Malaysian Association of Sports Medicine Proudly Presents

MASM CONFERENCE 2026

Empowering the Nation Through Sports and Exercise Medicine Innovation

21st to 23rd April 2026 | Sunway Convention Centre, Sunway Medical Centre

eBooklet

SUNWAY MEDICAL CENTRE
Sunway City Kuala Lumpur

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WELCOME ADDRESS

Dr. Arshad Puji

President
Malaysian Association of Sports Medicine (MASM)

Join us at the MASM Conference & BGM 2026 from 21-23 April 2026 at Sunway Convention Centre and be part of Malaysia's leading platform for sports and exercise medicine. With the theme "Empowering the Nation Through Sports & Exercise Medicine Innovation," this year's programme is designed to deliver practical skills, fresh insights and meaningful professional connections.

Across three days, you will experience focused pre-conference workshops and a high-impact scientific programme covering running biomechanics, cryoneurolysis, exercise medicine, sports cardiology, sports injury, precision sports science, rehabilitation and return-to-sport.

Whether you are a clinician, researcher, sports scientist, physiotherapist, coach or student, MASM 2026 offers knowledge that you can apply immediately in your practice and research. We encourage you to engage actively-ask questions, share your cases, present your work, network, explore collaborations and strengthen Malaysia's sports medicine ecosystem.

Your participation matters and directly contributes to elevating standards of care, athlete health, and the promotion of active living in our nation. Secure your place, take advantage of the learning opportunities, and help shape the future of sports and exercise medicine.

We look forward to welcoming you this April.

WELCOME ADDRESS

Dr Ahmad Munawwar Helmi bin Salim

Organising Chairman

It is my great honour and pleasure to welcome all delegates, speakers, and partners to the MASM Conference 2026 & Biennial General Meeting, held in conjunction with the 3rd Malaysian–Indonesian Sports Symposium, at Sunway Medical Centre, Sunway City Kuala Lumpur.

The theme for MASM 2026, "Empowering the Nation through Sports & Exercise Medicine Innovation," reflects our shared aspiration to strengthen the impact of sports and exercise medicine across clinical practice, high-performance sport, and public health. Innovation — whether in assessment, intervention, rehabilitation, or performance optimisation — remains central to how we enhance outcomes for athletes and physically active individuals at every level.

This year's scientific programme has been thoughtfully developed to deliver both depth and practical relevance. Participants can look forward to engaging pre-conference workshops on Running & Biomechanics and Cryoneurolysis, as well as comprehensive sessions covering Exercise Medicine and Sports Cardiology, Sports Injury and Precision Sports Science, Sports Rehabilitation and Return-to-Sport, and other emerging areas in our discipline. The programme reflects MASM's commitment to multidisciplinary learning, evidence-based practice, and clinical excellence.

I would like to express my sincere appreciation to the President and the MASM Executive Committee for the trust and confidence placed in me to serve as Organising Chairman for this conference. My deepest gratitude also goes to the Organising Committee and Scientific Committee, whose tireless efforts, dedication, and professionalism behind the scenes have been instrumental in delivering a high-quality and impactful meeting.

Most importantly, I wish to thank all delegates, speakers, partners, and sponsors for your support and participation. The MASM Conference has long been regarded as the most important gathering of sports and exercise medicine professionals in Malaysia, and your presence reaffirms the strength and unity of our community.

I am confident that MASM 2026 will be a rewarding and inspiring experience, fostering meaningful dialogue, new collaborations, and renewed commitment to advancing sports and exercise medicine for the benefit of the nation.

I wish you a productive conference and a pleasant stay in Kuala Lumpur.

WELCOME ADDRESS

Dr Ahmad Hazwan Bin Ahmad Shushami

Chairperson
Scientific Committee
MASM Conference 2026

I would like to begin by expressing my sincere appreciation and special thanks to the leadership of the Malaysian Association of Sports Medicine (MASM) for their continuous guidance, dedication, and commitment in making the MASM Conference 2026 in conjunction with the Malaysian–Indonesian Sports Symposium possible.

It is a privilege to welcome all delegates to Sunway Medical Centre under the theme "Empowering the Nation Through Sports and Exercise Medicine Innovation." This theme reflects our collective mission to advance clinical practice, research, and education through innovation and evidence-based approaches.

The scientific programme has been carefully structured to provide comprehensive and relevant content, encompassing injury prevention, rehabilitation, performance optimisation, exercise medicine, and emerging therapeutic technologies. The sessions are designed to encourage multidisciplinary collaboration and practical translation into clinical and field practice. The Malaysian–Indonesian Sports Symposium further enriches this programme by strengthening regional academic exchange and professional cooperation.

We hope that this conference will not only disseminate knowledge, but also inspire meaningful dialogue, stimulate innovation, and strengthen professional networks that extend well beyond these two days. Most importantly, we envision that the ideas and collaborations born here will translate into tangible improvements in athlete care, community health, and national sporting performance.

With great optimism, we look forward to witnessing continued progress and leadership in sports and exercise medicine, and we remain confident that Malaysia will continue to advance as a regional and global contributor to this dynamic field.

Thank you, and we wish all delegates a productive, inspiring, and memorable conference.

REGISTRATION

Category	Pre-conference Running and Biomechanics Workshop* *limited slots	Pre-conference Cryoneurolysis (only for medical doctors)* *limited slots	Early bird Registration (31/3/2026)	Regular and Onsite registration
Student	RM100	RM250	RM250	RM300
MASM Members	RM150	RM250	RM400	RM500
Non MASM Members	RM200	RM300	RM500	RM600
International Delegates	USD100	USD150	USD250	USD300

WORKSHOPS PROGRAMME

Tuesday, April 21st 2026

Workshop 1 : Optimising Running Performance: From Science to Practice
PIC - Dr Au Yong Pui San

Time	Session	Speaker
08:30 - 09:00	Registration & Welcome Coffee	
09:00 - 09:15	Introduction to workshop	*Chairperson*
09:15 - 9:45	Running from a coach's perspective	*Ms Lini Kazim*
9:45 - 10:15	Data-driven training	*Mr Lim Ee-Van*
10:15 - 11:00	Coffee Break	
11:00 - 11:30	"Does my supertrainers alter my biomechanics?"	*Associate Professor Dr Rizal Mohd Razman*
11:30 - 12:00	Optimize your running by being stronger	*Dr Kavitha Mahadevan*
12:00 - 12:30	Q&A	
12:30 - 14:00	Lunch	
14:00 - 15:30	Posture assessment	Dr Elina Widiastuti, Sp.K.O. (PDSKO)
15:30 - 17:00	Running gait assessment	Dr Muhammad Andeansah, Sp.K.O. (PDSKO)

WORKSHOPS PROGRAMME

Tuesday, April 21st 2026

Workshop 2 : Cryoneurolysis: Evidence, Techniques & Hands-On Skills
PIC - Dr Cheng Wern Loong

Time	Session	Speaker
08:30 - 09:00	Registration & Welcome Coffee	
09:00 - 09:15	Welcome Speech	*PrimeMedical*
09:15 - 9:45	Introduction to Cryoneurolysis	*Dr Lui Ken-Yi (MAS)*
9:45 - 10:15	Cryoneurolysis: A Practical Guide to Procedure and Practice (Case studies)	*Dr Leszek Urbanczak (POL)*
10:15 - 11:00	Coffee Break	
11:00 - 12.30	Live Surgery Demonstration	*Shoulder, Knee, Hip, Piriformis (Depends on patient's availability)*
12.30 - 14:00	Lunch	
14:00 - 16:00	Live Model Ultrasound Hands On Workshop	*Stations*
16:00	Wrap-up & Key Takeaways	

SCIENTIFIC PROGRAMME

Day 1 - Wednesday, April 22nd 2026

Time	Session	
07.15 - 08.00	Registration	
	Session	**Speaker**
08.00 - 09.00	**Opening Ceremony** **Keynote 1: Empowering the Nation Through Sports & Exercise Medicine Innovation**	*Datuk Dr. Mahathar Abd Wahab, Director-General of Health Malaysia*
09.00 - 09.15	Booth Visit	
09.15 - 09.45	**Plenary 1: Exercise Medicine in Malaysia: Current Progress & Future Directions**	*Associate Professor Dr Mohd Shariff A Hamid (MAS)*
09.45 - 10.15	**Plenary 2: Exercise Prescription in Clinical Practice: Are We Doing Enough?**	*Associate Professor Dr Nahar Azmi Mohamed (MAS)*
10.15 - 10.45	Coffee Break	
10.45 - 12.00	**Special Forum : Combating Non-Communicable Diseases Through Exercise Medicine**	**Moderator -** *Dr Lim Yi Zhen* **Panelist -** *Dr Kavitha Mahadevan (MAS), Dr Ng Chung Sien (SGP), Dr Grace Joselini Corlesa (INA)*
12.00 - 13.00	**Lunch Symposium- Advanced Approach on Soft Tissue Mobilisation: When Fascia Release Meets INDIBA Therapy** *Mr Wong Che Loong*	
13.00 - 14.00	Scientific Posters	

SCIENTIFIC PROGRAMME

Day 1 - Wednesday, April 22nd 2026

Time	Session	
	Concurrent Symposia	
	Track A1: Applied Sports Cardiology: From Diagnosis to Return-to-Play	**Track B1: Exercise Medicine**
	Chairperson : *Dr Muhammad Harith Rosdi*	**Chairperson :** *Dr Yau May Yann*
14.00 - 14.20	**Interpreting the Athlete's ECG: A Systematic and Practical Approach** *Dr Rizmy Najme Khir (MAS)*	**The Fat-but-Fit Paradox: Myth, Misinterpretation, or Medicine?** *Dr Ng Chung Sien (SGP)*
14.20 - 14.40	**Emerging Role of CPET in Sports Cardiology** *Dr. Nik Nadirah Nik Azis (MAS)*	**The Weekend Warrior Culture: Risk, Reward & Reality Sports science** *Dr Au Yong Pui San (MAS)*
14.40 - 15.00	**Cardiac Rehabilitation in the Active Population: Principles and Practice** *Dr. Mazlifah Omar (MAS)*	**Wearable Technologies: Keeping People Active & Accountable** *Dr. Andhika Raspati (INA)*
15.00 - 15.20	**Return-to-Sport After Myocardial Infarction: A Step-by-Step Clinical Approach** *Dato' Sri Dr. Azmee Mohd Ghazi (MAS)*	**Exercise & Mental Health: From Brain Chemistry to Real-World Outcomes** *Prof Dr Firdaus Mukhtar (MAS)*
	Track A2: The Active Knee: Surgical Decisions, Medical Care, and Safe Return to Exercise	**Track B2: Obesity medicine**
	Chairperson : *Dr. Abu 'Ubaidah Amir Norazmi*	**Chairperson :** *Dr Samihah Binti Abdul Karim*

SCIENTIFIC PROGRAMME

Day 1 - Wednesday, April 22nd 2026

Time	Session	
15.20 - 15.40	**Meniscus Tears in Active Adults: Surgery, Rehabilitation, or Watchful Waiting?** *Dr Muhammad Hafiz Bin Daud (MAS)*	**Beyond the Theory: What 6 Months of Daily Physical Activity Actually Taught Me About Weight Loss** *Assoc. Prof Dr Hazizi Abu Saad (MAS)*
15.40 - 16.00	**Conservative Management of Meniscus Injuries: When Surgery Is Not the Answer** *Dr Moriffin Mahpis (MAS)*	**Looking Beyond Performance to Identify Obesity Risk in Youth and Active People** *Dr Maria Lestari (INA)*
16.00 - 16.20	**ACL Tears in Active Adults: Do All ACL Injuries Need Surgery** *Dr Raymond Yeak Dieu Kiat (MAS)*	**Slimming Pills in the Digital Age How Technology Is Changing Obesity Treatment** *Dr Lim Quan Hziung (MAS)*
16.20 - 16.30	**Coffee Break**	
16.30 - 18.00	**MASM Biennial General Meeting**	
19.30 - 22.00	**Faculty dinner (By invitation only)**	

SCIENTIFIC PROGRAMME

Day 2 – Thursday, April 23rd 2026

Time	Session	
08.30 – 09.00	Registration & Welcome	
	Session	Speaker
08.30 – 09.00	**Plenary 3: Sports Injury Management in Malaysia: Are We Falling Behind?**	*Dr Arshad Puji (MAS)*
09.00 – 09.30	**Plenary 4: From Gym to Podium – Strength & Conditioning Science Shaping Malaysian Sport**	*Jad Adrian Washif (MAS)*
09.30 – 10.00	**Plenary 5: Governance and Ethical Issues of Stem Cell Therapy in Sports Medicine**	*Professor Dato Sri Dr. Abu Hassan Asaari Abdullah (MAS)*
10.00 – 10.30	Coffee Break	
	Concurrent Symposia	
	Track A3 : Sports Injury Treatment (Biologics)	**Track B3: Precision Sports Science for Malaysian Athletes**
	Chairperson : *Dr Ozair Mohd Ali*	**Chairperson :** *Mohd Izham bin Mohamad*
10.30 – 10.50	**Musculoskeletal Biologics in Clinical Practice: Western Experience, Asian Perspective** *Dr Mandy Zhang (SGP)*	**Linking Badminton Competition Load with Daily HRV and Athlete Readiness** *Christopher Pok Yong Hao (MAS)*
10.50 – 11.10	**From Injection to Adaptation: How Prolotherapy Enhances Tendon Loading Outcomes** *Dr Syamsul Rizal Abu Amin (MAS)*	**Chasing Marginal Gains: Technology – Driven Track Cycling Performance in Malaysia** *Mohd Izham bin Mohamad (MAS)*

SCIENTIFIC PROGRAMME

Day 2 - Thursday, April 23rd 2026

Time	Session	
11.10 - 11.30	**PRP Use in Professional Sports: Real World Practice vs Evidence** *Assoc Prof Dr. Mohd Shariff A Hamid (MAS)*	**Data-Driven Performance Analysis in Elite Sepak Takraw: Insights Toward SEA Games 2025** *Arif Aziz (MAS)*
11.30 - 11.50	**Biologics and Antidoping Regulations: Current Evidence and Future Challenges** *Dr Azril Syazwan Mohd Ali (MAS)*	**A Hybrid Multi-Sensor and Deep Learning Approach for Marker-less Kinematics in Clinical and Athletic Assessment: A Prototype Project** *Chok Chuen Leang*
11.50 - 12.40	**Special Forum: "Behind Every Match: The Science & Medical Support System of Elite Badminton"** **Moderator -** *Dr Ahmad Munawwar Helmi Bin Salim* **Panelist -** *Dr Jasmiza Khuzairi Jasme, Christopher Pok Yong Hao*	
12.40 - 13.30	**Special Forum: Stem Cell and Regenerative Therapies in Sports — Emerging Evidence and Future Directions** **Moderator -** *Dr Khairullina Khalid* **Panelists -** *Prof. Dato Sri Dr. Abu Hassan Asaari Abdullah, Associate Professor Dr Shariff A Hamid, Dr Mandy Zhang, Dr Azril*	
13.30 - 14.30	**Lunch Symposium-Topic: Radiofrequency Ablation for Heel Pain** **Part 1: C-Arm Guided RFA for Heel Pain** **Speaker:** *Dr Kam Ming Long* **Part 2: Ultrasound-Guided RFA for Heel Pain** **Speaker:** *Dr Aizuddin bin Sahak*	
	Track A4: Sports Injury Rehabilitation	**Track B4: Therapies in Injury Management and Return-to-Play**
	Chairperson : *Dr Muhammad Afiq Bin Mohd Razali*	**Chairperson :** *Dr Muhammad Kashani Mohd Kamil*

SCIENTIFIC PROGRAMME

Day 2 - Thursday, April 23rd 2026

Time	Session	
14.30 - 14.50	**Hydrodisection and Biotensegrity: Integrative Approaches for Accelerated Rehabilitation** *Dr. Abdul Rahman bin Ab Hamid (MAS)*	**Shockwave Therapy in Sports: Accelerating Recovery and Return-to-Play** *Riza Sharom Abdul Razak (MAS)*
14.50 - 15.10	**The Science Behind Arthrogenic Muscle Inhibition:From Pathophysiology to Integrated Intervention** *Dr Ahmad Hazwan Ahmad Shushami (MAS)*	**NMES in Sports Rehabilitation: Enhancing Strength and Neuromuscular Control** *Faezah Md Jais (MAS)*
15.10 - 15.30	**Hypertrophy: From Principles to Practice** *Dr Arvin Raj Goonasegaran (MAS)*	**Laser Therapy in Sports: Mechanisms, Dosage, and Clinical Outcomes** *Clement (MAS)*
15.30 - 15.50	**Acute Hamstring Injuries : Practical Clinical Lessons From Amsterdam UMC** *Assoc. Prof. Dr.M.Ikhwan Zein (INA)*	**Dry Needling in Sports Rehabilitation: Mechanisms, Integration, and Performance Implications** *Dr Samihah (MAS)*
15.50 - 16.30	**Coffee break**	
	Closing & Prize giving ceremony	

MASM Conference 2026
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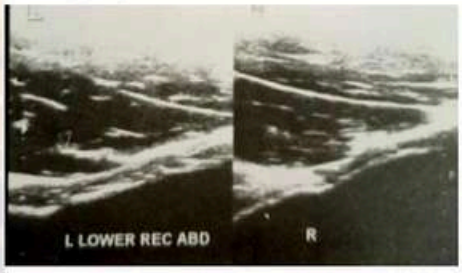
PLATELET RICH PLASMA (PRP) INJECTION FOR OSTEITIS PUBIS IN PROFESSIONAL FOOTBALLER: A CASE REPORT

Nurul Akma An Nisa' Ramli, Hospital Tuanku Ja'afar Seremban
Rozaiman Ebrahim, Hospital Tuanku Ja'afar Seremban

Introduction

- Osteitis pubis is a condition of chronic inflammatory state of pubic symphysis and its surrounding soft tissues. It is non-infectious and can be caused by multiple aetiologies [1].
- The incidence of osteitis pubis in athlete is around 0.5-8% , in which 10-18% per year reported in male footballer [2].
- We present a case report of a 21 years old male footballer who suffered from osteitis pubis, which was successfully treated with PRP injection as an adjunct in the treatment of osteitis pubis.

1.xray of pelvis



2.ultrasound of adductors & symphysis pubis

Case Description

- A 21 years old male footballer complained of left inner thigh tightness and suprapubic pain for 2 weeks, that affected training and ADL (activity daily living).
- Examination showed localised tenderness at symphysis pubis & adductor squeeze test was positive. X-ray of pelvis, ultrasound of the pubis and MRI are suggestive of mild osteitis pubis
- Symptoms persisted despite reduction of training intensity, pain relief modalities, physiotherapy and ultrasound-guided steroid injection to symphysis after 3 months of onset.
- Finally, PRP injection was done after 4 weeks followed by intensive physiotherapy. The pain disappeared and later, he was able to return to play.

Discussion

- There is a role of PRP as an adjunct in the treatment of osteitis pubis.
- These findings are supported by other case reports [3,4].
- However, more research trials should be done to prove its efficacy .

Conclusion

- There is a role of PRP as an adjunct in the treatment of osteitis pubis in addition to usual physiotherapy treatment.

References

1. Dirkx,M. and Vitale, C. (11 December 2022). Osteitis Pubis. Retrieved from link: https://www.ncbi.nlm.nih.gov/books/NBK556168/
2. Via AG, Frizziero A, Finotti P, Oliva F, Randelli F, Maffulli N. Management of osteitis pubis in athletes: Rehabilitation and return to training—A review of the most recent literature. Open Access J Sports Med. 2019;10:1–10.
3. Park D.J. ,Sussman W.I. ,(1 March 2022).Osteitis Pubis Treated With Platelet-Rich Plasma: A Case Report. Clin J Sport Med. 2022 Mar 1;32(2):e172-e174. doi: 10.1097/JSM.0000000000000875.
4. Scholten PL. (January 2015).Successful Treatment of Athletic Pubalgia in a Lacrosse Player with Ultrasound-Guided Needle Tenotomy and Platelet-Rich Plasma Injection: A Case Report. https://doi.org/10.1016/j.pmrj.2014.08.943.

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21st to 23rd April 2026 | Sunway Medical Centre
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Technology-Driven Touchscreen Applications for Para-Swimming Classification: Current Evidence and Future Potential

Dr Rosdara Masayuni Bin Mohd Sani, Faculty of Medicine, Monash University Malaysia, Johor Bahru, Malaysia
Dr Layangi Radeesha Jayatilaka, Faculty of Medicine, Monash University Malaysia, Johor Bahru, Malaysia
Dr Tan Chen Liang, Hospital Sultanah Bahiyah, Kedah, Malaysia

Introduction

The use of technology to support para-swimming classification is an emerging area of research. However, the evidence remains scattered, and the role of touchscreen applications in enhancing the classification process is not well defined. The classification process remains complex and resource-intensive, often facing challenges related to standardization, consistency, and workflow efficiency, highlighting a potential role for digital solutions.

This review aims to map existing research on technology-integrated para-swimming classification, evaluate the need for screening applications prior to International Paralympic Committee (IPC)-sanctioned classification, and identify gaps in fairness, standardization, and workflow

Method

A scoping review was conducted following PRISMA-ScR guidelines and the PICO framework. Databases searched included PubMed, Ovid MEDLINE, Scopus, Web of Science, and Google Scholar. A total of 1,072 records were identified, of which 18 studies met predefined inclusion criteria after screening based on relevance to classification processes, technology integration, and para-sport applicability.

Discussion

No study directly addressed the use of touchscreen applications for para-swimming classification. Evidence was therefore categorized into three domains:

Classification improvements – studies focusing on objective measures, protocols, or rule-based enhancements to strengthen classification assessments;

Transferable technology – research on artificial intelligence, sensors, and digital tools that could be integrated into classification systems;

Implementation and experience – studies exploring athlete and classifier perspectives, as well as logistical and operational barriers.

Conclusion

Current evidence supports the potential development of a touchscreen-based application to enhance para-swimming classification. Such a tool could improve data capture, standardization of assessment protocols, and pre-classification screening processes in alignment with IPC governance. Additionally, it may streamline workflow, improve documentation quality, and support fairer and more consistent classification outcomes, with possible applicability to other para-sports.

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21st to 23rd April 2026 | Sunway Medical Centre
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AUDIO-VISUAL SIMULATION IN MOTOR IMAGERY TRAINING (MIT) TECHNIQUE IMPROVES TENNIS SERVICE PERFORMANCE AMONG NOVICE TENNIS PLAYERS-A SCOPING REVIEW

Dr Rosdara Masayuni Bin Mohd Sani, Faculty of Medicine, Monash University Malaysia, Johor Bahru, Malaysia
Samuel Ch'ng Yung Kit, Monash University Malaysia, Johor Bahru, Malaysia
Luqman Nul Hakeem bin Abdul Rahim
Dr Ean Hin Ooi, School of Engineering, Monash University Malaysia, Selangor, Malaysia.

Introduction

The tennis serve is a complex motor skill that presents technical and coordinative challenges for novice players. Motor imagery training (MIT) has gained attention as a complementary strategy to physical practice by strengthening motor representations.

Although MIT has been widely studied across sports, evidence specific to tennis particularly among novices remains fragmented. A comprehensive synthesis is needed to clarify its effectiveness and identify key factors influencing early skill acquisition.

Method

Conducted in accordance with PRISMA-ScR guidelines, literature searches were performed across PubMed, Scopus, Ovid Medline, and Google Scholar using keywords related to motor imagery training.

Peer-reviewed studies were included. Eight articles met eligibility criteria, with emphasis on novice, youth, or developing players.

Discussion

Findings consistently indicated that MIT enhances service accuracy, technical quality, and success rate, with limited effects on service speed. Novice players demonstrated greater improvements than skilled athletes.

Internal visual and kinesthetic imagery, particularly when structured using PETTLEP principles and combined with video modelling or self-talk, produced the strongest outcomes.

Conclusion

MIT is an effective, low-cost adjunct to physical practice that enhances cognitive and perceptual components of tennis serve performance in novices.

Standardized, tennis-specific protocols and longer intervention studies are recommended to optimize outcomes.

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21st to 23rd April 2026 | Sunway Medical Centre
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EFFECTIVENESS OF ULTRASOUND-GUIDED VERSUS BLIND CORTICOSTEROID INJECTION ON PAIN, FUNCTIONAL OUTCOMES AND SAFETY IN PATIENTS WITH DE QUERVAINS TENOSYNOVITIS: SINGLE BLINDED RANDOMIZED CONTROL TRIAL

Muhammad Syazwan Bin Md Shalan, Dept of Orthopaedic IIUM
Muhammad Harith Bin Rosdi, IIUM Sports Medicine Clinic (ISMEC)

Introduction

De Quervain's tenosynovitis is a common cause of radial wrist pain due to stenosing inflammation of the abductor pollicis longus and extensor pollicis brevis tendons. It affects daily hand function, particularly in activities involving gripping and thumb movement.

Corticosteroid injection is an established first-line interventional treatment. Traditionally, this is performed using a blind (landmark-guided) technique, which is simple but may lack accuracy due to anatomical variations such as sub-compartmental septation.

Ultrasound-guided injection allows real-time visualization of tendon structures and may improve accuracy, medication delivery, and safety. However, current evidence remains inconsistent, particularly regarding functional outcomes.

This study aims to compare ultrasound-guided versus blind corticosteroid injections in terms of pain relief, functional outcomes using the Michigan Hand Outcomes Questionnaire (MHQ), and safety.

Method

This study was conducted as a single-blinded randomized controlled trial at Sultan Ahmad Shah Medical Centre, IIUM, between April 2024 and February 2026.

A total of 28 patients diagnosed with De Quervain's tenosynovitis were recruited and randomly allocated into two groups: ultrasound-guided injection and blind injection, with 14 patients in each group.

To maintain blinding, a sham ultrasound procedure was performed in the blind group. All injections were administered using a standardized mixture of dexamethasone, lidocaine, and sodium bicarbonate under aseptic conditions.

Pain was assessed using the Numeric Rating Scale, while functional outcomes were measured using the validated Malay version of the Michigan Hand Outcomes Questionnaire. Complications were also recorded. Assessments were conducted at baseline, as well as at 2, 6, and 12 weeks following injection.

Result & Discussion

Both ultrasound-guided and blind injection groups demonstrated significant improvement in pain and functional outcomes over time.

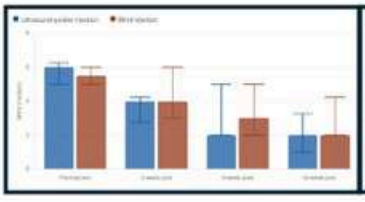

Table 1

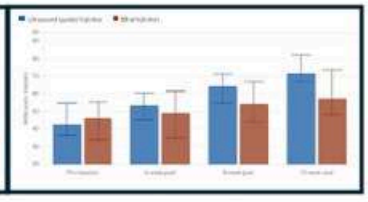

Table 2

Pain scores (Numeric Rating Scale) decreased significantly from baseline at all follow-up points in both groups (Table 1). However, there was no statistically significant difference between ultrasound-guided and blind injection at 2, 6, or 12 weeks, indicating that both techniques are equally effective for pain relief.

Functional outcomes, measured using the Michigan Hand Outcomes Questionnaire, were higher in the ultrasound-guided group at 12 weeks (Table 2). Although this difference was not statistically significant, it showed a trend towards better functional recovery with ultrasound guidance. This suggests that functional outcomes may be more sensitive than pain scores in detecting the benefits of improved injection accuracy.

Complication rates were low and comparable in both groups, indicating that both techniques are generally safe. Although previous studies suggest ultrasound guidance may reduce complications such as skin depigmentation and fat atrophy, this advantage was not observed in this study, possibly due to the small sample size.

The lack of statistically significant differences may be explained by the small sample size, low prevalence of anatomical variation such as sub-compartments, and the overall high effectiveness of corticosteroid injections regardless of technique. However, the trend towards improved functional outcomes with ultrasound guidance suggests a potential clinical benefit that may become significant in larger studies.

Clinically, blind injection remains an effective, practical, and resource-efficient option. Ultrasound-guided injection may be beneficial in selected cases, particularly in patients with suspected anatomical variation, persistent symptoms, or when optimizing functional recovery is important.

Conclusion

Both ultrasound-guided and blind corticosteroid injections are effective in reducing pain and improving hand function in patients with De Quervain's tenosynovitis. Although ultrasound guidance did not demonstrate statistically significant superiority, it showed a trend towards better functional outcomes.

This suggests that while routine use of ultrasound may not be necessary in all cases, it may provide additional benefit in selected patients. Further studies with larger sample sizes are required to confirm these findings and better define the role of ultrasound guidance in clinical practice.

MASM Conference 2026
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PATTERNS OF INJURIES AND ILLNESSES AMONG MALAYSIAN ATHLETES IN THE FISU WORLD UNIVERSITY GAMES 2025

Muhammad Harith Bin Rosdi, IIUM Sports Medicine Clinic (ISMEC)
Muhammad Kashani Bin Mohd Kamil, Sports Medicine Department (UM)
Arif Fikri bin Rahimi, IIUM Sports Medicine Clinic (ISMEC)

INTRODUCTION

Malaysia has consistently participated in international multisport events such as the World University Games (WUG), yet systematic data on injuries and illnesses among its athletes remains limited.

Previous local studies from the Asian Games 2014 and SEA Games 2017 have shown that musculoskeletal injuries, particularly muscle strains and ligament injuries, as well as respiratory illnesses, are the most common health problems affecting athletes. University athletes represent a unique group as they face dual demands from both academic and sporting commitments, which may increase their risk of injury and illness.

Despite this, there is still a lack of comprehensive data focusing specifically on Malaysian university athletes at international competitions.

Therefore, this study aimed to determine the incidence and patterns of injuries and illnesses among Malaysian athletes during the FISU World University Games 2025, from 16-27 July 2025 while providing baseline data to guide future prevention strategies and medical planning

RESULT & DISCUSSION

A total of 21 injury and illness cases were recorded among 64 athletes, with injuries accounting for 57.1% and illnesses 42.9%. The highest number of cases was observed in badminton, athletics, and taekwondo, suggesting that athletes involved in high-intensity and load-demanding sports are at greater risk (Figure 1).

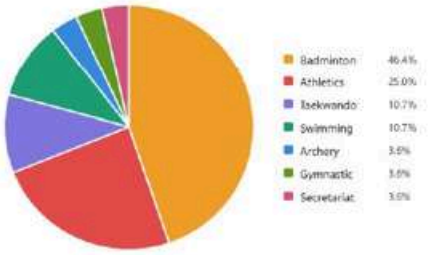


Figure 1

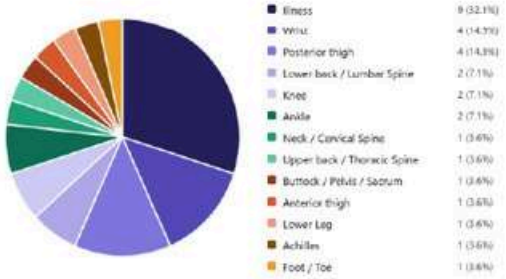
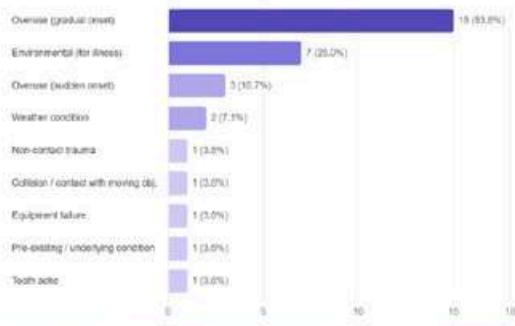


Figure 2



Graph 1

The most common presentations were illness-related, predominantly respiratory in nature (Figure 2), likely influenced by travel, environmental changes, and competition stress. Among musculoskeletal injuries, the wrist and posterior thigh were the most frequently affected regions, with muscle strains and cramps being the predominant injury types. Overuse was identified as the main mechanism, highlighting the cumulative effect of repetitive loading and inadequate recovery — findings that underscore the importance of training load monitoring and structured recovery strategies (Graph 1).

Most cases were mild and did not result in time-loss, suggesting a relatively low burden of severe injury overall. These patterns are consistent with previous Malaysian and international multisport studies, reinforcing that lower limb muscle injuries and respiratory illnesses remain the predominant health concerns in this setting.

METHOD

This study was designed as a prospective cross-sectional observational study conducted during the FISU World University Games 2025 in Germany over a 12-day period. All 64 Malaysian athletes participating in the Games were included as a complete cohort.

Data collection was carried out through daily surveillance by qualified medical personnel, including team physician and physiotherapist, using standardized injury and illness reporting forms to ensure consistency. Information recorded included the type and anatomical location of injuries or illnesses, mechanism of injury, severity based on time-loss, and the sport involved.

Data were submitted electronically throughout the competition period. Descriptive statistics were used to analyze the frequency and distribution of cases, and incidence rates were calculated per 100 athletes and per 1000 athlete-days

CONCLUSION

This study provides the first epidemiological overview of injuries and illnesses among Malaysian athletes at the World University Games. Muscle injuries involving the lower limb were the most common, with overuse identified as the primary mechanism. Respiratory illnesses were the most frequently reported health condition, and most cases were mild with no time-loss.

The findings are consistent with both local and international literature and provide valuable baseline data for future surveillance and injury prevention efforts. Continued monitoring and targeted preventive strategies are essential to optimize athlete health and performance in future competitions.

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Heads Up - Injury Profile of Youth Rugby Sevens: A Retrospective Analysis of the Miri National Rugby Development Program

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Introduction

Rugby Sevens is a fast-paced collision sport with increasing participation among youth athletes in Malaysia. Despite its growing popularity, local epidemiological data on injury patterns remain limited, particularly within grassroots and developmental tournaments. Injury surveillance is essential to inform evidence-based player welfare strategies, especially in high-risk contact events such as tackling and collision phases. Existing international literature suggests that concussion and soft tissue injuries are among the most common injuries in youth rugby, with female players potentially demonstrating a higher burden of head and neck injuries[1] The present study aimed to describe the injury profile of youth athletes competing in the Miri Hornbill NRDP 7s Rugby Youth Tournament, with emphasis on sex-specific injury patterns.

Method

A retrospective descriptive study was conducted during the Miri Hornbill NRDP 7s Rugby Youth Tournament held on 17–18 May 2025 in Sarawak, involving 300 youth players (228 males, 72 females) from 25 Malaysian clubs competing in the U17 and U20 categories. Injury data were collected from pitch-side and medical tent records and analyzed by sex using the **Exact Binomial Test** for total injury incidence and **Fisher's Exact Test** for injury type comparisons.

Discussion

Suspected concussion emerged as the most common injury in this youth rugby sevens cohort, with a proportionally higher burden among female athletes. This finding is consistent with current literature demonstrating a higher concussion incidence and head/neck injury burden in female youth rugby players, potentially related to differences in neck strength, tackle biomechanics, and symptom reporting injuries[2]. In contrast, male athletes sustained a higher incidence of soft tissue and external injuries, particularly contusions, joint/ligament sprains, and lacerations, suggesting a different injury pattern that may reflect greater collision exposure and contact intensity during match play. These findings reinforce the need for sex-specific injury prevention strategies, with particular emphasis on early sideline concussion recognition, tackle-technique coaching, and targeted neuromuscular and neck-strengthening programs to improve player safety at the grassroots level. [3]

Conclusion

The predominance of suspected concussion, particularly among female athletes, highlights the urgent need for sex-responsive injury prevention strategies in youth rugby. Targeted interventions including concussion protocols, lower tackle height coaching, and cervical strengthening programs should be prioritized to improve safety and reduce injury burden.

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Hip Apophysitis in a Young Elite Footballer Successfully Managed by Ultrasound- guided Platelet Rich Plasma Therapy: A Case Report

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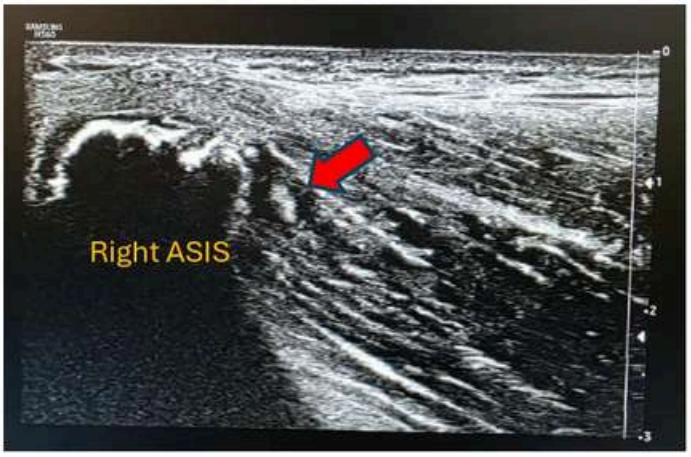
INTRODUCTION

Hip apophysitis is a common overuse traction injury seen among adolescent athletes due to repetitive strain on an unfused apophyseal growth plate. It is frequently observed in high-intensity sports requiring sprinting and kicking, such as football. Conservative management remains the mainstay of treatment; however, recovery may be prolonged in elite athletes. Platelet-rich plasma (PRP) therapy has emerged as a potential regenerative treatment option.

CASE SUMMARY

A 14- year-old elite footballer presented with a 2-month history of progressive right anterior hip pain exacerbated by sprinting and kicking, without a preceding history of trauma. Clinical examination revealed right anterior superior iliac spine (ASIS) tenderness with pain during hip abduction and flexion, and preserved muscle strength. Right hip ultrasound demonstrated an isolated right ASIS apophyseal avulsion without muscle tear, while pelvic x-ray excluded fracture. Right ASIS apophysitis diagnosis was made. The persistent symptoms despite 4 weeks of structured physiotherapy and activity modification prompted ultrasound-guided PRP injection to the affected apophyseal region. A structured post–procedure rehabilitation program emphasizing progressive loading and hip strengthening was implemented. Pain had completely resolved within 3 weeks. The athlete returned to unrestricted team training at 8 weeks and remained asymptomatic with a successful return to competitive play.



CONCLUSION

Ultrasound-guided PRP injection may be a safe and effective adjunct treatment for refractory hip apophysitis in young elite footballers, enabling a timely return to sport.

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Non-Invasive Transcutaneous Pulsed Radiofrequency for Pain Management in Severe Knee Osteoarthritis with High Bleeding Risk: A Case Report

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Introduction

• Knee osteoarthritis (OA) is a leading cause of chronic pain and disability in older adults.

• When conservative treatment fails, **intra-articular injections** are commonly used for symptom relief.

• However, patients with **severe thrombocytopenia** have a significantly increased risk **of hemarthrosis and bleeding complications**, making invasive procedures unsafe.

• **Transcutaneous pulsed radiofrequency (TCPRF)** is a non-invasive modality that delivers pulsed electromagnetic energy through the skin and may provide neuromodulatory analgesic effects without tissue penetration.

• This case explores TCPRF as **a potential pain management alternative in patients where conventional invasive options are contraindicated.**

Method

• Patient = 68-year-old female with **10-year history of bilateral knee pain** (PS 9/10). Wheelchair dependent with comorbidities of Systemic lupus erythematosus (SLE), Antiphospholipid syndrome (APLS), and **severe thrombocytopenia** (platelets 23–48 ×10⁹/L)

• Imaging = X ray shows **bilateral knee OA (Grade 4)**

• Intervention = **Transcutaneous pulsed radiofrequency (TCPRF)** using Spring2 device, **3 sessions, 5–7 days apart, 15 min/session**, amplitude **1.4 A**. Electrodes placed **medial and lateral knee**

Fig 1: Knee OA (KL grade 4)

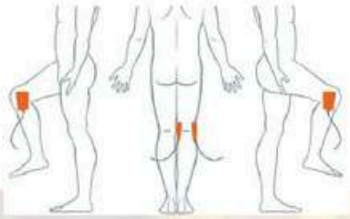

Fig 2: TCPRF placement

Result

• **Pain during exacerbations:** 9 → 5

• **KOOS score**: 51 → 56

• **No bleeding or skin complications observed**

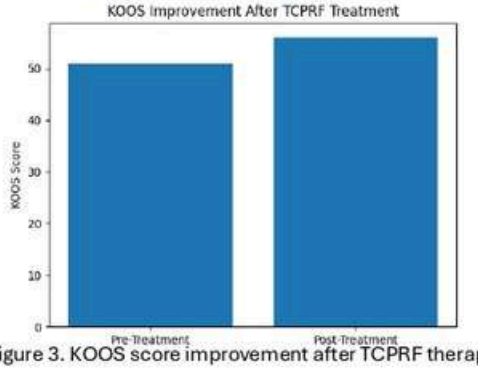

Figure 3. KOOS score improvement after TCPRF therapy

Discussion

• Management of severe knee OA is challenging in patients with **severe thrombocytopenia**, as invasive intra-articular procedures carry significant bleeding risk.

• TCPRF delivers pulsed electromagnetic energy **transcutaneously**, providing neuromodulatory analgesic effects without needle penetration.

• This modality may represent **a safe alternative for patients with contraindications to invasive procedures.**

Conclusion

• TCPRF may represent a **safe non-invasive adjunct for pain management in patients with severe knee OA and high bleeding risk.**

• In this case, treatment resulted in **modest functional improvement with no adverse bleeding events.**

• As this report describes a **single case,** conclusions regarding efficacy remain limited.

• **Further studies with larger cohorts are needed** to determine the clinical effectiveness and optimal treatment protocols for TCPRF in osteoarthritis.

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Combined PRP and PPP Hydrodissection for Insertional Achilles Tendon Pathology in an Elite Para Swimmer. A Case Report

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Background: Insertional Achilles tendon injuries in elite athletes may involve intratendinous structural damage and peritendinous interface dysfunction involving the paratenon-fat pad plane. Persistent symptoms can impair training and delay return to competition. While platelet-rich plasma (PRP) has been investigated for tendon healing, the role of platelet-poor plasma (PPP) in addressing peritendinous interface dysfunction during hydrodissection remains unclear.

Case Summary: A 28-year-old para swimmer with cerebral palsy affecting ipsilateral upper limb presented with recurrent left retrocalcaneal pain when pushing off the pool wall. Ultrasonography demonstrated insertional Achilles tendinopathy with a longitudinal partial tear and associated hypoechoic changes within Kager's fat pad. Symptoms persisted despite physiotherapy and analgesia. Ultrasound-guided PRP injection was performed intratendinously to support tendon healing, combined with PPP low-volume hydrodissection between the Achilles tendon and fat pad to restore the peritendinous interface while potentially modulating the local inflammatory microenvironment. A staged rehabilitation program with progressive tendon loading was implemented. Weekly follow-up ultrasonography demonstrated improvement in Kager's fat pad with resolution of sonopalpation tenderness. The athlete returned to swimming 2 weeks post intervention with NPRS improved from 7/10 to 4/10.

Discussion: This case presented with both intratendinous structural injury and peritendinous interface dysfunction at the tendon-fat pad plane contributing to persistent pain. PRP was used as a biologic adjunct to support tendon healing through growth factor-mediated tenocyte activity and matrix remodelling. PPP was selected primarily as an autologous medium for low-volume hydrodissection to mechanically restore the tendon-fat pad interface by releasing adhesions and improving gliding. Compared to high-volume, a lower volume approach allows more targeted interface release with less tissue disruption. PPP contains lower leukocyte concentrations and may reduce excessive inflammatory signalling, with emerging evidence suggesting potential modulation of the local inflammatory microenvironment. Delivering PRP intratendinously and PPP peritendinously reflects a compartment-specific strategy addressing distinct pathological components while minimizing interaction between injectates.

Limitations: This single-case report with short-term follow-up limits generalizability. The relative contribution of PRP versus PPP cannot be determined, and the biological role of PPP in remains incompletely defined, with current evidence largely experimental.

Conclusion: This case highlights a dual-target strategy addressing both intratendinous injury and peritendinous interface dysfunction. A compartment-specific approach using PRP for tendon healing and PPP hydrodissection for interface restoration may be considered in selected athletes with persistent insertional Achilles pathology. PPP derived from the same autologous preparation also allows efficient resource utilization while maintaining biological plausibility.

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SUDDEN-ONSET HIP PAIN IN A YOUTH FOOTBALLER: ASIS AND IC APOPHYSEAL AVULSION FRACTURES: A CASE REPORT

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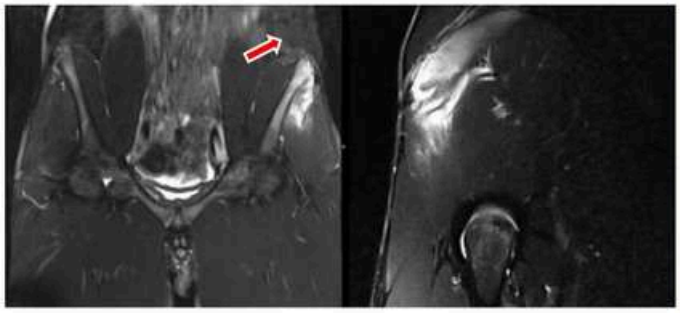
INTRODUCTION

- Pelvic apophyseal avulsion fractures are uncommon but may occur in adolescents in sports due to skeletal immaturity, making them prone to injuries from sudden eccentric muscle contractions.
- The common sites are the anterior superior iliac spine (ASIS), anterior inferior iliac spine (AIIS), and ischial tuberosity (IT), while iliac crest (IC) avulsions are very rare.
- Improper examinations or radiographs can lead to overlooked fractures, misdiagnosis, and poor treatment, increasing risks of displacement, non-union, and delayed return to sport.

CASE SUMMARY

A 14-year-old male national youth football player sustained a non-contact injury during a match while kicking with his right foot and abruptly rotating his trunk to the left. This movement resulted in sudden, intense pain in the left hip accompanied by an audible crack. Clinically, he presented with acute left hip and abdominal pain, with localized tenderness over the anterior iliac crest (IC) and anterior superior iliac spine (ASIS). Hip flexion was painful, although no muscle weakness was detected. The diagnosis was confirmed via imaging, including X-ray, bedside ultrasound, and MRI.



The patient was managed conservatively with an emphasis on protected healing and structured rehabilitation. Activity modification included strict avoidance of sprinting, heavy lifting, and kicking, while allowing light upper body training and full weight-bearing ambulation. Pharmacological management consisted of Celebrex (NSAID) for pain and inflammation, along with topical Reparil gel for one week. Physiotherapy was initiated in phases, beginning with pain modulation using phonophoresis and TENS, followed by progressive hip strengthening, flexibility, and core stability exercises.

By week 4, the patient reported complete resolution of hip and abdominal pain, with full and painless range of motion, allowing progression to light non-contact training.

At week 8, imaging confirmed bone healing, and the patient demonstrated painless resisted hip movements with full

CONCLUSION

In conclusion, timely diagnosis and proper treatment of apophyseal avulsion fractures are crucial to prevent chronic pain, ensure recovery, and protect young athletes' careers.

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One-Third of Healthcare Workers Report Low Physical Activity. Should We Lead by Example?

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Introduction

Physical activity is defined as any body movement by the skeletal muscles that causes energy expenditure. Physical inactivity has been linked to the occurrence of non-communicable diseases. Healthcare workers are expected to be knowledgeable about healthy lifestyle as they can play a major role in educating and increasing public awareness on consequences of physical inactivity. This study aimed to determine the level of physical activity among the healthcare workers in Hospital Seberang Jaya, Penang.

Method

A cross-sectional study was conducted among 103 healthcare workers recruited via convenience sampling from the clinical and non-clinical departments. Physical activity levels were assessed using the International Physical Activity Questionnaire - Short Form (IPAQ-SF). Collected data was then analyzed with R software.

Discussion

The mean age of participants was 37.7 years and majority were female (71.8%) with tertiary education. Participants were evenly distributed across different work schedules (office hours, shift works and on-call duties). More than one third (35.9%) of the respondent reported low physical activity with a median of 1,062.0 MET minutes/week. Reported sitting time ranged from 45 minutes among the assistant medical officers to 300 minutes among the administrative staff. A hospital-based intervention such as active breaks for administrative staff may reduce the sitting time. Regular education session on physical activities among the hospital staff might also hep to improve their knowledge and daily habits.

Table 1. Sociodemographic Characteristics of Healthcare Workers

Characteristic	N = 103[1]
Age	37.7 (7.70)
Gender	
Male	29 (28.8%)
Female	74 (71.8%)
Ethnicity	
Malay	59 (57.3%)
Chinese	29 (28.2%)
Indian	12 (11.7%)
Others	3 (2.9%)
Education	
Secondary	3 (2.9%)
Certificate	4 (3.9%)
Diploma	35 (34.0%)
Degree	44 (42.7%)
Master	17 (16.5%)

[1] Mean (SD); n (%)

Characteristic	N = 103[1]
Occupation	
Doctors & Dentist	31 (30.1%)
Nurses	23 (22.3%)
Assistant Medical Officers	13 (12.6%)
Allied Health Professionals	23(22.3%)
Admin & Support Staff	13 (12.6%)
Work Arrangement	
Standard Office Hours	34 (33.0%)
Shift Works	29 (28.2%)
Office Hours with On-Calls	40 (38.8%)

[1] Mean (SD); n (%)

Table 2. Physical Activity Profiles by Occupational Groups

Characteristic	Overall	Doctor & Dentist	Nurses	Assistant Medical Officer	Allied Health Professional	Admin & Support Staff
	N=103	N=31	N=23	N=13	N=23	N=13
Sitting time (min/day)	120	150	90	45	190	300
Total physical activity (MET-min/week)	1062.0	990.0	777.0	1165.5	837.5	2167.5
Physical activity level (N)						
Low	37 (35.9%)	11	9	4	9	4
Moderate	37 (35.9%)	15	5	6	9	2
High	29 (28.2%)	5	9	3	5	7

Conclusion

This study highlights that a considerable proportion of healthcare workers reported low levels of physical activity. Workplace factors such as work schedules and prolonged sitting time may contribute to reduce in physical activity.

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ActFiT: Changes in Physical Activity Before and During Fertility Treatment

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[3] EGA Institute for Women's Health, Faculty of Population Health Sciences, University College London (UCL), London

Introduction

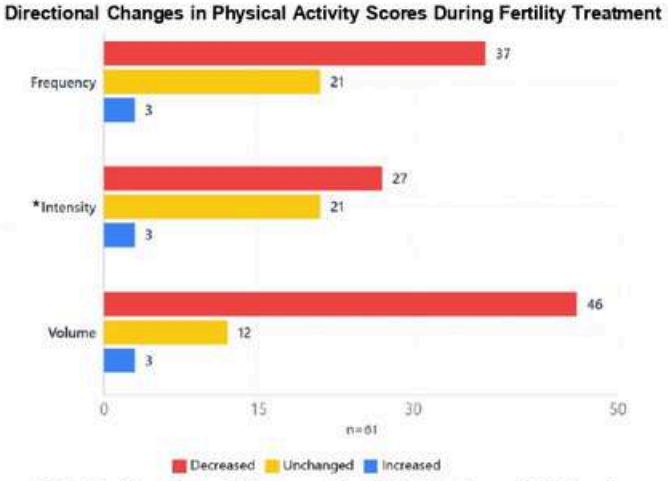
Infertility affects approximately one in six people worldwide and increasing numbers of women are seeking fertility treatment[1] (FT). Physical activity (PA) is known to influence overall health and may also affect reproductive health and fertility outcomes[2]. Despite this, there is limited evidence regarding safe or appropriate levels of PA during FT, and data describing how PA patterns change during treatment remain scarce. This study, conducted among women undergoing FT in the UK, where utilisation of FT continues to rise, aimed to examine changes in PA levels before and during treatment.

Methods

An online questionnaire developed by subject experts and subjected to face validation was used to assess PA levels before and during FT. Participants were recruited via social media postings; inclusion criteria were women who had received FT in the UK within the past 12 months, and those with systemic illnesses were excluded. PA frequency and intensity were measured using Likert-scale responses with 'perceived breathlessness' as proxy for RPE. Data were collected retrospectively. Changes in PA between time points were analysed using non-parametric tests following assessment of data distribution.

Results

Data from 61 women were analysed. Median scores for frequency and intensity of PA were unchanged; however, Wilcoxon signed-rank tests indicated a significant shift towards lower scores during FT for both ($p<0.001$). Median score for PA volume reduced from 9 (pre-FT) to 1 (during FT), alongside reduced engagement in moderate-to-vigorous PA ($p<0.001$).



Note: For Intensity, n=51 because 10 participants stopped PA altogether

Discussion & Conclusion

Baseline PA levels were high pre-FT, with most participants engaging in moderate-to-high intensity activity several days per week and decreasing significantly during FT. Recruitment via PA advocacy social media pages may have introduced selection bias towards more active individuals, limiting generalisability. Additionally, the retrospective design introduces recall bias, mitigated by restricting inclusion to women within 12 months of FT.

Overall, significant changes in PA behaviours were observed during FT. These findings highlight the need for clearer, evidence-based exercise guidance to support safe and appropriate physical activity during treatment.

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Perineural Injection Therapy for Chronic Anterior Knee Pain: A Case Report of Infrapatellar Branch of Saphenous Nerve Neuropathy

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Introduction

Anterior knee pain is a common chronic musculoskeletal complaint encountered in sports medicine and clinical practice. neuropathic causes of anterior knee pain are often overlooked despite their potential to cause persistent symptoms and functional impairment.

One such neuropathic cause is injury or irritation of the infrapatellar branch of the saphenous nerve (IPBSN). Patients typically present with localized pain, paresthesia, burning sensation, or hypersensitivity over the infrapatellar region. Because the nerve is small and purely sensory, nerve conduction studies often fail to detect abnormalities, making clinical diagnosis challenging.

Perineural injection therapy (PIT) has recently gained attention as a potential treatment for neuropathic pain conditions. It involves the injection of dilute dextrose solution around peripheral nerves to reduce neurogenic inflammation and peripheral nerve sensitization.

We present a case of chronic anterior knee pain in a young lady caused by IPBSN neuropathy that responded favorably to perineural injection therapy after failure of conservative treatment

Case Presentation

A 33-year-old woman presented with months of persistent right anterior knee pain and marked hypersensitivity following a netball injury. The pain, localized to the infrapatellar region and radiating anterolaterally (Figure 1), significantly hindered daily activities.

Clinical examination revealed tenderness, allodynia, and a positive Tinel-like sign over the infrapatellar branch of the saphenous nerve (IPBSN).

Early MRI showed a medial meniscocapsular injury, though nerve conduction studies were normal. A diagnostic local anesthetic injection confirmed IPBSN neuropathy by providing temporary relief.

The patient subsequently received six weekly sessions of Perineural Injection Therapy (PIT) using 5% buffered dextrose via shallow subcutaneous injections. Post-intervention VAS scores and functional assessments demonstrated progressive improvement, significant reduction in hypersensitivity, and no adverse effects.

Discussion

IPBSN neuropathy is an underdiagnosed cause of chronic anterior knee pain. Patients often present with localized pain and hypersensitivity over the anteromedial knee with a positive Tinel-like sign over the course of the IPBSN nerve.

Imaging studies are usually performed to exclude other structural causes of knee pain. Normal nerve conduction study does not exclude the diagnosis as the nerve is difficult to evaluate with conventional nerve conduction techniques.

Diagnostic local anesthetic block is considered a useful tool for confirming IPBSN neuropathy and strongly suggests that the nerve is the source of pain.

Treatment options include physiotherapy, activity modification, and pharmacological therapy for neuropathic pain. In refractory cases, interventions such as nerve blocks, cryoneuroablation, radiofrequency ablation, or surgical neurectomy have been described.

PIT represents a relatively newer approach to treat neuropathic pain. The technique typically involves injecting dilute dextrose solution around the affected nerve. The proposed mechanism includes modulation of neurogenic inflammation and reduction of peripheral nerve sensitization. Dextrose also may influence transient receptor potential vanilloid (TRPV1) channels and other pathways involved in chronic neuropathic pain

In this case, the patient demonstrated substantial improvement in pain, hypersensitivity, and daily function following ultrasound-guided PIT after conservative treatments had failed. The procedure was well tolerated and did not result in any complications.

Conclusion

This case highlights the importance of considering peripheral nerve pathology in patients with chronic anterior knee pain. IPBSN neuropathy should be considered in patients presenting with chronic anterior knee pain and hypersensitivity. Diagnosis relies heavily on clinical examination and supported by diagnostic local anesthetic injection. Dextrose PIT represent a safe and effective treatment option for patients with a chronic neuropathic anterior knee pain.

Figure 1: Pain and hypersensitivity area over the right knee. Yellow arrows point the area where PIT given via a shallow subcutaneous injection.

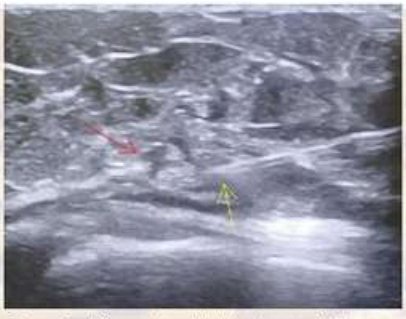

Figure 2: Ultrasound guided local anaesthetic diagnostic test with a needle (yellow arrow) over the infrapatellar branch of the saphenous nerve (red arrow).

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SHORT-TERM EFFECTS OF GOAL-SETTING AND OPEN MONITORING IN A PEDOMETER USAGE ON STEP COUNTS AND FUNDAMENTAL MOTOR SKILLS AMONG MALAYSIAN ADOLESCENTS

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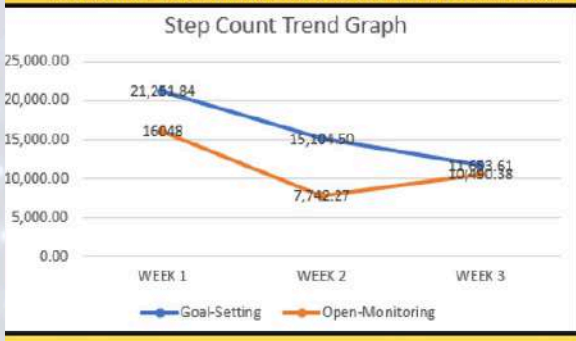
INTRODUCTION

- Most Malaysian adolescents do not meet recommended physical activity (PA) levels, affecting health and fundamental movement skills (FMS) [1]. Pedometers with goal-setting or open monitoring may help increase activity, but their effects on FMS are unclear [3,4].
- This study compares these two strategies to examine short-term impacts on step counts and FMS.

METHODS	DETAILS
Design	3-week experimental intervention
Participants	n = 60 adolescents (16-17 years old)
Groups	• Goal-Setting (≥12,000 steps/day) • Open Monitoring (no step target)
Outcome Measures	• Step counts • Time-Based FMS Test (Hurdles, Skipping, Bouncing, Throw-Catch, Kick-Stop)
Data Analysis	• Mixed ANOVA • Pearson correlation

RESULTS

Descriptive Findings
Goal-setting group showed higher step counts in early weeks, with a declining trend across time in both groups

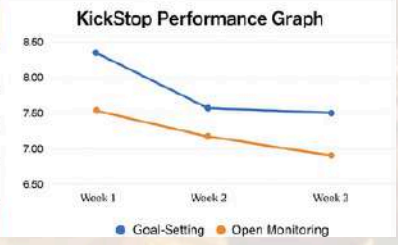


Correlation Findings
Higher step counts were linked to better performance in some FMS tasks and lower BMI and hip circumference

Variable	Step Count
R-value (*P<0.05 / **P<0.01)	
Anthropometry	
Body Weight (kg)	-0.16
BMI	-0.26*
Waist Circumference	-2.3
Hip Circumference	-2.80*
Fundamental Motor Skills (FMS)	
Hurdles	-0.36**
Skipping	-0.26*
Bouncing	-0.33**
Throw & catch	-0.23
Kick & stop	0.02

Mixed-Anova Findings
Within-Group:
Both groups improved significantly over time in all FMS tasks ($p < 0.001$).
Between-Group (Time × Group Interaction):
A significant interaction was found for Kick-Stop ($p = 0.001$), with the Goal-Setting group improving more than the Open Monitoring group.

Motor Skill	Time Effect F (1,58)	p	Group Effect F (1,58)	p
Hurdles	46.66	< 0.001**	1.02	0.32
Skipping	28.18	< 0.001**	2.54	0.12
Bouncing	62.91	< 0.001**	2.63	0.11
ThrowCatch	40.96	< 0.001**	1.25	0.27
KickStop	24.1	< 0.001**	12.09	0.001*



CONCLUSION

Both groups improved in all FMS tasks, with the Goal-Setting group showing higher early step counts and greater improvement in Kick-Stop. Higher step counts were also linked to better some FMS performance and lower BMI and hip circumference.

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Adolescent Gouty Arthritis Masquerading as a Meniscal Tear in a 17-Year-Old: A Case Report

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Introduction

Gout is an inflammatory arthritis caused by deposition of monosodium urate (MSU) crystals in joints and periarticular tissues due to disordered purine metabolism. Although increasingly common in adults, it remains rare in pediatric and adolescent populations, often leading to delayed or missed diagnosis. In younger patients, joint pain is more frequently attributed to trauma, overuse, or juvenile idiopathic arthritis, resulting in gout being overlooked in the initial differential diagnosis [1].

Case Report

A 17-year-old male presented with a five-month history of progressive right knee pain, initially developing insidiously during jogging. He denied trauma and was not regularly involved in sports. The pain initially resolved but recurred three months later with greater severity and significant swelling, leading to impaired ambulation and regular analgesic use. Orthopedic evaluation suggested a meniscal injury, and MRI demonstrated meniscal tears with associated sprains of the popliteofibular and fibular collateral ligaments. He was referred to our Sports Medicine Clinic for conservative management. However, on further detailed history, the clinical picture was atypical for a purely mechanical injury, and pain disproportionate to activity level, thus blood investigation was taken. It revealed hyperuricemia (serum uric acid 524 µmol/L), however connective tissue disease markers were negative. Due to the mismatch between clinical findings and imaging, ultrasound-guided arthrocentesis was performed. Synovial fluid analysis showed negatively birefringent monosodium urate crystals, confirming gouty arthritis. Initiation of colchicine resulted in rapid symptom resolution and cessation of analgesic use.

Discussion

The presentation was atypical, closely resembling internal derangement of the knee. Gout is well recognized as a clinical mimicker, with tophaceous deposits capable of producing mechanical symptoms such as pseudo-locking, which can be indistinguishable from meniscal pathology [2]. This diagnostic challenge was compounded by MRI findings demonstrating meniscal and ligamentous injuries. MSU crystal deposition may appear on MRI as low-signal or ill-defined “sketch-like” lesions, which can be misinterpreted as structural damage [3]. A key clinical indicator was the discordance between imaging findings and the severity of pain, which was disproportionate to the patient’s activity level.

The markedly elevated serum uric acid level (524 µmol/L) further supported an underlying metabolic cause. In adolescents, baseline uric acid levels are generally lower than in adults, making such elevation particularly significant [1,4]. Definitive diagnosis was achieved through ultrasound-guided joint aspiration, the gold standard, with identification of negatively birefringent MSU crystals [1,2]. Rapid clinical improvement following colchicine therapy further confirmed the diagnosis of crystal-induced arthritis [4].

Conclusion

Gout may mimic meniscal injury and present with mechanical symptoms, even in adolescents. It emphasizes the importance of correlating imaging findings with clinical history, as reliance on MRI alone may lead to misdiagnosis and delayed in management. Despite its rarity in pediatric populations, maintaining a high index of suspicion is crucial to prevent diagnostic delays, avoid unwarranted procedures, and ensure timely initiation of appropriate medical management for this treatable condition

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Perineural Injection Therapy for Neurogenic Inflammation in Complex Regional Pain Syndrome : A Case Report of Chronic Foot Pain

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Introduction

- Complex Regional Pain Syndrome (CRPS) is a chronic pain disorder characterized by pain disproportionate to the inciting event, accompanied by sensory, vasomotor, sudomotor and motor disturbances.
- Its pathophysiology involves peripheral sensitization, neurogenic inflammation and autonomic dysregulation, leading to persistent pain and functional impairment.
- Diagnosis is clinical, based on the *Budapest Criteria*. Management is often challenging and requires a multidisciplinary approach.
- Perineural Injection Therapy (PIT) has emerged as a minimally invasive treatment, targeting neurogenic inflammation via injections around sensitized peripheral nerves.

Case Summary

- A 46-year-old lady presented with right foot pain following trauma after striking the foot against a steel object. Injury was initially managed as a soft tissue injury. Patient developed persistent pain, edema and decrease ankle range of motion despite analgesia.
- Clinical examination revealed hyperalgesia over the medial ankle and forefoot without instability. MRI demonstrated a grade I deltoid ligament injury with tibialis posterior and flexor hallucis longus tenosynovitis.
- Complex Regional Pain Syndrome (CRPS) was diagnosed at 1-year post-injury. Approximately 35–40 chronic constriction injury points were identified over the shin, calf, foot and ankle. She underwent 10 sessions of Perineural Injection Therapy (PIT), resulting in pain and swelling reduction with improved ambulation.

Results

Number of Visit	1	2	3	4	5	6	7	8	9	10
VAS (Pre)	8	9	8	6	6	4	4	3	4	3
VAS (Post)	4	6	4	2	2	2	1	1	2	1

Table 1: PIT intervals: 2-weekly (×2), 4-weekly (×2), then 3–4 monthly

Images 1: Mapping of CCI points Right Lower Limb

Image 2: Right Foot (15/11/2024)

Image 3: Right Foot (5/12/2025)

Conclusion

- Perineural Injection Therapy (PIT) demonstrated significant and sustained pain reduction in this CRPS case, with improvement from VAS 8 to 1 and enhanced functional recovery.
- This suggests that PIT may be an effective minimally invasive option targeting neurogenic inflammation, in addition to analgesia and physical therapy
- Identification of chronic constriction injury points allows more precise, targeted treatment and may improve outcomes in patients with persistent CRPS-related pain.

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Injury And Illness Surveillance Among Team Malaysia Athletes During 2025 ASEAN Para Games, Thailand

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Introduction: Injury and illness surveillance during major multi-sport events is essential for protecting athlete health and informing prevention strategies. While such systems are well established in events like the Paralympic Games, data on para-athletes in Southeast Asia—particularly among Malaysian contingents—remain limited. Malaysian para-athletes compete across diverse impairment categories and conditions, which may influence distinct injury and illness patterns. Understanding these patterns is important for guiding targeted prevention, optimising resource allocation, and improving medical support.

Objective: This study aims to address this gap by describing injury, illness, and healthcare utilization among Team Malaysia athletes during the 2025 ASEAN Para Games.

Methodology: A prospective surveillance review was conducted using medical encounter records documented by Team Malaysia physicians throughout the Games. Physiotherapy and sports massage encounters were analyzed separately to quantify overall healthcare utilization. Injuries were defined as new or recurring musculoskeletal or dermatological complaints requiring medical attention, while illnesses were defined as non-injury related conditions. Incidence rates were calculated relative to the total registered athlete population (n=238).

Chart A: Breakdown of healthcare services rendered

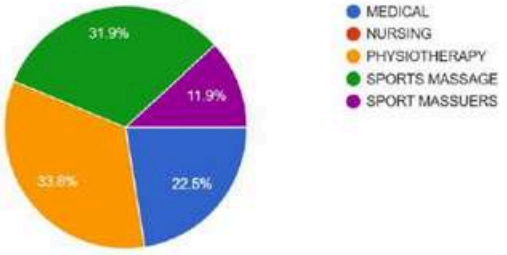
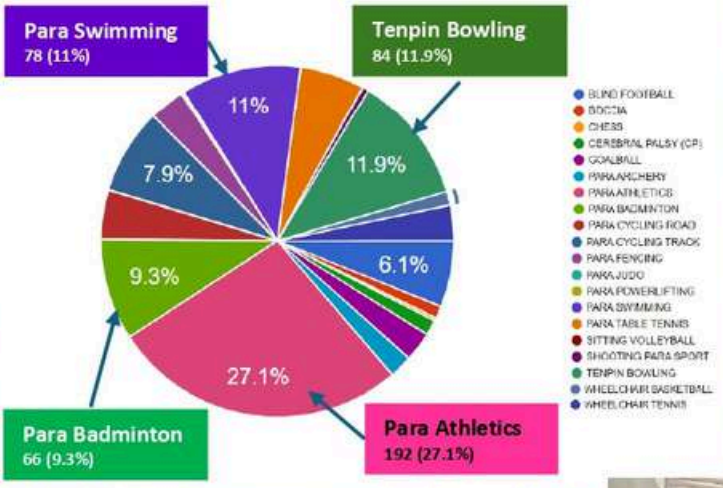


Chart B: Burden of overall healthcare utilization per sport



Results: A total of 159 physician-recorded medical encounters involving 137 athletes were analyzed. Eighty-seven injuries and 70 illnesses were documented, corresponding to an incidence of 36.6 injuries and 29.4 illnesses per 100 athletes. Muscle injuries accounted for the largest proportion (34.5%), followed by skin injuries (23.0%) and joint injuries (16.1%). Illness presentations were predominantly upper respiratory tract conditions. Overall, 57.6% of athletes required at least one physician consultation, reflecting substantial medical burden. Including physiotherapy (n=239) and sports massage (n=310), total healthcare encounters reached 708, equivalent to 297.5 encounters per 100 athletes. Sports with the highest number of medical encounters were Blind Football, Wheelchair Tennis, and Para Athletics.

Conclusion: Injuries and illnesses were common among Malaysian para-athletes, with substantial overall healthcare utilization during the Games. Continued surveillance is essential to guide targeted prevention strategies and optimize medical service planning for para-athletes in major multi-sport competitions.

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Heart of a Champion: Defying Sudden Cardiac Death – A Case of Safe Return to Sports After Second Percutaneous Coronary Intervention.

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Background

Return to sports after resuscitated sudden cardiac arrest (SCA) due to myocardial infarction remains a clinical challenge. We report a 60-year-old hockey player with underlying two-vessel disease, who successfully returned to sports following SCA.

Case summary

A 60-year-old male with stented two-vessel disease sustained SCA during a hockey tournament and was successfully resuscitated after 10 minutes of cardiopulmonary resuscitation (CPR) and one defibrillation shock. Admission electrocardiogram (ECG) and biomarkers confirmed a Non-ST Elevation Myocardial Infarction (NSTEMI) with peak Troponin-I: 18,658 ng/L. Echocardiography showed an LVEF of 45% with regional hypokinesis. Angiography revealed 70% mid-left anterior descending (mLAD) stenosis and total mid-right coronary artery (mRCA) in-stent restenosis.

He underwent percutaneous coronary intervention (PCI). Following recovery, he was able to perform daily activity and brisk walking; however, he aimed to return to sports.

Case summary (Continue)

An exercise stress test was performed nine months post-PCI to evaluate exercise tolerance. The test reached 13.4 METs with upsloping ST-segment depression at 140 bpm and appropriate haemodynamic responses. We then initiated a 6-week supervised cardiac rehabilitation program with a progressive exercise regimen guided by heart rate. Weeks 1–2 targeted 120–140 bpm, weeks 3–4 targeted 130–140 bpm, and weeks 5–6 targeted 140–150 bpm, with post-exercise troponin monitoring which remained within normal limits. Resistance training (50–70% of One Repetition Maximum) included bicep curls, leg presses, and hamstring curls.

Post-rehabilitation, LVEF normalized to 61%. Cardiopulmonary exercise testing (CPET) at 21 months demonstrated a VO2 max of 33.8 mL/kg/min, VE/VCO2 of 41, VE/VCO2 slope of 27.5, and O2 pulse of 15.3 mL/beat. Following a comprehensive clinical review, the patient was cleared to return to play.

Exercise Stress Test (Stage 3 with Ischaemic Threshold at HR 146 bpm)

Discussion

- The stress test was the initial safety screen to check for inducible ischemia or arrhythmias under physical load.
- Guidelines for athletes with coronary artery disease (CAD) specifically require a resting LVEF >50% for safe participation in high-intensity sports. Hence, repeating the echo was necessary post cardiac rehabilitation.
- CPET provided the most objective proof of patient's fitness showing a good VO2 max and ventilatory efficiency.

Conclusion

This case highlights that with anatomical revascularization, a progressive heart rate-guided regimen and objective functional assessment through echocardiography and CPET, athletes can return to play safely.

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Post-Traumatic Neurogenic Shoulder Pain in an Adolescent Successfully Treated with Perineural Injection Therapy: A Case Report

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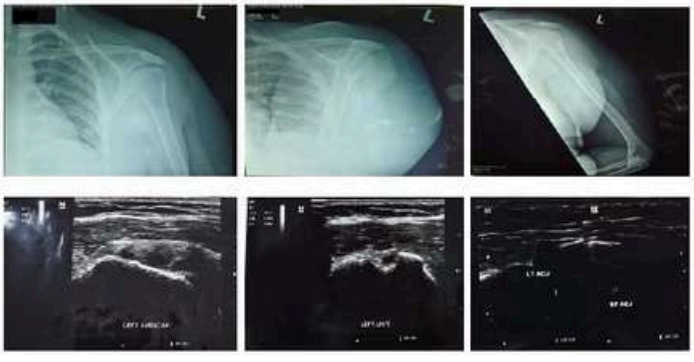
Background: Shoulder injuries in adolescents occur commonly during sports. Persistent pain and marked restriction of shoulder motion following trauma should prompt evaluation for structural pathology. However, pain-mediated neuromuscular inhibition and peripheral nerve impingement can contribute to significant functional limitation. Recognizing this condition can guide appropriate management.

Case Summary: We report a case of a 17 year-old girl who developed severe pain and marked restriction of left shoulder movement for two months after a tug-of-war game. She sought treatment twice at local clinics and was subsequently referred for further management. At presentation to the Sports Medicine clinic, her VAS score was 9. She had marked reduction of shoulder motion, with abduction and forward flexion of 30°. Her radiographic and ultrasound findings were unremarkable (Figures 1-6). Based on the clinical examination, she was suspected to have a SLAP lesion and was planned for MRI. Examination also revealed presence of multiple Valleix points[1], suggestive of concomitant peripheral nerve impingement. Thus, Perineural Injection Therapy (P.I.T.) targeting multiple peripheral nerves around the shoulder was performed, resulting in immediate restoration of shoulder range of motion and VAS of 3. At two weeks follow up, she had complete resolution of symptoms.

Method: Perineural Injection Therapy (P.I.T.) was done to the multiple Valleix points over left shoulder. Area of interest was cleaned and marked. 1ml - 3ml of Buffered Dextrose 5% solution was injected targeting the spinal accessory nerve, suprascapular nerve, musculocutaneous nerve, axillary nerve, radial nerve, and articular branches of the shoulder. Post procedure, immediate improvement (>50%) in pain and active range of motion was noticeable.



Figures 1-6: Normal radiographic and ultrasound findings.

Discussion: This case demonstrates severe post-traumatic functional limitation of the shoulder. The patient presented with marked restriction of active shoulder movement since the trauma 2 months ago, raising concern for significant mechanical pathology such as rotator cuff tear, labral injury or occult fracture.
However, both radiographic and ultrasonographic imaging were normal. The immediate restoration of shoulder motion following perineural injection therapy strongly suggests that the patient's symptoms were primarily due to pain-mediated neuromuscular inhibition and peripheral nerve sensitization. Traction forces experienced during tug-of-war activities may produce irritation of multiple peripheral nerves around the shoulder girdle. Neurogenic inflammation may subsequently lead to pain, guarding, and reflex inhibition of muscle activation.
P.I.T. has been increasingly used in the treatment of neurogenic pain and peripheral nerve sensitization. The technique involves subcutaneous injection of buffered 5% dextrose around sensitized nerves to reduce inflammation and modulate pain pathways. Proposed mechanisms include inhibition of neurogenic inflammatory mediators, modulation of TRPV1 receptors, and reduction of ectopic nerve firing.[2] Studies have demonstrated significant pain reduction and functional improvement in various neuropathic pain conditions following P.I.T.[3]

Conclusion: In patients with sudden onset persistent shoulder pain and limited range of motion, structural pathology should be suspected and excluded with further imaging as indicated.
However, presence of neurogenic inflammation should also be considered and identified. Targeted treatment with Perineural Injection Therapy may serve as a valuable therapeutic option and provide significant pain relief and facilitate early rehabilitation.
In this case, it resulted in complete symptom resolution, avoiding the need for further imaging.

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Transient Tachypnoea at Peak Exertion in an Adolescent Volleyball Athlete with Normal CPET: A Diagnostic Challenge

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Introduction

Exercise-induced dyspnoea in athletes is frequently attributed to exercise-induced bronchoconstriction (EIB), often leading to empirical treatment with bronchodilators. However, functional breathing disorders such as hyperventilation syndrome can mimic EIB, posing a diagnostic challenge. Cardiopulmonary exercise testing (CPET) plays a crucial role in distinguishing between these entities.

Case Summary

A 17-year-old female competitive volleyball athlete presented with recurrent breathlessness during high-intensity play, particularly during tournament. The symptoms were abrupt, short-lived, and resolved spontaneously without associated chest pain, wheeze, or syncope. Baseline examination and ECG were normal

During CPET (ramp protocol), she achieved a peak heart rate of 178 bpm (~85% of predicted). At peak exertion, she developed sudden tachypnoea without desaturation, requiring test termination. The symptoms resolved rapidly within seconds of rest. Notably, her coach reported identical transient episode during matches.

Spirometry was normal pre-exercise (FVC 3.34L, FEV1 3.08L, FEV1/FVC 91.9%), with minimal post-exercise decline (-9%), making EIB unlikely. CPET (15W ramp) demonstrated normal physiological response: 12:15min exercise duration with preserved exercise capacity (VO2max 34ml/kg/min), appropriate anaerobic threshold (~60%), adequate breathing reserve (28%), BP from 106/64 to 154/70 mmHg, RER 1.15 and normal oxygen pulse response.

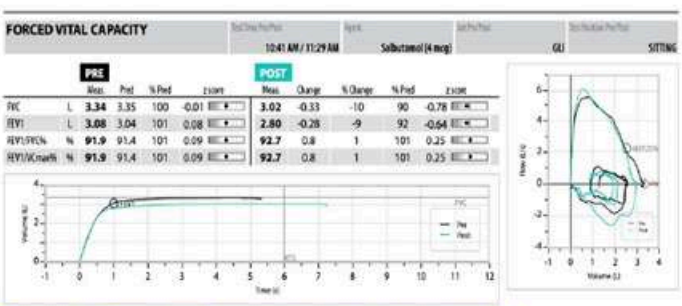

Figure 1: Normal spirometry pre- and post-exercise

Figure 2(QR) : Video recording of the patient exhibiting breathlessness during CPET

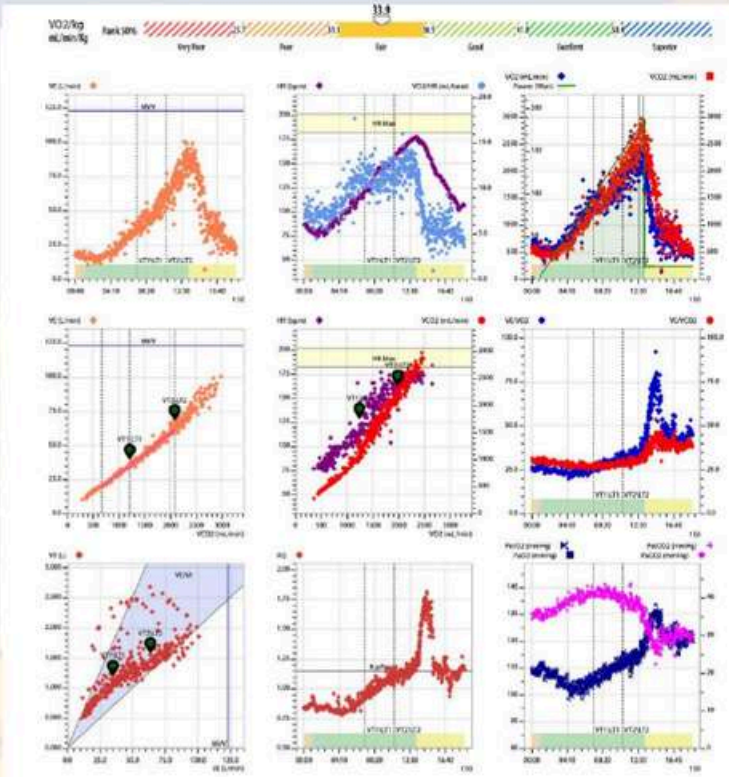

Figure 3: CPET showing normal aerobic capacity, appropriate ventilatory response, and no evidence of cardiopulmonary limitation

Conclusion

Despite exercise-induced symptoms, the absence of spirometric decline and normal CPET parameters argue strongly against EIB. The abrupt onset and rapid resolution of tachypnoea are more consistent with transient hyperventilation or anxiety-related episodes. This case highlights the importance of objective testing to avoid misdiagnosis and unnecessary pharmacotherapy. Early recognition enables targeted interventions such as breathing retraining and psychological strategies, optimizing athletic performance and confidence.

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RETURN-TO-PERFORMANCE CRITERIA FOLLOWING MUSCULOSKELETAL INJURY IN TEAM SPORTS: EVIDENCE AND STANDARDIZATION" : A SCOPING REVIEW

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INTRODUCTION

Return-to-performance (RTPe) following musculoskeletal injury in team sports remains poorly defined, with substantial heterogeneity in criteria used to determine athlete readiness. While return-to-sport (RTS) rates are frequently reported, the gap between RTS and return to pre-injury performance levels represents a significant clinical challenge. This scoping review aimed to map the evidence, identify domains of RTPe criteria, evaluate standardization levels, and synthesize key findings across team sports.

METHODS

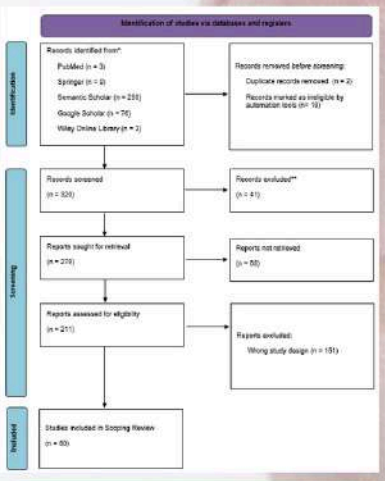

Figure 1. Article search flowchart

DISCUSSION

The findings reveal that current RTPe criteria are characterized by substantial heterogeneity, with a systematic disconnect between RTS and true performance restoration. The predictive validity paradox of generic functional tests—widely used but poorly predictive—reflects their inability to capture multi-directional, sport-specific demands. Psychological readiness operates as a gatekeeper independent of physical function, yet remains under-assessed. Multifactorial, criteria-based programs integrating physical, psychological, and sport-specific domains consistently outperform traditional approaches, reducing reinjury risk sixfold and achieving 2.5% graft rupture rates.

CONCLUSION

RTPe criteria require paradigm shift from time-based, generic functional testing toward multidimensional, sport-specific, psychologically-informed assessment. Standardization efforts should focus on core domain batteries while allowing sport-specific calibration. Clinical implementation should integrate psychological screening, qualitative movement analysis, and ecological performance metrics.

RESULTS

Injury Type	Number of Studies	Primary Sports Represented	Key RTPe Domains Assessed
ACL reconstruction	35	Soccer, basketball, American football, rugby	Hop tests, isokinetic strength, LSI ≥90%, psychological readiness (ACL-RSI), time-based criteria
Hamstring strain	7	Soccer, track & field, semi-professional football	GPS metrics, eccentric strength, running velocity, multifactorial criteria-based algorithms
Shoulder pathology (SLAP, labral, Latarjet)	5	Baseball, hockey, overhead sports	SIRSI, range of motion, throwing velocity, in-game performance metrics (ERA, WHIP)
UCL injury	3	Baseball (pitchers)	Time-based criteria (96.97%), elbow torque, return to pitching performance
Other injuries (Achilles, FAI, pubalgia, patellar tendinopathy, meniscus)	10	Basketball, baseball, soccer, volleyball	Sport-specific performance metrics, GPS, psychological readiness, functional movement screens

Table 1. Summary of Included Studies by Injury Type and Sport

Domain	Examples of Criteria	Frequency of Use (% of studies)	Key Finding
Physical/functional testing	Hop tests (single-leg, triple, crossover), LSI ≥90%, Y-balance, FMS	>85%	Widely used but poor predictive validity for reinjury or performance
Strength assessment	Isokinetic quadriceps/hamstring, isometric semi-squat, eccentric strength	~70%	Persistent deficits despite passing RTS; H:Q ratio HR=10.6 for reinjury
Sport-specific performance	GPS (soccer), PER (basketball), ERA/WHIP/WAR (baseball), fantasy scores	~73% (objective stats)	Most ecologically valid; scalable across sports
Psychological readiness	ACL-RSI, SIRSI, I-PRRS, TSK	<30%	Strongly associated with return to competition (OR=4.0); under-assessed
Time-based criteria	Minimum months post-surgery (e.g., 6–9 months ACLR, 6.5–16 months UCL)	~97% (UCL studies)	No reduction in reinjury despite longer timelines (e.g., +40% in soccer ACLR)

Table 2. Thematic Domains of RTPe Criteria and Level of Use

Rehabilitation Approach	Key Features	RTS Rate	Reinjury Rate	Performance Outcome	Time to RTS
Traditional time-based	Fixed timelines (e.g., 6–9 months), generic hop/strength tests	83–92%	~8–12% (ACLR)	53–80% return to pre-injury level	203–295 days (soccer ACLR)
Multifactorial criteria-based (e.g., Mendiguchia hamstring)	Progressive loading, running velocity targets, sport-specific drills	Similar or higher	6x reduction (RR=6)	Improved sprint performance	25.5 days (vs. 23.2 traditional)
ACL-SPORTS program	Neuromuscular control, movement quality, secondary prevention	95–100% at 1–2 years	2.5% graft rupture	Highest IKDC (95.9), KOOS (94.4), Marx (13.5)	Not accelerated but superior outcomes
On-field rehabilitation (On FIRE)	Early sport-specific drills, GPS monitoring, objective criteria	High	1 vs. 6 injuries (12 months)	Improved match-related physical metrics	23.8 days (vs. 30.3, p<0.001)
Club-based vs. hospital-guided	Sport-specific environment, early exposure to team activities	Higher	No increase	Higher Tegner (8.5 vs. 7.2), ACL-RSI (73.3 vs. 54.3)	Earlier

Table 3. Comparison of Rehabilitation Approaches and Outcomes

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"Achilles Heal": Treatment of Achilles Tendinopathy With Prolotherapy

Alubah M Hamzah[1], Lim Soo May[1]
[1]Orthopedic Department, Hospital Pendang, Pendang, Kedah

Introduction

Achilles tendinopathy is a painful inflammation of the Achilles tendon which attaches our superficial posterior leg muscles to the calcaneum. It is usually a chronic repetitive injury presented with heel pain, swelling and unable to weight bear. Its commonly managed with rest, analgesia and physiotherapy. This report is to evaluate treatment response of prolotherapy in Achilles tendinopathy.

Method

A 61 years old lady had been complaining of bilateral heel pain and swelling for past 2 month accompanied with inability to weight bear. Examination showed tenderness along Achilles tendon with limited range of motion due to pain. Ultrasound showed thickening of the distal left Achilles tendon associated with hypoechogenocities with loss of normal fibrillar pattern. Patient was injected with 1.5mL of 25% dextrose and lignocaine mixed in 1:1 ratio under ultrasound guidance at left Achilles tendon.

Discussion

Outcome showed sign of improvement with reduction in pain and improvement of range of motion at 2 weeks and 4 weeks of post injection. Patient was also able to perform partial weight bear ambulation with affected leg.

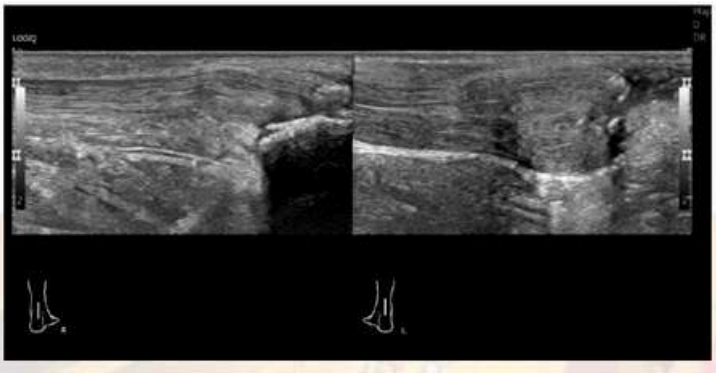

Figure 1: Ultrasonography image of patient Achilles tendon

Conclusion

Prolotherapy is regenerative injection technique that utilize small amounts of hyperosmolar dextrose to the affected or injured tendon or soft tissue. This is to induce the proliferation of new cells, regenerating healthy tissue which leads to improvement in symptoms and healing response. This report demonstrated that prolotherapy demonstrated excellent results for Achilles tendinopathy and able to aid in the recovery process.

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The Silent Shoulder: A Painless Mass Revealing Advanced Rotator Cuff Arthropathy

Loi Qi Jack[1], Mugilan Chandran[1], Ahmad Kamal Bin Abdul Manan [2] , Khairullina Khalid [2]
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Introduction

Shoulder swelling in elderly are often attributed to benign or overuse-related conditions. However, chronic, painless masses may conceal significant underlying pathology. Acromioclavicular (AC) joint cyst, particularly in association with massive rotator cuff tears and degenerative joint disease, are uncommon but clinically important entities in sports medicine.

Case Summary

A 62-year-old male retired army diver with no prior medical illness presented with a 3-year history of gradually enlarging left shoulder swelling. He denied pain, trauma, or constitutional symptoms and maintained good functional status without night pain.

Examination revealed a non tender, cystic and minimally mobile mass over the anterosuperior left shoulder. The patient demonstrated preserved full active range of motion of the shoulder in all planes, with normal strength grade 5/5 on the MRC scale across abduction, flexion and external/internal rotation. Rotator cuff-specific testing, including Jobe's(empty can) test, was negative, and there was no clinical evidence of impingement or instability, no lymphadenopathy was detected.

Figure 1: External clinical view of left shoulder pathology

Figure 1:Left shoulder X-ray

MRI demonstrated multiple interconnected cystic lesions in the supraclavicular region communicating with the AC joint, consistent with a type 2 AC joint cyst. There was a massive rotator cuff tear involving complete supraspinatus rupture with medial retraction, infraspinatus full-thickness tear, and extensive subscapularis involvement. Additionally, severe glenohumeral osteoarthritis and synovial chrondromatosis with multiple loose bodies. (Figure 3)

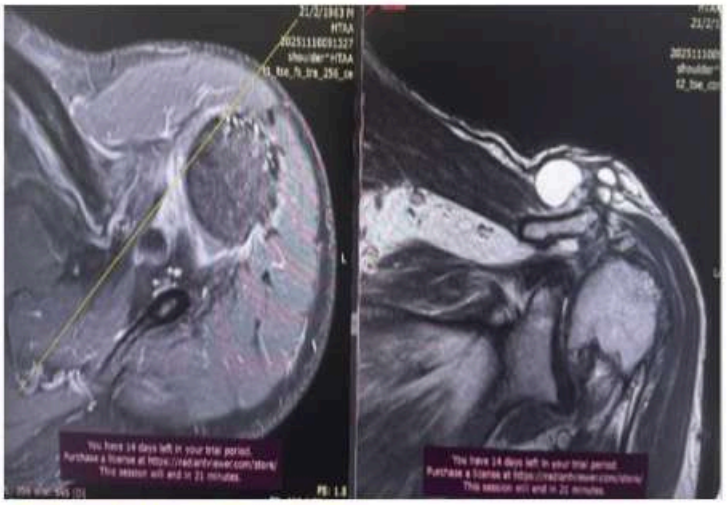

Figure 3: MRI left shoulder

Conclusion

This case highlights a mismatch between minimal symptom and advanced structural pathology in an active individual. AC joint cyst often indicate chronic rotator cuff insufficiency with superior humeral migration and synovial fluid tracking (geyser sign). In elderly population with repetitive overhead activity, clinicians should remain vigilant despite preserved function. Early imaging is essential for atypical swelling. Definitive management must address both the cyst and underlying pathology to reduce recurrence and avoid underestimating painless shoulder masses.

References:

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Level of Exercise Participation and Barriers Among People with Dementia in Klang Valley

Geetha B Anbalagan, University Malaya
Goh Siew Li, University Malaya
Terrence Ong Ing Wei, University Malaya
Rizal bin Mohd Razman, Univeristy Malaya

Introduction

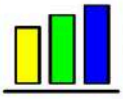
Current Issue:
- Low participation in exercise

Research Gap:
- Limited understanding
- Specific focus on the Malaysian context

Exercise!!
Planned, structured, repetitive physical exertion

Benefits:
Physical: Improved mobility & balance
Cognitive: Slower progression

Objectives:
- Determine exercise participation prevalence
- Identify barriers using B-PED questionnaire



Method

Study Type → Cross-sectional descriptive study

Sampling → Community-dwelling/ daycare centers

Participants

54 PWD

Data Collection
→ Tool: B-PED questionnaire
→ Language: English
→ Method: Face-to-face interviews
→ Assistance: Caregiver assistance if required

Discussion

Prevalence of Exercise Participation

Did not like exercising/exercises

Analysis of B-PED barrier domains

Supervised programs better

Preferred exercising in a group

Significant findings:
- Social isolation major barrier - removal from community environments

Conclusion

Low Prevalence of Exercise Participation:
- significant issue in promoting health and well-being within population.

Domain-Specific Barriers:
- unique factors affecting this group's exercise levels.

Support for Targeted Interventions:
- interventions tailored to the needs of this population can address identified barriers

Proposed Interventions:
- Group-Based Exercise Programs.
- Supervised Exercise Sessions.

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Repair, Retrain, Return: Rehabilitation Outcomes Following Open Proximal Hamstring Avulsion Repair

Jananee Sieadass, Arshad Puji, Muhammad Hafiz Daud, Jasmiza Khuzairi Jasme, Muhd Noorfaizalzrul Muhammad Azalai,
Arthroscopic Sports Injury Unit, Hospital Kuala Lumpur; National Sports Institute, Malaysia
jananee.sieadass@email.com

Introduction

Proximal hamstring avulsion injuries are uncommon and disabling in elite athletes. Surgical repair alone does not guarantee RTS Rehabilitation timelines and loading decisions remain poorly reported .

A 23 year old national level hockey goalkeeper. Mechanism of injury was jhip flexion with knee extension during game. MRI confirmed complete proximal hamstring avulsion (Type 5B) 4cm retraction Open surgical repair was done.

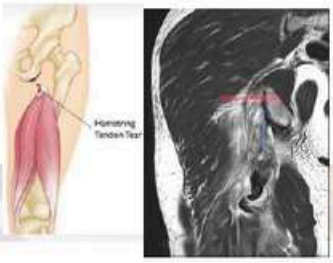

Image 1 and 2 shows anatomical site of avulsion and MRI of patient with hamstring avulsion retracted 4cm

Method :

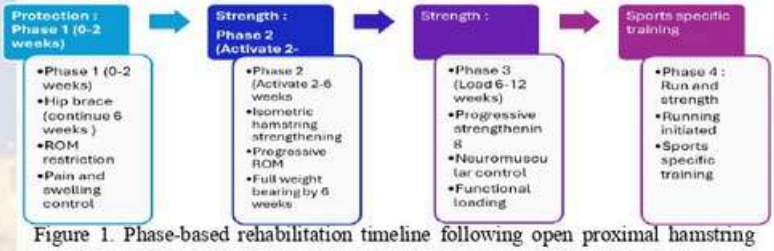

Figure 1. Phase-based rehabilitation timeline following open proximal hamstring avulsion repair,

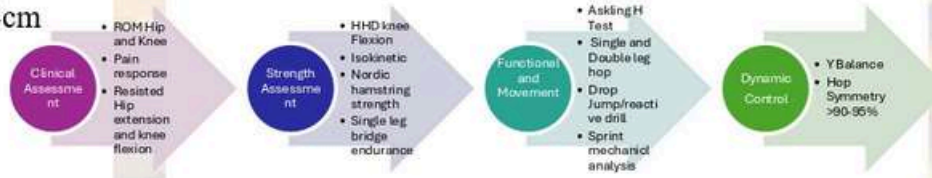

Figure 2 shoes RTP Testing Battery

Discussion

- Published protocol vary in bracing duration and hamstring activation timing (Birmingham & Muller, 2016; Subbu et al., 2015; van der Made et al., 2015).
- Most protocols emphasise **early protection**, restricted hip flexion, delayed hamstring loading, and gradual progression toward strengthening and functional retraining (Birmingham & Muller, 2016).
- This case :
  - ➢ **Prolonged brace (6 weeks) for high grade injury (Blakeney & Zilko, 2018)**
  - ➢ **Early isometric activation at 2 weeks**
  - ➢ **Criterion based progression (Pain, ROM, Function)**
- RTP achieved at 4 months matching literature timelines. (Bodendorfer et.al, 2018; Shamburg et al.,2017)

Image 3 shows patient on hip brace for protection

Return-to-Sport Criteria Achieved
Checklist:

- •✓ Full, pain-free hip and knee ROM
- •✓ Pain-free resisted hip extension and knee flexion
- •✓ Objective hamstring strength (isokinetic, Nordic, Askling H-test)
- •✓ Running without symptom exacerbation
- •✓ Minimal residual sensory symptoms

Conclusion

Individualized, criterion guided rehabilitation combining prolonged protection and early activation. It supported the objective strength recovery and safe RTP by 4 month in an elite hockey goalkeeper after high grade proximal hamstring avulsion repair.

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Bodendorfer, B. M., Curley, A. J., Kotler, J. A., et al. (2018). Outcomes after operative repair of proximal hamstring avulsions. *American Journal of Sports Medicine, 46*(11), 2735–2743.

ABSTRACTS

Oral Presentation

1.	Dr. Rosdara Masayuni Binti Mohd Sani	Diversity of Sports Psychology Approaches in Improving Performance Skills Among Tennis Players
2.	Dr. Izwar Bin Indra	The Protective Role of Physical Activity against Depression in Healthcare Workers
3.	Raihana Sharir	The Influence of Fatigue on Landing Biomechanics Associated with ACL Injury Risk in Female Athletes
4.	Saranya Navaratnarajah	Acute Effects of a Badminton Specific Neuromuscular Warmup Compared with Jogging on Balance, Ankle Kinematics and Muscle Activation
5.	Geik Yong Ang	Change-of-direction Deficit & Dribble Deficit as Independent Measures to Reflect Physical & Technical Tax in Malaysian Semi-professional Footballers
6.	Shi Qiu	Hip-Knee Temporal Coordination in Unilateral Knee Osteoarthritis: A Pilot Study
7.	Dr. Alston Choong	Advancing Mental Health Support for Elite Athletes in Southeast Asia: A Scoping Review of Frameworks, Screening Tools and Culturally Adapted Interventions
8.	Nurul Hidayah Amir	Does intensity matter? Vigorous physical activity predicts exercise capacity and quality of life in adolescents with congenital heart disease.
9.	Dr. Mohamad Azwan Aziz	Clinical Outcomes of a Novel Single-Stage Cartilage Repair Technique Using Calcified Cartilage Zone Debridement with Hyalofast

ABSTRACTS

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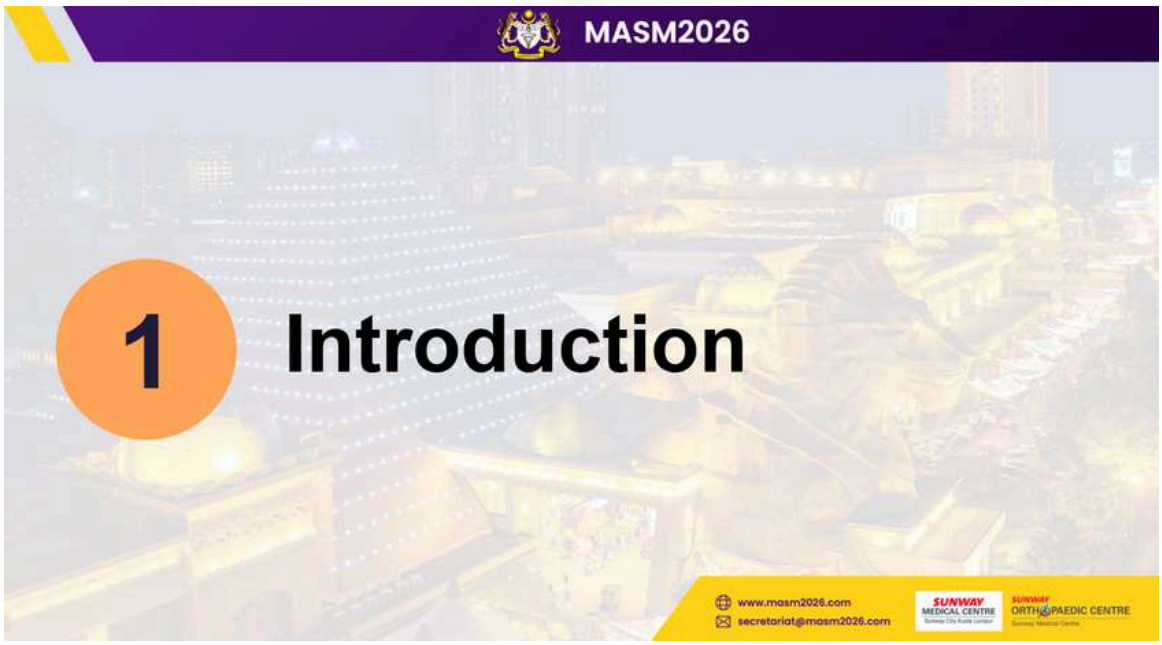
DIVERSITY OF SPORTS PSYCHOLOGY APPROACHES IN IMPROVING SKILLS PERFORMANCE AMONG TENNIS PLAYERS

Dr. Rosdara Masayuni Binti Mohd Sani, Dr Fabian Sunil Dass, Claire Ling En Hon, Luqman Nul Hakeem Bin Abdul Rahim



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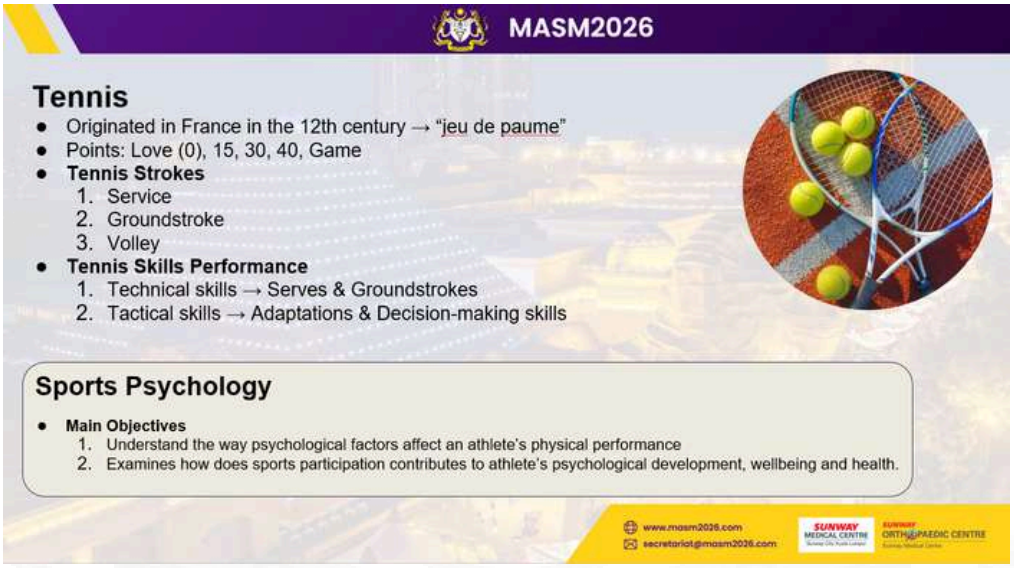

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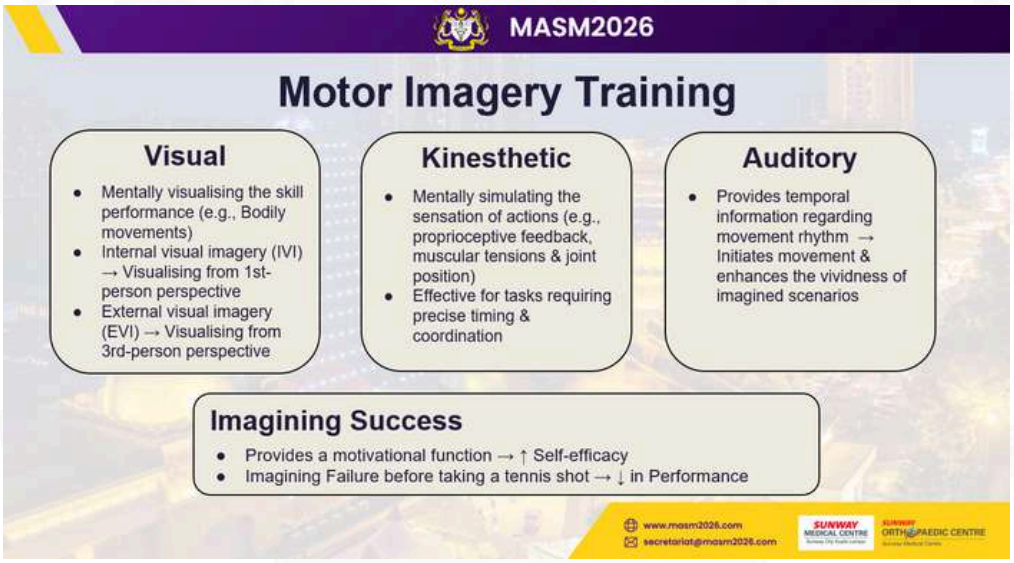

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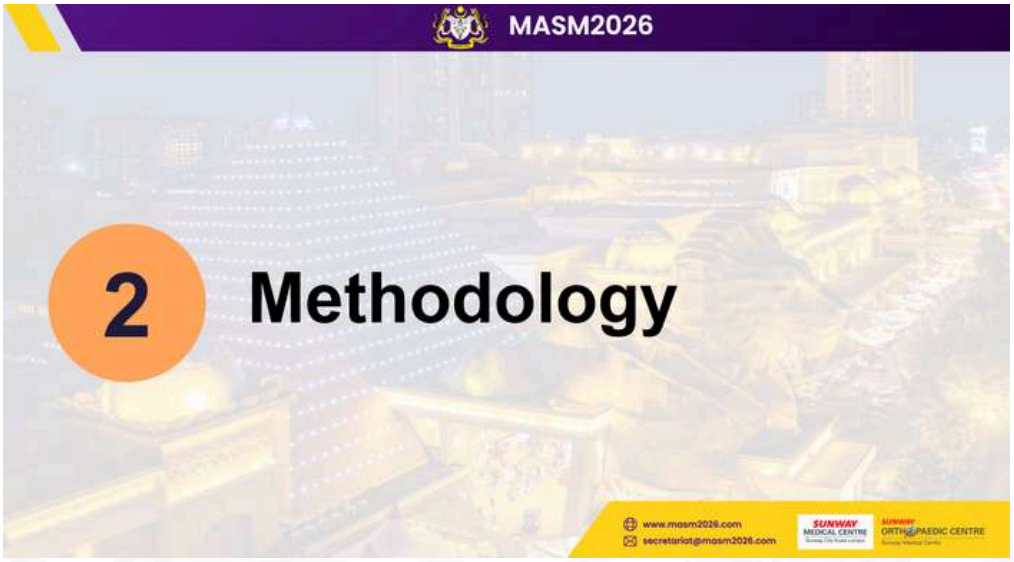

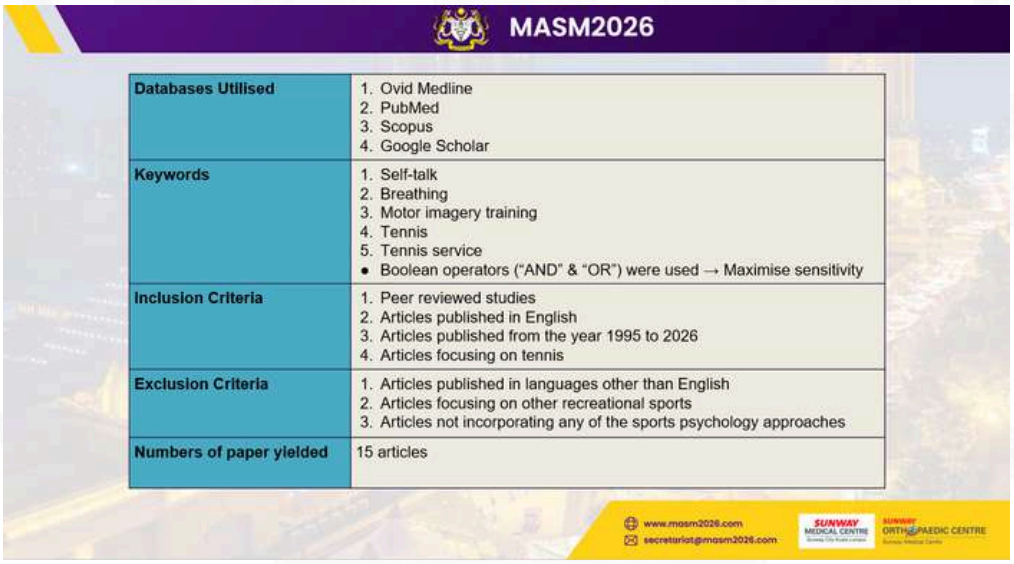

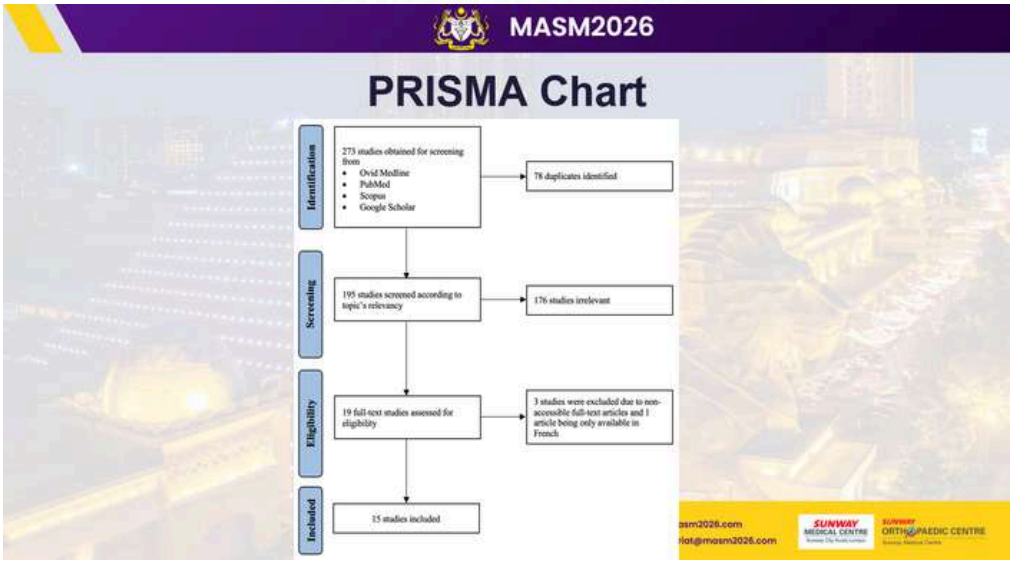

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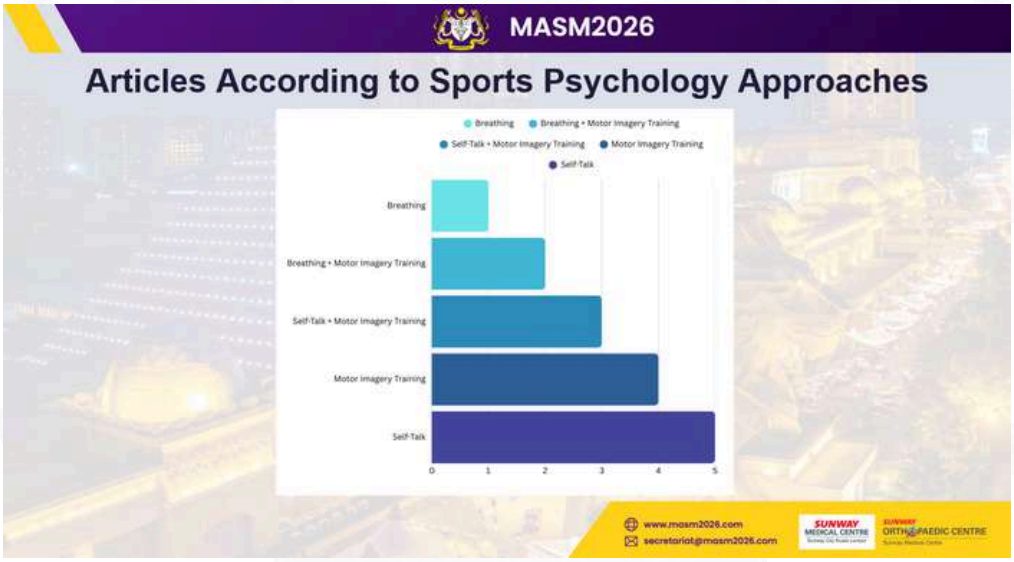

Study Title	Methodology	Results
Beneficial Effects of **Motor Imagery** and **Self-Talk** on Service Performance in Skilled Tennis Players	12-week study → 33 skilled tennis players **Control Group (CG)** • No additional information **MI Group (MIG)** • Perform MI using an external visual modality before each serve **MI + Self-Talk Group (MISTG)** • Perform motivational self-talk + MI before each serve	**Service Percentage of Success** • MIG & MISTG → Significant improvement ($p<0.05$) • MISTG → Highest service percentage (MI > CG) **Service Efficiency** • MISTG → Significant improvement ($p<0.01$) & Highest scores **Service Speed** • No significant improvement ($p>0.05$)
A Routine Combining **Motivational Self-Talk** and **Mental Imagery** Improves Service Performance	8-week study → 27 male tennis players **Control Group (CG)** • No additional intervention **Self-Talk Group (STG)** • Perform motivational self-talk before each serve **Self-Talk + Imagery Group (STIG)** • Perform motivational self-talk + MI before each serve	**Service Percentage of Success** • STG & STIG → Significant improvement ($p<0.05$) **Service Effectiveness Score** • STG & STIG → Significant improvement ($p<0.05$) **Service Speed** • No significant improvement ($p>0.05$)

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Study Title	Methodology	Results
Tennis Service Performance in Beginners: The Effect of Instructional Self-Talk Combined With Motor Imagery	5-day study → 38 novice tennis players **Control Group (CG)** • Perform countdown from 10 to 0 with eyes closed **MI Group (MIG)** • Perform MI using an external visual modality before each serve **MI + Self-Talk Group (MISTG)** • Perform MI + instructional self-talk based on the serve's steps	**Service Percentage of Success** • MIG & MISTG → Significant improvement ($p<0.01$) **Service Speed** • Only MISTG → Significant improvement ($p<0.01$) **Technical Quality** • MI & MISTG → Significant improvement ($p<0.01$) • MISTG → Highest performance ($p<0.01$)
The Effects of a Strategic Instructional Self-Talk Intervention on Performance in a Complex Tennis Rally	5-week study → 50 young beginner tennis players **Control Group (CG)** • No additional intervention **Intervention Group (ITG)** • Performed instructional self-talk (e.g., saying cue word "arms" before extending the arms to strike the ball at the highest point)	**Stroke Performance** • ITG → Significant improvement ($p<0.01$) **Tennis Rally Overall Performance** • ITG → Significant improvement ($p<0.01$)

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Study Title	Methodology	Results
Careful What You Say to Yourself: Exploring Self-Talk and Youth Tennis Performance via Hierarchical Linear Modeling	Observational study → Hierarchical Linear Modeling ; 28 youth tennis players **Positive Self-Talk (PST)** **Negative Self-Talk (NST)** **Instructional Self-Talk (IST)** **Muttering/Unclear Speech (MUS)**	**Concurrent Point Outcome** • PST → Highly associated with winning the concurrent point ($p<0.001$) • NST, IST & MUS → Highly associated with losing the concurrent point ($p<0.001$) **Subsequent Point Outcome** • PST → Significant increment in the probability of winning the subsequent point ($p=0.003$)
Investigating the Functions of Self-Talk: The Effects of Motivational Self-Talk on Self-Efficacy and Performance in Young Tennis Players	1-week study → 46 young tennis players **Control Group (CG)** • No additional intervention **Experimental Group (EG)** • Perform motivational self-talk that they received during training	**Performance** • EG → Significant improvement ($p<0.01$) **Self-Efficacy** • EG → Significant improvement ($p<0.01$) **Correlational Analysis** • Improvement in performance were related to self-efficacy ($r=0.38$, $p<0.05$)

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Study Title	Methodology	Results
The Influence of Self-Talk on the Performance of Skilled Female Tennis Players	1-week study → 5 female tennis players **Baseline Phase (BP)** • Normal Practice **Intervention Phase (ITP)** • Performed instructional self-talk	**Outcome Scores** (Reflects Accuracy) • Significant improvement from BP to ITP ($p<0.01$) **Movement Patterns** • Significant improvement from BP to ITP ($p<0.01$)
The Effects of Self-Talk and Augmented Feedback on Learning the Tennis Forehand	1-week study → 72 tennis players **Self-Talk Group (STG)** • Performed instructional self-talk **Feedback Group (FG)** • Received knowledge of performance feedback by instructor **STF Group (STFG)** • Performed ST + received knowledge of feedback	**Outcome Scores** • All 3 groups →Significant improvement ($p<0.001$) **Movement Sequence Scores** • All 3 groups →Significant improvement ($p<0.001$) • ST & STFG performed better than FG ($p<0.05$) **Correct Trials** • STFG → Highest percentage (60.8%) • STG (54.2%) > FG (32.2%) **Feedback Statement Analyses** • STFG required less feedback

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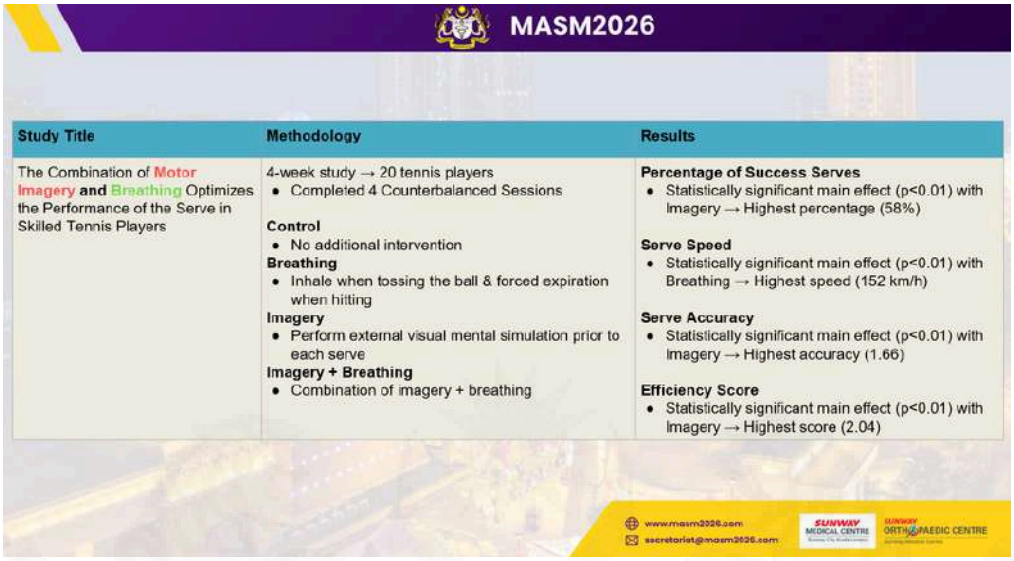

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Study Title	Methodology	Results
The Combination of Motor Imagery and Breathing Optimizes the Performance of the Serve in Skilled Tennis Players	4-week study → 20 tennis players • Completed 4 Counterbalanced Sessions **Control** • No additional intervention **Breathing** • Inhale when tossing the ball & forced expiration when hitting **Imagery** • Perform external visual mental simulation prior to each serve **Imagery + Breathing** • Combination of imagery + breathing	**Percentage of Success Serves** • Statistically significant main effect ($p<0.01$) with Imagery → Highest percentage (58%) **Serve Speed** • Statistically significant main effect ($p<0.01$) with Breathing → Highest speed (152 km/h) **Serve Accuracy** • Statistically significant main effect ($p<0.01$) with Imagery → Highest accuracy (1.66) **Efficiency Score** • Statistically significant main effect ($p<0.01$) with Imagery → Highest score (2.04)

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Study Title	Methodology	Results
The Effects of Forced Exhalation and Inhalation, Grunting, and Valsalva Maneuver on Forehand Force in Collegiate Tennis Players\	8-week study → 6 youth tennis players **Phase A (Baseline)** • No additional intervention **Phase B (Preshot Routine)** • Performed preshot routine (e.g., adjusting feet for a proper stance) **Phase C (Deep Breathing + Preshot Routine)** • Performed deep breathing exercise + preshot routine	**Performance Scores** • Phase C → Highest mean scores (Mean change = 3.36) **Cognitive Anxiety** • Phase C →Highest cognitive anxiety mean scores **Somatic Anxiety** • No significant change **Confidence** • No significant change
The Combination of Motor Imagery and Breathing Optimizes the Performance of the Serve in Skilled Tennis Players	1-week study → 10 tennis players • Repeated Measures Experimental Design **Forced Expiration (FE)** **Forced Inspiration (FI)** **Grunting (GR)** • FE + vocal sound (vocal disinhibition) •**Valsalva Manoeuvre (VM)**	**Isometric Forehand Force** • FE & GR → Significant higher force than FI & VM **Muscle Activity** • Significant increment in overall muscle activity by breathing condition ($p<0.05$) with FE & GR > FI & VM • FE & VM → Significant higher thoracic erector spinae activity **Air Volume** • Significant increment in air volume ($p<0.001$) • FE → Greatest increment ($p<0.01$)

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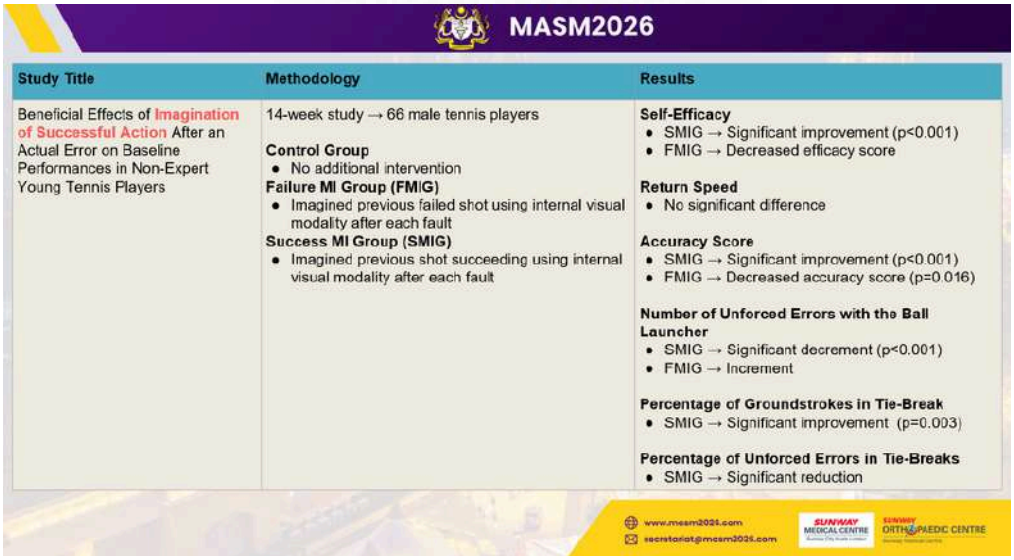

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Study Title	Methodology	Results
Beneficial Effects of Imagination of Successful Action After an Actual Error on Baseline Performances in Non-Expert Young Tennis Players	14-week study → 66 male tennis players **Control Group** • No additional intervention **Failure MI Group (FMIG)** • Imagined previous failed shot using internal visual modality after each fault **Success MI Group (SMIG)** • Imagined previous shot succeeding using internal visual modality after each fault	**Self-Efficacy** • SMIG → Significant improvement ($p<0.001$) • FMIG → Decreased efficacy score **Return Speed** • No significant difference **Accuracy Score** • SMIG → Significant improvement ($p<0.001$) • FMIG → Decreased accuracy score ($p=0.016$) **Number of Unforced Errors with the Ball Launcher** • SMIG → Significant decrement ($p<0.001$) • FMIG → Increment **Percentage of Groundstrokes in Tie-Break** • SMIG → Significant improvement ($p=0.003$) **Percentage of Unforced Errors in Tie-Breaks** • SMIG → Significant reduction

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Effect of Motor Imagery Training on Tennis Service Performance in Young Tennis Athletes	8-week study → 28 male tennis players **Control Group (CG)** • Watch videos on Olympics history **Imagery Training Group (ITG)** • Watch successful service videos → Perform MIT for 10 minutes	**Service Accuracy** • ITG → Significant improvement ($p<0.01$) **Stroke Velocity** • ITG → Significant improvement ($p<0.01$) **Tennis Service Performance** • ITG → Significant improvement ($p<0.01$)
Internal and External Imagery Effects on Tennis Skills Among Novices	6-week study → 36 male novice tennis players **Control Group (CG)** • Perform mental calculation task **Internal Imagery Group (IIG)** • Perform internal imagery, repeating it under different performing conditions of tennis strokes (e.g., stroke, forehand, backhand) 10 times **External Imagery Group (EIG)** • Perform external imagery, repeating it under different performing conditions of tennis strokes 10 times	**Serve Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG → Significant lower service performance error than EIG > CG **Forehand Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG → Significant lower service performance error than EIG > CG **Backhand Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG: 205.08cm → 168.80cm • EIG: 219.50cm → 141.40cm • CG: 211.30cm → 175.60cm

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Study Title	Methodology	Results
Internal and External Imagery Effects on Tennis Skills Among Novices	6-week study → 36 male novice tennis players **Control Group (CG)** • Perform mental calculation task **Internal Imagery Group (IIG)** • Perform internal imagery, repeating it under different performing conditions of tennis strokes (e.g., stroke, forehand, backhand) 10 times **External Imagery Group (EIG)** • Perform external imagery, repeating it under different performing conditions of tennis strokes 10 times	**Serve Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG → Significant lower service performance error than EIG > CG **Forehand Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG → Significant lower service performance error than EIG > CG **Backhand Performance Error** • All 3 groups → Significant reduction ($p<0.05$) • IIG: 205.08cm → 168.80cm • EIG: 219.50cm → 141.40cm • CG: 211.30cm → 175.60cm
Influence of Motor Imagery Modality on First-Serve Performance in Tennis Players	4-week study → 20 male tennis players **Control** • No additional intervention **Internal Visual Imagery (IV)** • Imagine performing service using IVI before service **External Visual Imagery (EVI)** • Imagine performing service using EVI before service **Kinesthetic Imagery (KI)** • Before each service, imagine the sensations generated & evolved during a service	**Percentage of Successful Serve** ($p<0.01$) • KI → Highest percentage of successful serve (Mean 59%) > IVI > EVI > CG **Efficiency Score** ($p<0.01$) • KI → Highest efficiency scores (Mean 2.0) > IVI > EVI > CG **Service Speed** • No significant difference

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4 Discussion

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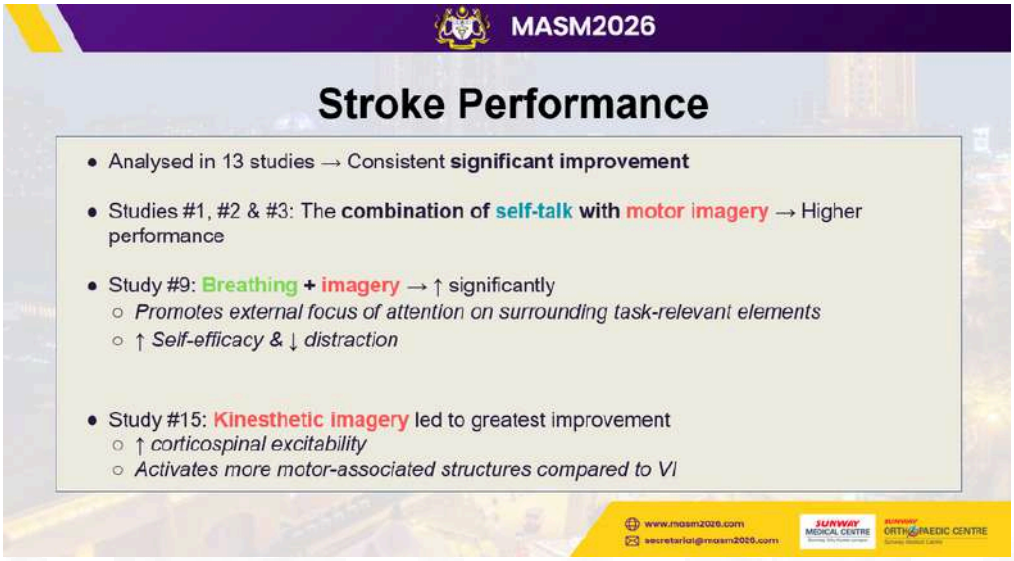
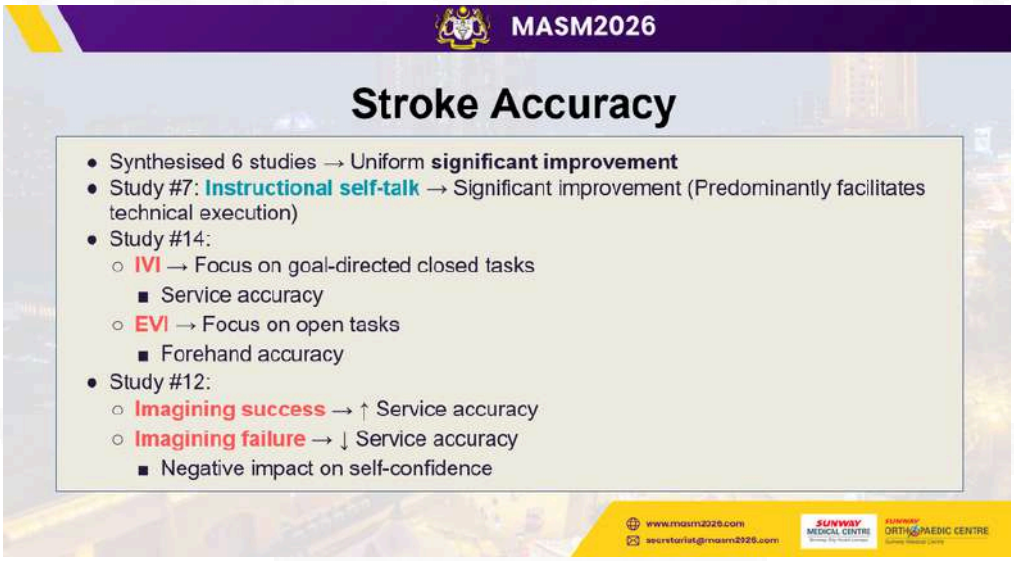
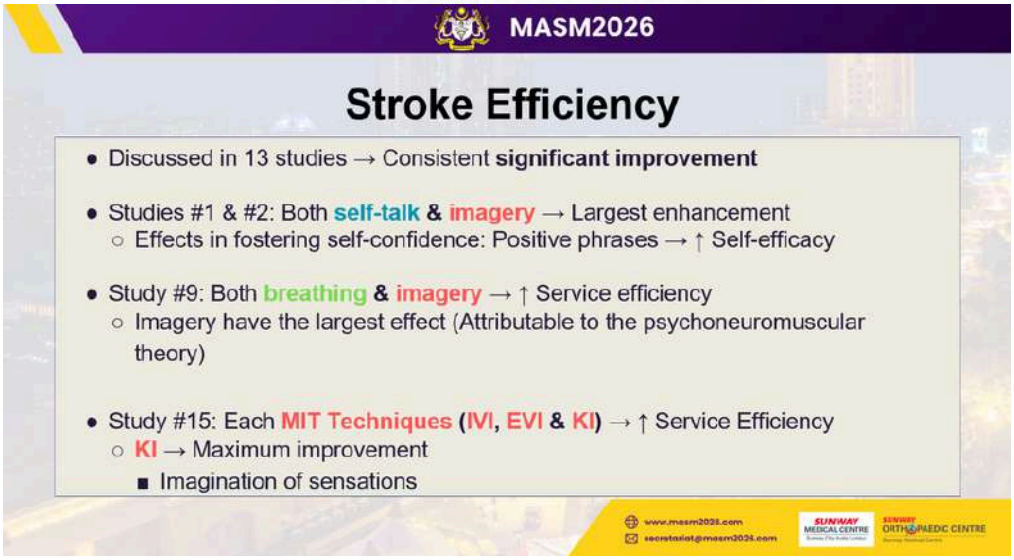
ID6







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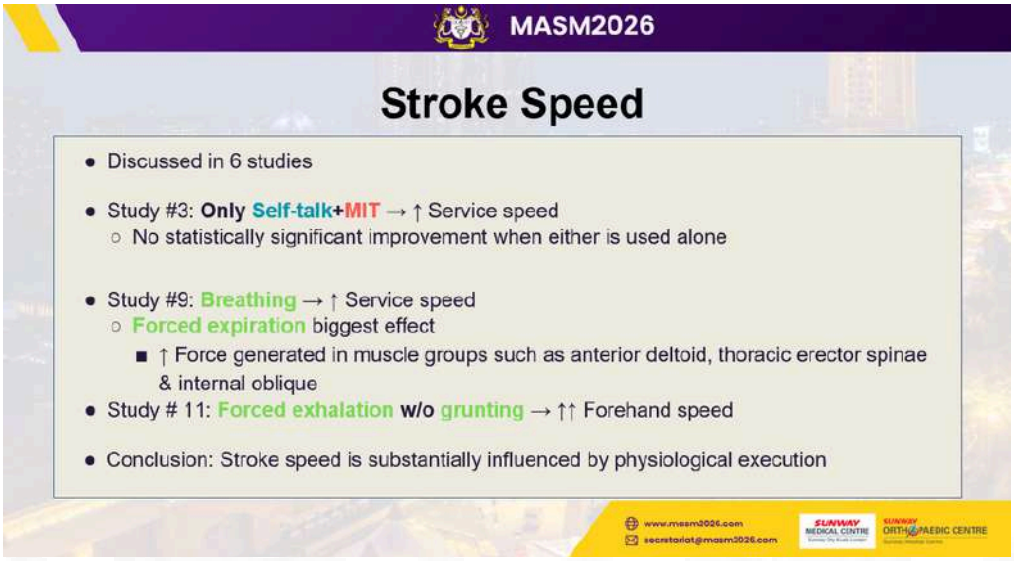

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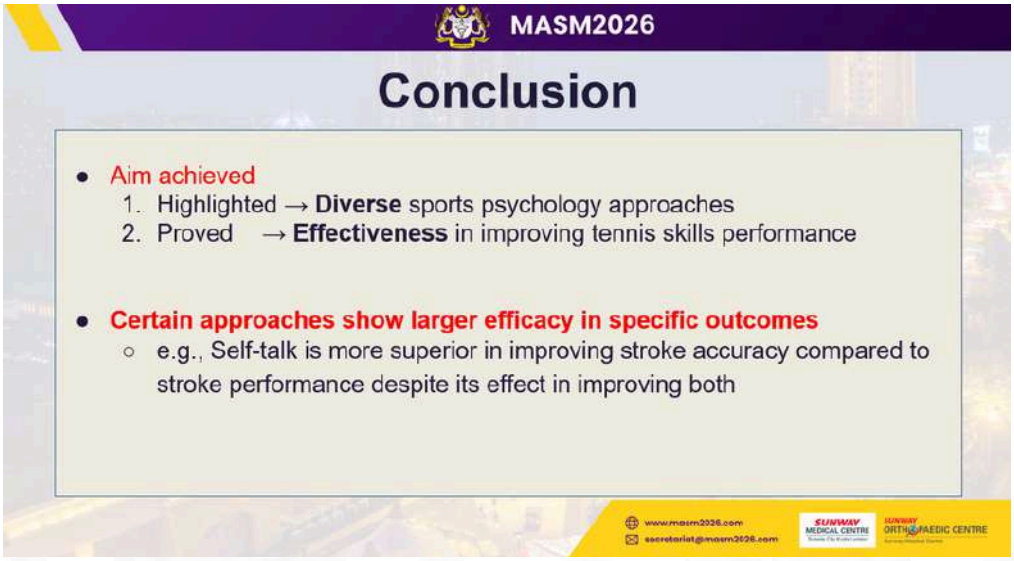

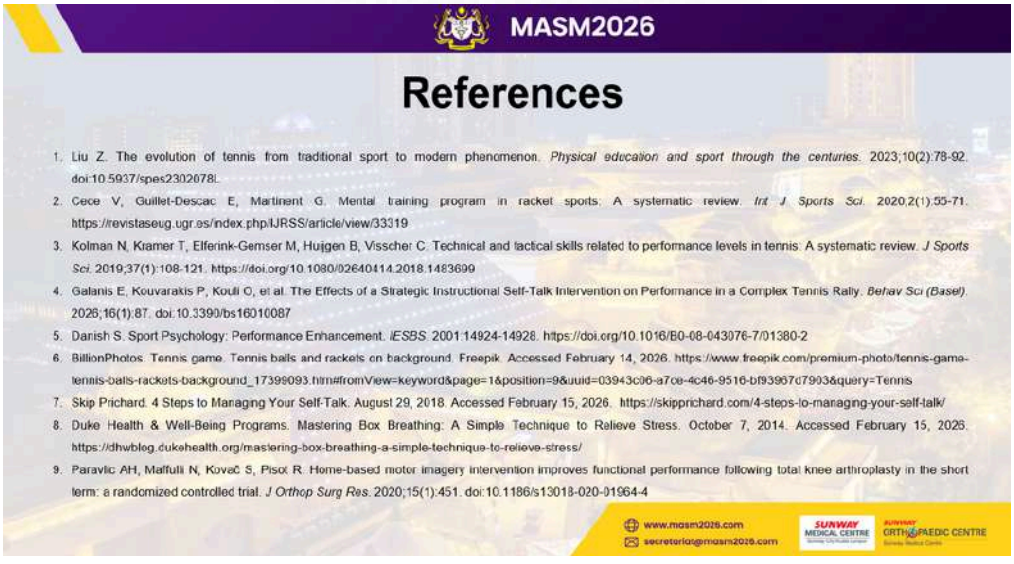

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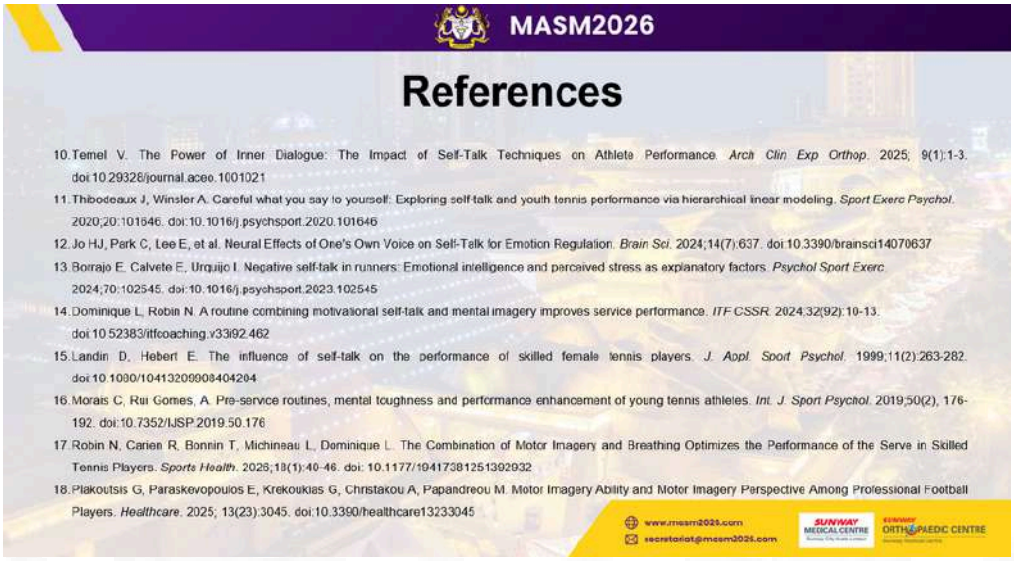

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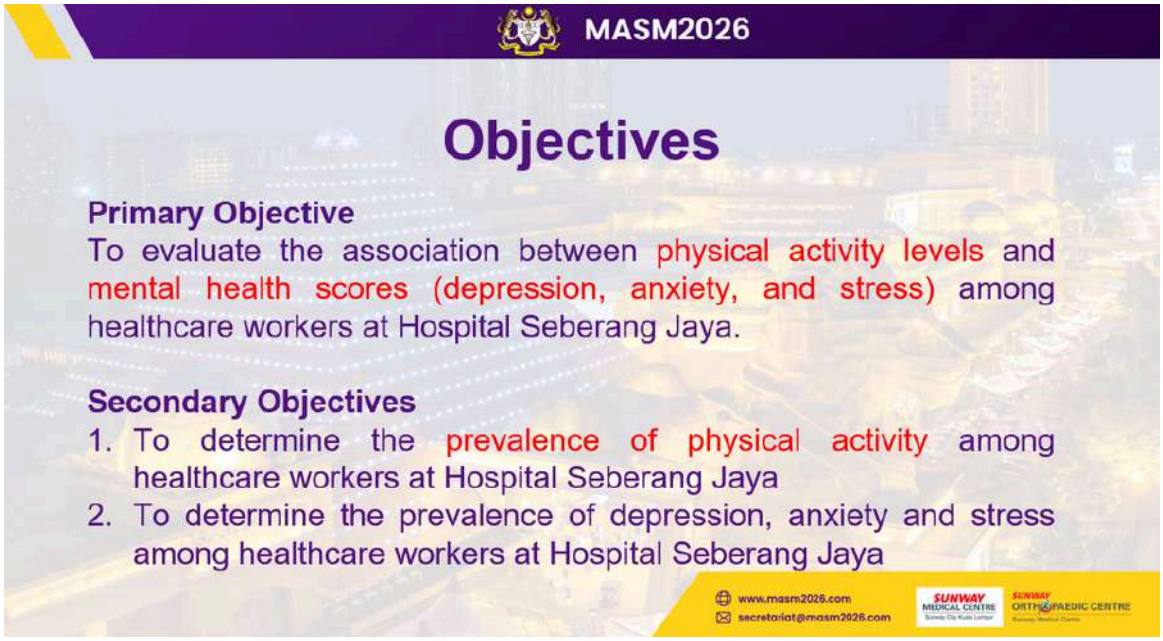
THE PROTECTIVE ROLE OF PHYSICAL ACTIVITY AGAINST DEPRESSION IN HEALTHCARE WORKERS

Dr Izwar Bin Indra
Sports Medicine Unit, Hospital Seberang Jaya



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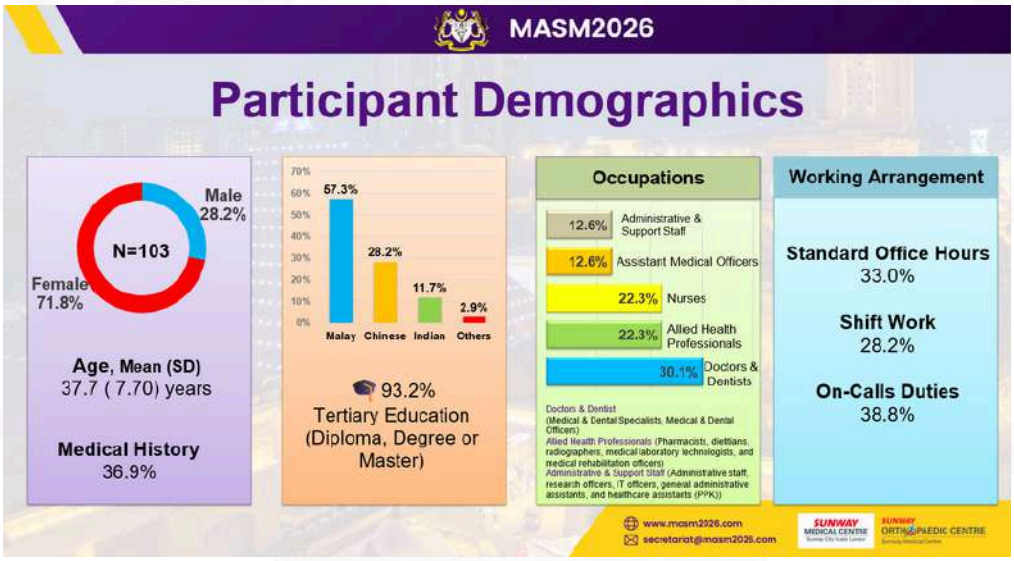

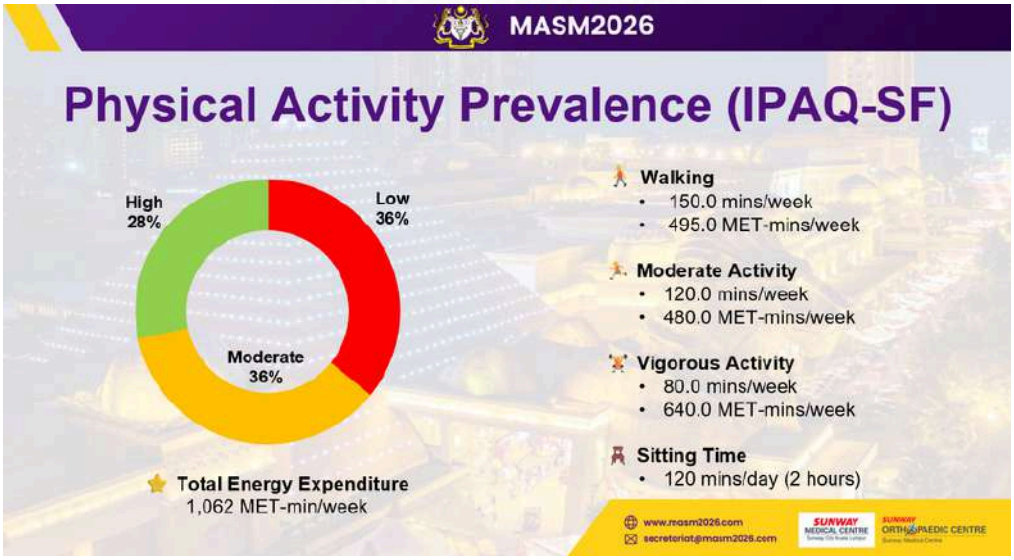

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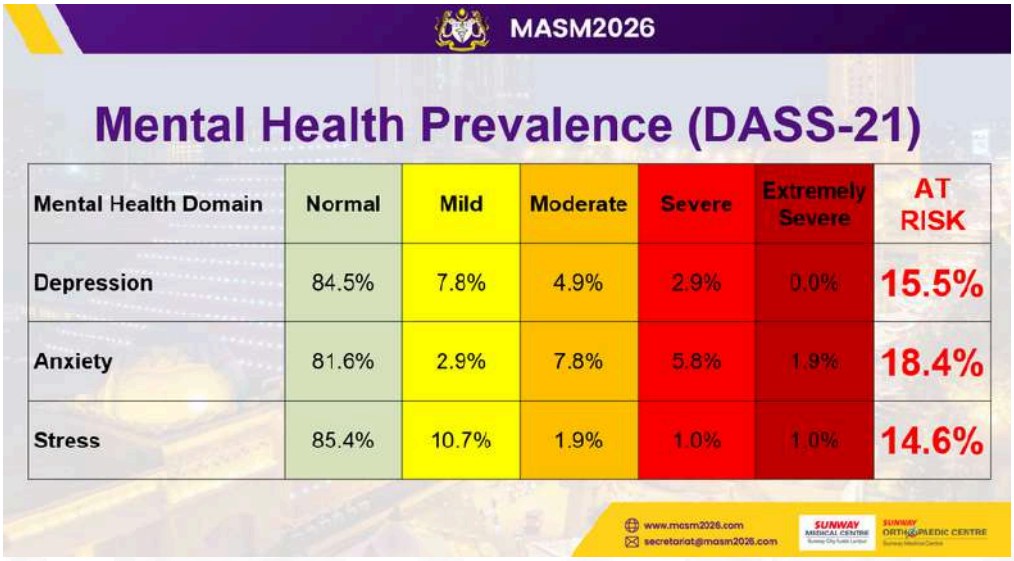
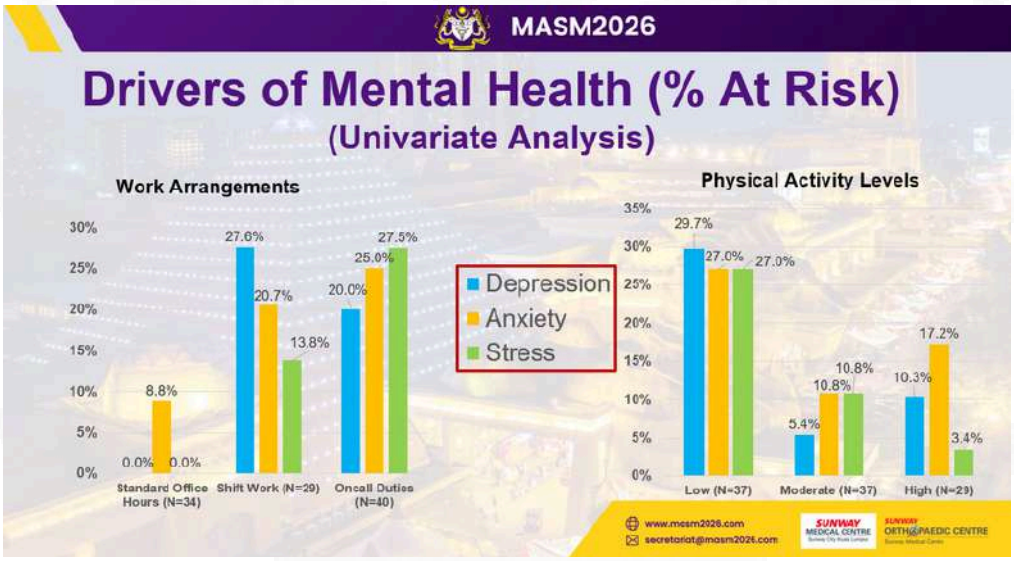
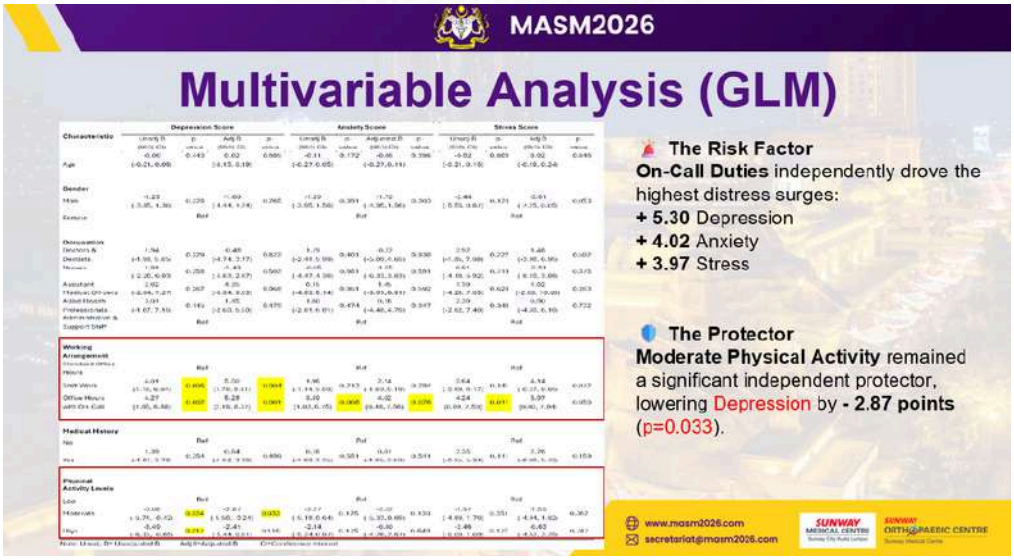


Mental Health Domain	Normal	Mild	Moderate	Severe	Extremely Severe	AT RISK
Depression	84.5%	7.8%	4.9%	2.9%	0.0%	15.5%
Anxiety	81.6%	2.9%	7.8%	5.8%	1.9%	18.4%
Stress	85.4%	10.7%	1.9%	1.0%	1.0%	14.6%





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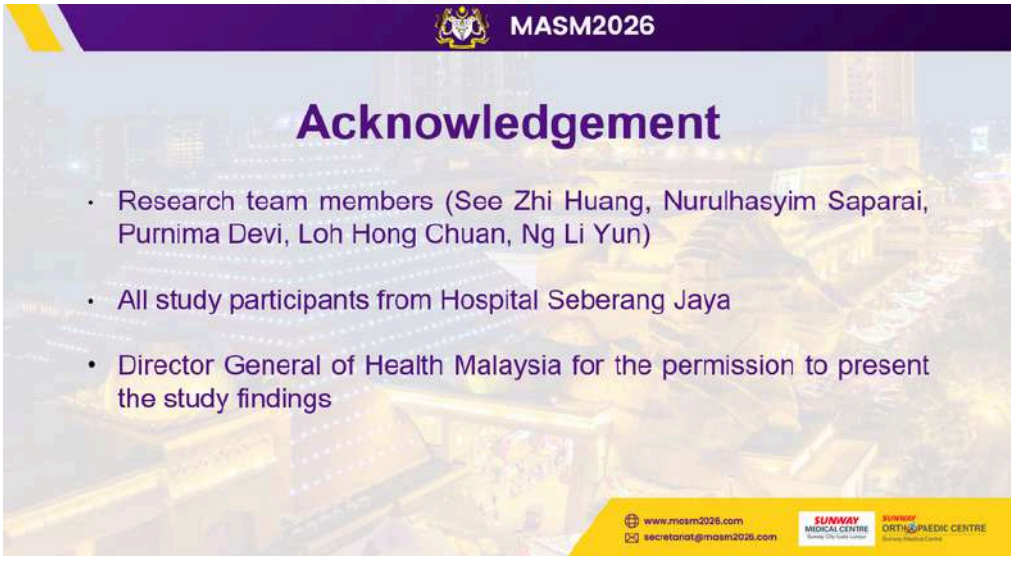

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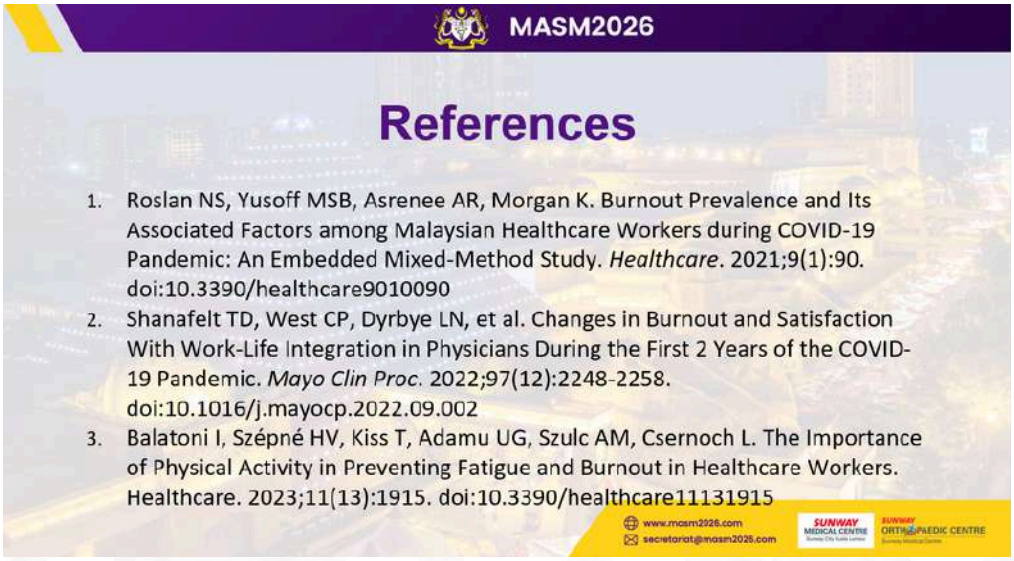

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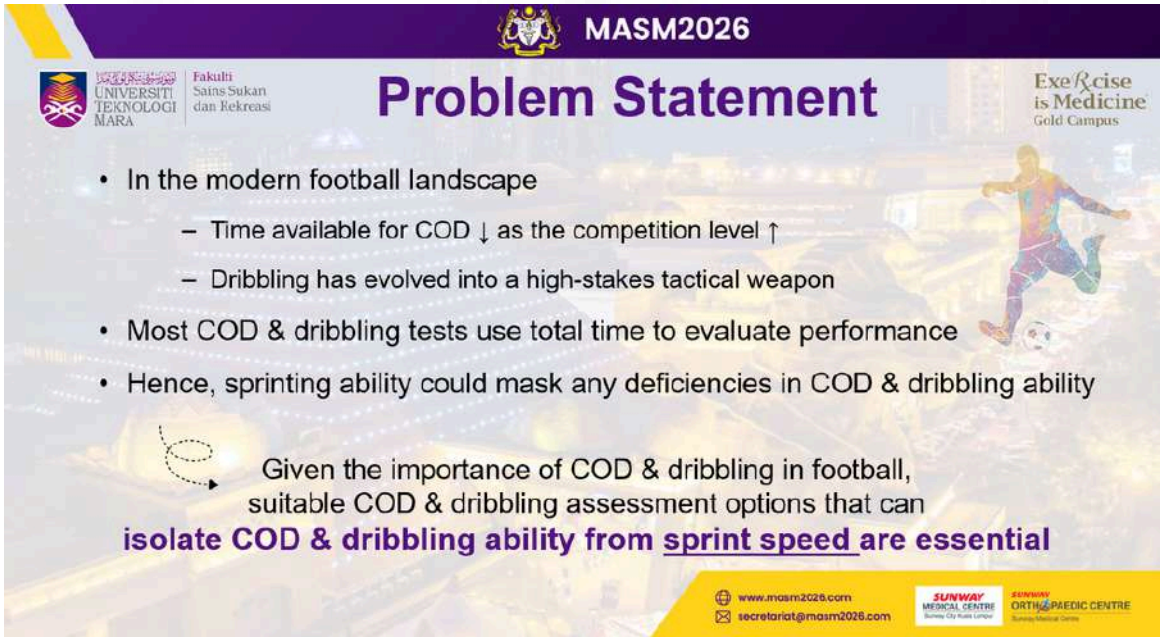
ID12

CHANGE-OF-DIRECTION DEFICIT & DRIBBLE DEFICIT AS INDEPENDENT MEASURES TO REFLECT PHYSICAL & TECHNICAL TAX IN MALAYSIAN SEMI-PROFESSIONAL FOOTBALLERS

GEIK YONG ANG

MUHAMMAD ARIFF HAFIZI ABD RAHIM, RAIHANA SHARIR & RAJA MOHAMMED FIRHAD RAJA AZIDIN



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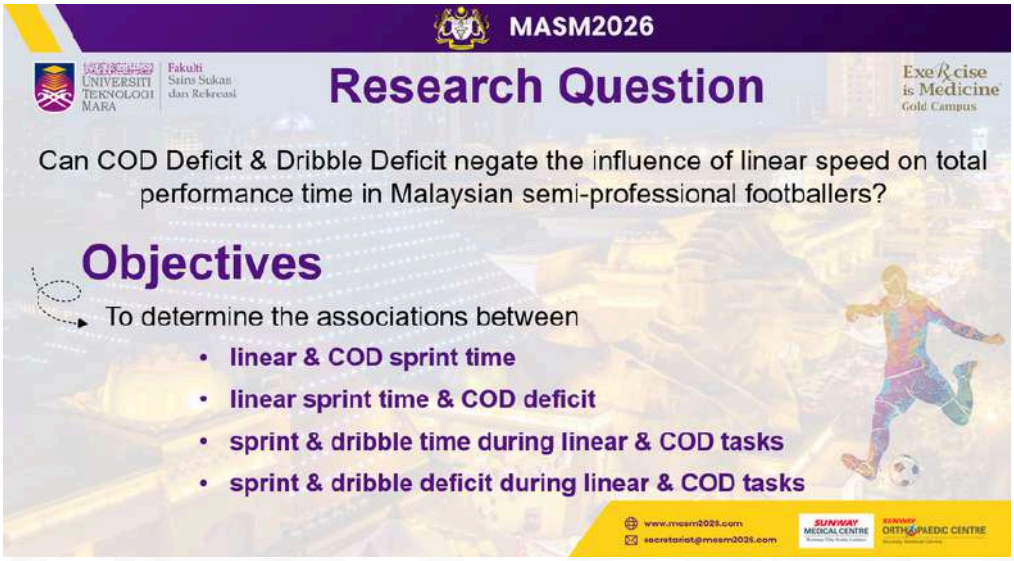

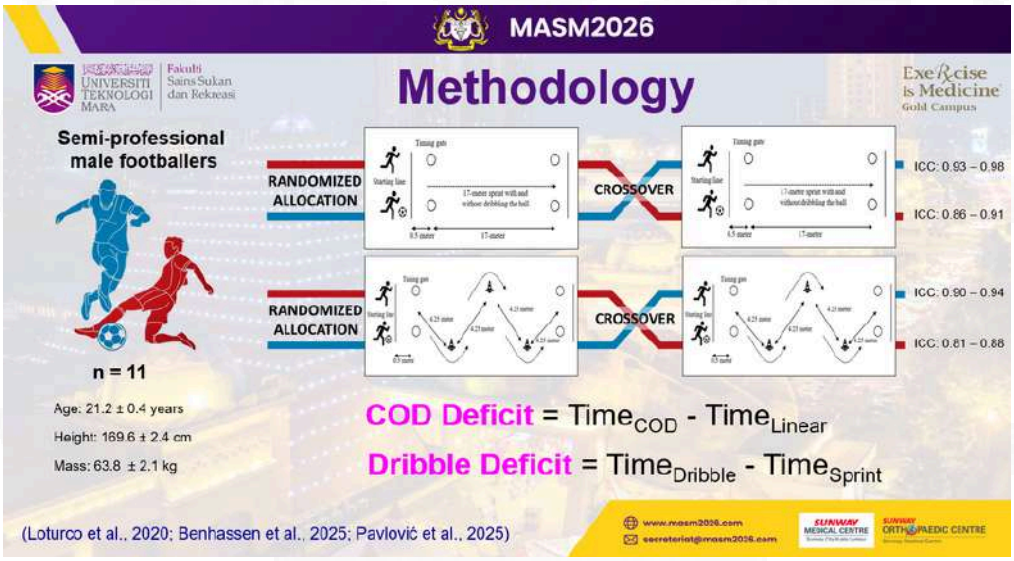

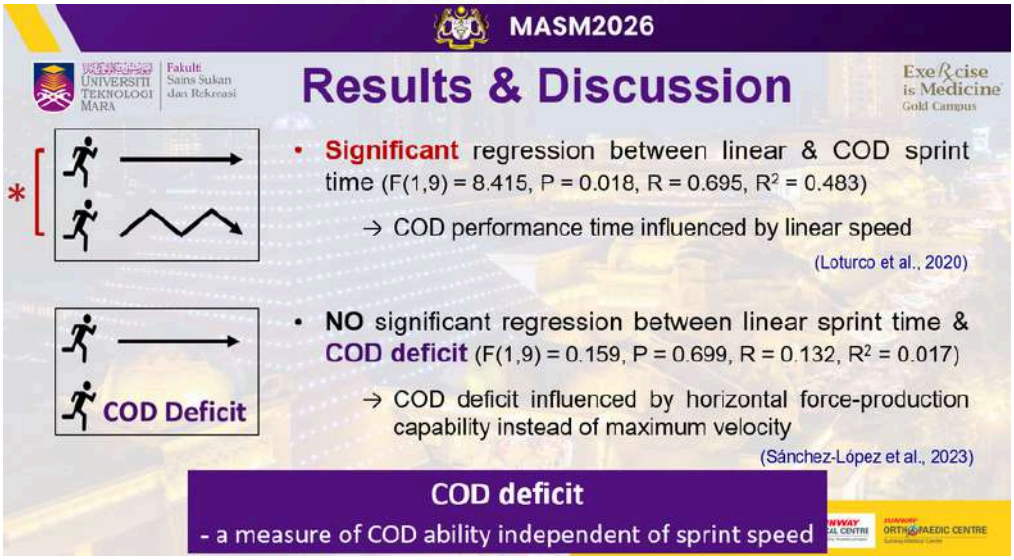

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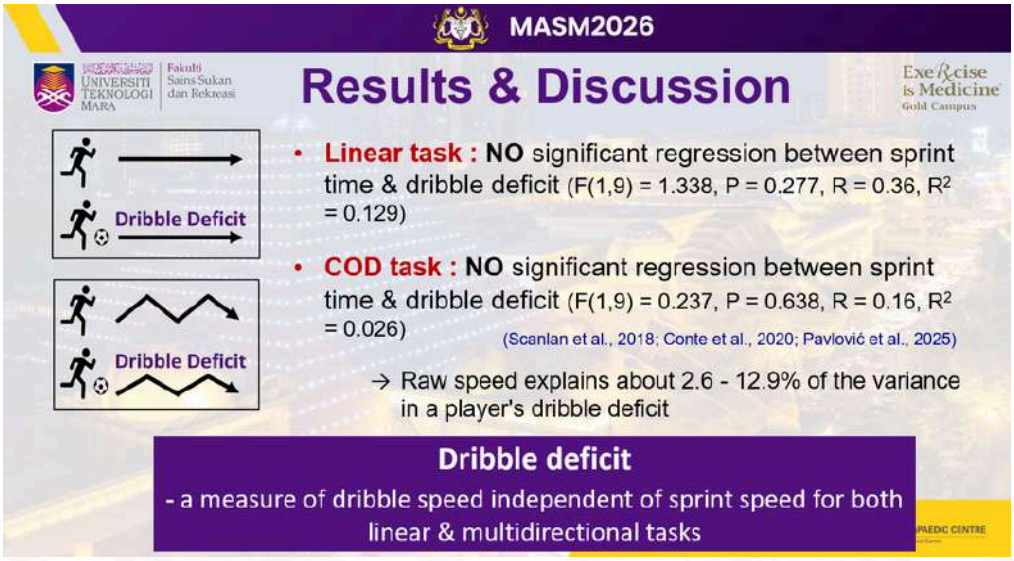

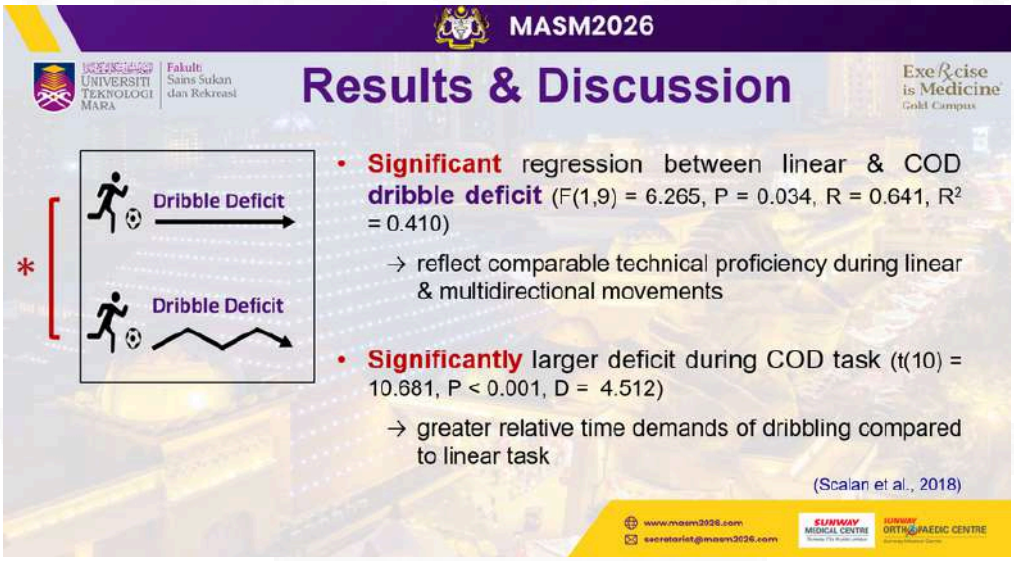

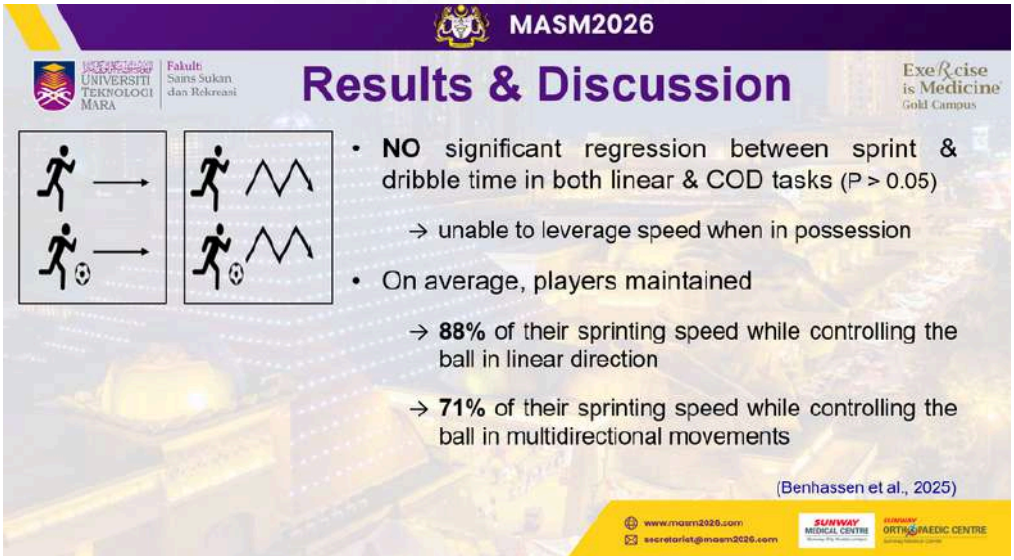

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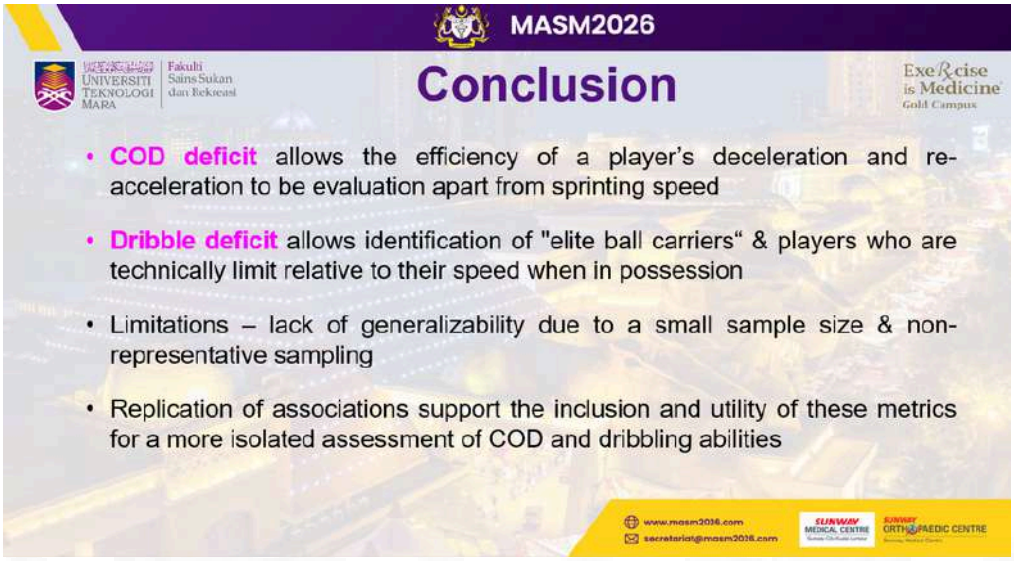

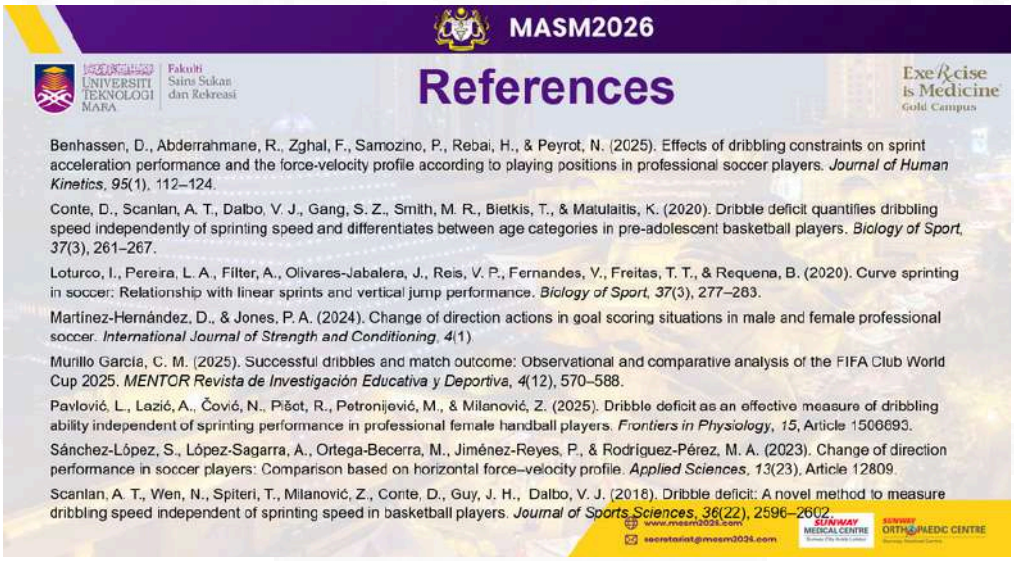

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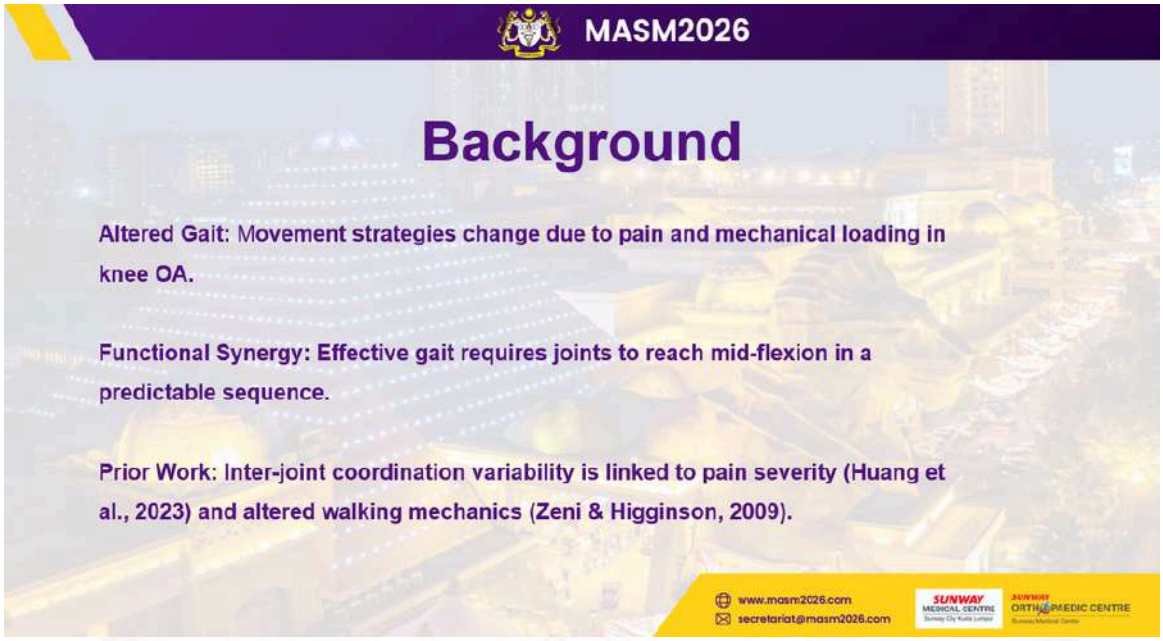
ID18

HIP–KNEE TEMPORAL COORDINATION IN UNILATERAL KNEE OSTEOARTHRITIS: A PILOT STUDY

Authors: Shi Qiu, Dr Goh Siew Li, Dr Rizal Razman, Universiti Malaya, Dr Kwong Ming Tse, Swinburne University of Technology
Presenter: Shi Qiu, Universiti Malaya



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Methodology

Participants: 8 adults with unilateral medial knee osteoarthritis.

Data Collection: Standard 3D gait analysis by Qualysis.

Key Variables:

- Peak flexion (Hip & Knee).Mid-flexion time (T50%)
- Temporal Coordination (ΔT): Difference between hip and knee timing.

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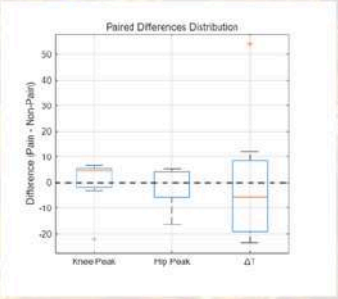
Results – Group Level Symmetries

Findings: No significant bilateral differences detected at the group level.

Conclusion: Symmetrical group means for peak flexion and mid-flexion timing.



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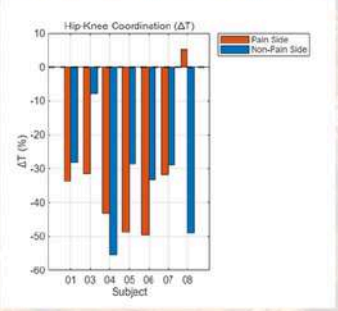
Results - Individual Variability

Bland-Altman Analysis: Revealed substantial individual variation.

Case Examples:
Subject 08: Highly asymmetrical (ΔT = +5.2% on pain side vs. -49.0% on non-pain side).
Subject 04: Symmetrical but severely delayed bilaterally (ΔT = -43.0% vs. -55.3%).



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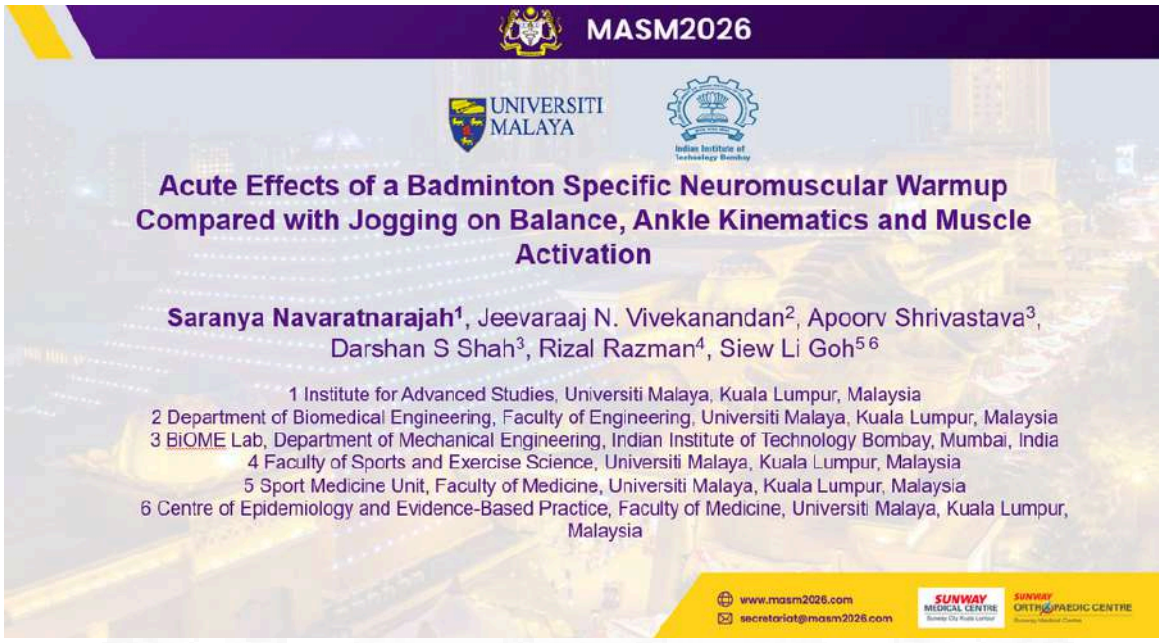
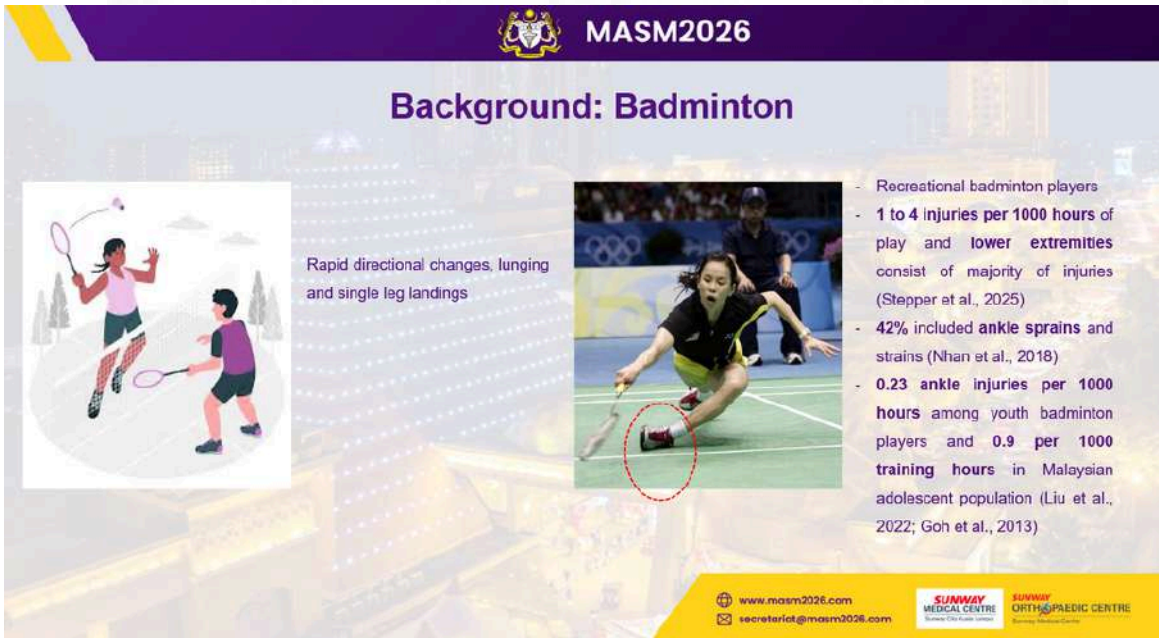
NEUROMUSCULAR WARMUP VS JOGGING IN BADMINTON

Saranya Navaratnarajah (saranyarajah@yahoo.com)





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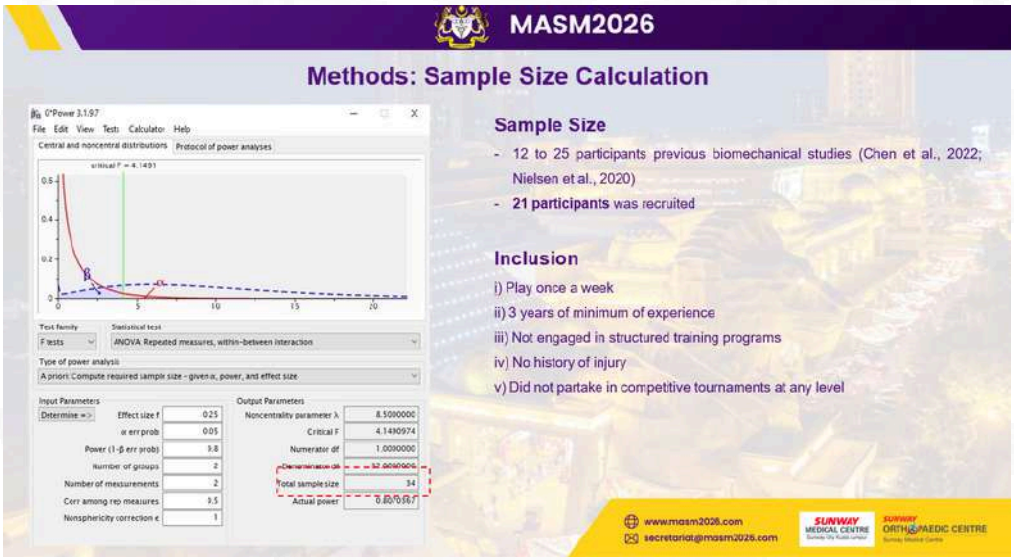

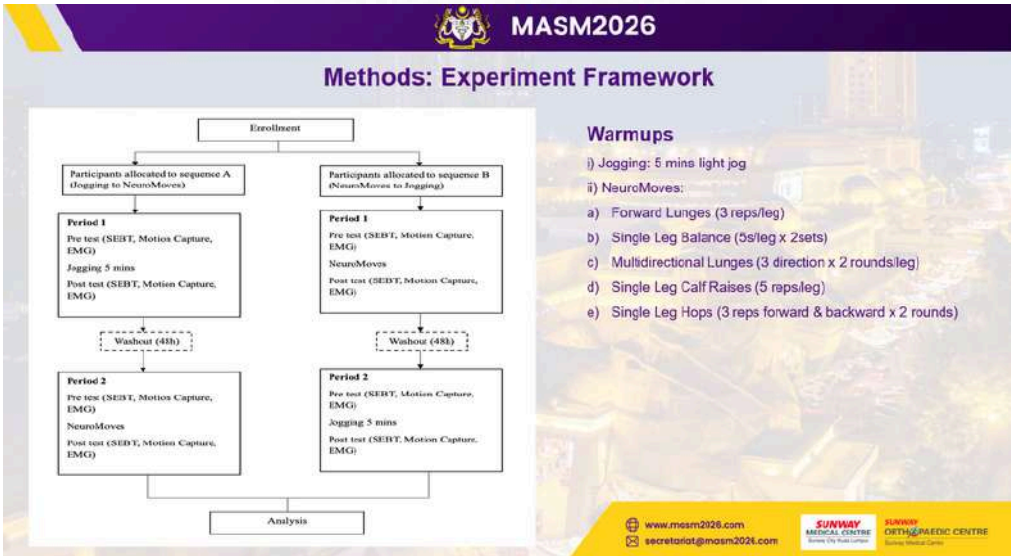

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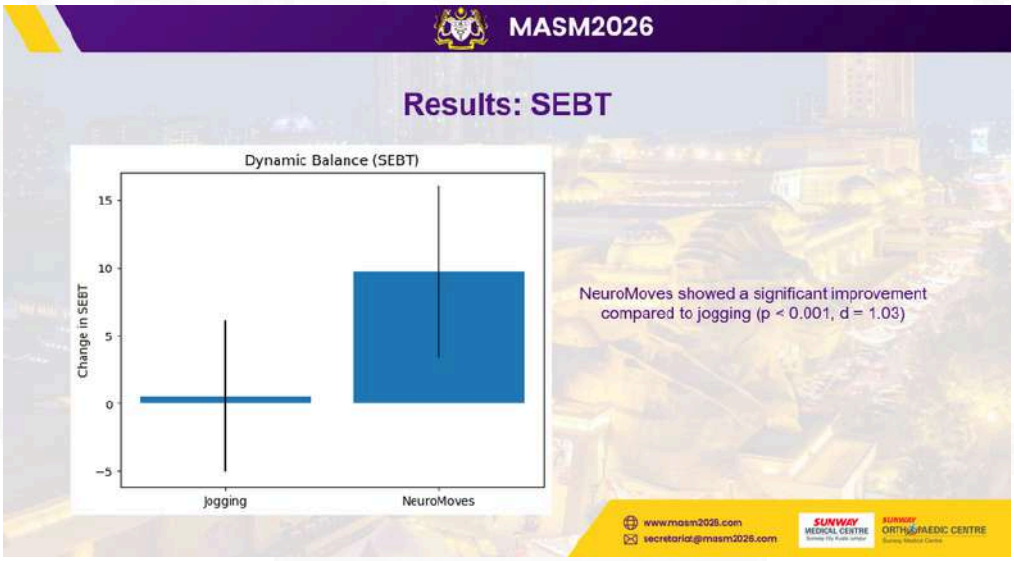

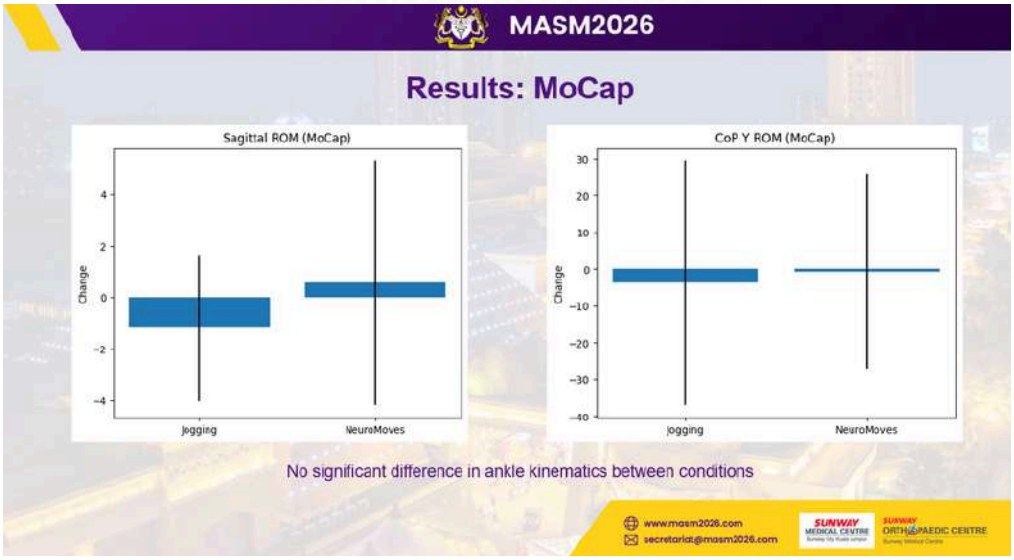

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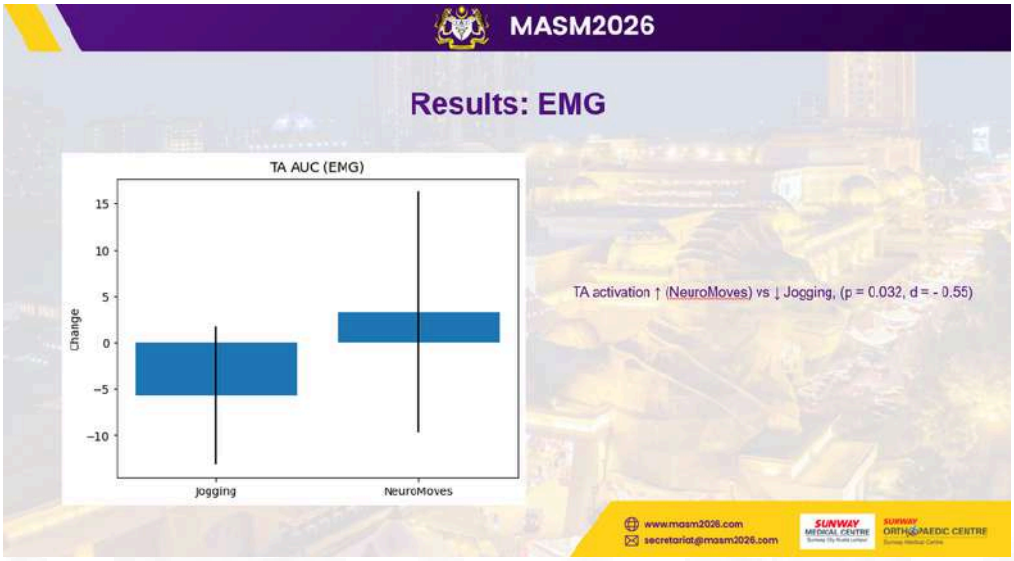

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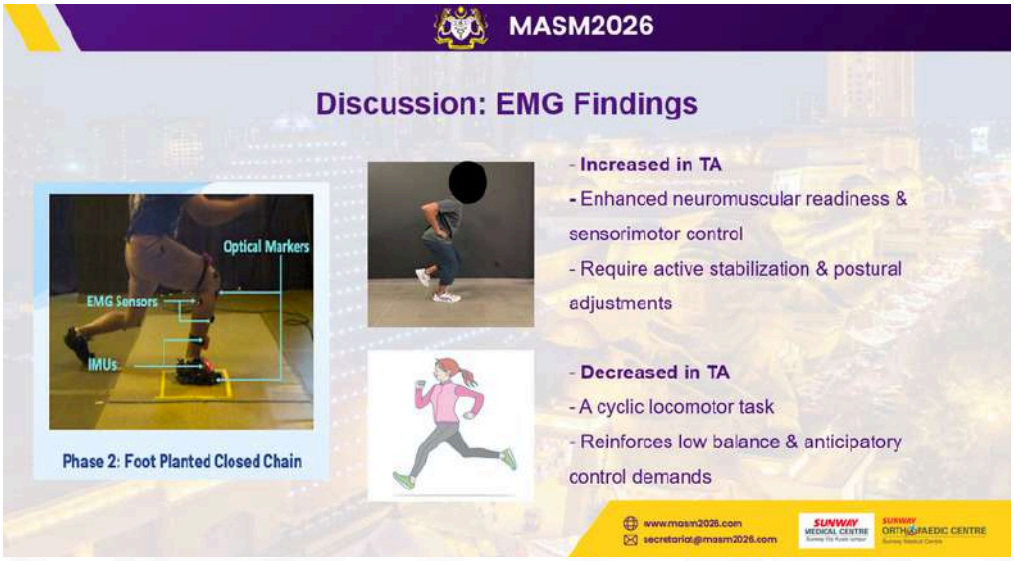

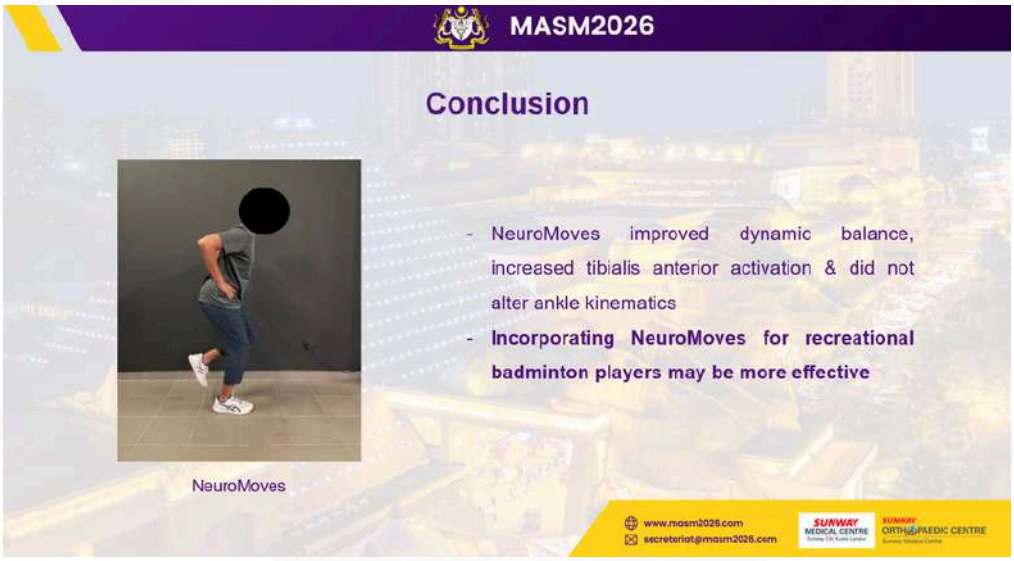

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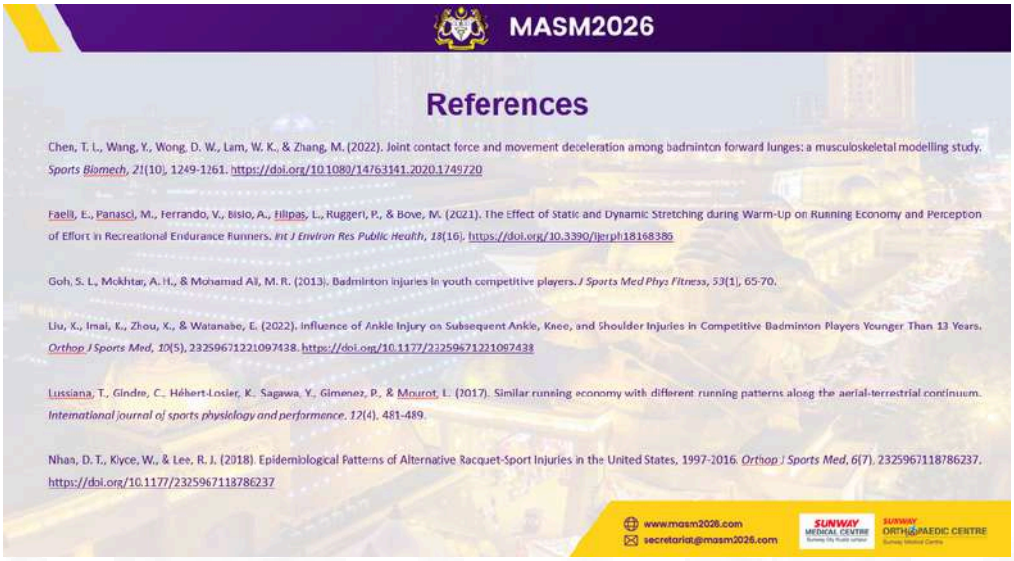

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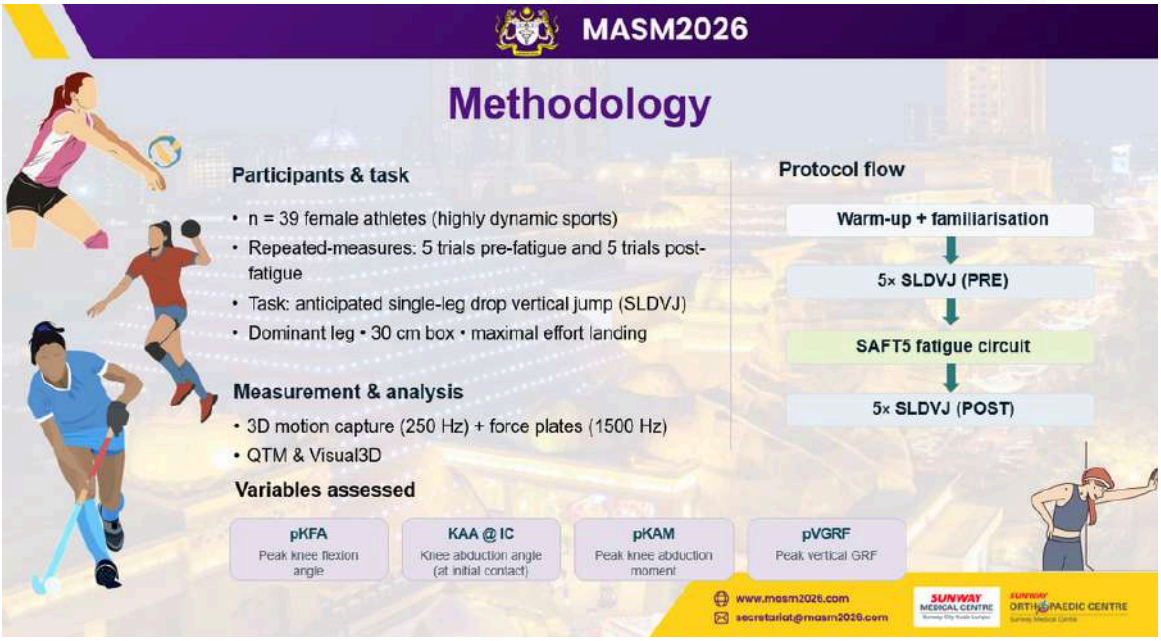
ID28

THE INFLUENCE OF FATIGUE ON LANDING BIOMECHANICS ASSOCIATED WITH ACL INJURY RISK IN FEMALE ATHLETES

RAIHANA SHARIR
Mark A. Robinson, Jos Vanrenterghem, Radin Rafeeuddin Radin Dzulfakar



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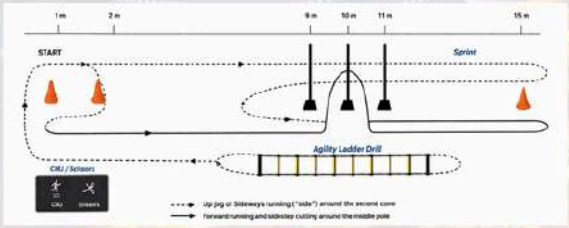
Fatigue Protocol (SAFT5)

Bossuyt et al., 2016. International Journal of Sports Medicine



Protocol components

- Jogging
- Sprinting
- Countermovement jumps
- Agility ladder drill
- Jump scissors task

Fatigue monitoring

- Functional fatigue protocol (SAFT5-based)
- HR monitored + Borg RPE recorded
- Target intensity ~87–97% HRmax; RPE "hard" to "very hard"

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Results

Variable	Pre	Post	p	d
Peak knee flexion angle (deg)	-67.3 ± 8.8	-61.7 ± 8.3	**<0.001**	-1.13
Knee abduction angle at IC (deg)	-0.1 ± 2.9	0.4 ± 3.2	**0.045**	-0.33
Peak knee abduction moment (Nm·kg⁻¹)	0.41 ± 0.19	0.43 ± 0.23	0.489	-0.11
Peak vertical ground reaction force (N·kg⁻¹)	3.47 ± 0.41	3.45 ± 0.38	0.637	0.08

**Significant differences highlighted in green.*

Key finding: post-fatigue landing showed a stiffer strategy, evidenced by reduced knee flexion, while kinetic variables did not change significantly.

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Discussion

Interpretation

Reduced knee flexion after fatigue is consistent with a stiffer landing pattern, which is commonly discussed as less favourable for ACL loading mechanics.

Important caution

The injury-risk interpretation should be tempered because kinetic markers did not change significantly in this anticipated task.

What this means

Fatigue affected selected movement patterns rather than the full biomechanical profile.

Practical takeaways

- Include fatigue when screening landing mechanics in female athletes.
- Do not infer higher ACL risk from kinematic change alone without considering task context and kinetic findings.
- Prevention programmes may need to target landing control under fatigued conditions, especially sagittal-plane mechanics.

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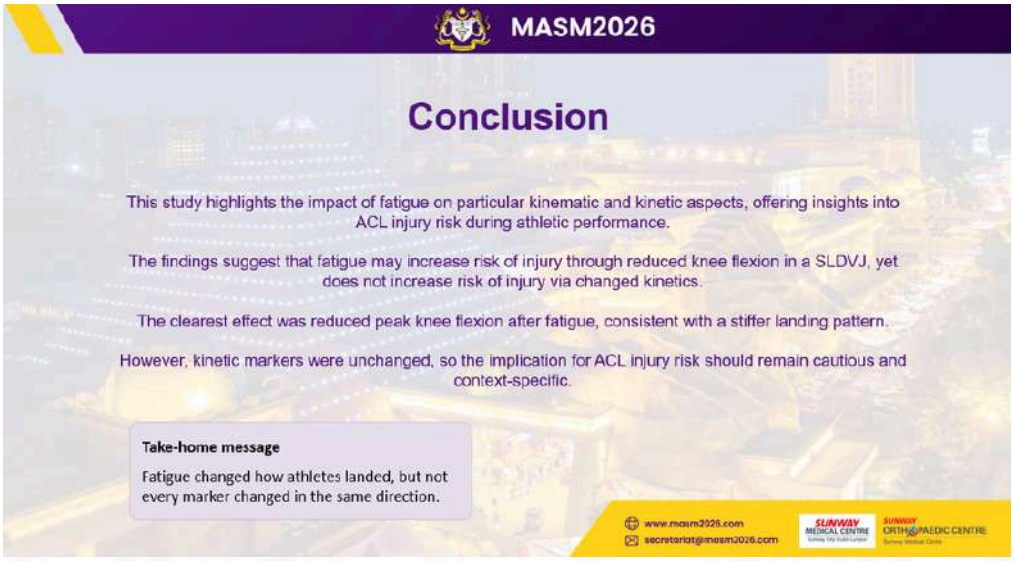

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