREN WITH SPECIAL NEEDS: A CROSS SECTIONAL STUDY.	VINUTA DESHPANDE, SWEETY AGARWAL, SHWETA UKKOJIKAR AND SHRIYA KALE	2	9.00 AM
81	TELEREHABILITATION PROGRAM FOR BALANCE AND COORDINATION TRAINING IN CEREBRAL PALSY CHILDREN: A PILOT STUDY	DEEPA METGUD AND AKSHATA TADVALKAR	2	9.00 AM
100	FACTORS CONTRIBUTING FOR DECREASED FINE MOTOR SKILLS IN AUTISM SPECTRUM DISORDERS	RAJESWARI MUTHUSAMY, RAMACHANDRAN PADMANABHAN, BINU NINAN AND SAILAKSHMI GANESAN	2	9.00 AM
108	EFFECT OF MOTOR SKILL TRAINING PROGRAMME THROUGH TELE-REHABILITATION VERSUS HOME EXERCISE PROGRAM TO IMPROVE MOTOR PROFICIENCY IN CHILDREN WITH SUSPECTED DEVELOPMENTAL COORDINATION DISORDER: A RANDOMIZED CONTROLLED TRIAL	PRACHI MUKKANNAVAR AND SHUKRA CHIVATE	2	9.00 AM
110	DETERMINANTS OF MOTOR DEVELOPMENT IN INFANTS: A CROSS SECTIONAL STUDY	VINUTA DESHPANDE AND DEEPA METGUD	2	9.00 AM

**Day III: Cancer Rehabilitation, Haemodialysis, Tele-Physiotherapy**

**Sunday, May 1, 2022; 9.00 AM**

ABSTRACT NO.	TITLE	AUTHORS	Hall	Time
160	A FRAMEWORK FOR COGNITIVE REHABILITATION FOR CANCER SURVIVOR REPORTING COGNITIVE DEFICITS: A SYSTEMATIC REVIEW	<b>NIDHI SINGH</b> , ANCHIT GUGNANI AND RAJU K. PARASHER	3	9.00 AM
49	DISABILITY AMONG PATIENTS WITH HEAD AND NECK CANCER USING ICF-BASED FRAMEWORK: A CROSS-SECTIONAL STUDY	<b>AISHWARYA A</b> , SUNDAR KUMAR V, ARAVIND KAPALI AND PALANI RAMANATHAN	3	9.00 AM
152	HOW ACTIVE ARE INDIAN CHRONIC KIDNEY DISEASE PATIENTS UNDERGOING HEMODIALYSIS??	<b>SRIDEVI S</b> AND SOUNDARRAJAN P	3	9.00 AM
23	DEVELOPMENT, VALIDATION AND ESTABLISHING INTERNAL CONSISTENCY OF KNOWLEDGE, ATTITUDE, AND BARRIERS TOWARDS TELE PHYSIOTHERAPY QUESTIONNAIRE.	LALLI SINGH, <b>KSHITIJA BANSAL</b> AND TARUN KUMAR	3	9.00 AM

**Day II: Saturday, April 30, 2022; 9.00 AM**

**Hall 1: Physiotherapy in musculoskeletal Conditions**

**Abstract No: 27**

**Title:** Relationship between clinical variables and high sensitive C reactive protein in stratified groups of low back pain

**Author:** P.Antony Leo Aseer

**Affiliation:** Sri Ramachandra Institute of Higher Education and Research.

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**Purpose:** The broad aim is to analyze the relationship between clinical variables and high-sensitive C reactive protein (hs-CRP) in stratified groups of low back pain.  
**Relevance:** The study was to evaluate the magnitude of effect between the biomarkers of inflammation and clinical variables in stratified groups of nonspecific low back pain.

**Participants:** 50 subjects (aged between 30-45 years) with the diagnosis of non-specific low back pain using convenient sampling were included. Participants with history of diabetes and cardiovascular diseases were excluded.

**Methods:** Correlational study design. All subjects were screened and stratified using STarT back screening tool. Clinical variables of pain severity, functional disability using Oswestry Disability Index-Tamil (ODI-T) and blood samples for analyzing the levels of hs-CRP were collected.

**Analysis:** Pearson correlation coefficient was used to analyze the relationship between clinical variables and hs-CRP in low, medium and high risk groups.

**Results:** High risk group (mean-12.17 mg/L) exhibited greater serum hs-CRP levels than other groups. There exist a significant positive moderate correlation ( $r = 0.55$ ,  $p < 0.007$ ) between pain severity and hs-CRP levels in high risk group. Moreover, moderate positive correlation was also observed between functional disability and hs-CRP levels in all risk categories.

**Conclusion:** There is a six fold increase in serum hs-CRP levels in high risk group predicting poor outcomes. There exist a positive relationship among hs-CRP, functional disability and pain severity in high risk group in nonspecific low back pain. Prospective longitudinal studies can be carried out to further establish the study findings.

**Implications:** High sensitive C - reactive protein served as a novel tool in detecting the presence of inflammatory mediators and further drives for more individualised treatment approach. Establishing treatment strategies (biopsychosocial approach) in high risk group using biomarkers is of paramount importance.

**Key words:** hs-CRP, low back pain, stratified care.

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## **Abstract No: 115**

**Title:** A pilot study on the effect of custom made orthotic insoles on plantar peak pressure in athletes.

**Author:** Humeira Payak

**Affiliation:** Sri Ramachandra University

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**Purpose -** To conduct a complete podiatry assessment in athletes who had complaints of foot, ankle and knee pain. To administer an appropriate custom designed orthotic intervention. To study the effect of custom made insole on the peak plantar pressures of the foot using in shoe insole sensor podiatry assessment.

**Relevance -** Due to the load bearing nature of the knee and foot musculoskeletal injuries are common in knee and foot region. A physiotherapist needs to understand the loads and forces acting on the knee and foot, tissue-healing capacity, surrounding structural compensations and requirements of their sport.

**Participants-** A group of 20 athletes across various sports like shooter, sprinter, cricketer and footballers.

**Methods-** We got informed consent from athletes. These players underwent clinical podiatry assessment, static foot pressure and dynamic foot plantar pressure analysis. We assessed plantar pressure with pre and post custom-made insole.

**Analysis-** The peak pressures and their regions of peak pressures were identified. Dynamic in-shoe assessment with Medilogic software during treadmill activity was done using pressure sensing insoles.

Using the clinical and instrumental data, CAD based design software was used to design the necessary orthotic insole, and manufactured using milling machines. The insole was made out of EVA composite material.

**Results -** Data was analysed using t test. P value: 0, 95% CI, MD- 26.6176, SED- 3.7496

**Conclusion –** The custom designed orthotic insoles in this study had a significant influence on reducing the peak pressures of the plantar regions of the feet in Athletes.

**Implication-** To design a management plan to efficiently return to sport and minimise the risk for further injury.

**Key word:** Orthotic insoles, Plantar pressure, Athletes

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**Abstract No:** 163

**Title:** Effect of Manual Diaphragm Release Technique on Transversus Abdominis Activation, Pulmonary Function and Chest Expansion- Randomized Control Trial

**Author:** Ritambhara Yadav, Tarun Kumar, Jeyanthi S

**Affiliation:** Amar Jyoti Institute of Physiotherapy, University of Delhi

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**Background:** The deep lumbar-pelvic cylinder musculature modulate intra-abdominal pressure, essential for both respiration and lumbar-pelvic stability. Manual Diaphragm Release Technique (MDRT) is an intervention intended to directly stretch the diaphragm muscle.

**Purpose:** The purpose of this study was to explore the effectiveness of Manual Diaphragm Release Technique (MDRT) on Transversus Abdominis Muscle Activation, pulmonary function and chest expansion.

**Participants:** 52 healthy subjects assigned randomly in 2 groups, 26 subjects in each group.

**Methods:** The research design was Randomised control -single blinded study with two groups. Primary outcome measure was Transverse Abdominis recruitment using Deep Muscle Contraction (DMC) Scale and Pressure Biofeedback unit (PBU). Secondary Outcome measures were Spirometer and Chest Expansion. FEV1, FVC, FEV1/FVC Ratio, MVV was assessed through Spirometry. Group A received MDRT and Group B was control group, placebo treatment given where the hand was placed at the muscle without providing stretch. MDRT was done 6-8 breaths for 3 days /week for 2 week. Pre and post-test readings were noted on 1st day, 3rd day, 6th (last day) of treatment and a 1-week follow-up.

**Statistical Analysis:** All groups were compared at all levels using the repeated measures ANOVA. Tukey's Post hoc was performed for significant mean differences.

**Results:** The result of the study showed significant ( $p \leq 0.05$ ) within subject improvement in TrA recruitment pattern, Spirometric measures and chest expansion in both the groups. There was significant improvement in PBU & DMC between groups ( $p \leq 0.05$ ). Overall, group A showed significant improvement in all the outcome measures as compared to control group

**Conclusion:** MDRT improved the TrA recruitment and Pulmonary function significantly as compared to control group. This suggests diaphragm has dual function in improving respiratory function and core stabilization.

**Implications:** This study implies that MDRT is proven and safe to use for pulmonary rehabilitation and core musculature recruitment pattern enhancement.

**Key word:** Transverse Abdominis Muscle, Manual Diaphragm release technique, Pulmonary function, Core Stability

**Abstract No:** 82

**Title:** Thoracic spine manipulation as an adjunct in the treatment of Cervical radiculopathy- A Randomized Controlled Trial.

**Author:** Anand Heggannavar and Yesha Parikh

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

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**Background:** Cervical radiculopathy is a common condition occurring as a result of compression of cervical nerve roots that causes pain radiating from the neck into the distribution of the affected root. Various physical therapy treatment options available, one of which is the thoracic spine manipulation. As cervical spine is the most sensitive segment, there are few risks associated with, therefore, thoracic spine manipulation can be considered as a treatment option as there is a biomechanical association between the cervical and thoracic spine.

**Purpose:** To determine the long term effect of thoracic spine manipulation in patients with cervical radiculopathy.

**Methods:** An experimental study with 34 participants within the age group of 25 to 60 years with neck pain radiating to unilateral or bilateral upper extremity were recruited in the study. Participants were randomly assigned to either of two groups using envelop method. The outcome measure used were numeric pain rating scale, Northwick park neck questionnaire, cervical ROM and neck muscle strength using pressure biofeedback. Control group received conventional therapy and experimental group received thoracic manipulation along with conventional therapy and the effect seen after 1 month was compared

**Results:** Statistical analysis revealed significant differences ( $p < 0.001$ ) in pre and post values of numeric pain rating scale, Northwick park neck questionnaire, cervical ROM and neck muscle strength using pressure biofeedback in both the groups Between group significance was found in the components of pain rating scale; worst pain right now ( $p = 0.01024$ )

**Conclusion(s):** Long term effect of thoracic spine manipulation when given as an adjunct therapy to conventional therapy proved to provide significant improvements in pain in subjects with cervical radiculopathy ie in terms of worst pain right now

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**Implications:** Thoracic spine manipulation can be used as an adjunct therapy with conventional therapy for pain relief in subjects with cervical radiculopathy.

**Key word:** Thoracic spine manipulation, cervical radiculopathy, Neurodynamics

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**Abstract No:** 90

**Title:** Tactile Acuity and Temporal Summation as a Measure of Central Sensitization in Individuals with Adhesive Capsulitis-A Cross Sectional Study.

**Author:** Shobhalakshmi S, Sayli Rajadhyaksha and **Ramya H S**

**Affiliation:** Department of Physiotherapy, M S Ramaiah medical college

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Background and Objectives: Adhesive capsulitis is a condition in which individuals have pain and restricted range of motion of the shoulder. In the early stages, there is also continuous nociceptive barrage, which may lead to peripheral and subsequently central sensitization. Central sensitization is an amplification of neural signalling within the central nervous system that elicits pain hypersensitivity. The presence of central sensitization can be assessed through temporal summation and tactile acuity. Determining the presence of central sensitization in adhesive capsulitis could direct physiotherapy interventions towards central nervous system focused approach such as pain neuroscience education and graded motor imagery along with conventional therapy. Hence the purpose of this study is to determine the alteration in tactile acuity and temporal summation in individuals with adhesive capsulitis as compared with healthy individuals.

Methodology: Cross-sectional research design was used. The participants were recruited from M S Ramaiah Hospitals. Participants were selected based on the inclusion exclusion criteria. The study consisted of two groups with 16 participants in the adhesive capsulitis group and the control group consists of 16 age and gender-matched healthy individuals. Assessment of tactile acuity was done using a two-point discriminator and assessment of temporal summation using a monofilament.

Results: Mann-Whitney U test was used to analyse the data. The result of the study showed that there was a significant difference in tactile acuity anterior valve ( $p < 0.001$ ), tactile acuity middle valve ( $p = 0.001$ ), tactile acuity posterior value ( $p = 0.001$ ) and temporal summation valve ( $p < 0.001$ ) in adhesive capsulitis group compared with the control group.

Interpretation and conclusion: In this study individuals with adhesive capsulitis had higher tactile acuity and temporal summation value as compared with the age and gender-matched healthy individuals. As there was an alteration in tactile acuity and temporal summation, this study concluded that central sensitization is present in an individual with adhesive capsulitis.

Key word: Adhesive capsulitis, Central sensitization, Tactile acuity, Temporal summation.

**Day II: Saturday, April 30, 2022; 9.00 AM**

**Hall 2: Physiotherapy in Neurological Conditions**

**Abstract No: 174**

**Title:** Prevalence of Psychosomatic Pain and Its Correlation with Anxiety, Depression and Insomnia in Young Adults – An Observational Study.

**Author:** Sailee Pai Kane\*, Basavaraj Motimath\*\*, Gaurang Baxi\* And Tushar Palekar\*

**Affiliation:** \*Dr. D. Y. Patil College of Physiotherapy, Pune, \*\*KAHER Institute of Physiotherapy, Belagavi

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Background and Purpose: Research has shown that mental health disorders manifest as significant physical health symptoms. Previous studies suggest that individuals with chronic pain are 18 times more likely to suffer than those without pain.

Methods: 201 participants in the age group 18-35yrs were selected from various colleges and work places. Participants who complained of having undiagnosed pain for more than 6 months were screened for anxiety, depression and insomnia using self-administered questionnaires. Hamilton Rating Scale for Anxiety (HAM-A), Hamilton Depression Rating Scale (HAM-D), Insomnia Severity Index (ISI), Numeric Pain Rating Scale (NPRS), & Patient Health Questionnaire (PHQ-15) were administered.

Analysis: Statistical Package of Social Science version 23 was used for data analysis. Descriptive statistics and Pearson's correlation test were used.

Results: PHQ-15 scoring is divided into four categories depending upon the level of somatic symptoms severity. From the 201 samples collected 48.3% fall into minimal category, 33.3% in low category, 13.4 in medium category and 5.0% in high category. Correlational analysis of NPRS and Patient Health Questionnaire-15 was done with ISI, HAM-A, HAM-D. PHQ\_15 correlated well with ISI ( $r=0.575$ ), HAM-D ( $r=-0.616$ ), and HAM-A ( $r=0.544$ ). There was a weak correlation of NPRS with ISI ( $r=0.396$ ), HAM-D ( $r=0.351$ ), and HAM-A ( $r=0.405$ ). All values were significant ( $p<0.05$ )

Conclusion: As per the result of the present study done there was a positive correlation seen between psychosomatic pain and anxiety, depression and insomnia; with anxiety showing the maximum prevalence.

Implications: The study has revealed a significant relation between psychosomatic pain and anxiety, depression and insomnia. The findings suggested that there is a correlation between pain and the mentioned mental health condition with anxiety having the maximum prevalence rate.

Key word: Anxiety, Depression, Insomnia, Patient Health Questionnaire-15, psychosomatic pain

**Abstract No:** 179

**Title:** Is Assessment of Balance Important in SARS –CoV-2 Survivors before discharge?

**Author:** Jaquiline Nongpoh, Nischitha R.Rao, Rejisha.T.R

**Affiliation:** St Johns Medical College Bangalore

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**Purpose:** To emphasize the importance of Balance assessment as integral part of SARS SARS-CoV-2 rehabilitation so that a “future pandemic” of falls can be prevented.

**Relevance:** Balance assessment in acute-care setting can help prevent falls and subsequent consequences complication during the course of rehabilitation.

**Participants:** SARS –CoV-2 recovered survivors (n=130), who were admitted for a minimum of 7 days and on O2 support.

**Methods:** Institutional Ethic committee approval was obtained. Patients admitted to the hospital with a confirmed diagnosis of SARS-CoV-2 who were on O2 support and minimum duration of hospital stay>7 days were recruited for the study. Balance impairment was assessed using Tinette POMA and the obtained data was analyzed.

**Analysis:** Descriptive

**Results:** A total of (n=130) patients were identified, 54 patients were at risk of falls, 36 were at high risk and 18 were at moderate risk of fall. In the results, there is a significant balance impairment in O2 dependent SARS-CoV-2 survivors.

**Conclusion:** Balance Assessment should be included in SARS-CoV-2 survivors so that a tailored exercise prescription can be formulated that will not only enhance their functional activities but also reduce the risk of falls and may prevent further complications.

**Implications:** Balance Assessment will help to identify the patient who are at high risk of falls and effective rehabilitation can be planned. Early detection of fall risk through balance assessment paves way for targeted, integrated intervention through a tailored exercise program based on the findings thus, reducing the burden of the patient and healthcare system in general.

**Key word:** Pandemic, risk of fall, COVID sequelae

**Abstract No:** 168

**Title:** Effect of Moon Salutations on Balance and Flexibility in Young Adults – A Pilot Study

**Author:** Mayuri Khatavkar\*, Pothiraj P\*\* and Vrushali Panhale\*

**Affiliation:** \*MGM College of Physiotherapy, Navi Mumbai, \*\* K J Somaiya College of Physiotherapy, Mumbai

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**Purpose:** Moon Salutations have been introduced in late 20th century which said to have effects on Ida Naadi and has a predominant effect on parasympathetic nervous system & it was assessed the effects of moon salutations on anxiety and aggression in adolescents and premenstrual syndrome. Extensive positions involved in this are likely to have effect on flexibility and balance. Thus, this aims at to find out and assess the effect of moon salutations on balance and flexibility in young adults

**Relevance:** This study put forth a protocol which can be used to improve balance and flexibility as a part of regular physical activity & focusing on activation of parasympathetic system.

**Methods/Procedure:** By purposive sampling technique, 42 participants in the age group of 18-30 years were screened. Those currently having any musculoskeletal and cardiorespiratory impairments were excluded. 15 participants were finally enrolled for the study and their informed consent was obtained. Demographic data was recorded and baseline assessment in the form of Y-balance test and Sit & reach test (SRT) was taken. Moon Salutation protocol that consists of 28 positions was explained to participants and carried out for thrice a week for 4 weeks via online platform. After 4 weeks, post intervention assessment was taken.

**Analysis:** Data was subjected to normality test and Wilcoxon test was taken for further within group analysis via SPSS software.

**Result:** All parameters for Y balance test were improved. Pre and post interventional mean (SD) for SRT were 14.8(+5.4) and 22.9(+7.1) respectively. Statistically significance was seen in parameters of both outcome measures with p value less than 0.001.

**Conclusion:** This study demonstrates positive effect of Moon Salutations in improving balance and flexibility in young adults.

**Implications:** This protocol can be implicated in health promotional physical activities as a regular practice in young adults so as to help to improve flexibility and balance.

**Key word:** Moon Salutation, Flexibility, Balance, Physical activity, Fitness, Young adults

## **Abstract No: 150**

**Title:** Effect of bioenergy LASER along with activity-based therapy and surface spinal stimulation in sub-acute cervical compressive myelopathy in middle-aged population: A Randomised Controlled Trial.

**Author:** Sharanjeet Kaur and Narkeesh Arumugam

**Affiliation:** Punjabi University Patiala.

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**Background:** The term “Myelopathy” is included under the broad umbrella of non-traumatic spinal cord injuries together with vascular, inflammatory, neoplastic and congenital (Badhiwal et al., 2020). It is the static compression of the thecal sac, due to narrowing of spinal canal that leads to a decrease in blood flow to neural parenchyma and neural degeneration in the cervical region (Fehling et al., 2017). It is a special form of non-traumatic spinal cord injury (Wang et al., 2018).

**Study Design:** A Randomized Controlled Trial.

**Purpose of the Study:** To study the combined effect of Bio-energy Laser along with Surface Spinal Stimulation and Activity-Based therapy in Sub-acute Cervical Compressive Myelopathy in middle-aged population.

**Methodology:** Nature of the study-Two group, Experimental design. Assessments were taken at Day 0, Day 7 and Day 15 for all the participants of both the groups. Study Participants- Individuals within 20-65 years of age-group diagnosed with CCM. Study Settings- Neuroroots-, Patiala. Sampling Method- Purposive Sampling. Sample Size- Total 20 Individuals with thecal sac compression at cervical region were included in the study. Each group has 10 participants. Randomization- The computer generated random sampling method Interventions- Experimental group received Bio-energy Laser at lesion site of 1500 joules at 5 watts, SSS at 20-40 Hz modulated at 2500 Hz frequency and ABT for 30 minutes for 5 Sessions/week for 3 weeks. The control group received SSS for 20 minutes and ABT for same duration. Outcome Measures- Hoffmann’s-reflex, Modified- Clinical Testing for Sensory Integration and Balance (m-CTSIB), Japanese Orthopedic Association Cervical Myelopathy Evaluation Questionnaire (JOACMEQ) And Neck Disability Index (NDI).

**Conclusion:** There are significant changes in the outcome measures of the study and significant improvement in functional status the individuals with CCM. This protocol might reactivate the central pattern generator (CPG) that influence the previously silent spared neural circuits or promote plasticity.

**Key words:** SSS Surface Spinal Stimulation, ABT Activity-Based Therapy, CPG Central Pattern Generator.

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**Abstract No:** 153

**Title:** Effect of Integrated Approach in Feeding Difficulties in Children with Developmental Delay: Case Series

**Author:** Madhulika Sethiya\* and Narkeesh Arumugam\*\*

**Affiliation:** \*Meera physiotherapy Centre, \*\*Punjab University, Patiala

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**Background:** Feeding difficulty is an umbrella term that comprises of all feeding problems, leading to substantial consequences especially in GDD children. As, persistent feeding difficulty will lead to nutritional deficiency and may aid to lack of activeness & hamper bodily growth of a child so an integrated approach towards better management of such children will be of great benefit.

**Purpose:** Purpose of this paper is to present an integrated approach towards assessment & management of children with feeding difficulties in GDD (Global developmental delay).

**Participants:** Ten GDD kids with 1-3 years of age group have been taken, ruling out any specific feeding disorder.

**Methods:** Total twenty kids (age group 1 to 3 years) were examined out of which 12 were selected for the present study, in between two kids dropped out, so total 10 kids were taken for the present study. Participant's parents are asked to answer several question using PediEAT (PEDIATRIC EATING ASSESSMENT TOOL). Various parameters i.e., physiologic symptoms, problematic mealtime behaviour, selective/restrictive eating and oral processing were measured on PediEAT scale. Data was collected and analysed using SPSS version 16 at 0.05 level of significance.

**Implications:** As a pediatric physiotherapist dealing with kids require a wide vision that looks into the problem as a whole & uses a management strategy that integrates all the aspect of development (In relation to feeding).

**Result:** The 10 children with age 1-3 years were analysed using Wilcoxon's test and found to have significant difference between PRE and POST values of PediEAT scale with p value of 0.005 having Mean difference and SD of 304.5 and 35.86 respectively.

**Conclusion:** The study concludes that integrated approach (using oromotor therapy, cranial osteopathy, tapping, sensory play, body alignment, rainbow food in diet, parental counselling & use of assistive devices) proved to be highly significant in GDD children with feeding difficulties.

**Key word:** Feeding difficulties, Feeding assessment, integrated management approach

**Day II: Saturday, April 30, 2022; 9.00 AM**

**Hall 3: Physiotherapy in Health, Physical activity, fitness, Education & Rehabilitation**

**Abstract No:** 161

**Title:** Identification of Graduate Attributes and Core Competencies for an Indian Physiotherapist: A Modified Delphi Survey.

**Author:** **Gaurang Baxi**, Tushar Palekar, Seema Saini and Sudhir Jadhav

**Affiliation:** Dr. D. Y. Patil College of Physiotherapy, Dr. D. Y. Patil Vidyapeeth, Pune

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**Purpose:** Physiotherapy Curriculum across Universities articulate knowledge and skills for a Physiotherapist. Generic skills like professionalism, communication skills, leadership, are not formally taught. This project was undertaken to identify the graduate attributes and competencies required of a physiotherapist in the Indian context, through National consensus.

**Participants:** 174 Clinicians and Academicians with more than 5 years' experience were contacted for round 1 of Delphi. There was a rich heterogeneity in geographical distribution, educational qualification, professional profile, designation and experience of experts. 20 experts were invited for personal interviews in second round.

**Methods:** This was a modified Delphi survey. SURGE guidelines for reporting surveys were followed. 46 competencies classified under 10 categories were identified from regulatory bodies of USA, Canada, New Zealand and Australia. Through a google form, respondents rated all 46 items on a 10-point scale for their suitability for an Indian Physiotherapist. Response rate was 79%.

**Analysis:** Exploratory Factor Analysis was performed. Extraction Method used was Principal Component Analysis, Rotation Method used was Varimax with Kaiser Normalization. Three rounds of Factor Analysis were done for identifying and removing redundant items.

**Results:** After three rounds, Rotation converged in 7 iterations, the number of items reduced to 36. In the round 2 of Delphi process, experts deliberated on appropriate titles for these seven categories, proposed as the Graduate Attributes for an Indian Physiotherapist. The 36 items grouped under the seven graduate attributes were the proposed Core Competencies.

**Conclusion and Implications:** Regulatory Bodies and Universities can structure Physiotherapy curriculum and teaching learning around these Graduate Attributes and Core Competencies. Learning of these should begin early in students' learning programmes. This will help ensure more competent physiotherapists are produced who are more fit to practice in the society and ready to accept all challenges, beyond the scope of academic knowledge and skills.

**Acknowledgement:** This project was funded by the Society of Indian Physiotherapists.

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**Key word:** Physiotherapy Graduate Attributes, Physiotherapy Core Competencies, Modified Delphi Survey

## **Abstract No: 17**

**Title:** Development and Psychometric Analysis of Health Questionnaire for Classical Dancers

**Author:** Gopi Mistry\* and Sweety Shah\*\*

**Affiliation:** \*Ahmedabad institute of Medical Sciences, \*\* SBB College of Physiotherapy

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**Purpose:** Classical dancing consist of complex movement and postures which can affect the musculoskeletal as well as psychological status. Paucity of literatures discussed evaluation of the same. So arises the need to develop and psychometrically evaluate Questionnaire for Classical Dancers.

**Relevance:** In future it can be used as a valid and reliable instrument to identify health status of Classical Dancers.

**Participants:** 10 Experts for calculation of Content Validity ratio (CVR), Content Validity Index (CVI), Modified Kappa(k) and 15 dancers for face validity and Internal consistency reliability were selected.

**Methods:** Study was conducted in three phases. First, the framework was designed from the 22 personal interviews and three focus group discussion (FGD) and generation of items were done. This resulted in preliminary version of the questionnaire with 4 domains comprising of 45 items. Second, item reduction and psychometric evaluation. Third phase, development of final questionnaire.

**Analysis:** Using mixed-method approach, quantitative-qualitative analysis was done for primarily developed questionnaire.

**Results:** After qualitative analysis few items were deleted, added, modified and change in order of words and sentences were done. Quantitative analysis [CVR, CVI and modified kappa statistics (k)] done to find out content validity. 2 items were eliminated as their CVR was  $<0.60$ . 26 Item's CVI was between 0.70 to 0.79, so minor revision done. Modified kappa (k) of 19 items has excellent; 7 items have good and 2 items have poor validity. The Item Impact Score (IIT) of item was  $>1.5$  shows excellent face validity. The Cronbach's alpha was 0.72 shows acceptable reliability. The final questionnaire contains 18 likert MCQs, 9 'yes' and 'No' options, 18 one-word answer based questions categorized in to 4 thematic domains.

**Conclusion:** This study showed that the questionnaire has good psychometric values. **Implications:** It can be one of the best tools for health evaluation of classical dancers.

**Key words:** Classical dancers, Musculoskeletal status, Psychological status.

**Abstract No:** 164

**Title:** Impact of the Covid-19 Pandemic on the Social and Educational Aspects of Indian Students' Lives

**Author:** Neha, Jeyanthi S, **Mansi Mittal** and Amit Prashar

**Affiliation:** Amar Jyoti Insitute of Physiotherapy, University of Delhi

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**Background:** The COVID-19 pandemic led to surprising and unexpected experiences for Indian students followed by the activation of online education. Precautionary and preventive measures taken to contain this pandemic impacted the social and educational aspects of these students' lives.

**Purpose:** This study aims to explore and identify the negative impact of the COVID-19 pandemic on the social and educational lives of Indian students.

**Participants:** Self-reported data were collected from random samples of 100 university students in different colleges who were attending virtual classes.

**Methods:** It is a cross-sectional study using convenient sampling method. Online survey was done during second wave of COVID where COVID Negative Impact Scale was used which is a valid and reliable (0.72) questionnaire. It consists of 11 questions and utilized a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

**Statistical Analysis:** Descriptive data analysis was done through MS Excel. The frequency and percentage was calculated for each question.

**Results:** Out of 100 students, 77% agreed inadequate infrastructure with the colleges for virtual classes, 82% missed their classrooms and their social environment, 88% had fear of burden on others when infected reflecting the negative social impact. Similarly, considering the educational implications, 75% students felt inadequate practical learning, 71% noticed unfair assessment in virtual teaching and 89% students had reduced physical activity and physical movement space for themselves.

**Conclusion:** The results showed high levels of agreement regarding students' perceptions of negative impact of the COVID-19 pandemic on their lives, with social aspects impacted more than educational ones.

**Implications:** We need to understand that the virtual teaching is having a large negative impact on the social aspects of a student's life and lack large proportion on the educational infrastructure. Therefore, there is a marked requirement for the improvement in our educational infrastructure to continue virtual classes in future.

**Key word:** COVID 19, Social Impact, Negative Impact, Educational Impact

## **Abstract No: 83**

**Title:** What is the Scope of Physiotherapy in Research Grants for PhD in India?

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**Introduction:** Research grants play a crucial role in conducting research efficiently and successfully in today's era. High quality research foundation and adding new knowledge to specific science fields is dependent on implementation of research which requires monetary support. Research in Physiotherapy is an emerging field which is contributing scientific knowledge to patient related outcomes in rehabilitation. But there is a lack of research grants available for Physiotherapy subject for doing PhD which hinders the research pathway.

**Aim:** To find out the major funding agencies in India which provide research grants applicable for research in Physiotherapy.

**Methodology:** Search was conducted on Google and specific source websites for retrieving the information for research grants. Keywords used are Research grants, Fellowships, Physiotherapy, India.

**Results:** Few major funding agencies for research in Health and Medical sciences are Indian council of Medical Research and University Grant Commission National Eligibility Test – Junior Research Fellowship, Department of Science and Technology Inspire fellowship programme, Maulana Azad National fellowship, National Research foundation.

**Discussion:** Physiotherapy is not included as a core subject in any major schemes of fellowships in India. Opportunities for conducting researches in Physiotherapy is dependent on applying for allied health science subjects. So, there is a need of Physiotherapy subject specific grant to encourage the young scholars for clinical research.

**Key words:** Research, Fellowships, Physiotherapy.

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**Abstract No:** 170

**Title:** Knowledge, Attitude and Practice of Pain Neuroscience Education Among Physiotherapists: A Cross Sectional Survey.

**Author:** Anand Heggannavar and **Shreya Deshmukh**

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

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**Purpose:** To determine the Knowledge, attitude and Practice of Pain Neuroscience Education among physiotherapists through a questionnaire based survey.

**Relevance:** A significant population in India suffers from chronic pain and it is one of the commonest symptoms managed by physiotherapists. Pain neuroscience education has been found to be effective in pain management when included in a multimodal treatment. A number of misconceptions about this concept are prevailing.

**Participants:** Qualified practicing physiotherapists and physiotherapy academicians in India.

**Methods:** A cross-sectional study was conducted among physiotherapists across India. Data was collected using an online self-reported questionnaire constructed on Google Forms Application. The link of the questionnaire was circulated among the physiotherapists via various social media platforms.

**Analysis:** Percentage analysis of the responses was done using MS excel.

**Results:** 411 responses were subjected to statistical analysis. Only 50% of the respondents were aware of the term pain neuroscience education. Most of the questions in the knowledge domain received correct responses from more than 50% respondents. Most of the respondents have a negative attitude towards Pain Neuroscience Education. There is poor practice of Pain neuroscience education among physiotherapists in India.

**Conclusion:** There is lack of awareness about pain neuroscience education among physiotherapists in India. Physiotherapists having good knowledge about pain neuroscience, don't have a positive attitude towards it and show poor practice.

**Implication:** Awareness about pain neuroscience education should increase among physiotherapists which can be done by including it in the syllabus of physiotherapy students and conducting workshops.

**Key word:** Knowledge, Attitude, Practice, Pain neuroscience education, Physiotherapists

**Day II: Saturday, April 30, 2022; 5.15 PM**

**Hall 1: Physiotherapy in Musculoskeletal and Sports conditions**

**Abstract No:** 127

**Title:** Restricted Lumbar Range of Motion- Can it be a predictor of Early Lumbar Injury in adolescent Cricketers?

**Author:** Sinduja Dochibatla and Geethasudha Umapathy

**Affiliation:** SRMC, Chennai

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**Purpose-** The lumbar spine is subjected to considerable stress and varied degree of motion during multiple actions (bowling, batting, and fielding) in cricket. The purpose of this study was to identify if restricted lumbar range of motion, can be a predictive of development of lumbar injury.

**Relevance-** Lumbar spine ROM is the most under looked component in athletes, as major focus is seldom on strength and muscular endurance. Studies suggest significant issues in cricketers are commonly seen due reduced lumbar spine mobility/range leading to compensations on musculo-fascial systems causing increased lumbar loads and abnormal biomechanics.

**Participants-** 30 adolescent cricketers with mean age of group of  $14.75 \pm 2.55$  attending centre for sports sciences, Chennai with and without history of LBA participated in the study. All the participants provided consents.

**Methods-** A comprehensive musculoskeletal screening was conducted for 2 consecutive days where the lumbar ranges flexion, extension, lateral flexion and thoraco-lumbar rotation were recorded using a baseline bubble inclinometer. A pre-participatory injury surveillance questionnaire was administered prior to the assessment.

**Analysis-** The ratios of lumbar ROM data was extracted and analysed using SPSS software to its mean values and interpreted with the normative values of lumbar ROM. **RESULTS-** Upon data extractions significant reductions were noted in side flexion> thoraco lumbar rotation than lumbar extension/flexion with their SMD  $19.48 \pm 6.6(R), 18 \pm 5.07(L), 22.9 \pm 5.86(R), 20.48 \pm 6.32(L), 21.38 \pm 6.49, 44.41 \pm 6.92$  respectively of notable difference from normative ranges and 5/30 players reported previous histories of LBA.

**Conclusion-** In summary, the study concludes that 24/30 participants presented with restricted lumbar side flexion and thoraco-lumbar rotations which can be associated to predict the development of lumbar injury, as most of injuries in cricket (bowling) seldom occur as a result of abnormal force productions due to restrictions in side flexion and thoracic rotation contributing to stress fractures and other spinal injuries. Future research should aim to co-relate restricted LROM to lumbar injury qualitatively and quantitatively as cohort

**Key words:** Lumbar range of motion, Lumbar injuries, Low back ache, Adolescent cricketers.

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**Abstract No:** 70

**Title:** Association of Musculoskeletal Pain, Body Part and Posture with Use of Various Electronic Devices in Students of Age 14-18 Years-A Cross Sectional Study

**Author:** Shukra Chivate, Ruchita Jamnani, Rutuja Balolia and **Kaustubh Jadhav**

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

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**Purpose:** To determine association of musculoskeletal pain, body part and posture due to the use of various electronic devices in higher secondary school students.

**Relevance:** The present situation of COVID-19 has show increased use of electronic devices for studies in students' life. Children using gadgets for long duration attain improper posture which are associated with musculoskeletal disorders.

**Participants:** High school students of age between 14-18 years with a minimum use of electronic devices for 6 months.

**Methods:** An observational study design was conducted at various schools in Belagavi city for a sample of 388 students. Data collection was based on an E-form (Google form) which included informed consents, informed assents and assessment tool Adolescent pediatric pain tool (APPT).

**Analysis:** Standard descriptive statistics were used for the data, frequency tables and percentage analysis for categorical variables. Pearson Correlation test were used.

**Result:** The results of study showed that pain in the right and left knee was associated with use of television and significantly corelated to assumption of certain positions. Neck pain was associated with the use of laptops and assuming particular positions. The duration of time spent using an electronic device and the severity of pain were found to have a strong positive correlation.

**Conclusion:** There is significant association present between pain, body part and posture due to the use of electronic device in students of age 14-18 years.

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**Implications:** The knowledge about the improper posture and its musculoskeletal consequences can help minimize and prevent further complications associated with it by ergonomic advice.

**Key word:** Musculoskeletal pain, posture, electronic devices, COVID-19, High-school students

**Abstract No:** 180

**Title:** Effects of Static versus Dynamic Myofascial Decompression on Gastrosoleus Muscle Power and Latent Trigger Point Pain.

**Author:** Gaurang Baxi, Keerthana R, Divya Gohil and Tushar Palekar

**Affiliation:** Dr. D. Y. Patil College of Physiotherapy, Dr. D. Y. Patil Vidyapeeth, Pune

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**Purpose:** Muscle performance is an essential functional component, influenced by physiological, anatomical, psychological and biomechanical factors. It includes flexibility, muscle strength, agility and cardiovascular and aerobic endurance. Treatment approaches like stretching and myofascial decompression help improve flexibility and thereby muscle performance. This study explored the effects of static and dynamic myofascial decompression on gastrosoleus trigger point pain and power.

**Participants:** 105 healthy normal individuals in the age group of 20-30yrs having gastrosoleus latent trigger points volunteered to participate in the study.

**Methods:** The subjects were divided in to three groups by simple random sampling using the chit method. Group A received static myofascial decompression, dynamic stretching and cryotherapy. Group B received dynamic myofascial decompression, dynamic stretching and cryotherapy. Group C received dynamic stretching and cryotherapy. Lower extremity muscle power and functional performance were tested by Vertical jump height. Gastrosoleus muscle's myofascial trigger point pain sensitivity was measured with a pressure algometer.

**Analysis:** Data was analyzed using SPSS. Difference in the mean Vertical jump height and pain pressure threshold values between the groups were analyzed using one way ANOVA. Intra group analysis was done using Repeated Measures ANOVA. A value of  $p < 0.05$  at 95% confidence interval was noted to be statistically significant.

**Results:** Participants in all three groups showed clinical improvement, however the differences in the three groups were not statistically significant. In the dynamic myofascial decompression group a significant ( $p < 0.05$ ) carry-over effect was seen in the vertical jump height test post 5 days of intervention.

**Conclusions:** Static and Dynamic myofascial decompression are equally effective in reducing pain and improving gastrosoleus muscle power in subjects with latent trigger points. A sustained carry over effect was seen in the vertical jump height test in the dynamic myofascial decompression group after 5 days.

**Implications:** Myofascial restrictions affect the muscle power and function. This aspect needs to be kept in mind in rehabilitation.

**Key word:** Cupping, dynamic stretching, myofascial decompression, muscle power, muscle performance, muscle stretching, static stretching, trigger points

**Abstract No: 46**

**Title:** Effect of Low Intensity Transcutaneous Electrical Nerve Stimulation (TENS) on Vastus Medialis Obliques Muscle Activation for Reduction in Pain and Improvement in Function in Patients with Chronic Osteoarthritis of Knee Joint

**Author:** Mamta Shetty and **Rucha Pradhan**

**Affiliation:** MGM School of Physiotherapy Navi Mumbai

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**Purpose:** Knee osteoarthritis is a leading cause of disability resulting in significant reduction of knee function and quadriceps strength with increase in pain. This study focuses on effects of low intensity TENS with exercises on Vastus medialis obliques muscle activation for osteoarthritis knee versus conventional exercises.

**Relevance:** TENS is known to be an effective modality used to alleviate pain, improve muscle strength, and function.

**Participants:** Study comprised of 38 participants with osteoarthritis knee (19 in each group) between 50-70 years age group as per ACR diagnostic criteria, selected by purposive random sampling.

**Methodology:** Group A received conventional exercises. Group B received TENS on Vastus Medialis Obliques muscle additionally. They were assessed pre intervention, 6th week and 12th week of study using NRS, Modified WOMAC, Bergs Balance Scale and 30 Second Chair Stand Test

**Analysis:** Data was analyzed using SPSS software (Version 24; USA, 2019) and Shapiro-Wilk test was used to assess normality.

**Results:** Intra group analysis reported reduction in pain ( $p=0.00$ ) level (on NRS- 63.6% in group A and 39.6% in group B; on WOMAC- 72.4% in group A and 36.6% in group B), increase in function by 56.4% in group A and 33% in group B ( $p=0.00$ ), and improvement in strength by 35% in group A and 0.2% in group B ( $p=0.00$ ). No significant improvement was

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noted on inter group comparison in pain ( $p= 0.086$ ), function ( $p= 0.066$ ) and strength ( $p=0.190$ ) post 12 weeks of intervention.

**Conclusion:** Findings from present study report application of Low Intensity TENS for Vastus Medialis Obliques muscle activation along with exercise versus conventional exercises demonstrated no significant difference on chronic osteoarthritis knee patients for pain, function and strength.

**Implications:** TENS would act as an adjunct to conventional treatment of osteoarthritis in not only chronic stage but also in early stages. It could also be implied to any age group having osteoarthritis

**Key word:** Osteoarthritis Knee, Pain, Function, Strength, Low intensity TENS, Exercise

**Abstract No:** 175

**Title:** Effect of Matrix Rhythm Therapy on Pain and Hand Intrinsic Muscle Strength in Students with Nomophobia.

**Author:** Tushar Palekar, Sanjana Chakrabarty, Pramod Palekar and Gaurang Baxi.

**Affiliation:** Dr. D.Y. Patil Vidyapeeth, Pune

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Background and purpose: Matrix Rhythm Therapy (MRT) is a new electrotherapy modality which provides effective treatment for the conditions related to disturbance in the microcirculation. It is effective in pain management as it helps the cells to restore its original frequency between 8-12Hz. In the modern era, smartphone have become a very intrigue part of human life, 74% population uses smartphone worldwide. There is risk of developing various repetitive strain injuries in smartphone users. The aim of this study was to evaluate the effectiveness of Matrix Rhythm Therapy on hand pain in excessive Smartphone users.

Methodology: 140 students in age group of 18-25 years were screened on basis of Smartphone Addiction Scale: Short Version to assess the addiction towards smartphone. The participants having the score more than 25/60 were included in the further study which turned out to be 90 students. These participants were told to install My Addictometer application in their smartphone, the participants using their smartphone for more than 3 hours per day were further assessed for hand pain using Cornell Hand Discomfort Questionnaires (CHDQ). 30 participants having hand pain were given MRT for three sessions, spread across one week. MRT was given to lumbricals, thenar and hypothenar muscles. Outcome measures were visual analog scale (VAS) at rest and on activity, pinch strength and grip strength. All outcome measures were assessed pre & post treatment.

Results: Results showed significant improvement in VAS on activity and rest ( $p < 0.001$ ), grip strength ( $p < 0.001$ ) and pinch strength ( $p < 0.001$ ) after application of Matrix Rhythm Therapy.

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Conclusion: From the findings of this study, we can conclude that MRT is effective in reducing hand pain. Also, there is significant improvement in grip and pinch strength in individuals who are using smartphones for more than 3 hours a day.

Key word: Hand pain, Intrinsic Muscle Strength, Matrix Rhythm Therapy, Nomophobia, Texting

**Day II: Saturday, April 30, 2022; 5.15 PM**

**Hall 2: Stroke Rehabilitation**

**Abstract No: 11**

**Title:** Identifying Post-Stroke Physiotherapy Practice in India using a Delphi approach

**Author:** Harpreet Singh\*, Sampada Jahagirdar\*\* and Jaspreet Singh Vij\*\*\*

**Affiliation:** \*AIIMS, New Delhi, \*\* Amar Jyoti Institute of Physiotherapy, \*\*\* BFUHS, Punjab.

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**Background:** A competent workforce and a uniform code of practice are cornerstones of good quality healthcare. Knowledge of current practices is a prerequisite for quality of post stroke rehabilitation in India. It is thus, important to address and determine, on a regular basis, the competencies of physiotherapy clinicians delivering post stroke therapy.

**Purpose:** To design a validated questionnaire for determining current physiotherapy practices that are utilized by Indian Physiotherapists involved in post stroke rehabilitation.

**Relevance:** A strong objective evidence on current physiotherapy practices in India can determine the quality of post stroke care, help establish future guidelines and training programs.

**Participants:** Nine expert physiotherapists practicing in the field of stroke rehabilitation pan India, including both clinicians & academicians were selected by convenience sampling

**Methods:** A total of 40 practice competencies were listed in a questionnaire format by the authors from the literature. This list was then validated by a panel of expert Neuro-physiotherapists within India using a Delphi process. A minimum of 80% agreement amongst the experts was considered to essential for a competency to be finally included in the survey questionnaire.

**Analysis:** Content validity of the questionnaire was established by Lawshe's method.

**Results:** Three rounds of Delphi process were necessitated to reach a consensus on the final set of 29 competencies. The competencies were then categorized in 'Quality of care',

'Assessment and treatment' and 'updating of knowledge' domains.

**Implications:** This questionnaire will help evaluate current physiotherapy practices of Indian physiotherapists delivering post-stroke therapy. Based on the knowledge gained through this, uniform practice guidelines can be laid down for improved quality of care in future.

**Keywords:** Stroke, Physiotherapy, Competency, Current practices.

**Abstract No:** 103

**Title:** Correlation between Functional Independence, Depression Anxiety and Community Integration in subjects with Post Stroke Hemiparesis.

**Author:** Priya Darji and Shraddha Diwan

**Affiliation:** SBB College of Physiotherapy.

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**Purpose:** To correlate functional independence, depression anxiety and community integration in post stroke hemiparesis.

**Relevance:** In subjects with post stroke due to primary and secondary impairments there may be restriction in functional independency also may have depression anxiety and problem in community participation. Hence it is necessary to find out correlation between functional independence, depression anxiety and community integration.

**Participants:** 67 participants from SBB college of physiotherapy, SVP hospital. Post stroke males and females of age 35 to 75 years, both ischemic and haemorrhagic stroke subjects were included and visual auditory deficits subjects were excluded in the study by convenient sampling.

**Methodology:** Cross sectional study was conducted. After taken a consent, fill up the scales by asking questions to the subjects. Functional independence measures scale, Depression, anxiety and stress scale and Community integration questionnaires.

**Analysis:** Data analysis for 15 subjects was done using SPSS version 20 and Microsoft excel 2019. For data screened nonparametric Spearman correlation coefficient test was used. Level of significance kept at 5 %.

**Results:** Results show that there is moderate negative correlation between FIM and DASS ( $r = -0.571$ ,  $r = < 0.05$ ) moderate positive correlation between FIM and CIQ ( $r = 0.535$ ,  $r = 0.05$ ) and moderate negative correlation between DASS and CIQ ( $r = -0.526$ ,  $r = < 0.05$ ) in subjects with post stroke hemiparesis.

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**Conclusion:** functional independence measures (FIM) is positively correlate with community integration (CIQ) and negatively correlate with depression anxiety (DASS) and depression anxiety (DASS) is negatively correlate with community integration (CIQ).

**Key words:** Community integration, Depression, Anxiety, Functional independence, Hemiparesis.

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**Abstract No:** 176

**Title:** Influence of Information Processing Speed (IPS) on Gait Asymmetry in Unilateral Stroke Survivors.

**Author:** Ananya Rakesh Sharma\*, Ramesh Debur Visweswara\*\* and Aditi Bhandarkar\*\*

**Affiliation:** \*St Johns Medical College and Hospitals, \*\*Ramaiah Medical College and Hospitals

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**Purpose:** Gait abnormalities are a prevalent dysfunction in stroke patients. Even post-rehabilitation more than half of them experience gait asymmetry. It is often a result of slow and insufficient activation of muscle on the hemiplegic side. Gait abnormalities are also seen as a sequel to cognitive impairment. One of the most severe cognitive impairments in stroke patients is the decline in Information Processing Speed/Time (IPS). Processing speed decline has been seen to influence gait parameters in various populations. The neural correlates of gait and processing speed are interlinked. The study would test the hypothesis if increased IPS of the affected hemisphere influences gait asymmetry. Thus the study aims to measure the processing speed deficit of the affected side, and secondly to assess if it influences gait asymmetry.

**Relevance:** To assess if gait asymmetry in stroke patients is a function of cognitive processing.

**Participants:** 23 left hemispheric stroke patients.

**Methods:** Visual Reaction Time (VRT) was taken to measure IPS. Gait (Stride velocity and step time) was assessed through GaitRite.

**Analysis:** Spearman Correlation was performed between VRT variable and Gait variables.

**Results:** Affected hemisphere was 337 milliseconds slower. VRT had negligible correlation ( $r=0.106, 0.631$ ) with asymmetry. High-moderate correlation ( $r=0.661, 0.001$ ;  $r=-0.514, 0.01$ )

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with unaffected velocity and step time and weak-negligible ( $r=0.473, 0.02$ ;  $r=0.067, 0.7$ ) correlation with affected side.

**Conclusion:** Stroke patients suffer from increased processing time of the affected side. The increased processing time doesn't influence the gait asymmetry, although processing of the unaffected hemisphere does influence the gait.

**Implications:** Improving processing time might not reduce gait asymmetry. Further studies are required to understand the relationship between lateralization of IPS and gait retraining.

**Key word:** Processing speed, Gait asymmetry, Stroke, Cognition

**Abstract No: 124**

**Title:** Do Kinematic variables have an added advantage over clinical variables in Predicting Upper Extremity Motor Recovery Post-Stroke?

**Author:** Sanjukta Sardesai, John M Solomon, Elton Nazareth and Senthil D Kumaran

**Affiliation:** Manipal College of Health Professions, Manipal Academy of Higher Education.

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**Purpose:** Measurement of movement quality is essential to distinguish motor recovery patterns and optimize rehabilitation strategies post-stroke. The purpose of this study was to assess the added advantage of kinematic over clinical measures for predicting post-stroke upper extremity (UE) recovery by developing a regression model comprising of both

**Relevance:** Meticulously formulated prognostic models could be used by rehabilitation specialists for improving prediction accuracy in stroke survivors

**Participants:** This study comprises of 89 acute to early sub-acute stroke survivors ( $58.8 \pm 11.8$  years, 61 males)

**Methods:** Baseline characteristics, demographics, grip and pinch strength were measured within 7 days and 3D kinematic analysis of a simulated drinking task was performed within 1-month post-stroke. The sensorimotor impairment through Fugl Meyer Assessment of Upper Extremity (FM-UE) was assessed at 3-months. Kinematic metrics of time, displacement, velocity, shoulder and elbow angles and reaction time were determined.

**Results:** Clinical variables were available for 89 participants by 7 days and kinematic for 50 individuals at 1 month. A strong correlation was found between FM-UE at three months with Shoulder Abduction Finger Extension ( $r=0.84$ ), Nottingham Sensory Assessment ( $r=0.84$ ), Motricity index ( $r=0.82$ ), National Institutes of Health Stroke Scale ( $r=0.75$ ), and moderate with pinch ( $r=0.69$ ) and grip strength ( $r=0.62$ ) measured within 7 days post-stroke. We found

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a weak correlation between FM-UE at 3 months with velocity ( $r=0.53$ ), time ( $r=-0.43$ ) and displacement ( $r=0.38$ ). However, on combining clinical and kinematic variables the linear regression model was found to have an  $R^2$  value of 0.85.

**Conclusion:** This model would help us predict impairment at 3 months for 85% stroke survivors with similar characteristics. However, kinematic variables should be used as an adjunct to clinical variables in order to comprehensively predict UE recovery in stroke survivors.

**Implications:** Predicting the amount of post-stroke recovery would enable us in realistic goal formation and for planning rehabilitation to improve recovery potential.

**Key words:** Cerebrovascular diseases, Kinematics, Prediction, Recovery.

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## **Abstract No: 148**

**Title:** Therapeutic effect of Multi-target non-invasive Cortical Stimulation on Cognitive, Motor Domains and Gait in Sub acute Stroke Survivors- Case Series.

**Author:** Divya Midha and Narkeesh Arumugam

**Affiliation:** Punjabi University, Patiala, Punjab, India.

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Background: The optimum recovery in a stroke individual cannot be expected by ignoring the impact of simultaneous cognitive deficits. Identification of involved networks in a patient-specific context along with the deeper understanding of interconnected neuronal network may yield better outcomes when applied with conventional rehabilitation.

Aim: Therapeutic effect of multitarget cortical stimulation on cognitive domains, motor functions of paretic hand and gait in subacute stroke survivors.

Methodology: Study was randomized sham controlled, parallel Groups trial registered with the clinical trial registry of India (CTRI/2020/01/022998). A total of 06 Sub- acute Stroke patients were randomly allocated to both the groups.

Intervention: Experimental group participants received Multichannel Transcranial Direct current stimulation (M-tDCS) over the primary motor cortex i.e. C3/C4 point and dorsolateral prefrontal cortex i.e. F3/f4 point with 1.2 mA intensity for 20 minutes. SaeboFlex-assisted training, functional electrical stimulation over the lower extremity and conventional physiotherapy rehabilitation for 5 sessions/week for total 4 weeks. Control group received sham M-tDCS in which stimulation was ramped off to zero after 30 seconds of stimulation. Outcome Measures. EEG Fugl-Meyer assessment scale for the upper and lower extremity, Wisconsin Gait Scale and the Stroke Specific Quality of Life measures. Assessment was taken at Day 0, 15 and 30 post interventions.

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Results: Experimental group: Mean and Standard deviation scores FMA-UE varied from  $67.00 \pm 5.56$  to  $93.00 \pm 2.64$ , FMA-LE from  $57.00 \pm 10.14$  to  $74.67 \pm 12.66$ , NHPT from  $257.33 \pm 48.38$  to  $167.33 \pm 41.48$ , WGS from  $38.41 \pm 2.63$  to  $30.98 \pm 1.51$ , SSQOL from  $87.00 \pm 12.53$  to  $136.00 \pm 12.66$  on Day 0 and Day 30 respectively. Control Group scores FMA-UE varied from  $77.66 \pm 11.50$  to  $108.00 \pm 4.00$ , FMA-LE from  $66.33 \pm 4.50$  to  $82.33 \pm 7.09$ , NHPT from  $178.00 \pm 9.16$  to  $152.00 \pm 3.46$ , WGS from  $34.78 \pm 4.27$  to  $28.08 \pm 1.51$ , SSQOL from  $105.30 \pm 6.11$  to  $159.67 \pm 16.8$ .

Conclusion: Application of M-tDCS induced improvements in motor functions of the UE and LE, gait parameters with significant improvement in overall quality of life.

Key words: Stroke, Non Invasive Brain stimulation, Multichannel Trans-cranial Direct current stimulation.

**Day II: Saturday, April 30, 2022; 5.15 PM**

**Hall 3: Physiotherapy in medical conditions, Gynaecological conditions, sleep and cardio-respiratory conditions.**

**Abstract No:** 159

**Title:** Development and Validation of a Screening Tool to Determine the Prevalence of Urban Women Predisposed to Poly Cystic Ovary Syndrome (PCOS)

**Author:** Jeyanthi S and Raju K Parasher

**Affiliation:** Amar Jyoti Institute of Physiotherapy, University of Delhi

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Background/Relevance: Poly Cystic Ovarian Syndrome (PCOS) is one of the most common reproductive endocrinological disorder with broad spectrum of clinical manifestations. In order to address the problem of PCOS it is imperative that we first identify the women that are predisposed to develop PCOS.

Aim: To develop and establish content validity of the newly designed self-report questionnaire to identify women with predisposition to polycystic ovary syndrome, also to establish item-reliability (internal consistency) of the self-report Questionnaire.

Participants: The content validity was established with a panel of eleven (11) experts. The experts were Gynaecologist, who had minimum of three years of experience in clinical practice/academic experience. The item-reliability was established with hundred (100) healthy females within age group 15-40 years.

Materials and methods: The draft questionnaire were formulated by the investigator after extensive literature review and through in depth qualitative interviews. The identified domains were General Health Practices, Menstrual history, Clinical signs of hyperandrogenism, Sleep profile, Physical Activity Profile, Psychological profile, Nutrition / Dietary Profile, sexual function, social function, Perceived Stress. Content validity of the questionnaire was established through Delphi procedure. Then the questionnaire was administered to establish item-reliability.

Statistical analysis: The content validity ratio (CVR) was calculated for each item based on the responses of the experts with Lawshe table. The Chronbach's alpha was calculated for item-reliability by using Microsoft Excel 2010.

Results: The domain wise CVR was between 0.85 to 1. Content Validity Index (CVI) was 0.84, which suggest the questionnaire has excellent validity. The Chronbach's alpha (ICC) was 0.85, which suggest that the questionnaire has very good item-reliability

Conclusion: The questionnaire can be used as an effective valid and reliable tool to identify women with predisposition to PCOS.

Implication: This screening tool will create awareness and reduce the prevalence of this reproductive age disorder. Hence, prevent early and late sequel of the syndrome.

Key word: Poly Cystic Ovarian Syndrome, Questionnaire, Content validity, Item reliability

**Abstract No:** 68

**Title:** Functional Disability in patients after Chikungunya – An Observational Study.

**Author:** Rachana Pandya and Megha Sheth

**Affiliation:** SBB College Of Physiotherapy, Ahmedabad, Gujarat

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**Purpose:** To assess the functional disability due to pain in the upper and lower limbs in patients after chikungunya.

**Relevance:** Patients with chikungunya fever have involvement of the both small and large joints of upper and lower limbs. After chikungunya, patients have difficulty in doing essential activities in daily life. So, there is a need to assess the severity of functional problems in these patients.

**Participants:** 87 patients, males and females aged 18-65 years, diagnosed with chikungunya fever within last 3 months were included using convenience sampling. Patients with known and severe musculoskeletal conditions, cardio-respiratory conditions, systemic conditions, neurological conditions, and malignancy were excluded.

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**Methodology:** An observational study was conducted at SBB college of physiotherapy. To assess disability for upper limb DASH (Disability of Arm, Shoulder & Hand) was used and LEFS (Lower Extremity Functional Scale) was used for assessing function of lower limbs. Pain was assessed as mild, moderate or severe. The participants were explained the study and were asked to fill up the two scales.

**Analysis:** Data was computed on Google spreadsheets and descriptive analysis was done. **Result:** Mean age of participants was  $43.22 \pm 14.16$  years. 63.2% were females and 36.8% were males. 91% people had pain post the fever. Pain intensity was found mild (28.4%), moderate (51.9%) to severe (19.8%). 61% patients have pain and functional problems in upper limb with median (IQR) for DASH score 34.17(28.75). 68% patients have functional problems in lower limb with median (IQR) LEFS score 28(35).

**Conclusion:** After chikungunya fever functional problems are prevalent in upper and lower limbs. The disability scores are high for upper and lower limbs 3 months post chikungunya. **Implications:** Further studies should be designed for relieving pain and improving function by physiotherapy for patients of chikungunya.

**Key words:** Chikungunya, Functional problems, Joint pain.

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**Abstract No:** 107

**Title:** Immediate effect of KAZOO on Lung Function, Rate of Perceived Exertion and Oxygen Saturation in Obese Collegiate Students: A Pre- and Post- Clinical Trial.

**Author:** Ganesh B.R. and **Ria Gondhali**

**Affiliation:** KAHER Institute of Physiotherapy.

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**Purpose:** Previous studies show the use of various wind instruments in respiratory conditions to change and/or affect the lung functions, although a very few studies talk about the use of Kazoo instrument. This study was undertaken to evaluate the short-term effects of Kazoo playing for 5-minutes and its affection on the lung function, perceived physical exertion and oxygen saturation. The study also helps understand if Kazoo playing can be used as an adjunct therapy in relieving dyspnea in patients.

**Relevance:** Obesity is known to affect the lung function, along with the level of perception of exertion in an individual. This study helps find the effect of playing Kazoo in affection to the lung functions and level of exertion.

**Participants:** Twenty- two participants from healthcare universities of all genders in the age group of 18-29 years, of BMI more than or equal to 30kg/m<sup>2</sup> were included in the study.

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**Methods:** A pre- and post- clinical trial was conducted using convenience sampling.

**Analysis:** Continuous variables are given as means  $\pm$  SDs and categorical data as percentages. Comparisons were done using Kolmogorov-Smirnov test, of the paired sample t-test, when parametric test assumptions were met, and the Non- Parametric Wilcoxon paired test was used for non-parametric data.

**Results:** Participants showed a significant improvement in Forced Vital Capacity, Forced Expiratory Volume in 1 second and peak expiratory flow rate along with perceived level of exertion on the Modified Borg Scale ( $p < 0.05$ ). However, there is no improvement observed in the values of oxygen saturation ( $p > 0.05$ ).

**Conclusion:** In conclusion, there is a significant positive immediate effect of Kazoo on lung function and rate of perceived exertion in obese collegiate students. Although there is no consistent increase in oxygen saturation after the intervention.

**Implications:** Playing of Kazoo instrument can be a viable option in improving pulmonary functions in obese individuals.

**Key words:** Kazoo, Lung Function, Obesity, Perceived rate of Exertion, Oxygen Saturation.

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**Abstract No:** 125

**Title:** Impact of Nomophobia (NMP) on Insomnia and Physical Activity Levels among Physiotherapy Undergraduate Students

**Author:** Tejuvarshini V, Veena Kiran Nambiar and Diana Rodrigues

**Affiliation:** Department Of Physiotherapy, Ramaiah Medical College.

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**Purpose-** To determine the impact of nomophobia on insomnia and physical activity (PA) levels among physiotherapy undergraduate students.

**Relevance-** We are living through a period where technology is the only connection to normalcy. Reports indicate increased screen time during the COVID-19 pandemic, also due to significant disruption in routine, nocturnal media use has been increased leading to insomnia. As the total screen time increases, users have decreased physical activity, which can lead to sedentarism.

**Participants-** All undergraduate physiotherapy students of Ramaiah Medical College (Department of Physiotherapy), Bengaluru, India were invited to participate in an online survey. 95 participants who gave the consent were enrolled.

**Methods-** Nomophobia- questionnaire (NMP-Q), International Physical Activity Questionnaire-Short Form (IPAQ-SF) and Insomnia Severity Index (ISI) were distributed to the participants as Google forms via WhatsApp. The participant was asked to give the best response of his experience. Data collected was subjected to analysis.

**Analysis-** Responses obtained via Google-forms were screened. The data was categorized and analyzed using Google spread- sheet and descriptive statistics using percentage and frequency distribution was performed.

**Results -** 72(75.78%) students were categorized with moderate-severe nomophobia. 25(26.31%) students had moderate-severe nomophobia suffered from clinical insomnia. However, they demonstrated moderate-high PA level. 21(22.10%) students had mild nomophobia with subthreshold insomnia and low PA level. The results demonstrate significant impact of nomophobia on insomnia, however not on PA level among physiotherapy undergraduate students.

**Conclusion-** The burden of nomophobia and impaired control that compromises the health and wellness were prevalent in physiotherapy undergraduate students. Measures need to be taken to address clinical insomnia in view of the current era of growing information technology.

**Implications-** This study will pave a path for the need of exercises to improve the sleep quality and duration of students who have nomophobia.

**Key words:** NMP-Q, IPAQ-SF, ISI, Physiotherapy students, physical activity level, insomnia, nomophobia.

**Day III: Sunday, May 1, 2022; 9.00 AM**

**Hall 1: Physiotherapy in Musculoskeletal conditions**

**Abstract No: 8**

**Title:** Effectiveness of Holistic approach an Osteo-Fascial Remodeling in adolescent Idiopathic Scoliosis – Single Case Study

**Author:** Diksha Saini\* and Narkeesh Arumugam\*\*

**Affiliation:** \*Kanishk Clinics, Patiala, \*\* Punjabi University.

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**Purpose:** To evaluate the efficacy of holistic approach formed by Schroth exercises along with soft tissue elongation and Matrix Rhythm Therapy (MRT) in treatment of AIS (Adolescent Idiopathic Scoliosis).

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**Relevance:** Integration of corrective exercises and soft tissue elongation methods might lead to reversal of underlying pathological osteo-fascial derangements in idiopathic scoliosis.

**Participants:** A 13 years old female with left thoracolumbar scoliosis of idiopathic nature.

**Methods:** Nature of the Study: A case-report. A single scoliotic curve extending from T1 to L4 was seen on X-ray with a Cobb's angle measurement of 25.24°. Static EMG (sEMG) of paraspinal musculature was carried out. Holistic treatment comprising myofascial release directed to the identified shortened musculature along with MRT was administered twice daily for 4 days. This was combined with home exercise program designed on Schroth's approach. The exercises were aimed at active correction of thoracolumbar concavo-convex regions, ribcage rotation and asymmetries of shoulder and pelvis, along with rotational breathing. Outcome Measures: Cobb's angle, sEMG using Myovision.

**Results:** Repeat radiograph after 5 months of regular exercises revealed significant improvement in lateral curvature with reduction of Cobb's angle from 25.24° to 14.46°. A considerable improvement in level of shoulders was also observed. sEMG re-test reflected rise in stress score from 508 to 763 microvolt ascribable to activation of electromyographically silent and weak musculature with retrieval of nearly symmetrical paraspinal muscle activation.

**Conclusion:** Holistic approach of scoliosis correction might expedite rectification of muscle imbalance by activating electromyographically silent musculature along with lengthening of shortened muscles hence correcting scoliotic spine deviations in all the three planes.

**Implications:** Holistic treatment of scoliotic deviations indeed contribute to enhance osteo-fascial remodeling of curvatures with resolution of potentially etiological muscle imbalances.

**Key words:** AIS: Adolescent Idiopathic Scoliosis, sEMG: Static Electromyography, MRT: Matrix Rhythm Therapy.

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## Abstract No: 12

**Title:** Clinical Tests used to measure Positional Faults of the Shoulder Girdle: A Reliability Study.

**Author:** Neeraj Singh\*, Pragya Kumar\*\* and Raju Parashar\*\*\*

**Affiliation:** \* MGM Allied Health Sciences Institute (MAHSI), MGM Medical College, Indore, M.P., \*\* Amity University, \*\*\* Amar Jyoti Institute of Physiotherapy.

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**Purpose:** Sustained, repetitive, prehensile activities that require precision and stability, necessitate a sustained static shoulder girdle posture over long periods of time, which can results in abnormal activation of the shoulder girdle musculature and consequent scapular misalignments.

**Relevance:** This study was to establish test-retest and inter tester reliability of six clinical tests commonly used to measure parameters related to shoulder girdle positional faults and or asymmetries.

**Participants:** A convenience sample of 50 healthy 18–25-year-old, male college students were evaluated on the following tests: Pectoralis minor index, Lateral scapular slide test, Posterior capsular tightness, Forward shoulder posture, cervical range of motion and shoulder muscle Isometric strength.

**Methods:** Participants were tested twice one week apart by one tester for test- retest reliability and for inter-rater reliability four testers measured participants on each test independently.

**Analysis:** Intra class correlations (ICC) were calculated across trials (test-retest) and across testers (inter-rater) in a repeated measure ANOVA.

**Result:** Test-retest ICC for forward shoulder posture was 0.998, while the inter-rater reliability was 0.628. Cervical range of motion test-retest reliability ranged from 0.987 to 0.999, while inter-rater reliability was 0.281 to 0.619. Test-retest reliability values for isometric shoulder strength were excellent (0.986-0.997), however the inter-tester values were in the poor range (0.31-0.34). Test-retest ICC values for Pectoralis minor index (0.982 to 0.984), Lateral scapular slide test (0.997- 0.969) and Posterior Capsular Tightness (0.967 to 0.974) were found to be excellent but Inter-rater and reliability values were in the poor to moderate range.

**Conclusion:** Clinical tests used to measure parameters relevant to shoulder girdle positional faults and or asymmetries met the criteria for excellent test-retest reliability by one tester.

**Implications:** It is thus recommended that these tests can be reliable used by a single tester over several trials.

**Key words:** Inter rater Reliability, Test-retest reliability, Shoulder girdle, Clinical test, Positional fault.

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**Abstract No: 28**

**Title:** Study on Correlation Of upper quarter Y Balance Test with Shoulder Range of Motion and Core Strength among Young Cricketers.

**Author:** Venippriya Neelakandan

**Affiliation:** --

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**Background:** Upper extremity closed kinetic chain exercise has been a common place in most rehabilitation program. Despite of it, there is no clear universally accepted clinical testing tool. A well-designed assessment should gauge dynamic unit in sports and activities of daily living. Because of the limited knowledge regarding UQYBT. The study aims to analyze the impact and effect of shoulder range of motion and core strength in UQYBT.

**Objective:** The primary purpose of the study is to determine the relationship between upper quarter Y balance test to the other component such as posterior capsule tightness, shoulder range of motion, core strength and impact of hand dominance.

**Method:** A sample of 30 young cricketers from MSD academy at Chennai performed the upper quarter y balance test and 7 auxiliary tests. Each subject performed 3 trials. Best of 3 is taken for the calculation. The relationship between the auxiliary test and upper quarter y balance test were analyzed. The difference between the dominant and non-dominant hand functioning were calculated.

**Result:** Thirty subject (29 male and 1 female) with the mean age of  $14.75 \pm 2.597$  completed the test. One participant data was excluded from analysis as he had previous history of injury. Collected data were statistically analyzed using Pearson's correlation test.

**Conclusion:** A significant moderate correlation was present between the UQYBT and core stability ( $P < 0.05$ ). no significant correlation between the shoulder range of motion and UQYBT.

**Discussion:** The study does not provide significant ground to prove the reliability of the test. And there only moderate correlation found between UQYBT and core strength. Smaller size of sample is one of the major factors for the discrepancy. Further research with large sample is needed to determine the relevance of UQYBT. Level of evidence: 2b

**Key words:** UQYBT – upper quarter y balance test., CKC - closed kinetic chain, young cricketer - 8 to 20 years.

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**Abstract No: 87**

**Title:** Influence of Different Walking Surfaces (Soft, Cement, Tar, Grass, Mixed) on Symptoms and Functional Disability Assessed Using CRD WOMAC in Knee Osteoarthritis Patients Wearing Sport Shoes of Age 55-75 Years: An Observational- Cross Sectional Study

**Author:** Pooja Patil and **Namrata Bhadbhade**

**Affiliation:** D.E.Society's Brijlal Jindal college of Physiotherapy, Pune

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**Aim:** To estimate the influence of different walking surfaces (soft, cement, tar, grass, mixed) on symptoms and functional disability assessed using CRD Western Ontario and McMaster osteoarthritis index (WOMAC) in knee osteoarthritis patients wearing sport shoes of age 55-75 years.

**Objectives:** This observational- cross sectional study estimated the influence of different walking surface on symptoms and functional disability assessed using CRD Western Ontario and McMaster osteoarthritis index (WOMAC) in knee osteoarthritis patients wearing sport shoes of age 55-75 years.

**Method:** 158 participants were selected according to the inclusion criteria. Inclusion of hill climbing in the walking exercise, past medical history, addiction histories along with shoe characteristics measurements such as heel height and collar height were taken. General instructions regarding self-administration of CRD WOMAC were given and CRD WOMAC was filled by each participant in their respective language. (English, Marathi, Hindi)

**Results:** After analysis it was observed that almost 50% of the study population walked on major hard surface, followed by about 25% using major soft surfaces. Only few used tar surface. CRD WOMAC scores were higher for harder surfaces as compared to those when the surface was softer. The difference was statistically significant ( $F = 89.674$ ,  $p < 0.0001$ ). Average CRD WOMAC score was higher ( $48.15 \pm 1.493$ ) among those who did hill climbing as compared to those who did not ( $37.27 \pm 0.698$ ). Heel height ( $r = 0.05$ ,  $p = 0.488$ ) and collar height ( $r = 0.054$ ,  $p = 0.054$ ) were not significantly correlated with CRD WOMAC score.

**Conclusion:** The present study indicates that major hard walking surfaces have the highest influence on the symptoms and functional disability followed by tar, major soft, soft and least on grass surface. Inclusion of hill climbing influences symptoms and functional disability but heel height and collar height does not have any influence on OA knee patients.

**Key word:** CRD WOMAC, Different surfaces, Knee Osteoarthritis, Walking

**Day III: Sunday, May 1, 2022; 9.00 AM**

**Hall 2: Physiotherapy in Neurological conditions**

**Abstract No:** 66

**Title:** Knowledge, Attitude and Practice of Parent towards Prevention of COVID-19 in Children with Special Needs: A Cross Sectional Study.

**Author:** Vinuta Deshpande, Sweety Agarwal, Shweta Ukkojekar and **Shriya Kale**

**Affiliation:** KAHER Institute of Physiotherapy.

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**Purpose:** To assess the knowledge, attitude and practice of parents towards prevention of COVID-19 in children with special needs.

**Relevance:** The coronavirus disease 2019 (COVID-19) has had a rapid global spread. Children with special need are more susceptible to viral infection.

**Participants:** All parents of children with special needs visiting Paediatric Department in tertiary care hospital, Belgavi.

**Method:** An institution based study for sample of 450 participants. Data collection was based on direct interview using a structured questionnaire consisting Knowledge (10 questions), attitude (6 questions), and practice (5 questions).

**Analysis:** Standard descriptive statistics were used for the data, mean and standard deviation for continuous variables whereas frequencies and percentages for categorical variables.

**Result:** Almost all the participant (100%) knew about the present scenario of COVID-19. Majority of the participants were about how COVID-19 spreads and its preventive measures. Most of the parents (72.4%) knew that the children with special needs are more risk of infection. Almost all of the participants (95.8%) knew that their child must wear a mask in public places. Most of the participants (64.9%) did not know that mask should not be worn by children less than two years. Almost 242 parents practiced the all preventive measures for COVID-19.

**Conclusion:** The parents of children with special needs have good knowledge, attitude and practice regarding the prevention of COVID-19 in children with special needs.

**Implication:** Knowledge, attitude and practice of parents will help control epidemic in children.

**Keywords:** COVID-19, Knowledge, Attitude, Practice, Children with special needs.

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**Abstract No:** 81

**Title:** Tele-rehabilitation program for Balance and Coordination training in Cerebral Palsy Children: A Pilot Study.

**Author:** Deepa Metgud and **Akshata Tadvalkar**

**Affiliation:** KAHER Institute of Physiotherapy, Belgavi.

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**Purpose:** To evaluate the effect of tele-rehabilitation on balance and coordination training in cerebral palsy children.

**Relevance:** COVID-19 pandemic had significant impact on children with disability due to prolonged confinement at home which influenced negative physical status of children. Tele-rehabilitation can play a major role in the maintenance of function, prevention of worsening disability, and follow up of patient. It can prove beneficial to the family by decreasing time and costs related to travelling, family centered service, home based model of delivery of care which leads to being less prone to infection.

**Participants:** 9 Children with cerebral palsy in the age group of 6-12 years with GMFCS level I and II were recruited from the paediatric out-patient department and child developmental centre of a tertiary care hospital and special schools in Belagavi.

**Methods:** In this pre-post pilot study, pre-treatment and post-treatment outcomes were taken by using balance and bilateral coordination subtest of Bruininks Oseretsky Test of motor proficiency 2 (BOT2). The physiotherapy treatment consisted of conventional balance training exercise via tele-rehabilitation through WhatsApp video call. The intervention was carried out thrice a week for 4 weeks for one hour which was monitored by the therapist and assistance was provided by the parent.

**Statistical Analysis:** The data was analysed using paired t test.

**Results:** The results indicated a significant improvement in balance ( $P=0.042$ ) with mean difference  $-4.25 \pm 3.20$  and coordination with mean difference  $-4.25 \pm 1.50$  ( $P=0.011$ ).

**Conclusion:** This study showed that tele-rehabilitation as a mode of treatment for children with cerebral palsy is useful for training balance and coordination.

**Implications:** Tele-rehabilitation can be considered as an effective mode of delivering rehabilitation for children with cerebral palsy and that the effect must be studied in a larger sample size.

**Key words:** Tele-rehabilitation, Balance and coordination, Cerebral palsy.

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**Abstract No:** 100

**Title:** Factors contributing for decreased fine motor skills in Autism Spectrum Disorders.

**Author:** **Rajeswari Muthusamy\***, Ramachandran Padmanabhan\*\*, Binu Ninan\*\*\* and Sailakshmi Ganesan\*\*\*\*

**Affiliation:** \*Faculty of Physiotherapy Sri Ramachandra Institute of Higher Education and Research, \*\* Department of Paediatrics Sri Ramachandra Institute of Higher Education and Research, \*\*\* Department of Neonatology, \*\*\*\* Department of Physiotherapy, Spastic Society of Physiotherapy.

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**Purpose:** Autism spectrum disorder (ASD) is primarily considered as psychiatric disorder but physical features are associated with it. Motor impairments are manifested as delays and deficits where gross motor functions develop overtime but fine motor is still found delayed even at three years of age.

**Relevance:** Reasons for delayed fine motor skills (FMS) could be multifold which include cognitive delays, limited attention and concentration and sensory processing deficits (SPD) and decreased hand grip strength (HGS) but the extent and consistency of the muscle weakness is not clear. This study intends to quantify HGS and analyse the relationship of the various contributing factors for the decreased FMS in ASD.

**Participants:** This cross sectional study was carried out in 65 ASD children diagnosed with Childhood Autism Rating Scale. Subjects were recruited from Vidyasudha – Centre for children with special needs.

**Methods:** Level of the FMS was assessed by Peabody Developmental Motor Scale and HGS was quantified with Martin Vigorimeter. Sensory Profile was used to assess their SPD and Cognitive and Adaptive functioning was assessed using Developmental assessment for young children.

**Analysis and Results:** Unpaired t test showed statistically significant decrease in HGS with  $p < 0.05$ . Pearson's correlation showed strong positive correlation between FMS and various factors - HGS, SPD and cognition with  $r > 0.7$  and  $p \leq 0.05$  and with  $r > 0.8$  in adaptive functioning. Beta value of Logistic regression of HGS, Cognition, Tactile, Vestibular and Auditory processing was -0.172, -0.209, 0.336, 0.161 and 0.130 respectively which conveys that HGS, cognition and Tactile dysfunction has major impact followed by Vestibular and Visual dysfunction.

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**Conclusion:** There is significant decrease in HGS and cognition, HGS and Tactile dysfunction has greater influence followed by Vestibular and Visual which insists Paediatric therapist to comprehensively assess all components and individualize treatment based on deficits and simultaneously address when training FMS and activities of daily living.

**Key words:** Autism Spectrum Disorder, Fine motor skills, Hand grip strength, Peabody Developmental Motor Scales, Sensory processing Dysfunction.

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**Abstract No:** 108

**Title:** Effect of Motor Skill training programme through Tele-Rehabilitation versus Home Exercise Program to improve Motor Proficiency in children with Suspected Developmental Coordination Disorder: A Randomized Controlled Trial.

**Author:** Prachi Mukkannavar and **Shukra Chivate.**

**Affiliation:** KLE Institute of Physiotherapy.

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**Purpose:** To assess the effect of motor skill Training Programme through tele rehabilitation to improve the motor proficiency in children with suspected developmental coordination disorder.

**Relevance:** The execution impairments in suspected DCD leads to associated problems. A meta-analysis in these children found deficient in visual-spatial processing which strongly attributed to clumsy motor performance. Due to pandemic, the on-going rehabilitation of patients have been altered leading to the adaptation of tele-rehabilitation as an alternative and new normal approach.

**Participants:** Age group of children between 05-15 years with Cut-off scores on DCDQ-07 questionnaire: < 47 for 4.6-7.11years, < 56 for 8-9.11 years & < 58 for 10-15 years  
**Methods:** A total of 30 children were randomly allocated into interventional group (n=15) and control group (n=15). Interventional group received motor skill training programme (MSTP), through tele-rehabilitation for 45-50 minutes per session, three times /week for 6 weeks and control group received demonstration of MSTP as home programme for 45-50 minutes daily for 6 weeks. Motor proficiency for both the groups were measured at baseline and post intervention using BOT-2.

**Analysis:** The between the groups analysis of BOT-2 was done using an independent t-test, within-group analysis was done using a paired t-test.

**Results:** Between group analysis showed significance ( $p < 0.05$ ) in manual coordination ( $p = 0.001$ ) and total motor composite ( $p = 0.005$ ).

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**Conclusion:** The motor skill training programme through telerehabilitation significantly improved motor proficiency in suspected developmental coordination disorder.

**Implications:** The study adopted unique mode of delivery of intervention, and found overall improvement in total motor composite score on BOT-2.

**Key words:** Suspected developmental coordination disorder, motor skill training programme, Tele rehabilitation.

**Abstract No:** 110

**Title:** Determinants of Motor Development in Infants: A Cross Sectional Study.

**Author:** Vinuta Deshpande and Deepa Metgud.

**Affiliation:** KLE Institute of Physiotherapy.

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**Purpose:** To identify the determinants of motor development in South Indian infants.

**Relevance:** An estimated 63.4 million Indian children under 5 years are at risk of poor development. Early childhood development is fundamentally important phase and is influenced by the stimulus and nurturing. Environment influences, particularly the home environment is considered as the critical factors for optimal growth and development.

**Participants:** Apparently healthy infants between 1 and 11 months residing in Belagavi city.

**Method:** 164 infants were recruited with probability proportional to population size sampling method, as part of larger sample size of 1170. Information on child and family characteristics, home environment and play materials were recorded using a structured questionnaire.

**Analysis:** In a manual stepwise forward procedure, association between each independent variable and outcomes was assessed in unadjusted models. Variables, significant at  $P < 0.05$  were kept in multiple models while non-significant variables were re-introduced one at a time into the multiple models.

**Result:** Gestational age was positively associated, while duration of breast feeding, hospitalization and present weight (-1.17,  $p = 0.03$ ) had negative association with the fine and total motor quotient respectively. Father's education (0.0352 coefficient), occupation and income had significant positive effect on total and fine motor quotients respectively. Outside space to play had positive association with fine motor quotient (2.28,  $p = 0.0154$ ).

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**Conclusion:** The research was able to highlight the impact of home environment and early exposure to the play materials on the motor development of infants.

**Implication:** The study findings have significant implications for early identification of multidirectional factors influencing the infant development and propose to implement effective and impact full early childhood intervention in India that would complement existing services and will improve developmental outcomes of Infants.

**Key words:** Early Infant Development, Home Environment, Play Material, Early Learning Environment.

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**Day III: Sunday, May 1, 2022; 9.00 AM**

**Hall 3: Cancer Rehabilitation, Diabetes, Haemodialysis**

**Abstract No:** 160

**Title:** A Framework for Cognitive Rehabilitation for Cancer Survivor Reporting Cognitive Deficits: A Systematic Review

**Author:** Nidhi Singh\*, Anchit Gugnani\*\* and Raju K. Parasher\*

**Affiliation:** \*Amar Jyoti Institute of Physiotherapy, NIMS University

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Background: Chemotherapy-related mild-to-moderate cognitive decline has been demonstrated to impact over 75% of cancer patients at some point throughout their treatment and recovery. Patient's quality of life suffers the most after a cancer diagnosis. Exercise routines have been shown to be beneficial to cancer survivors in terms of both physical and psychological benefits. Studies on the impact of physical activity on cancer-related cognitive deficits have a big future for improving the lives of cancer survivors.

Purpose: This study helps to aggregate findings from studies that evaluated the effect of exercises on deficits associated with cognitive deficits in cancer survivors.

Relevance: The high prevalence of these impairments in cancer survivors suggests that these domains should be assessed addressed to avoid feelings of physical incompetence, inadequacy, depression, frustration, and anxiety in this population, as well as long-term negative effects on their physical and social development.

Participants: Cancer survivors with cognitive impairments were studied.

Methods: The database literature search was carried out in the PubMed, research gate, Physiotherapy Evidence Database (PEDro), CINAHL, Scopus database, Google Scholar and bibliography for Randomized Control Trials (RCTs) from January 2015 to March 2020.

Analysis: Preferred reporting items for systematic reviews (PRISMA) & Physiotherapy Evidence Database (PEDro)

Results: 10 randomized control trials were included in our final systematic review with PEDro score >5 with a focus on the effects of physical exercise on cognitive impairments in cancer survivors were evaluated.

Conclusion: Increasing physical activity improves cognitive functioning in cancer survivors such as visual-spatial processing, attention, working memory, verbal memory, and memory with no negative side effects reported.

Implication: Studies on the impact of physical activity on cancer-related cognitive deficits have a big future for improving the lives of cancer survivors.

Key word: Cognition deficit, cancer survivor, physical therapy, Rehabilitation

**Abstract No:** 49

**Title:** Disability among Patients with Head and Neck Cancer Using ICF-Based Framework: A Cross-Sectional Study

**Author:** Aishwarya A, Sundar Kumar V, Aravind Kapali and Palani Ramanathan

**Affiliation:** M.S.Ramaiah Medical College, Bangalore

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**Purpose and Relevance:** Patients with Head and Neck Cancer (HNC) are known to experience high burden of Disability. However, most disability assessments in the past have used unidimensional approaches focusing on domains such as physical, functional or work-related disability. Though World Health Organization, using ICF framework, developed WHODAS 2.0 as a generic tool for multidimensional assessment of disability in 2010, it has not been commonly used in patients with HNC. Multi-dimensional assessments provide deeper understanding of the problem and subsequent opportunities for appropriate solutions. This study aimed to determine the extent of disability in patients with HNC using WHODAS 2.0.

**Participants & Methods:** Using a cross-sectional design, 70 participants diagnosed with HNC across the cancer care continuum were recruited using convenience sampling from the in-patient and out-patient oncology facility of a large tertiary care hospital. Following informed consent, medicodemographic details were collected using a structured pro forma and WHODAS 2.0 administered by the researcher.

**Analysis and Results:** All 70 participants (age:  $55.9 \pm 10.3$  years; 67% men) were recruited while undergoing their primary cancer therapies and the duration ranged from three to 30 months since diagnosis. The participants reported wide variability in disability ( $10.8 \pm 10.2\%$ ; range=58.3%). Maximum disability was seen in mobility domain (24.1%) followed by participation (22.2%), life activities (18.1%), cognition (13.4%), getting along (12.9%) and self-care (9.3%).

**Conclusion:** Disability levels varied across domains and contrary to previous reports, the mean disability was found to be low. Assessing disability during primary cancer therapies rather than after their completion (as done in previous studies) could have contributed to lower levels of disability. This indicates a need for longitudinal studies evaluating multidimensional disability across the cancer care spectrum

**Implications:** Multidimensional disability assessment is needed to provide a person-centric approach for optimal management of disability.

**Key word:** Head and Neck Neoplasm, Disability Evaluation, Continuity of Patient Care

**Abstract No:** 152

**Title:** How active are Indian Chronic Kidney Disease patients undergoing Hemodialysis??

**Author:** Sridevi S\* and Soundarrajan P\*\*

**Affiliation:** \*Sri Ramachandra Institute of Higher Education and Research, \*\* Apollo Hospitals.

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**Purpose:** To find the physical activity level of Indian Chronic Kidney Disease (CKD) patients undergoing hemodialysis.

**Relevance:** Prevalence of CKD has increased to 17% in India as there is an increase in diabetes and hypertension. Patients on hemodialysis experience side effects of dialysis thus reducing their physical activity level.

**Participants:** 200 consented subjects were recruited from dialysis unit of Indian tertiary care hospital. both genders, 40-65 years, minimum dialysis vintage of 6 months were included. Subjects with physical impairment, recent cardiac or neurological event, hemodynamic instability during the last hemodialysis were excluded.

**Method and Materials:** The Physical activity level of CKD patients has been assessed through Human Activity Profile. The HAP is a self-report instrument 94 daily activity items ordered according to metabolic demand; respondents require to indicate which activities they still undertake, those they have stopped doing and those they have never undertaken.

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**Analysis:** Of the 200 recruited subjects 65% were male, 35% were female, age 53(9), dialysis vintage 28(21), MAS 57 (11), AAS 50(14), 42% hypertensive, 41% were diabetic, 17% were diabetic and hypertensive.

**Results:** The mean number of activities done by the participants were 53 and as per previous studies the mean number of activities engaged by normal individuals was 83, thus it shows that the CKD patients on hemodialysis have low physical activity. Women were less active when compared to men.

**Conclusion:** Indian CKD patients undergoing hemodialysis have low physical activity level. Relevance to clinical practice. Physiotherapists should understand the impact of chronic illness on physical activity in this cohort. Physical activity Assessment for this group is mandatory.

**Key words:** Chronic kidney disease, HAP, Physical activity, hemodialysis.

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## **Abstract No: 23**

**Title:** Development, Validation and Establishing Internal Consistency of Knowledge, Attitude, and Barriers towards Tele Physiotherapy Questionnaire.

**Author:** Lalli Singh, **Kshitija Bansal** and Tarun Kumar

**Affiliation:** Amar Jyoti Institute of Physiotherapy, University of Delhi

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**Background:** During unprecedented times of COVID- 19, continuing Physiotherapy through conventional mode is tough and limited to certain extent. To overcome the current situation, WCPT has strongly suggested the implementation of Tele-physiotherapy. Many studies have proven efficiency of Tele-rehabilitation in delivering rehabilitative services; still its use is limited in India may be due to knowledge and attitude of physiotherapists. Currently, no valid tool is available for assessing the attitude, knowledge and barrier of tele physiotherapy among Indian physiotherapist. Thus, the aim of the current study is to develop, validate and establish internal consistency of the questionnaire for the same.

**Participants:** 60 physiotherapists with minimum of 1 year of and those who were willing to participate were included. Non-Practicing Physiotherapist were excluded from the study.

**Method:** Questionnaire was drafted on the basis of previous studies under 4 domains: Demographics, Knowledge, Attitude and Barrier. A panel of 5 experts was formulated. A Delphi process was carried out to validate the developed questionnaire. The content validity ratio (CVR) was calculated. The questionnaire was sent to physiotherapists electronically/ physically and data of 60 Physiotherapist was analysed for Cronbach alpha coefficient using SPSS version 20.

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**Results:** The content validity ratio for the complete questionnaire was 0.98. 66.7 % of our sample was between the age of 25-35 years with 82.2% Physiotherapists were postgraduate and 26.2% being experienced for more than 10 years. The Cronbach alpha coefficient for internal Consistency of the questionnaire was good (0.77).

**Conclusion:** The questionnaire is as an effective valid and reliable tool to assess knowledge, Attitude, and Barrier towards Tele physiotherapy.

**Implications:** Developing and validating Questionnaire will help us measure the knowledge, Attitude and Barriers towards Tele- Physiotherapy amongst Physiotherapists across India in a comprehensive way. This in turn will help policymakers and authorities to make new policies/ modify existing ones for effective use of Tele- Physiotherapy.

**Key word:** Tele-physiotherapy, Knowledge, Attitude, Barrier, Physiotherapist

## Poster Presentation

**DAY II, April 30, 2022; 11.30 AM**

**Abstract No:** 41

**Title:** Exergaming to improve Dynamic Balance in Elderly using Virtual Reality.

**Author:** **Mugundan L** and Rajeshwari M.

**Affiliation:** Sri Ramachandra Institute of Higher Education and Research.

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**Purpose:** Reduction in physical activity impairs balance and increases the risk for falling in aging population. Falling due to reduced balance is the most common issue that significantly impairs quality of life. Hence, balance training can prevent serious health issues and improve wellbeing.

**Relevance:** Research has shown that exercise improves balance among older adults. However, older adults often find it challenging to adhere to exercise programs. Virtual reality programs provide multisensory feedback such as visual, auditory, vestibular, and tactile which results in cognitive and neuromuscular training with entertainment value, thus allowing the patient to exercise more regularly, effortlessly, and effectively. Virtual Reality technology provides the user with opportunities to interact with virtual objects which can be used in framing exercises for active participation in the elderly which will improve balance and reduce fear of falling. Though there are many literatures on virtual reality based treatment, they are costly and not user-friendly. This study aims at providing a virtual reality based program for improving balance which could be portable, user friendly and cost efficient.

**Participants:** Aged more than 60, MMSE scores more than 21, Berg balance scale score within 42-51, Corrected visual or auditory impairment, No neurological or musculoskeletal diagnosis that accounts for possible imbalance or fall and history of fall less than two in past six months.

**Methods:** Thirty older adults aged more than 60 will be randomly assigned to either the Virtual reality group or conventional physiotherapy group with each 15 participants. The two groups will undergo a 4-week program with three sessions per week. Each session will consist of 5 minutes of warm-up and 40 minutes of training. The outcome measures that will be used pre and post-program are Berg Balance Scale, Timed up and go test, and Fall efficacy scale.

**Results:** This study is ongoing and after completion analysis would be done and results would be projected.

**Key words:** Elderly, Balance, Virtual Reality.

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**Abstract No:** 47

**Title:** Force Sense – Is it to be assessed and trained? – A Literature Review.

**Author:** V Logeswari, J Kanimozhi and R Sivakumar.

**Affiliation:** Sri Ramachandra Institute of Higher Education and Research (Deemed to be University)

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Background: Human movements are controlled by efferent input from the central nervous system and afferent feedback from the periphery. Joint proprioception is commonly spoken as the key afferent feedback. Sense of muscle contraction or force sense (FS) is a less explored component of feedback. FS has been tested in stroke, sports personal, and the elderly for its impact on force production, acuity inability to sense, and its relationship with joint proprioception. However, testing is limited to research, and training in clinical setup is not reported.

Aim: To understand the physiology, testing, clinical implication, and method of training Force Sense.

Methodology: PubMed and Scopus database will be screened with keywords “Proprioception”, “Muscle contraction”, “Force matching task”, “Force sense”, “Sense of effort”, “Muscle proprioception” along with filters for studies in English language and period 2000 to 2021.

Results: The study results will be presented under the heading physiology of muscle sense, methods used in testing, population tested, and clinical implication reported.

Conclusion: The possibility of clinical testing and application will be highlighted.

Key words: Proprioception, Sense of force, Force sense, Stroke, Aging, Sportsperson.

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**Abstract No:** 50

**Title:** Prevalence of Kinesiophobia after Total Hip Replacement (THR)

**Author:** Shobhalaxmi S, Ruth Boyle and **Jahnavi Hariyani**

**Affiliation:** MS Ramaiah Medical College- Department of Physiotherapy.

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**Background and Objective:** Total Hip Replacement is a common surgical intervention in individuals with various hip pathologies. According to fear avoidance model, due to pain there is presence of psychosocial factors leading to affection of various outcomes. There is abundance of research on various populations like Total Knee Replacement, Low back Pain, Neck Pain, Older individuals but paucity in individuals with Total Hip Replacement. Hence, the objective of this study was to assess Kinesiophobia among individuals who have undergone Total Hip Replacement.

**Methods:** Patients who had undergone THR in M S Ramaiah Hospitals and other Hospital were considered and those who fit in the inclusion criteria were recruited. Patients were briefly evaluated and assessed for Kinesiophobia by Tampa Scale for Kinesiophobia – 11 between post-operative days between 4 – 7.

**Results:** Proportion of Kinesiophobia was present among these individuals. Among the data collected 54.5% individuals had kinesiophobia higher than median value.

**Interpretation and Conclusion:** There was presence of Kinesiophobia in individuals who have undergone Total Hip Replacement suggestive of presence of psychosocial component along with structural involvement impacting outcomes.

**Key words:** Total Hip Replacement, Kinesiophobia, Psychosocial factors.

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**Abstract No:** 56

**Title:** Combined effect of Physiotherapy and Dental treatment on Drooling in Children with Developmental Disorders: A Pilot Study.

**Author:** Deepa Metgud and **Richa Lahiri**

**Affiliation:** KAHER Institute of Physiotherapy.

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**Purpose:** To study the combined effect of physiotherapy and dental treatment on drooling in children with developmental disorders using Drooling Impact Scale and 5-Minute Drooling Quotient.

**Relevance:** Drooling is the involuntary, passive spillage of saliva due to inability to handle oral secretions, normally occurring in infants and young children. It is considered abnormal to have problems with saliva control beyond the age of 4 years. Physiotherapy treatment including oral motor stimulation has been regularly used to decrease drooling but its effect along with dental treatment is unknown.

**Participants:** 10 children with developmental disorders in the age group of 4-12 years with a complaint of drooling were recruited from the paediatric out-patient department and child development centre of a tertiary care hospital and special schools in Belagavi.

**Methods:** A pre-post pilot study was conducted to study the combined effect of physiotherapy and dental treatment. Pre and post-treatment outcomes were taken by drooling impact scale and 5- minute drooling quotient. The physiotherapy treatment consisted of oral motor stimulation thrice a week for 4 weeks and the dental treatment included oral prophylaxis followed by fluoride application.

**Analysis:** Data was analyzed using paired sample t-test.

**Results:** The results indicated a significant improvement in drooling with a mean difference of  $11.20 \pm 4.87$  and  $p\text{-value}=0.001$  on the drooling impact scale and mean difference of  $23.66 \pm 6.07$  and  $p\text{-value}= 0.001$  on the 5- minute drooling scale.

**Conclusion:** This study showed that combination of physiotherapy and dental treatment is useful for the treatment of drooling in children with developmental disorders and the effect must be studied in a larger sample size.

**Implications:** Physiotherapy treatment combined with dental treatment can be helpful to reduce the stigma related to drooling as well as feeding difficulties in children with developmental disorders.

**Key words:** Physiotherapy treatment, Dental treatment, Drooling.

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**Abstract No: 62**

**Title:** Comparison of Functional Capacity and Peak Expiratory Flow Rate in Covid-19 survivors with Healthy Individuals – A Pilot Study.

**Author:** Manthan Purohit and Megha Sheth

**Affiliation:** SBB College of Physiotherapy.

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**Purpose:** To compare functional capacity and peak expiratory flow rate in COVID-19 survivors and healthy individuals.

**Relevance of study:** COVID 19 has shown to affect the lung parenchyma. For physiotherapists, as they deal with maximising functional potential of patients, knowing status of functional capacity and lung function of COVID-19 survivors may help in understanding patients' problem more effectively and also in making appropriate clinical decisions.

**Participants:** Fifty participants from community of Ahmedabad, males and females of age group 50-65 years, with (group A) & without (group B) history of COVID-19 in the past 12 months, will be included in the study by convenience sampling. Patients with severe musculoskeletal, neurological & cardiac problems, recent injury, fever, cough & cold are excluded.

**Method:** Observational analytical study was conducted. 6minute walk distance for functional capacity and peak expiratory flow rate with a peak flow meter, was obtained.

**Analysis:** Data analysis for 14 participants was done using SPSS version 16 and Microsoft excel 2019. Data was screened for normality using Levene's test. Between group comparison for 6MWD and PEFr was done using Mann-Whitney U test. Level of significance kept at 5%.

**Results:** Mean age in group A was (58.0+4.47) years, and in group B was (59.2+5.49)years. Difference in mean+SD for PEFr in L/min for group A (414.29 + 186.44) and Group B (344.29 + 66.29) was not significant (U=20, p=0.562). Difference in mean + SD for 6MWD group A (414.76 + 101.99), Group B (481.69+90.24) was not significant (U= 13.5, p=0.15).  
**Conclusion:** Study is still going.

**Implications:** If the peak expiratory flow rate and functional capacity are reduced post COVID, there will be a need to manage the same.

**Key words:** 6 minute walk distance, Peak expiratory flow rate, COVID-19 survivors.

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**Abstract No: 128**

**Title:** Effects of Posture Correcting Exercises on Respiratory Parameters in Individuals with Upper Crossed Syndrome.

**Author: Akshita Maheshwari**

**Affiliation:** MGM Allied Health Sciences Institute, MGM Medical College Indore

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**Purpose:** Various studies were found on UCS, poor posture and resultant respiratory dysfunction but there exists lack of literature on comparison of posture correcting exercises on respiratory functions in UCS led to curiosity of finding the results on same led to this study.

**Relevance:** The results and methods of this study can be effectively applied in clinical practice in both the patients of respiratory and postural dysfunction for correction of one another.

**Participants:** 15 college students with defined upper crossed syndrome fulfilling the inclusion and exclusion criteria were selected.

**Methods:** Pectoralis major and minor, levator scapulae and upper trapezius muscles stretching exercise, middle and lower trapezius strengthening exercise and McKenzie exercise. These interventions were provided for 30 minutes a session, once a day, five times a week and for 3 weeks. Chest expansion and Peak Expiratory Flow (PEF) were assessed using an inch tape and peak flow meter respectively on the first visit and after completion of exercise protocol.

**Analysis:** Statistical analysis was done by SPSS version 20 and Mann Whitney U Test was used.

**Results:** There is statistical significant improvement in Chest expansion ( $p < 0.05$ ) and peak expiratory flow ( $p < 0.05$ ).

**Conclusion:** There is significant effect of posture correcting exercises on respiratory functions in individuals with upper crossed syndrome.

**Implication-** It may be recommended as effective exercises to improve posture as well as respiratory functions in adults.

**Key word:** Upper crossed syndrome, Physiotherapy, Peak Expiratory flow, Chest expansion, Posture

**Abstract No:** 106

**Title:** The Prevalence of Neck Pain among Adolescents and Young Adults due to Increased Screen Use during COVID -19 Lockdown – A Descriptive, Cross Section Study

**Author:** Priyanshu Gupta, Ramhari Meena and Vijay Kaushik

**Affiliation:** MGM Medical College, Indore

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Background: Since the use of smart phones, laptops etc. has increased recently, their impact on people individual's health is not well established. Smartphone use had been remarkably increased during the COVID-19 lockdown due to different unexplained reasons .It is important and critical to examine and rule out the presence, absence or the magnitude of this impact, especially among young people and adolescents.

Relevance: To find out the prevalence of neck pain among adolescents and young adults and its correlation with the duration of screen use.

Study Design: A descriptive, cross sectional study.

Settings: online platform

Methods: This cross-sectional study was conducted using an online google survey form, which was distributed through social media to 300 participants to find out the prevalence of neck pain among younger population and its relationship with screen use.

Results: Our study showed that the mean age of the study population having neck pain associated with screen use is 24 year. More of the female than male subjects reported neck pain .The prevalence of pain increased with increase in duration of screen use.

Conclusion: The research sample reported that people use of electronic devices showed a close association with neck pain and the more the people spends time using an electronic device the greater is the complaint of neck pain. We found that there is a positive correlation between long time screen use and neck pain.

Key word: Neck pain, Adolescents, Screen use, Duration of time.

**DAY III, May 1, 2022; 11.30 am**

**Abstract No: 75**

**Title:** A study to analyse the effectiveness of Communication Skills among Physiotherapy Interns and Post Graduate Students.

**Author:** B Sangeetha and CM Radhika

**Affiliation:** Sri Ramachandra Institute Of Higher Education and Research.

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Background: Communication skills is essential in physiotherapy practice. It is a vital skill that physiotherapist need in practice to improve the quality and efficiency of care.

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Communication with patients is the core clinical skills for the practice of Physiotherapy. It can be defined as specific tasks and observable behaviors that include interviewing to obtain a medical history, explaining a diagnosis and prognosis, giving therapeutic instructions and information needed for informed consent to undergo therapeutic procedures, exercises and providing counselling to motivate participation of patients and care givers in the therapy. No studies till date have been done to demonstrate the effectiveness of training and no objective assessment of patient education skills have been employed to assess outcomes, so we have planned to evaluate the effectiveness of communication while providing patient family education. Furthermore, the effect of specific training on patient education skills will be analyzed.

Objective: To evaluate the effectiveness of communication skill training among physiotherapy Interns and Post graduates.

Methods: Male and Female post graduates (MPT) and Interns (BPT) from SRIHER will be recruited for the study. Pre assessment score will be marked by a senior physiotherapist on the basis of RANZCOG Assessment of communication Skills during provision of patient family education by the physiotherapy students. Following the evaluation they will receive a brief training for a week on patient education by means of video simulation, pamphlets and role play. Post assessment will be taken with RANZCOG Assessment of communication Skills from the physiotherapy students. Effectiveness of the training program on self-efficacy and performance in the area of patient education will be analysed.

Results: Since it is an ongoing study the result will be displayed later.

Key words: Patient education, Communication skills, Physiotherapy practitioners.

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**Abstract No:** 80

**Title:** Self-Perception of Community Participation in Children with Disability - A Literature Review.

**Author:** Nikhat Naaz and Kirti Joshi

**Affiliation:** M S Ramaiah Medical College, Bangalore.

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**Purpose-** To review and explore self-perception of community participation in children with disabilities.

**Relevance-** Participation (i.e involvement in life situations) is a core concept within the ICF framework. Community Participation amongst children with disability is an emerging topic of research. Many of the studies have reported parental, caregiver and therapist perceptions. As every child has a unique perception, it is important to report children's perception of community participation.

**Participants-** Articles reporting community participation in perception of children with disability were included and articles reporting perceptions of parents, caregivers and therapist were excluded.

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**Method-** Comprehensive literature search was performed using the search engines PubMed and Google scholar. Search strategy was devised and articles selected based on the inclusion and exclusion criteria.

**Results-** 2837 articles were screened and 17 were included in the review. 6 were qualitative studies, 10 were descriptive studies and 1 systematic review on psychometric properties of children self-report measures. Most of the studies explored children's perception of participation in community using interview and questionnaire method. CAPE and Picture my Participation were the most commonly used questionnaires.

**Conclusion-** Majority of the studies are descriptive and qualitative studies. Hence there is limited data available in literature, as most of the studies are in the process of exploring and developing scales to understand the self-perception of community participation in children with disabilities.

**Implications-** This experience-based participation model if implemented in Paediatric Physiotherapy may provide personalized perspectives which might be key to community participation.

**Key words:** Children, Disability, Community, Participation, ICF.

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**Abstract No:** 86

**Title:** Functioning of older adults in low- and middle-income countries-A Scoping Review.

**Author:** Poonam Desai and Rajani Mullerpatan

**Affiliation:** Mahatma Gandhi Missions School of Physiotherapy, Mahatma Gandhi Missions Institute, Navi Mumbai, Maharashtra.

---

**Objectives:** This review was undertaken to understand the profile of functioning; factors determining functioning; influence of physical comorbidities on functioning profile & factors affecting HR-QoL of older adults in low-middle income countries (LMICs).

**Method:** Review included 18 studies. Available literature has been summarized narratively.

**Results:** A higher prevalence of good grip strength was observed among older adults in South Africa & lowest among older adults in Mexico. Turkey's older adults demonstrated low levels of lower-extremity performance; slow-walking speed & low-medium fall risk. Individuals  $\geq 75$  yrs required more assistance in at-least 1 of their daily activities. Comorbidities & cognitive impairments were associated with grip strength, gait speed & functional disability. Variation in socio-demographic & economic status contributed to low HR-QoL.

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**Discussion:** Available information on functioning of older adults from LMICs is limited in singular domains. Hence, there is a need to conduct further studies to inform comprehensive functioning profile of the older adults from various LMICs.

**Key words:** Functioning, Geriatric, Developing countries, Low- and middle-income countries.

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**Abstract No:** 96

**Title:** Impact of COVID-19 on pregnant mothers and its effect on Infant's Development - Literature Review.

**Author:** Krishna Tejaswi Konduri and Kirti Joshi.

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

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**Purpose:** To review and understand the impact of COVID-19 on Pregnant mothers and its effect on Infant's development.

**Relevance:** Postpartum health of the mother is affected in terms of their mental well-being, separation period and stress which may lead to indirect effect on infant's brain development. Therefore an appropriate developmental screening must be done to these infants so that early intervention plan can be done if required.

**Participants:** Studies reporting about pregnant women infected with COVID-19 and their infant were included and women not tested positive for COVID-19 were excluded.

**Methodology:** Comprehensive literature search was performed using the search engines PubMed, Google scholar. Search strategy was devised, articles were selected based on the Inclusion and Exclusion criteria.

**Analysis:** 81 articles were screened and 8 were included in the review. 2 were Observational Studies, 4 were reviews, 1 was cohort study and other was longitudinal study.

**Results:** Majority of the studies reported delivery occurred in isolation room with 14 days separation period, Postpartum practices like breastfeeding, KMC are safe to be practiced with appropriate precautions. Longitudinal study in China found negative association after evaluating the impact of COVID-19 on mother's psychological status and infant's early development, by using ASQ Questionnaire upto 3 months.

**Conclusion:** Many articles spoke about the postpartum health of the mother being affected following COVID-19, not much emphasis was given on infant's development.

**Implications:** Since adversity and stress during prenatal period are associated with later impairments in the infant, long term impact of COVID-19 during pregnancy on infant's development is an important area for further studies.

**Key word:** COVID-19, Positive Pregnant Mothers, Infant's development.

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**Abstract No:** 142

**Title:** Biological markers as an outcome measure of exercise in Osteoarthritis Rehabilitation: A Scoping Review.

**Author:** Aravind B, Angeline R, Venkatesh N and Sweatha Nathan R

**Affiliation:** Faculty of Physiotherapy, Sri Ramachandra Institute of Higher Education and Research (Deemed To Be University).

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Background: Knee osteoarthritis characterized by degeneration, loss of articular cartilage, and osteophyte formation. The presentation includes pain, tenderness, stiffness, joint swelling, limited mobility, joint deformities, and intermittent periods of synovial membrane inflammation and release of biomarkers of inflammation. Change in cartilage volume and circulating biomarker levels may be influenced by therapeutic exercise. Exercise therapy has been proved to improve joint function, physical function and quality of life. Biomarkers helps to determine the benefits of exercise in knee osteoarthritis this information can be a measurable indicator to document the therapy benefits. This study aims to perform a scoping review of the rehabilitative biomarkers used to measure the therapy outcomes in knee osteoarthritis.

Objectives: To analyse and identify the biomarkers used to measure the therapy outcomes in knee osteoarthritis by conducting a scoping review.

Methodology: Literature search up to October 2021 in databases like MEDLINE via PubMed, the Cochrane Central Register of Controlled Trials (CENTRAL), and Web of Science. Data was extracted from the available literature. A narrative synthesis of the various markers and its efficacy in measuring the therapy benefits in knee osteoarthritis was performed.

Results: Ten of the seventeen studies were randomized control trail, three cohort studies, two pilot study, two cross sectional studies and three pilot studies at 4-to-24-weeks following exercises were included. A total of 1897 sample were included. Out of 17 biomarkers 3 studies investigated cartilage synthesis, 16 studies investigated markers of cartilage degradation, 2 studies investigated synovial synthesis, 1 studied using markers of synovial degradation, 2 investigated using extracellular matrix, 8 investigated using inflammatory markers. All were found to be potential markers to measure the therapy benefit.

Conclusion: The information provided from 17 studies, exercise was proven to be a safe, acceptable, and effective method of intervention for certain health outcomes and the biomarkers used were found to be potential markers to objectively document therapy outcomes.

**Key words:** Exercise therapy outcomes, Biomarker, Knee Osteoarthritis.

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**Abstract No: 63**

**Title:** Role and impact of Structured Exercise Interventions on Hepatic Triglycerides for Non Alcoholic Fatty Liver Disease Patients- A Scoping Review.

**Author:** Sedhunivas R\* and Mrs S.Sridevi Moorthy\*\*

**Affiliation:** \*Garden City University, Bangalore, \*\*Sri Ramachandra Institute of Higher Education and Research.

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**Purpose:** To investigate on impact in hepatic triglycerides levels as a result of various structured exercise interventions prescribed as a treatment for NAFLD patients.

**Relevance:** Exercise prescription in Non-alcoholic fatty liver disease patients gains the topmost importance, provided already there is existing absence of effectiveness of pharmacotherapy drugs in treatment of NAFLD. Exercising daily can improve the exercise capacity of the individual and can reduce the progression of NAFLD disease into Non-alcoholic steatohepatitis and cirrhosis.

**Participants:** Since it is a scoping review, there are no participants (NOT APPLICABLE)

**Methods:** A scoping review was conducted using PubMed, Hepatology journals, Google scholar database during the time period of (2013-2020) and 26 literature evidences related to the topic were found and further analyzed.

**Analysis:** Statistical Analysis Not Applicable

**Results:** A total of 26 Randomized control trial articles were included in the review ,which studied on effectiveness and impact of exercise interventions on liver enzymes .we could found 12 articles focusing on aerobic protocols and 6 articles focusing on resistance exercises and 8 literature evidences focusing on both aerobic and resistance protocols.

**Conclusion:** Taking into consideration the available evidence till date, we conclude that ,exercise protocols consisting of aerobic and resistance were equally effective on hepatic triglycerides levels ,but more improvement was found in patients on Liver enzymes in combined aerobic and resistance protocols. Also Exercise interventions in NAFLD patients aren't sufficient and feasibility of the available protocols is poor and thus there exists lacunae for protocols for common population are yet to be addressed.

**Implications:** Understanding the available various exercise protocols and its effectiveness devised for NAFLD patients will help in future progression of exercise protocols and can lead to advancement in protocols and also it will benefit the patients

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**Keywords:** Exercise interventions, Non-alcoholic fatty liver disease, triglycerides, impact.

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**Abstract No:** 99

**Title:** Comparative Study: on Comparative Analysis Between Core Strengthening Exercise with Diaphragmatic Breathing and Core Strengthening Exercise alone in the Treatment of Stress Incontinence in Postmenopausal Women.

**Author:** Jyoti Sahu, Priyanshu Joshi and Usha Patel

**Affiliation:** MGM Medical College Indore

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Background: Stress Urinary incontinence (SUI) affects 25% of premenopausal women and 50% of postmenopausal women and can be a contributing factor to reductions in quality of life (QOL)

Relevance: Diaphragmatic breathing along with core strengthening is an effective structured exercise protocol for post-menopausal women in treatment of stress incontinence.  
Study design-Comparative study.

Setting: Department of Physiotherapy and Gynecology in M.Y. HOSPITAL Indore (M.P)

Methods: Sampling technique was used .Interventions-60 patients participated in the study were divided into two groups using simple random sampling. Group A received core strengthening exercise with diaphragmatic breathing whereas Group B receives core strengthening exercise alone.

Results: There were significant improvement in PAD test and IIQ questionnaire score Intervention analysis showed significant difference between group A and group B (  $P=0.0191$ ) The mean age of the participants in group A was  $59.63 \pm 7.260$  and in group B  $59.63 \pm 5.63$ .

The statistical analysis shows significant difference between pre and post test of core strengthening exercise with diaphragmatic exercise and core strengthening exercise alone in the treatment of stress incontinence in postmenopausal women.( $p<0.001$ ).

Conclusion: It is concluded that core strengthening with diaphragmatic breathing is more effective than core strengthening alone in the treatment of stress incontinence in postmenopausal women. There were significant improvement in the PAD test and IIQ questionnaire score which shows the improvement quality QOL.

Implication: Future research is needed to create a high variety of methods to assess SUI and more adequate treatments.

Key word: PAD TEST, IIQ questionnaire, SUI



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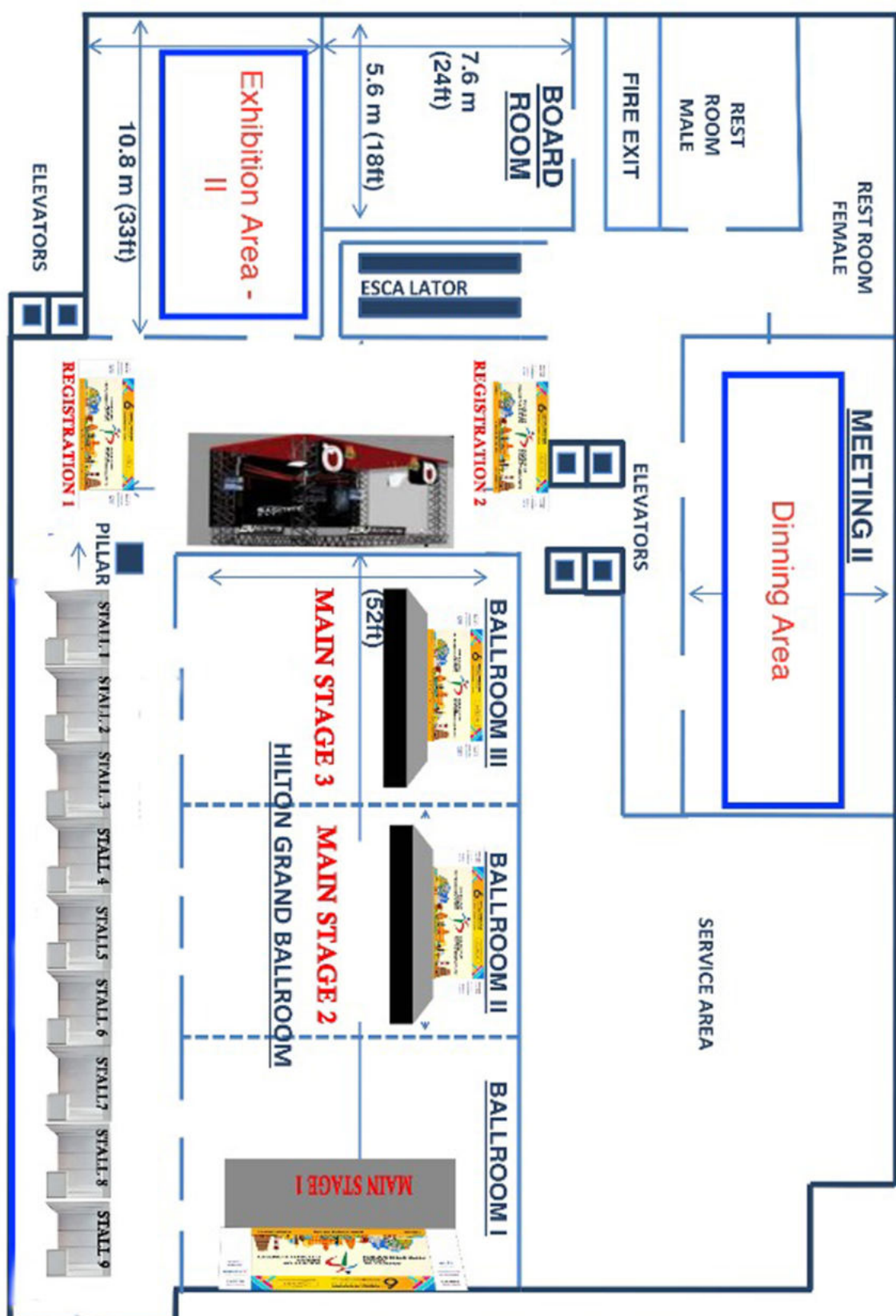
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## CALL FOR APPLICATIONS FOR AWARD OF SIP RESEARCH GRANTS

**Purpose:** The Society of Indian Physiotherapists was established with a prime aim to achieve excellence in the field of Physiotherapy Education, Practice & Research in India. Towards this end, each year, SIP funds meritorious physiotherapy scholars by way of four (4) research grants. The purpose of these grants is to provide opportunities for physiotherapy clinicians, academicians and researchers to engage in research and add to the growing body of research evidence in physiotherapy practice.

### **Objectives:**

1. Assist postgraduate student research by means of supporting expenditure towards research equipment and the development of measurement equipment and/or outcome measures.
2. Provide research grants to clinicians and young researchers so as to enable them to be engaged in evidence generation process.
3. Provide seeding grant to senior researchers to generate pilot data to apply for full proposals to other National and International funding agencies.

**Number and Value of Grants:** Four (4) research grants are available each year, one for each of the four categories: A. Postgraduate student; B. Clinician; C. Young researcher; D. Senior researcher. The value of research grant for the following categories (A. Postgraduate student; B. Clinician; C. Young researcher) will be limited to a maximum of twenty-five thousand rupees (INR 25,000 each) and that for senior researcher will be limited to a maximum of fifty thousand rupees (INR 50,000).

**Duration of Research Grant:** The research grant is valid for a period of one year from the date of grant approval letter.

Mode of Submission:

By Email [researchgrant@sip-physio.org](mailto:researchgrant@sip-physio.org); [physioresearch.sip@gmail.com](mailto:physioresearch.sip@gmail.com)

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# Qualisys unlocks the secrets of motion



## Everything moves

However, the movements of humans and the technology we use are often too quick and complex to be easily detected and understood with the eye of simple/basic technology.

Qualisys provides tools that reveal the secrets of motion in minute detail. The resulting data can be analyzed and used by professionals in human and animal biomechanics, engineering, sports, entertainment and other fields. The end result is deeper knowledge, improved quality of life, better performance, higher profits or more efficient technology, depending on the application.

Our core technology is marker-based motion capture, a method of recording fast and subtle motion with high accuracy. It utilizes specialized cameras that record the three-dimensional movements of optical markers placed on the person, animal or machine being analyzed. The data is then processed to provide the results, analysis and information display required by the user.

Qualisys is driven by innovation. Since we began creating our core technology in 1989, we have consistently worked to achieve new

levels of excellence, while working closely with global academia and other professionals. This ensures that our innovations translate into useful tools, able to solve real-world problems. Initially focused on per-client custom solutions, we're increasingly offering scalable off-the-shelf systems for specific uses.

As a global company, Qualisys has its headquarters in Gothenburg, Sweden with additional offices in the USA and Asia overseeing a network of global distribution partners.

### Physical therapy

Qualisys motion capture system is being chosen more and more in the medical industry. Significantly, Injury diagnosis and physical therapy have particularly benefited from the use of motion capture. Motion capture helps physical therapists understand the movement of patients so they can better understand their needs. Physical therapists can examine how specific movements apply stress to joints, muscles, or ligaments. Using this data, they can develop more effective treatment plans.

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Miqus Hybrid		
Video output	Full HD	1920 × 1080 @ 85 fps
	HD	1280 × 720 @ 180 fps
	0.5 MP	960 × 540 @ 330 fps
	Frame rate	640 × 480 @ 550 fps
Marker-mode output Normal mode full FOV	Pixels	2 MP
	Resolution	1920 × 1088
	Frame rate	340 fps
Filter		Dual band-pass
Color		Yes
Auto-exposure		Yes

## MIQUS

Capture more with less

		Miqus M1	Miqus M3	Miqus M5
Normal mode (full FOV)	Pixels	1 MP	2 MP	4 MP
	Resolution	1216 × 800	1824 × 1088	2048 × 2048
	Frame rate	250 fps	340 fps	180 fps
High-speed mode (full FOV)	Pixels		0.5 MP	0.5 MP
	Resolution	N/A	912 × 544	1024 × 1024
	Frame rate		650 fps	350 fps
Active filtering (improved outdoor support)		Yes	Yes	Yes
Sun filter		No	No	No
Max range with 16 mm marker		10m	15m	18m
Lens mount		C	C	C

## ARQUS

Extreme performance

		A5	A9	A12	A26
Normal mode (full FOV)	Pixels	5 MP	9 MP	12 MP	26MP
	Resolution	2560 × 1920	4224 × 2160	4096 × 3072	5120 × 5120
	Frame rate	700 fps	300 fps	300 fps	150 fps
High-speed mode (full FOV)	Pixels	1 MP	2.5 MP	3 MP	6.5 MP
	Resolution	1280 × 960	2112 × 1080	2048 × 1536	2560 × 2560
	Frame rate	1400 fps	590 fps	1040 fps	290 fps
Active filtering (improved outdoor support)		Yes	Yes	Yes	Yes
Sun filter		Yes	Yes	Yes	Yes
Max range with 16 mm marker		26m	28m	40m	32m
Lens mount		C	C	EF-M	C