

PHYSIOZine

Advancing Physiotherapy through Knowledge & Innovation

LBP among
**Tractor
driver**

Angles to Aches
Q-angle

Injury
in cricket fast
blowers

Neuroplasticity in
**Cerebral
Palsy**

Knowledge,
Attitude and
Perception
towards
Autism

Physical
Rehabilitation in
**Transverse
Myelitis**

December 2024



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Physiozine is a dynamic platform dedicated to advancing the field of physiotherapy. It serves as a comprehensive resource for both seasoned professionals and aspiring therapists. Through its e-magazine, online courses, and engaging community, PhysioTrends offers a wealth of knowledge, including expert articles, interviews, research insights, and practical techniques. Whether you're seeking to stay updated on the latest trends or enhance your clinical skills, PhysioTrends is your go-to destination for all things physiotherapy.

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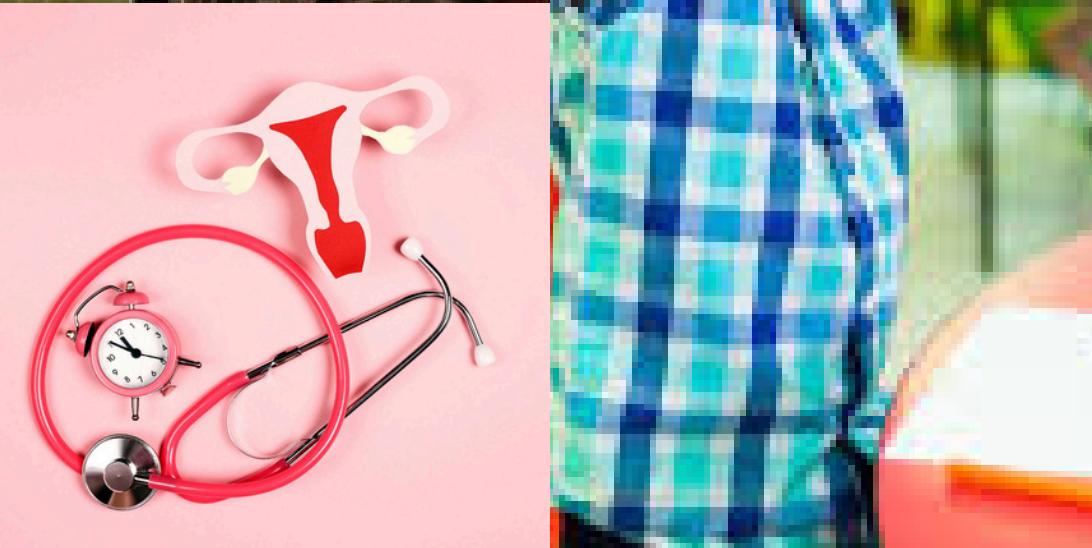


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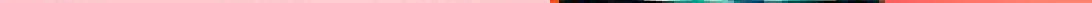


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MESSAGE FROM CHIEF EDITOR

DR. JASPREET KAUR KANG
PRINCIPAL AT KD INSTITUTE OF
PHYSIOTHERAPY



Dear Readers,

It brings me immense joy to present to you the latest edition of PhysioZine Digital Magazine! With every issue, we aim to bridge the gap between knowledge and practice, bringing forward the latest advancements and insights in the field of physiotherapy.

In this issue, we delve into critical topics such as neuroplasticity in Cerebral Palsy, addressing LBP among Tractor Drivers, and physical rehabilitation in Transverse Myelitis, along with many more. Our goal is to foster awareness, spark conversations, and inspire innovation in physiotherapy practices.

We deeply value your support and feedback as we continue to grow. I invite you to join us in our journey of advancing physiotherapy by contributing articles, sharing insights, or collaborating with us. Together, let's push the boundaries of knowledge and innovation in this incredible field.

Warm regards,
Dr. Jaspreet Kaur Kang



MESSAGE FROM FOUNDER

DR. DARSHAN PARMAR
**ASSISTANT PROFESSOR AT KD
INSTITUTE OF PHYSIOTHERAPY**

Dear Readers,

It is with great excitement that I present to you the latest edition of PhysioZine Digital Magazine! As we continue our journey to empower the physiotherapy community, this issue features diverse and impactful topics aimed at advancing knowledge and clinical practice.

The cover story, "Neuroplasticity in Cerebral Palsy through Physiotherapy," is a testament to the transformative role physiotherapy plays in enhancing neuroplasticity and improving quality of life. Alongside this, we discuss critical issues such as LBP among Tractor Drivers, Q-Angle-related injuries, and Physical Rehabilitation in Transverse Myelitis, ensuring a well-rounded approach to clinical insights.



I'm also thrilled to share that PhysioZine is the proud Media Partner for the upcoming 15th Gujstate Conphyics 2024 at Marwadi University, Rajkot. This collaboration underscores our dedication to supporting research, innovation, and professional networking within the physiotherapy field. We look forward to engaging with the brightest minds at this prestigious conference.

Your unwavering support continues to inspire us. I encourage you to join our efforts by contributing articles, sharing feedback, or partnering with us. Together, let's redefine the possibilities in physiotherapy and pave the way for a healthier tomorrow.

Warm regards,
Dr. Darshan Parmar

MESSAGE FROM CO-FOUNDER

DR. SUJAY MAKWANA
PHYSIOTHERAPIST AT REWALK
ROBOTIC REHAB



Dear Readers,

It is with immense pride that I share with you the latest edition of PhysioZine Digital Magazine. As a platform dedicated to advancing physiotherapy, we strive to bring meaningful insights and cutting-edge research to our readers, and this issue is no exception.

Our cover story, "Neuroplasticity in Cerebral Palsy through Physiotherapy," delves into the transformative potential of physiotherapy in fostering neuroplasticity and improving functional outcomes for individuals with cerebral palsy. This research represents the heart of our mission—to promote evidence-based practices that make a difference.

We've also included articles that address crucial topics such as LBP among Tractor Drivers, Injuries in Cricket Fast Bowlers, and Rehabilitation in Transverse Myelitis, offering practical solutions and insights for physiotherapy professionals.

Your continued support is the driving force behind our success. I invite you to contribute, engage, and grow with us as we continue our journey of innovation and knowledge-sharing in physiotherapy.

Warm regards,
Dr. Sujay Makwana

Global Perspectives on Physiotherapy-Collaboration and Innovation

15th GUJSTATE CONPHYCS 2024

20 - 21 December
2024

Venue

Faculty of Physiotherapy,
Marwadi University, Rajkot

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- Keynote session by International & National Speaker
- MU SpoPhysio cup
- Scientific
- Cultural & student forum competitions

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Advancing Physiotherapy through Knowledge & Innovation

Let's Talk About My Journey: A Path from India to Global Healthcare

BHAVNA RAJESH DEVNANI

Physical Therapist based in New York (PT, CLT, CKTP, MS in Kinesiology and Exercise Sciences, Host of "Let's Talk about Health by Bhavna" Podcast, International Speaker)

Life is full of twists, turns, and challenges that shape us into the people we are meant to become. Looking back, I can see how each step of my journey—whether it was in the classrooms of Pune, the streets of Dallas, or the bustling avenues of New York City—has contributed to the healthcare professional I am today. But this journey wasn't without its share of struggles, sacrifices, and moments of doubt. Yet, through it all, one thing remained clear: my deep passion for the human body, for healing, and for helping others.

The Spark of a Dream: From India to Global Aspirations

I was born and raised in India, a country rich in culture and tradition, where the importance of family is paramount. While I valued my roots, I always felt an innate pull toward something beyond the boundaries of my immediate surroundings.

My love for biology and the intricate systems that govern the human body began early. I was fascinated by how the body moves, heals, and adapts—an obsession that led me to pursue a Bachelor's in Physiotherapy at Dr. D.Y. Patil College in Pune.

I arrived at college with a singular goal: to excel. From the very first semester, my ambition was clear. I was determined to not only learn but to lead. In a class of 100 students, I stood out by earning the highest grades, securing a gold medal for my academic achievements. But while academic success was important, I believed that a well-rounded education was just as valuable. So, I dove into student leadership roles, cultural events, and sports competitions. It was during this time that I realized that my journey would require not just academic rigor, but also the ability to balance hard work with joy, leadership with service, and responsibility with creativity.



In my final year, I ran for President of the Student Council—a role that came with immense responsibility. I managed inter-state and national events, worked tirelessly to represent my peers, and, of course, faced sleepless nights juggling my academic responsibilities. But, in the end, the hard work paid off. I was honored to be named the Valedictorian of my batch in 2020, a title that recognized not just my academic achievements, but my contribution to the college community.

Taking a Leap of Faith: Moving from India to the U.S.

After graduation, I was ready to take the next step—further my education, broaden my horizons, and experience the world beyond the borders of India. The United States was the natural choice for my next chapter, but convincing my family wasn't going to be easy. As the first woman from my town considering studying abroad, my decision was met with a mix of support and concern. My parents worried about my safety, the distance, and the unfamiliarity of a new country.

Similarly, my principal, Dr. Tushar Palekar, was understandably hesitant. He had watched me grow and felt an attachment to my academic journey at D.Y. Patil College, and the thought of me leaving was difficult for him to process.

But I knew this was my calling. With the backing of mentors who had guided me to this point, and the encouragement of my parents who eventually recognized my drive and determination, I set my sights on a Master's in Kinesiology and Exercise Sciences in Dallas, Texas. The transition wasn't easy. I arrived in the U.S. alone—no family, no familiar faces. It was the first time I truly felt what loneliness meant. The culture, the environment, the people—they were all new to me. Yet, adversity breeds resilience, and slowly, I made new friends, adapted to my surroundings, and found strength in my journey.



A New Chapter in Leadership: South Asian Student Association (SASA)

It was during this time that I was approached by the former president of the South Asian Student Association (SASA), a prominent student organization in Dallas. She saw something in me—my energy, my drive, my ability to connect with people—and invited me to take over the presidency. At first, I hesitated. I was already managing a full academic load, grappling with the pressures of a new culture and lifestyle. But after several requests, I agreed to take on the role.

Being president of SASA added another layer to my growth. It wasn't just about cultural representation; it was about fostering community, celebrating diversity, and making an impact on my peers. Organizing events, leading discussions, and providing a support network for students from all over the world helped me grow as a leader and a person. It was a transformative experience that taught me the power of service and the importance of building bridges between cultures.

The PT License Exam: A Milestone in My Career

While leadership roles were important, the heart of my professional journey lay in physical therapy. In the U.S., passing the Physical Therapy (PT) License exam for New York was a monumental challenge. The exam required months of rigorous preparation, with long hours of study and little sleep. I was determined to pass on my first attempt, so I pushed myself harder than ever before. After weeks of sacrifice, the day I received the notification that I had passed was one of the most satisfying of my life.

Soon after, I secured an internship in New York City, just two blocks from the iconic Radio City Music Hall—a location that symbolized everything I had worked for. The internship allowed me to work with some of the best in the field, honing my skills and gaining invaluable real-world experience. But the real turning point came after the internship ended, when I was offered a full-time position at a clinic in Jackson Heights, New York.

Becoming a Clinician: Specializing in Sports Injuries & Rehabilitation

For the past two years, I've had the privilege of working under Liza Tan, an employer who has become a mentor and friend. Liza's commitment to integrity, culture, and faith mirrors my own values, and I'm proud to be part of a practice that prioritizes patient care above all else. As the Clinic Manager at Jackson Heights Outpatient Orthopedic Clinic, I specialize in treating a variety of musculoskeletal conditions, particularly sports injuries. From athletes with soccer, basketball, and tennis injuries to patients recovering from surgeries like ACL, rotator cuff repairs, and hip replacements, my role requires both clinical expertise and emotional intelligence.

Each patient is unique, and my goal is to provide tailored care that ensures the highest possible level of recovery. Using evidence-based physical therapy, combined with holistic manual techniques like Myofascial Trigger Point Therapy, I help patients restore their function, alleviate pain, and improve their quality of life. Whether it's guiding someone through post-surgical rehabilitation or working with athletes to recover from a sports injury, every success story adds another layer to my passion for physiotherapy.

Building a Legacy of Education and Empowerment

While my clinical practice continues to grow, my passion for education and giving back to the community is equally important. In 2023, I launched the Let's Talk About Health by Bhavna podcast. The show was born out of a desire to create a platform where healthcare professionals could share their journeys, discuss challenges, and offer insights into the world of healthcare. The podcast has become a space for learning, collaboration, and inspiration, with over 150 guest speakers to date, including doctors, therapists, trainers, and more.

The podcast is more than just a learning resource—it's a community. Through it, I've connected with healthcare professionals across the globe, bringing diverse perspectives on topics ranging from injury prevention to mental health in rehabilitation. One of the greatest rewards of hosting this podcast is knowing that I'm helping the next generation of physiotherapists navigate their careers, equipping them with the knowledge and inspiration they need to succeed.

Key Achievements & Contributions

Host of "Let's Talk About Health by Bhavna" Podcast: Over 150 guest speakers have joined me in conversations on Instagram, Facebook, YouTube, Apple Podcasts, and Spotify, covering topics related to healthcare, rehabilitation, and wellness.

Webinars for PhysioEdd: Conducted multiple webinars aimed at guiding aspiring physiotherapists in India and Australia on pursuing careers in healthcare and learning from the experiences of professionals abroad.

International Speaker at Virtual Physio Conference (2024): Delivered a talk on injury prevention and rehabilitation, emphasizing proactive healthcare practices in sports and physical therapy.

Guest Speaker on Podcasts like Physio Social Club (Australia) and Wellness Debunked (Canada): Shared my cross-cultural experiences in physical therapy and debunked common myths about pain and recovery.

Guest Speaker at International Healthcare Conferences: Invited to speak at events in Australia, Canada, and Italy, discussing the integration of physical therapy practices across cultures and educating future healthcare leaders.

Looking Ahead: A Lifelong Journey of Learning and Giving Back

As I look to the future, I am more committed than ever to pushing the boundaries of what I can achieve. My goal is to continue developing my clinical skills, expand my platform for education, and build a global community of healthcare professionals who can collaborate and learn from one another. I want to be a catalyst for change in the healthcare industry, using my voice and my practice to promote holistic healing, innovation, and lifelong learning.

This journey—from India to the U.S., from physiotherapy student to clinician and educator—has been both a professional and personal odyssey. But through every challenge, every leap of faith, and every success, I've learned that the most important lesson of all is this: the road to greatness is never easy, but it is always worth it.



**DR.TARSHIKA
JAIN**
**PHYSIOTHERAPIST
AT HCG CANCER
CENTRE**

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NEUROPLASTICITY IN CEREBRAL PALSY: UNLOCKING POTENTIAL THROUGH PHYSIOTHERAPY

Introduction

Cerebral palsy (CP) is a group of permanent movement disorders caused by early brain damage, typically occurring before or during birth or in the first few years of life. It affects motor control, muscle tone, and posture, leading to difficulties in movement and coordination. Given that CP stems from brain damage, many assume that motor deficits are fixed and irreversible. However, research into neuroplasticity—the brain's ability to reorganize and form new neural connections—offers hope for improving motor function and overall quality of life in individuals with CP.

Neuroplasticity plays a crucial role in rehabilitation, especially in the context of pediatric patients whose brains are more adaptable. This article delves into the concept of neuroplasticity in cerebral palsy, exploring how it can be harnessed through various therapeutic interventions to promote functional improvement.



Understanding Neuroplasticity in the Context of CP

Neuroplasticity refers to the brain's ability to adapt by forming new connections between neurons. This ability is particularly pronounced in children, making early intervention critical in the treatment of cerebral palsy. In the case of CP, where certain areas of the brain are damaged, neuroplasticity allows undamaged areas of the brain to compensate for lost functions or take over motor tasks previously governed by the damaged regions.

Cerebral palsy affects the motor cortex, corticospinal tracts, and other areas responsible for movement and coordination. While these areas may be damaged, neuroplastic changes can be induced in adjacent or related brain regions through targeted rehabilitation efforts. By repeatedly engaging in specific motor tasks and sensory experiences, new neural pathways can be strengthened, leading to improved motor control and function.

Neuroplasticity is the underlying mechanism that supports many of the therapeutic interventions used in cerebral palsy rehabilitation, especially in physiotherapy and other motor-based treatments. The brain's ability to remodel itself offers a window of opportunity for interventions aimed at improving motor function, even in the presence of early brain injury.



Types of Neuroplasticity Relevant to CP

There are two key types of neuroplasticity that are relevant in the treatment of cerebral palsy:

- **Adaptive Plasticity:** This type of plasticity occurs when the brain adjusts in a beneficial way to compensate for damage. In CP, adaptive plasticity may involve recruiting undamaged areas of the motor cortex to take over functions previously managed by the damaged regions. Rehabilitative strategies aim to promote adaptive plasticity through repetitive training and sensory input.
- **Maladaptive Plasticity:** In contrast, maladaptive plasticity occurs when the brain reorganizes in a way that reinforces negative outcomes, such as abnormal movement patterns or increased muscle stiffness. For example, if a child with CP develops compensatory movement patterns that are inefficient or harmful, these may become ingrained through maladaptive plasticity. Therapy aims to mitigate these maladaptive changes by promoting correct movement patterns.

The goal of neurorehabilitation in CP is to enhance adaptive plasticity while minimizing maladaptive plasticity, optimizing motor function and reducing the impact of the brain injury.

Harnessing Neuroplasticity Through Early Intervention
Early intervention is a key factor in promoting neuroplasticity in children with cerebral palsy. The earlier rehabilitation starts, the more likely it is that the brain will adapt to the injury and form new neural pathways. The developing brain is especially responsive to external stimuli and therapy during the early years of life, a period known as the “critical window” for neuroplasticity. This is when the brain has the highest capacity for forming new connections, and rehabilitation efforts can produce the greatest impact.

Physiotherapy is one of the most effective forms of early intervention in CP, as it directly targets motor function, muscle strength, and movement patterns. By using repetitive, task-specific exercises, physiotherapy helps reinforce new neural pathways and promotes adaptive plasticity in the motor cortex. Key elements of early intervention that facilitate neuroplasticity include:

- **Motor Skill Training:** Engaging the child in exercises that focus on motor control, coordination, and balance helps strengthen neural circuits involved in movement.
- **Task-Specific Therapy:** Task-specific training, where the child practices functional tasks such as reaching, grasping, or walking, encourages the brain to adapt to specific movement patterns.
- **Sensory Stimulation:** Sensory input, such as tactile stimulation or proprioceptive feedback, plays an important role in shaping neural development. Incorporating sensory stimuli in therapy helps enhance neuroplastic changes in motor pathways.
- **Assistive Technologies:** Robotic devices and virtual reality can be used to guide movements in therapy, offering more controlled and consistent input to promote neuroplasticity.



Therapeutic Techniques to Enhance Neuroplasticity in CP
Several therapeutic techniques in neurophysiotherapy are designed to harness neuroplasticity and improve motor function in children with cerebral palsy. These include:

- **Constraint-Induced Movement Therapy (CIMT):** CIMT is a well-established therapy that forces the use of the affected limb by restricting the movement of the unaffected limb. By encouraging repetitive use of the affected limb, CIMT stimulates adaptive plasticity, promoting motor recovery. The therapy is particularly effective in children with hemiplegic CP, where one side of the body is more affected than the other.
- **Task-Oriented Training:** Task-oriented training involves practicing specific tasks, such as reaching for objects, grasping, or standing up from a seated position. The goal is to reinforce neural circuits involved in these actions through repetitive practice. This form of therapy is highly effective in promoting neuroplastic changes, as it mimics real-life activities and encourages the brain to form new connections.



- **Robotic-Assisted Therapy:** Robotic devices, such as exoskeletons or robotic arms, provide guided assistance during movement exercises. These devices offer consistent, repetitive movements that stimulate neuroplasticity by engaging motor pathways. Robotic therapy can be used to assist in walking, reaching, or other motor tasks, making it a valuable tool in CP rehabilitation.
- **Functional Electrical Stimulation (FES):** FES involves the use of electrical currents to stimulate muscle contractions in paralyzed or weakened muscles. The electrical stimulation activates motor neurons, promoting muscle movement and strengthening neural pathways. When combined with task-oriented training, FES can enhance neuroplasticity by facilitating motor recovery.
- **Virtual Reality (VR) and Gamification:** Virtual reality-based therapies provide an immersive environment where children can engage in therapeutic exercises in a fun and interactive way. By practicing motor tasks in a virtual setting, children are more motivated to participate, and the brain receives rich sensory input that enhances neuroplasticity. VR therapy has shown promise in improving motor function and engaging children in their rehabilitation.
- **Neurodevelopmental Treatment (NDT):** NDT is a hands-on approach used by physiotherapists to guide movement and improve motor control in children with CP. The therapist uses specific handling techniques to promote proper movement patterns and prevent compensatory strategies. By providing sensory feedback and facilitating correct movements, NDT helps reshape neural circuits in the motor cortex.

The Role of Caregiver Involvement in Promoting Neuroplasticity

Caregivers play a crucial role in supporting neuroplasticity in children with cerebral palsy. Since therapy is most effective when practiced consistently, the involvement of parents and caregivers in carrying out therapeutic exercises at home is vital. Teaching caregivers how to integrate therapeutic activities into daily routines reinforces neural pathways and helps maintain the progress made during therapy sessions.

Additionally, caregivers can provide emotional support and motivation, which are key factors in promoting engagement in therapy. The brain's response to rehabilitation is not only influenced by physical activity but also by the child's mental and emotional state. A positive and supportive environment enhances the potential for neuroplasticity.

Challenges and Future Directions

While neuroplasticity offers significant potential for improving motor function in children with cerebral palsy, challenges remain. Not all children respond to rehabilitation in the same way, and the extent of neuroplastic changes may vary depending on the severity of brain damage. Additionally, certain therapies, such as CIMT, can be intensive and may require substantial time and effort from both the child and caregivers.

A close-up photograph of a young girl with dark hair, smiling and pointing her right index finger upwards towards the sky. She is seated in a black manual wheelchair. The background is blurred green foliage.

Future research should focus on identifying biomarkers that predict individual responses to therapy, allowing for more personalized interventions. Moreover, combining multiple therapeutic approaches—such as robotics, FES, and VR—into comprehensive rehabilitation programs could further enhance neuroplasticity and optimize outcomes for children with CP.

Conclusion

Neuroplasticity provides a powerful framework for understanding and treating cerebral palsy. By promoting adaptive changes in the brain, therapeutic interventions can improve motor function and overall quality of life in children with CP. Physiotherapy, task-specific training, and innovative technologies such as VR and robotics have shown significant potential in harnessing neuroplasticity. Early intervention, caregiver involvement, and a focus on personalized rehabilitation strategies are essential to unlocking the brain's capacity for reorganization and improving outcomes for children with cerebral palsy.

Why Digital Learning is Becoming the Future of Physiotherapy Education?

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Digital Learning: The Future of Physiotherapy Education

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As the healthcare landscape evolves, so too must the ways in which physiotherapists learn and train. Digital platforms like SmartPT Academy are shaping the future of physiotherapy education by offering practical, accessible, and innovative learning options. This shift not only benefits practitioners but also enhances patient outcomes, as physiotherapists bring the latest knowledge and techniques into their practices.

Digital learning is here to stay. Visit [SmartPT Academy](#) to explore Physiotherapy Courses led by international physiotherapists and learn advance skills.



Dr Rina Pandya

PT, DPT, PG LTHE, FHEA
Reg(APTA),(HCPC)

*Founder
Physiotherapy Online
Smart PT Academy*

According to recent research in physiotherapy education, digital learning formats, such as blended and distance learning, have proven to be equally or even more effective than traditional teaching methods.

As the owner of a physiotherapy course institute, I recognize the immense significance of online learning in making education more accessible and flexible for students. This approach not only caters to diverse learning styles but also allows for a more personalized educational experience.

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PREVALENCE OF LOWER BACK PAIN AMONG TRACTOR DRIVER – OBSERVATIONAL STUDY



ABSTRACT : OBJECTIVE: To Determine Prevalence of lower back pain among tractor driver. MATERIAL & METHODOLOGY: For the study, a sample of 100 students was selected, regardless of their age and gender. A observational study descriptive research design was used to collect data. In this case, the researchers collected data from around Amreli. To collect data, the researchers used a standardized, semi-structured questionnaire named the BPFS (back pain functional scale) and NPRS scale. This questionnaire consists of 12 questions, widely used to assess the lower back functional disability and pain among individuals. The questionnaire was distributed among the tractor drivers, and they were asked to fill it out honestly and without any external influence. Once the data was collected, it was analyzed using statistical methods to determine the prevalence of lower back pain among tractor drivers. The findings of the study were provided important insights of the low back pain status of tractor drivers.



**DR . ANKIT
RAMESHBHAI
UMARALIYA**
FOUNDER OF
MARUTI
PHYSIOTHERAPY
CENTER , SURAT

INTRODUCTION : Low back pain is a common musculoskeletal symptom that may be either acute or chronic. It may be caused by a condition of diseases and disorders that affect the lumbar spine.[1,2]Low back pain (LBP) is the most frequent work related musculoskeletal complaint and one of the leading causes of health related problems in developed world.[3,4]Lower back pain is the leading cause of disability and inability to work and expected to affect up to 90 percentages of people at some point in their lives[5]

Tractor are being extensively used as a source of on road trasport in india .The vibration exposures among tractors are higher as compared to other on road vehicles [6]Work-related complaints are a major problem facing employees and employers, which have negative impact on their health and productivity. One of the most common work-related complaints is musculoskeletal symptoms which affect nearly a million workers each year in the United States according to the US Bureau of Labour Statistics and accounts for 85% of all workers' compensation claims. [7]

To find effective treatments is a challenge for medicine. Exercise and spinal manipulation are often recommended, yet their clinical effectiveness has not been documented beyond reasonable doubt. [8]Back pain among older adults not only impacts quality of life but often leads to subsequent functional impairment and disability. [9]Measured functional impairments also include self-reported difficulties with activities of daily living (ADLs) and documented muscle weakness including trunk extensor muscles, lack of flexibility, slow walking gait, and slower measured functional capabilities [10]

Unlike younger adults, however, older adult back pain is less likely to be a result of injury or overuse and is often complicated by multiple chronic conditions, degenerative disc conditions, poor mental and/or physical health, and other functional impairments.

METHOD : To collect data, the researchers used a standardized, semi-structured questionnaire named the BPFS (back pain functional scale) and NPRS scale. This questionnaire consists of 12 questions, widely used to assess the lower back functional disability and pain among individuals.The questionnaire was distributed among the tractor drivers, and they were asked to fill it out honestly and without any external influence. Once the data was collected, it was analyzed using statistical methods to determine the prevalence of lower back pain among tractor drivers.The findings of the study were provided important insights of the low back pain status of tractor drivers.

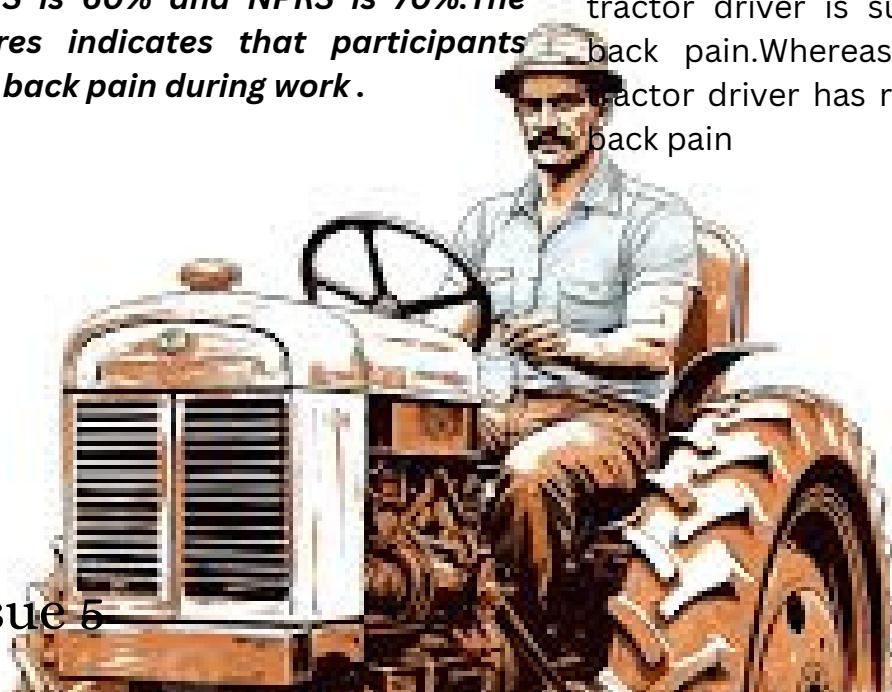
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RESULT: Among the total 100 respondents the average age of respondent was 25-65 . I've conducted chi -square test among the two variables were BPFS scale and NPRS scale BPFS value is 49.5 and NPRS value is 37.4 . P-value is 0.001 is statistically significant . The percentage of scale indicate that BPFS is 60% and NPRS is 70%.The scores indicates that participants felt back pain during work .

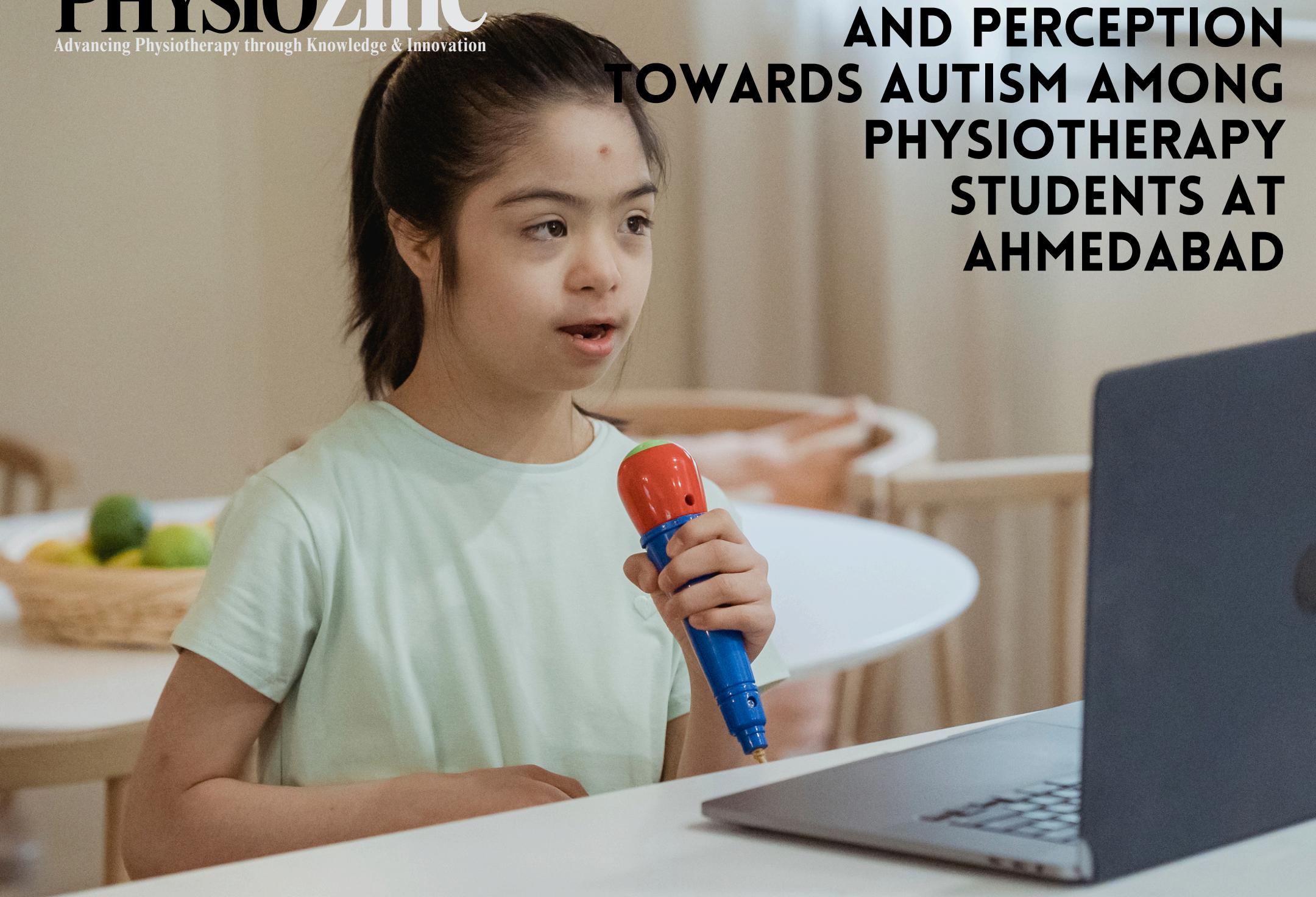
DISCUSSION: This research aims to investigate the prevalence of lower back pain among tractor driver.The study utilized a observational study design, and data were collected using the BPFS questionnaire and NPRS. The study included 100 tractor driver in and around Amreli.The data analysis of NPRS revealed that among Tractor driver has average 1.47 score reported low back pain.The data analysis of BPFS revealed that among tractor driver has average 5.31 score reported low back pain.The data analysis BPFS revealed that among tractor driver, 60% reported low back pain.

The data analysis NPRS revealed that among tractor driver , 70% reported low back pain.The results of the study showed that the prevalence of low back pain was high among in tractor driver .* 0 (0%) unable to perform any activity, 60 (100%) no difficulty in any activity.The high prevalence of low back pain among due to vibration and postural stress during driving .

CONCLUSION: After collection and analyzing the data which were collected from tractor driver was found that the maximum number of tractor driver is suffering from low back pain.Whereas the number of tractor driver has raised level of low back pain



KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS AUTISM AMONG PHYSIOTHERAPY STUDENTS AT AHMEDABAD

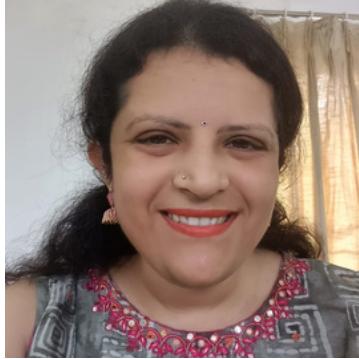


INTRODUCTION

A neurodevelopmental illness known as autism spectrum disorder (ASD) is typified by limited, repetitive patterns of behaviour, interests, or hobbies, as well as ongoing difficulties in social communication and social interaction. Significant impairments in social interaction and communication, the presence of stereotypes and peculiar interests, and the emergence of symptoms in the domains of imaginative play and social communication development prior to the age of three are characteristics of autism.¹ The prevalence of the condition is 0.62 percent worldwide. Up to 10% of children worldwide may have autism, a neurological disease that is somewhat frequent. It happens more often in boys than in girls.²



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Eye contact, facial expressions, body postures, and gestures are the most important nonverbal behaviours impacted by qualitative social deficits during social interactions. Among the signs of communication impairments include the difficulty to strike up or carry on a conversation with others, the use of unusual or repetitive jargon, and a lack of impromptu pretend play³. One or more stereotyped interest patterns, tight adherence to routines and rituals, stereotyped and repetitive motor mannerisms, and an ongoing fixation with object parts are examples of restricted repetitive and stereotyped behaviours and interests⁴.

The intelligence quotient (IQ) of children with autism varies, and each child functions at a different level. Due to the diverse range of symptoms and severity associated with ASD, it is classified as a spectrum disorder. While 46% of people with autism earn average or above average scores on intelligence tests, some people with autism score poorly (CDC 2010)⁵. Thus, many people with ASD are capable of academic accomplishment, including success at the university level, provided the right supports are in place.

MATERIALS & METHODS

Following approval from the institutional ethical committee, an observational study was conducted using purposive sampling on physiotherapy students.

Inclusion criteria: -

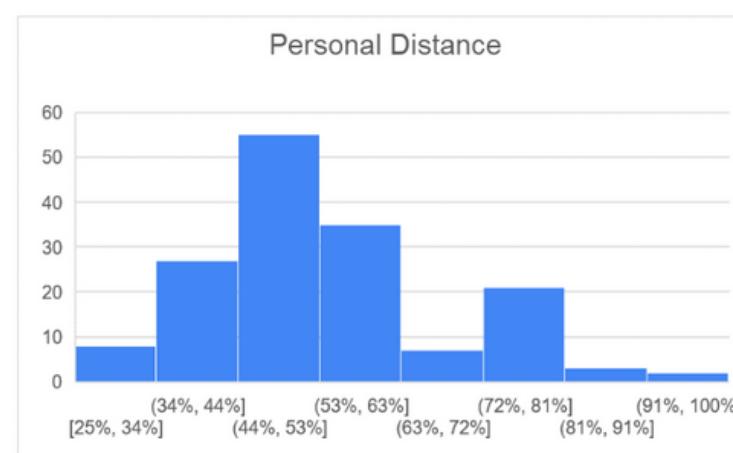
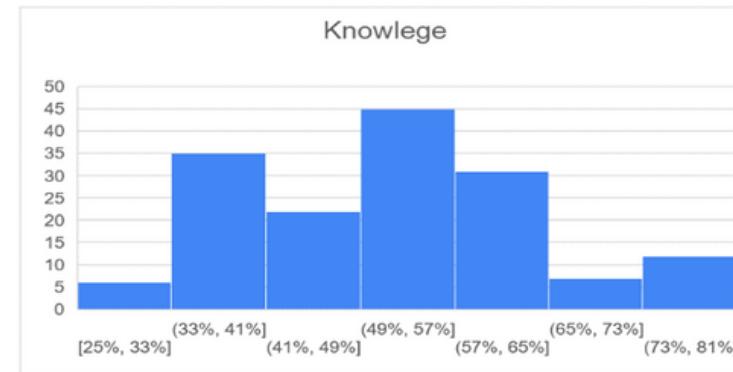
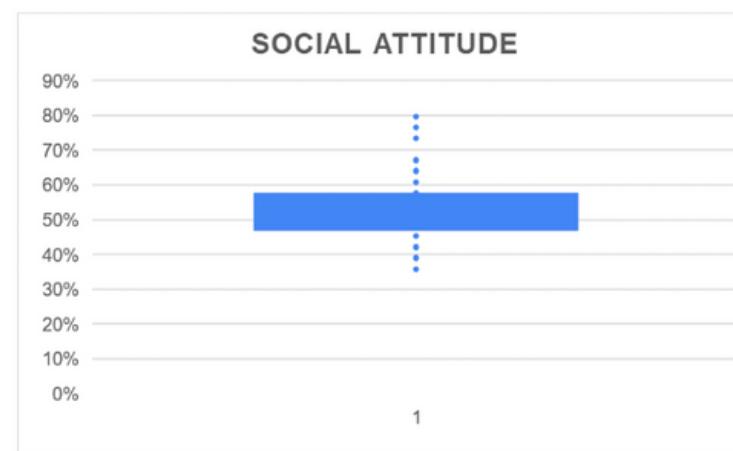
- People who are willing to participate
- Physiotherapy students
- Males and females

Exclusion criteria: -

- Students who are not willing to participate
- Physiotherapy practitioners

PROCEDURE

The duration of the study was one month, during which data of 158 sample size were collected among various physiotherapy students of Ahmedabad. Google form was sent online and data was collected. The google form questionnaire consisted of demographic details and Development of the Societal Attitudes towards Autism (SATA) Scale. The 26 item, SATA scale consists of questions about basic social attitudes, knowledge and personal distance with the people suffering from autism. 1 point was given for person who strongly disagrees to the question, 2 for person who disagrees to the question, 3 for person who agrees to the question and 4 for person who strongly agrees to the question. Thus, the possible scores ranged from 26 to 104. For reliability analysis of SATA scale, internal consistency was first calculated, producing a Cronbach's alpha of 0.717.



RESULT

The result was carried out by using Microsoft Excel version 2016. Data was collected from various physiotherapy colleges of Ahmedabad. Results showed that out of 150 sample size, there is positive social attitude towards people with autism having score of 93%. 90% students had knowledge about autism. This study showed 89% of perception which is good towards autism. Results showed that there is good knowledge, attitude and perception towards autism among physiotherapy students.

DISCUSSION

The findings demonstrated that students pursuing physical therapy had positive attitudes, knowledge, and perceptions of autism. The general public does not view ADHD as a condition that requires identification, diagnosis, and treatment. Since comorbid mental disorders often coexist with ADHD, which is a chronic diagnosis, it seems sense that these conditions tend to arise later in life and worsen as a child gets older. The logical, hypothetical deductive reasoning and abstract thinking skills that are required of teens with ADHD in the classroom will surely be more difficult for them to develop⁶.

According to a research by Malvi et al. (2023) on physiotherapists' awareness of autism, less than 50% of them have a general understanding of the condition. Additionally, individuals who work in pediatrics clinics possess greater awareness and knowledge than the other respondents³.

A study on "knowledge, attitudes, and views of autism spectrum disorder" was carried out by Yingna Liu et al. (2016) in a stratified sample of Chinese preschool instructors. Preschool teachers in China showed less awareness about ASD in the study compared to a solid foundation in usual childhood development. For half of the questions about ASD in the questionnaire, most teachers were unable to give proper answers. Despite the present professional consensus that ASD has a significant genetic component, a conception of the condition as psychological in origin predominated. One reason for inaccurate understanding of the illness could be the Chinese names GuduZheng or ZibiZheng, which are used to describe autism. Both titles literally translate to "loneliness disease" or "isolation disease"⁶.

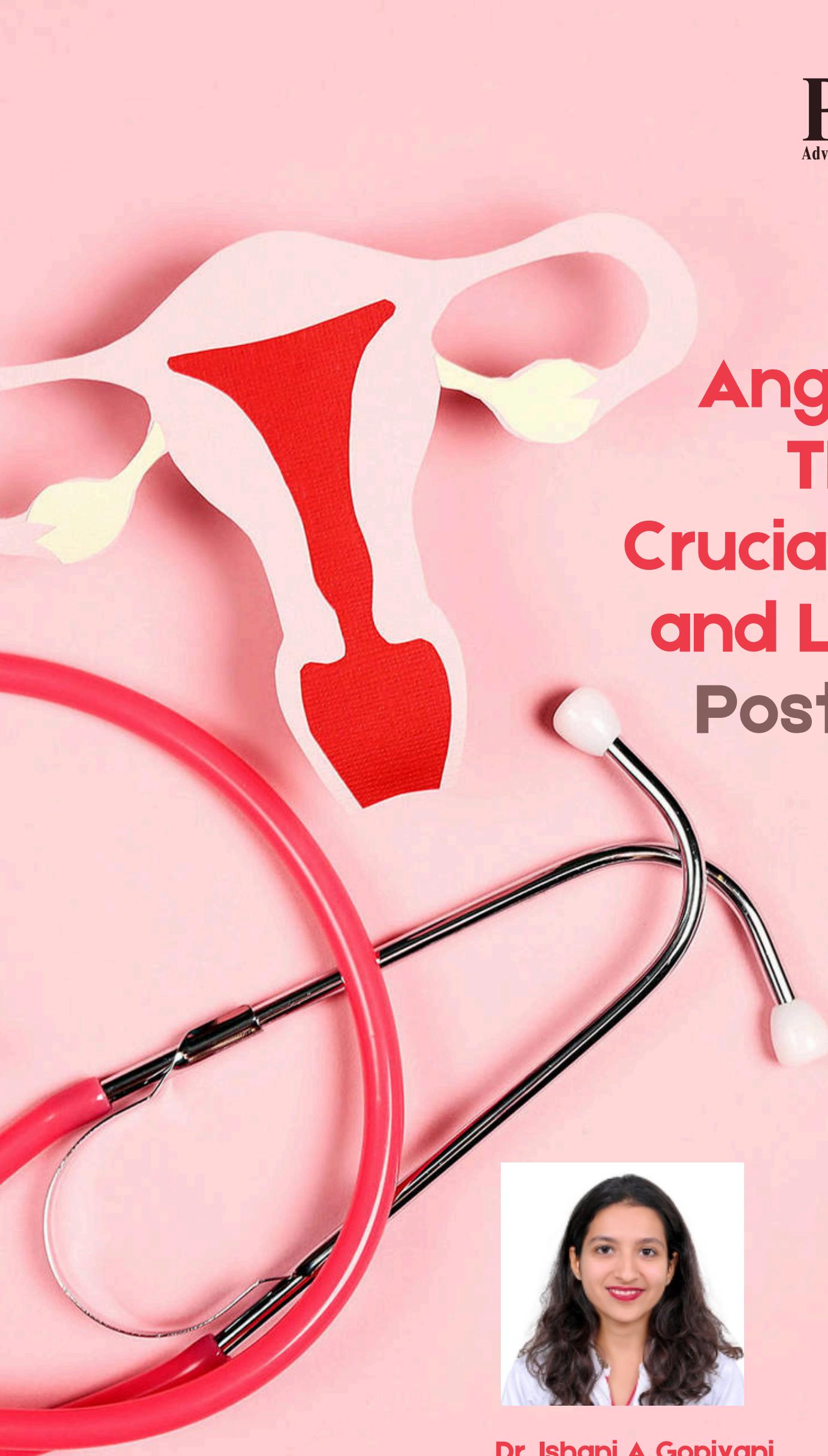
A study on college students was done by Devon White et al. in 2016. The study set out to investigate the knowledge and attitudes of university students regarding students who are autistic, to pinpoint the underlying causes of these attitudes, and to see if these attitudes altered over a five-year span. Our hypothesis that students in the later cohort would have more positive views toward their peers on the autistic spectrum and better information about ASD due to the increased prevalence and awareness of ASD was validated. On the other hand, attitudes and knowledge (as determined by the quantity of correctly identified qualities) did not significantly correlate. Taking cohort and gender into account did not change the significance of this association⁵.



CONCLUSION

This study concludes that there is good knowledge, attitude and perception of Autism among physiotherapy students. Thus there is strong need to bring knowledge and awareness of ADHD among community. Correct knowledge, attitude and perception towards helps physiotherapy students to design correct plan and treatment in clinical practice.





**From
Angles to Aches:
The Q-Angle's
Crucial Link to Pain
and Life Quality in
Postmenopausal
Women**



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INTRODUCTION:

Low back pain (LBP) is a global health issue, particularly prevalent among women aged 50-60 years.[1] This age group undergoes significant physiological changes due to aging, such as decreased bone density and altered muscle function, which contribute to the onset and persistence of LBP.[2] Understanding the underlying factors associated with LBP in this demographic is vital for developing targeted and effective interventions. One crucial factor is the Q-angle, the angle formed by the quadriceps muscle and the patellar tendon. An increased Q-angle can disrupt lower limb biomechanics, potentially leading to LBP.[3] Additionally, pain disability and quality of life (QoL) are pivotal outcomes that significantly affect the overall well-being of individuals suffering from LBP.[4]

This study aims to explore the intricate relationships between pain disability, QoL, and Q-angle in adults aged 50-60 years, shedding light on the complex interplay of these factors. By investigating these correlations, we hope to provide valuable insights that can inform the development of comprehensive management strategies for this population, ultimately enhancing patient outcomes and quality of life. The findings of this research could pave the way for more effective treatments and interventions, addressing the multifaceted nature of LBP in postmenopausal women.

METHODOLOGY:

This study focused on a population of postmenopausal women aged 50-60 years who were experiencing low back pain (LBP). The sample size consisted of 150 participants, which was determined through a power analysis aimed at detecting medium effect sizes with 80% power and a significance level of 0.05. Data collection was carried out through face-to-face interviews and physical examinations at a community health center. Participants completed standardized questionnaires, and their physical measurements were conducted by trained healthcare professionals to ensure accuracy and reliability.

Participants were recruited over six months using a convenience sampling method, specifically from the outpatient department of the Health Centers. To ensure the suitability of participants, a rigorous screening process was implemented. This included evaluating their medical history and conducting physical examinations. Individuals with severe comorbidities, such as cancer or severe cardiovascular disease, recent surgeries within the past six months, or cognitive impairments that would affect their ability to complete questionnaires were excluded from the study.

The inclusion criteria required participants to be postmenopausal women aged 50-60 years, experiencing LBP for at least three months, and capable of providing informed consent. This thorough and meticulous approach ensured that the study population was well-defined and relevant to the research objectives, providing a robust foundation for examining the correlations between pain disability, quality of life, and Q-angle in this demographic.

STATISTICAL ANALYSIS:

Data analysis was conducted using SPSS version 26. Descriptive statistics provided a comprehensive summary of the sample characteristics, offering a clear overview of the participant demographics and key variables. To explore the relationships between pain disability (measured by the Oswestry Disability Index), quality of life (assessed via the SF-36 questionnaire), and Q-angle, Pearson correlation coefficients were calculated. The significance of these relationships was determined with a p-value threshold of <0.05, ensuring statistical rigor and reliability. This approach allowed for a nuanced understanding of the interplay between these critical factors in the study population.



RESULTS:

- Descriptive Statistics

Table 1 presents the demographic and clinical characteristics of the study participants.

<u>Characteristics</u>	<u>Mean (SD)</u>
Age (years)	55.4 (2.8)
Duration of LBP (months)	12.7 (7.3)
ODI Score	45.2 (12.5)
SF-36 Score	58.6 (14.8)
Q-angle (degrees)	18.4 (4.2)

- Correlation Analysis

Pearson correlation coefficients revealed significant relationships between the variables of interest (Table 2).

<u>Correlation</u>	<u>r-value</u>	<u>p-value</u>
Pain Disability and QoL	-0.65	<0.01
Pain Disability and Q-angle	0.34	<0.05
QoL and Q-angle	-0.29	<0.05

DISCUSSION:

The findings indicate a significant negative correlation between pain disability and QoL, suggesting that as pain disability increases, QoL decreases. This aligns with previous studies highlighting the impact of LBP on QoL in adults aged postmenopausal women.[5] Additionally, the positive correlation between pain disability and Q-angle suggests that an increased Q-angle may contribute to greater pain disability, potentially due to altered lower limb biomechanics.[6] The negative correlation between QoL and Q-angle further supports the detrimental impact of increased Q-angle on overall well-being.[7,8,9]

CONCLUSION:

This study demonstrates significant correlations between pain disability, QoL, and Q-angle in postmenopausal women with LBP. These findings underscore the importance of comprehensive management strategies addressing these factors to improve outcomes in this population. Further research is needed to explore the underlying mechanisms and develop targeted interventions.



LUMBAR STRESS FRACTURES OR LUMBAR BONE STRESS INJURY IN CRICKET FAST BLOWERS: RISK FACTORS, DIAGNOSIS, MANAGEMENT, AND REHABILITATION.



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Introduction:

Fast bowling is a distinct and high-powered movement pattern used in the sport of cricket that is characterized by vigorous trunk actions, strong vertical ground reaction forces, and high workloads. Due to their intense play, fast bowlers are more vulnerable than other players to suffer significant injuries. Lumbar stress fracture (LSF) is the type of such injuries that occurs as a result of such vigorous activity. LSF accounts for 3% to 12% of all cricket injuries. These injuries develop as a result of overuse injuries caused by microdamage accumulation and propagation in bone, and their severity varies according to the bone stress continuum, resulting in stress responses to partial and complete lumbar stress fractures (LSF). In a study by Alway et al., the incidence of lumbar stress fractures among English county cricket fast bowlers was 1.67% (57 lumbar stress fractures) all over the entire squad of 368 fast bowlers, with match incidence of 0.13 per 10,000 balls, yearly incidence of 2.46 per 100 fast bowlers, and match incidence of 0.13 per 10,000 balls between 2010 and 2016.

They further, found that fast bowling has been linked to an asymmetrical bone stress response, with injuries occurring more frequently on the bowling arm's contralateral side (93% of injuries), in the pedicle (23%), the pars inter articularis (77%), and the L4 (35%) and L5 (32%) 11. Another study found that fast bowlers had significant lumbar bone mineral despite the high frequency of Lumbar bone stress injuries (LBSI), with up to 14.6% and 18.1% more bone mineral density (BMD) and bone mineral content (BMC) on the side opposite and the bowling arm, respectively. Such an injury usually results in pain, time loss from sporting events, and activity constraints.

Risk factors

Age has a key role in bone stress injury in athletes under the age of 25. The lumbar spine does not fully develop until the age of 25. With an annual incidence of 4.90 stress fractures per 100 fast bowlers, individuals aged 18-22 are most at risk of lumbar stress fracture. There may also be a metabolic problem causing insufficient calcium and vitamin D synthesis and absorption, which affects bone density. The bowler may have tightness and decreased mobility, strength, or control in his hips, ankles, upper back, or shoulders, and he substitutes through that area of the spine¹⁵. Specific biomechanical aspects of the bowling technique, such as increased shoulder counter-rotation and trunk lateral flexion, are suggested risk factors for LBSI. Compared to bowlers who use side on and front on bowling actions, bowlers with mixed bowling actions are at greater risk. It has been hypothesized that bowlers with a high workload during their first 90 days and a low workload throughout their careers are far more likely to experience LSF. It is vital to understand the relationship between workload and injury risk so that workload recommendations may be developed to reduce injury risk.

Symptoms of lumbar bone stress injury

- localized back pain on the side opposite the bowling arm that develops gradually.
- The pain usually gets worse with activity and improves with rest.
- Bowling aggravates pain due to hyperextension of the lumbar spine.

Diagnosis

A diagnosis of LBSI or LSF typically involves obtaining a complete history and physical examination by the team's medical doctor or a physical therapist. Imaging tests such as X-rays, Magnetic resonance Imaging (MRI) Computed tomography (CT), and bone scans may also be ordered to confirm the diagnosis.

In some cases, LBSI may be asymptomatic. This means that the athlete does not have any symptoms, but the fracture is still present. Asymptomatic LBSI is more common in young athletes, and it can be difficult to diagnose. In these asymptomatic cases, the presence of bone marrow oedema (BMO) on MRI scans at the posterior vertebral arch of pars inter articularis indicates the presence of acute bone stress in the corresponding lumbar vertebral segment²⁰. The severity of the LBSI increases with the severity and extent of BMO observed at the posterior vertebral arch. On the other hand, in fast bowlers, symptomatic lumbar pars interarticular lesions at L4 and L5 are clinically significant overuse injuries. Furthermore, 11% of a cohort of young adult fast bowlers examined with CT scans over the course of a 12-month study reported having symptomatic pars lesions. In fast bowlers' development of symptomatic lumbar pars lesions, in particular unilateral L4 stress lesions, are strongly correlated with fast bowling. Stress lesions of the L1-L3 pars have also been identified by isotope bone scans in bowlers presenting with low-back pain.

Management

The recommended standard care for an acute stress fracture is a period of rest, review of bowling technique, and rehabilitation, usually extending over a period of 4 to 6 months. Return to play before the recovery period is completed increases the likelihood of the athlete developing recurrent injury in the same location as a result of inadequate bone strength. Consequently, the possibility of a subsequent rehabilitation phase and another repeated cycle of conservative treatments will jeopardize their professional career. Many cricketers with chronic, well-established pars defects may be asymptomatic, allowing for maximum performance with little restrictions.

In some cases, hypermobility of the posterior vertebral segments can cause pain and limit the athlete's activity. These athletes are often managed symptomatically, which requires a brief period of rest until symptoms vanish and then a gradual return to play with pain persists sometimes. However, in these acute or symptomatic cases of chronic spondylolysis recurrence, surgical intervention may be required to facilitate a more robust and long-lasting recovery. Conservative treatment of pars lesions produces excellent clinical outcomes in the majority of athletes, with sports resumed within 6 months after injury. Surgery is recommended when an athlete presents with pain and a history of lumbar pars/pedicle stress fractures which is limiting the ability to bowl at a professional level.

Rehabilitation

Here is a broad summary of the rehabilitation process of lumbar stress fractures in cricket fast bowlers:

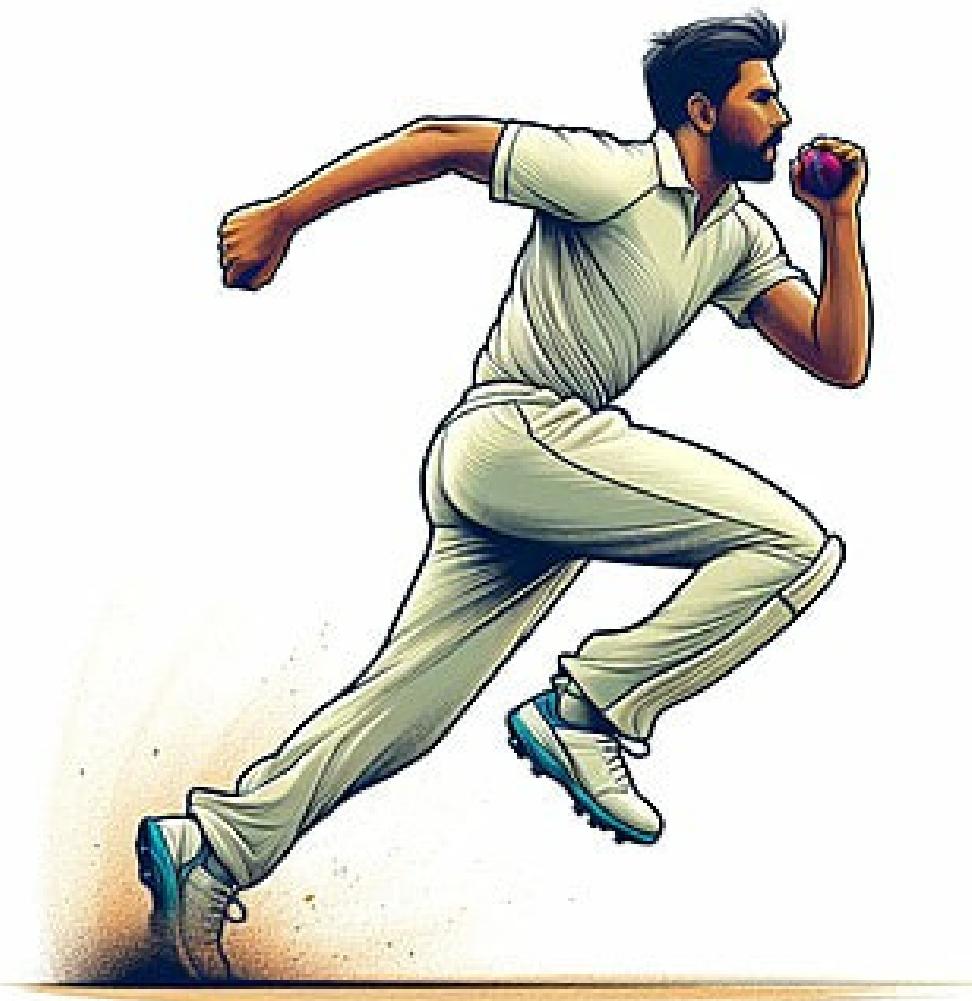
- Pain management and rest: The first phase of rehabilitation focuses on managing pain and rest. This could involve using cold, heat, or over-the-counter medications for pain relief.
- Core muscle strengthening: Once the pain has decreased, the next phase of therapy focuses on strengthening the core muscles. Exercises like planks, bridges, and bird dogs can help with this.
- Reintroduction of activities: As the fracture heals, the bowler can begin to gradually reintroduce more strenuous activities like light bowling and running.
- Return to Sport: The final phase of rehabilitation focuses on returning to full bowling. This can include progressively increasing the intensity and duration of bowling sessions.

It is important to work with a physical therapist who is experienced in treating lumbar stress fractures in cricket fast bowlers. The physical therapist can help to create a personalized rehabilitation program that will help to recover from injury and return to full bowling.



Conclusion

Lumbar stress fractures are an injury that can significantly impact the careers of fast bowlers in cricket. Early identification and proper management are essential to prevent long-term complications and improve the athlete's quality of life. The combination of proper diagnosis, treatment, and rehabilitation can improve an athlete's chances of returning to their pre-injury level of performance.





PHYSICAL REHABILITATION

IN TRANSVERSE MYELITIS: A CASE REPORT



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A lady of 52 years of age with a history of sudden weakness and feeling of heaviness in bilateral lower limbs with loss of sensations in both feet and was unable to walk without support. There was also a complaint of a cotton wool-like sensation in both feet. She was admitted to the hospital for 5 days and medically managed with intravenous steroids, analgesics and anti-viral medications. MRI findings confirmed acute transverse myelitis with visible lesions on her spinal cord. Reports are not available as they are with insurance company for claim settlement. After 5 days the patient was referred for physiotherapy. The patient came to the outpatient physiotherapy department with complaints of paresthesia in the plantar aspect of feet, unable to walk independently, difficulty in maintaining balance while walking indoors and outdoors, difficulty in getting up from a chair, unable to get up from the floor. Symptoms like low back pain, tingling, and numbness subsided after medical management. There was a history of transverse myelitis for 1 year which was medically managed without any residual symptoms.

During the examination by a physiotherapist, it was found that the range of motion of all the joints for the upper and lower limbs was passively full. The examination was focused on muscle strength, balance, functional assessments, gait, and endurance.

Table – 1 Lower Extremity Muscle Strength

Lower Extremity Muscle Group	Right	Left
Hip Flexors	3/5	3/5
Hip Extensors	3/5	2/5
Hip Adductors	3/5	3/5
Hip Abductors	3/5	2/5
Knee Flexors	4/5	3/5
Knee Extensors	3/5	3/5
Ankle Dorsiflexors	4/5	4/5
Ankle Plantar Flexors	4/5	4/5
Trunk Flexors	3/5	
Trunk extensors	3/5	

The results of muscle strength assessment suggested that patient had weakness of bilateral lower extremities, with greater weakness in left lower extremity than right. This reduced muscle strength may have reduced functional abilities and activity of daily living of the patient like walking, transfers, and maintaining balance. (Table – 2) Based on the complaints of the patient regarding tingling and feeling of heaviness, a sensory examination was conducted which did not show prominent findings. The patient didn't have any fecal or urinary incontinence. The patient presented with gait deviations like being unable to walk without support, difficulty in walking along a straight path, walking with a wide base of support with hyperextension of the knees, and a significant reduction in endurance and speed. The prognosis of the patient was fair related to the findings gathered on taking certain outcomes and looking at the strength of muscles. Given the nature of transvers myelitis (TM), progression to the plateau of symptoms and recovery is unknown and different for each patient. [1]

Table – 2 International Classification of Functioning, Disability and Health (ICF) framework for Patient with Transverse Myelitis

Body Structure/ Function	Activity Limitation	Participation Restriction
Reduced muscle strength	Needs assistance while getting up from bed & chair	Unable to go out of home to meet people
Reduced balance	Unable to stand & do Activity of daily living	Unable to go shopping or buying grocery/ vegetables & <u>go to temple</u>
Reduced endurance	Unable to walk Unable to use stairs	Unable to indulge in leisure independently activities in the house and outside
Environmental Factors		Personal Factors
Facilitators <ul style="list-style-type: none"> • Supportive family • Home modifications like Handrails in bathroom and western toilet, kitchen 	Facilitators <ul style="list-style-type: none"> • Very motivational • Understanding about the disease 	
Barriers <ul style="list-style-type: none"> • Stairs at home • Uneven surface around home • Location of home 	Barriers <ul style="list-style-type: none"> • Stress about what others think for cane usage • Recurrent transverse myelitis 	

Rehabilitation Programme

The rehabilitation programme was of 1-1.5 hours per day under physical therapist guidance for 6 weeks which comprised of 6 days per week for the first 3 weeks and then it was reduced to 3 days (i.e. alternate days) per week for the last 3 weeks. (Table – 3) The primary goal of physiotherapy is to improve the functional capabilities and level of fatigue of the patient. The dosage of therapeutic exercise varied according to the fatigue level of the patient during the physiotherapy session. The therapeutic exercise included strengthening, endurance training, balance and gait training. The home-based treatment protocol was also advised for the patient which was modified according to the progression of the patient's ability. (Table – 4) The progression in functional abilities and endurance were assessed using the following outcome measures which were taken initially in the first week then after 2 weeks, after 4 weeks and after 6 weeks consequently during the rehabilitation programme. The dosage for some of the exercises performed is not specified and progressed according to the tolerance level of the patient because of fluctuations in fatigue level.

Supervised Physiotherapy Intervention for patient with transverse myelitis

1st and 2nd week

- SLR in supine lying with minimal support
- Hip abduction in side-lying with minimal support
- Hip flexion in high sitting
- Knee extension exercise in high sitting
- Trunk curl-ups and extension with assistance
- Sit to-stand activity from suitable height with hand support
- Standing in the parallel bar(supported) with visual Feedback
- Gait training in a parallel bar with support

3rd and 4th week

- SLR in supine lying with 5 seconds hold
- Hip abduction in side lying with 5 seconds hold
- Hip Flexion in high sitting with 500gm weight
- Knee extension in high sitting with 500gm weight
- Trunk curl ups with minimal assistance
- Prone on elbow with 5 seconds hold
- Sit to stand from chair/low plinth with rest
- Standing with minimal support
- Ball throwing and kicking activity in standing with minimal support

- Walking out of the parallel bar and on an even surface with minimal support
- Marching holding handrails with one hand
- Cycling with back support

5th and 6th week

- SLR in standing with 500gm weight
- Hip abduction in standing with 500gm weight
- Hip extension in standing with support
- Sit to stand from low stool
- Squatting activity with rest in between

- Walking on even surface without assistance
- Walking on uneven surface, slope walking and community walking with supervision
- Cycling with back support with rest in between
- Ball throwing and kicking activity without assistance and reach outs in standing
- Stairs ascending and descending

Home Exercise Programme (HEP) for Patient with Transverse Myelitis

1st and 2nd week

- Bridging
- Hip and Knee ROM exercise
- Sit to stand activity from chair
- Standing with Support

3rd and 4th week

- Trunk, hip and knee strengthening exercise
- Standing with minimal assistance against platform or hand railings
- Sit to stand from sofa or bed
- Walking with support of hand railing

Outcomes

Patient progression in an objective manner after full rehabilitation is summarized in the table – 5. On the whole patient demonstrated increased muscle strength and endurance and also ease in her activities of daily living.

Outcome Measure	Initially	After 2 weeks	After 4 weeks	After 6 weeks
Berg Balance Scale [10]	15	39	50	56
Functional Ambulation Classification [11]	1	3	4	5
Fatigue Severity Scale [12]	51	46	32	23
Dynamic Gait Index [13]	NT	NT	13	20
Spinal Cord Independence Measure 3 (SCIM 3) [14]	74	75	91	98

Based on the subjective assessment patient reported that there was significant improvement in her independence in performing activity of daily living like dressing, bathing, cleaning and washing utensils in standing, cooking, stair ascending and descending and also in her fatigue level at the end of her day even after performing all her routine tasks and walking.

Conclusion

This case report demonstrates the benefits of physiotherapy in patients with transverse myelitis. It also illustrates the importance of activity based rehabilitation along with strength and endurance training. However, more research is needed to obtain long term benefits of physiotherapy in patients with transverse myelitis.

Discussion

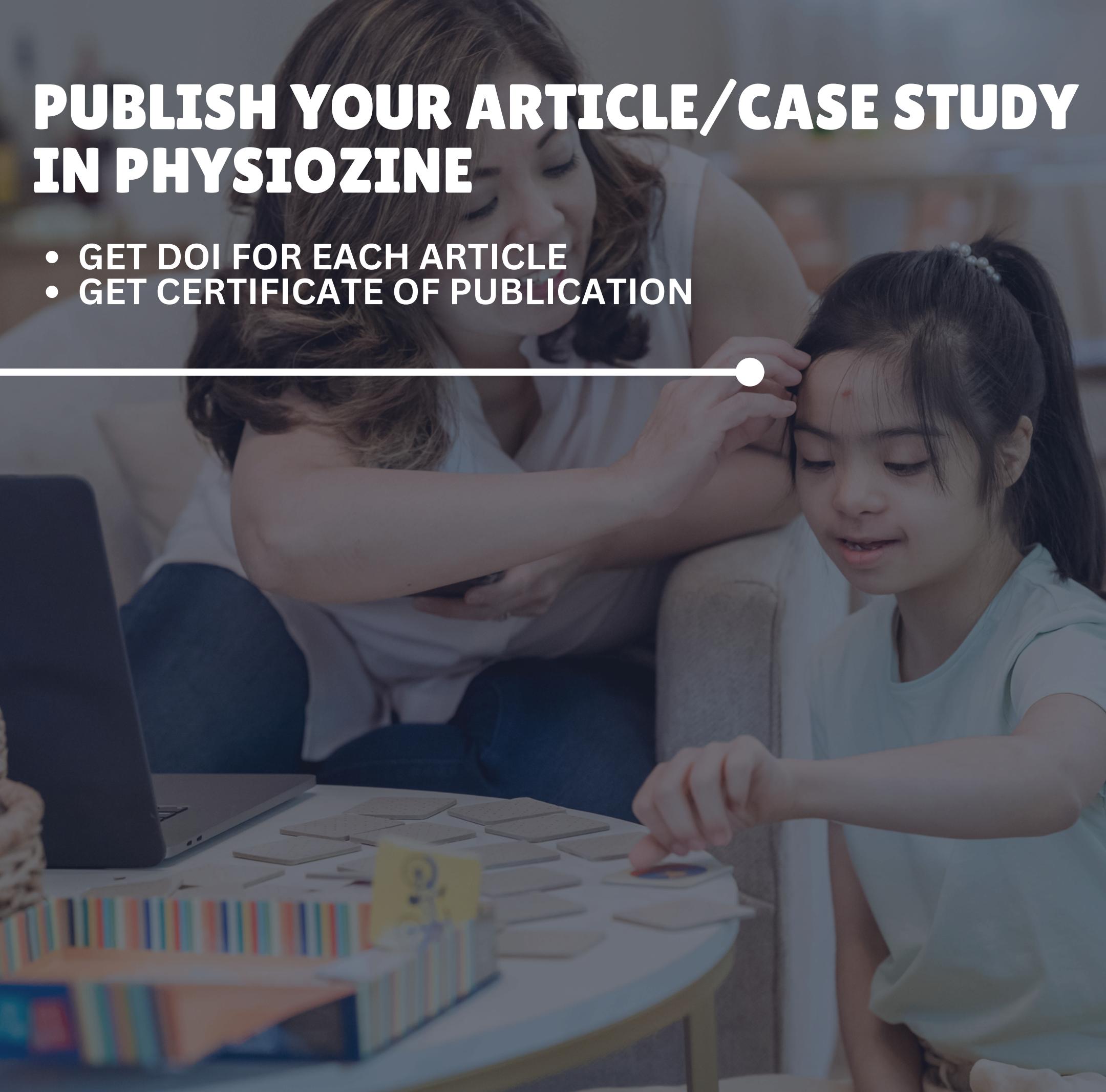
Acute transverse myelitis (ATM) is a neurological syndrome due to inflammation of the spinal cord and symptoms may vary depending upon the level of involvement. It is characterized by acute or sub-acute motor, sensory, and autonomic (bladder, bowel, and sexual) spinal cord dysfunction. The clinical signs are caused by an interruption in ascending and descending neuroanatomical pathways in the transverse plane of the spinal cord, and a resulting sensory level is characteristic of the syndrome. [2, 9] The degree of disability in patients with transverse myelitis depends on the level of involvement in spinal segments. High doses of intravenous corticosteroids such as prednisone, cyclophosphamide, and plasma exchange are therapeutic options in the medical treatment of ATM. [3,4] The aim of rehabilitation is increasing strength, and endurance, improving coordination and balance with gait retraining, and preventing secondary complications like chest infections, contractures, atrophy, bed sores, etc.

This case report is based on evidence based rehabilitation of patient with transverse myelitis with subjective and objective outcomes and plan of care. As there are limited literature review demonstrating further rehabilitation for this condition but the available research work focuses

on activity based and impairment based rehabilitation. Physiotherapy need to incorporate activity based rehabilitation along with strengthening, passive and active range of motion exercises, endurance exercise and neuromuscular re-education. [5] Since this case was reported in India where there is importance of sitting on the floor and on low stool for activities of daily living like bathing, toileting and also for religious practices imbibed this activity as treatment strategy for overall rehabilitation. For an instance when we are more focused towards functional based training it is important to transfer the task in different context and environment to achieve our goal more efficiently and helping individual to gain independence. The treatment protocol in this case is specifically tailored according to the activity limitations and participation restrictions area of the patient as mentioned in the International classification of functioning matrix structured as per patient needs. Fatigue is a common symptom reported in most of the patients and a predictor of quality of life. [6] It is also an important factor which can lead to further limitations in day to day activities and participation focus on fatigue management and energy conservation techniques at home and during rehabilitation is also addressed. We emphasized on the transition of these therapeutic exercise to be useful in routine functioning of the patient and relevant in tasks of daily living. However, the goal of physiotherapy is to optimize the neurological recovery and functions of day to day activity of the patient. [7, 8] The major aim of our rehabilitation was to orient our patient back to community with underlying residual neurological symptoms and gain independence. In the process of training an individual to gain maximum independence we need to consider the entire motor and sensory component along with biomechanical properties of muscles, environmental context along with primary and secondary impairments and also various other compensatory and restorative facets.

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