Abstracts Key Note Speeches

Title: Development and Digitisation of an Assessment Process for Rehabilitation Potential in Older Adults

Dr Francesca Muscat; Dr Stephen Lungaro Mifsud; Dr Conrad Attard.

Background: Population ageing in Malta has led to increased morbidity, disability, and demand for rehabilitation services, placing pressure on healthcare resources. Decisions regarding a patient's rehabilitation potential significantly influence access to inpatient geriatric rehabilitation, yet these decisions are often subjective and lack standardised guidance. This PhD aimed to address this gap by developing an objective, structured, and digital assessment process to support clinical decision-making within Maltese geriatric rehabilitation services.

Methods: An exploratory mixed-methods design was adopted. A scoping review identified existing approaches to assessing rehabilitation potential. A Delphi study with local rehabilitation experts established consensus on admission criteria tailored to the Maltese context. These findings informed the development of a paper-based tool, later digitised into the TERESA Patient Assessment prototype. Usability testing with local clinicians and real-patient data collection informed iterative refinements. Statistical analysis was used to develop a prediction model, which was integrated into the final TERESA application. This study was approved by the Research Ethics Committees of University of Malta, Karin Grech Hospital and Mater Dei Hospital Data Protection Office.

Results: The final TERESA tool provides clinicians with a binary prediction of likelihood of benefit from inpatient geriatric rehabilitation, accompanied by percentage confidence levels. A feasibility study demonstrated that TERESA was acceptable, usable, and practical for integration into daily clinical practice. Clinicians reported improved objectivity and consistency in rehabilitation potential assessments.

Conclusion: TERESA supports equitable, evidence-informed decision-making for older adults being considered for inpatient rehabilitation in Malta. Its use has the potential to optimise patient outcomes, enhance resource allocation, and strengthen clinical decision-making in geriatric rehabilitation.

Keywords:
geriatric rehabilitation; rehabilitation potential; geriatric assessment; prediction models; digital health

Title: Pre-surgery exercise-conditioning (P–SEC) in patients waiting for Total Knee Arthroplasty

Dr AnnaMaria Risso

Using a randomised controlled trial to assess efficacy, a 'novel' pre-surgical exercise conditioning (P–SEC) programme was investigated in this thesis addressing the knowledge gap in the literature regarding pre-surgical conditioning for improving objective measures of physical performance (neuromuscular and sensorimotor) and self-reported outcomes in patients waiting to undergo total knee arthroplasty (TKA) surgery. Cross education (CE) effects measured in the untrained limb following the P-SEC intervention were also investigated. A single-centre, assessor-blinded randomised controlled study was conducted over an 11-month period. Forty-six participants waiting to undergo TKA surgery were enrolled and randomised into one of three groups (two intervention groups (P–SECIPSI (n = 15) and P–SECCONTRA (n = 17), in which the knee extensors of the leg awaiting surgery and the non-surgical leg, respectively, were trained) and one control group (n = 14), which received usual care practice of no training). Seventeen participants (out of 46) had been lost-to-follow-up. Participants underwent evaluation at four pre-surgery assessments: 12 weeks (T1), 2 weeks (T2), 1 week (T3) pre-surgery, week of surgery (T4) and at 6 weeks post surgery (T5). Objective measures of neuromuscular (electromechanical delay (EMD), rate of force development (RFD), peak force (PF)) and sensorimotor (force error (FE)) performance outcomes revealed statistically significant group x time x leg interactions with moderate to large gains (12% – 37%; ES = 2.0; p < 0.05) in the respective outcomes. No statistically significant (p > 0.05) group x time interactions were found for the patient reported outcomes as measured by the Oxford Knee Score (OKS), Knee injure and Osteoarthritis Score (KOOS), 36-Item Short Form Health Survey (SF-36v2TM), Pain Self Efficacy Questionnaire (PSEQ), Performance Profile (PP) and International Physical Activity Questionnaire (IPAQ). Small but approaching moderate (4% – 11%; ES = 0.1 – 0.4; p < 0.05) CE-related improvements in the physical performance outcomes (EMD, RFD, PF and FE) were also reported in the untrained limb. This thesis provides evidence that a novel approach to P–SEC which elicited statistically significant improvements in physical performance outcomes (neuromuscular and sensorimotor) in patients waiting for TKA surgery compared to a usual care control group. Furthermore, this study is the first of its kind to evaluate and confirm the presence of CE in this cohort of patients. The novel characteristics of P–SEC highlight the importance for revisiting contemporary pre-surgical conditioning. Limitations to the study included sample' size attrition, with the potential for bias and inflated rates of Type II error. The thesis presents possible directions into the use of this 'novel' intervention in clinical practices and in other joint related conditions.

Keywords: arthroplasty, sensorimotor, knee osteoarthritis, pre-surgical, neuromuscular, cross-education

Abstracts Oral Presentations

Title: The Effects of Pulmonary Rehabilitation on Bone Mineral Density in COPD

Ms Melanie Axiak, Dr. Anabel Sciriha, Dr. Tonio P. Agius

Background: Individuals with Chronic Obstructive Pulmonary Disease (COPD) demonstrate a high prevalence of osteopenia and osteoporosis, largely associated with long-term glucocorticosteroid use and physical deconditioning. These factors contribute to an increased risk of falls and fragility fractures. Pulmonary Rehabilitation (PR), a key non-pharmacological intervention in COPD management, may play an important role in addressing these risks through structured exercise training. This study explored the impact of PR on bone health, functional capacity, and fall risk in individuals with COPD.

Methods: A quasi-experimental randomised controlled design was employed. Thirty-one participants with COPD were allocated to either an intervention group, which undertook a 16-week PR programme followed by a 36-week home exercise programme, or a control group receiving usual care. Assessments included bone mineral density measured via DEXA scanning, functional mobility and fall risk, exercise capacity, and fracture risk estimation. Outcomes were assessed at baseline, following completion of PR, and at one-year follow-up.

Results: Participants who completed PR demonstrated meaningful improvements in functional exercise capacity and mobility, accompanied by a reduction in fall risk following the intervention period. At one-year follow-up, the intervention group showed preservation of femoral neck bone mineral density and improvements in lumbar spine bone mineral density, alongside sustained functional gains and reduced estimated fracture risk. In contrast, participants in the control group exhibited poorer functional and bone health outcomes over the same period.

Conclusion: Pulmonary rehabilitation appears to offer clinically relevant benefits for individuals with COPD by improving functional capacity, reducing fall risk, and contributing to the preservation of bone health. These findings support the inclusion of structured exercise-based rehabilitation as part of a comprehensive strategy to mitigate musculoskeletal decline and fracture risk in this population.

Keywords: pulmonary rehabilitation, chronic obstructive pulmonary disease, exercise, bone health, bone mineral density

Title: T**he Use Of Immersive Virtual Reality To Reduce Risk Of Falls In Community-Dwelling Older Adults: A Feasibility Study**

Ms Jessica Mifsud Farrugia; Dr Stephen Lungaro Mifsud

Falls represent a significant challenge to healthy ageing, emphasising the importance of effective fall prevention interventions. The use of immersive virtual reality (IVR) exergaming offers a contemporary and engaging approach to complement traditional physiotherapy interventions. By employing a mixed methods approach to evaluate both quantitative outcomes and participants lived experiences, this study investigated the feasibility and potential effectiveness of IVR as an intervention to reduce fall risk in community-dwelling older adults. Notably, this mixed-methods experimental design entailed a two-phase model. Seven participants were recruited and underwent the intervention which included 12 sessions of IVR exergaming. Quantitative data was collected using pre and post-test Timed Up and Go (TUG) and Berg Balance Scale (BBS) scores. Qualitative data was collected through individual semi-structured interviews and analysed using descriptive phenomenological thematic analysis (TA) to explore participant experiences and perceptions of IVR in physiotherapy. Statistically significant improvements were observed in both TUG and BBS scores following the intervention, indicating that the IVR sessions were potentially effective in reducing fall risk. Based on the TA, a thematic network with an overarching global theme centred on physiotherapy and IVR was developed. Participants reported positive engagement with the intervention, while key promoters and barriers to feasibility were identified. IVR may be a promising complementary tool for reducing fall risk among community-dwelling older adults. The integration of objective balance assessments with subjective user experiences provides valuable insights to inform future implementation studies. Building on these findings, this work informed subsequent engagement in further research, extending from clinical feasibility investigation to examining workforce perceptions, preparedness, and the practical service factors that determine digital technology integration in geriatric care.
Keywords: immersive virtual reality, fall risk, older adults, exergaming, feasibility

Title: Progressive power squat training and falls risk in community-dwelling older transtibial amputees: a mixed-methods multiple-case study

Author: Ms Edwina Zarb; Dr Stephen Lungaro Mifsud

Background: Falls are common in older adults and are particularly prevalent among people with lower- limb amputation. Ageing and amputation-related changes reduce muscle power and functional mobility, potentially increasing falls risk. In the Maltese physiotherapy context, a small but clinically complex group of older adults with limb loss often requires sustained rehabilitation. Feasible interventions that enhance safety, confidence and independence have clear health-system relevance. Power-focused functional strengthening may improve safety; however, evidence in older transtibial amputees living in the community is limited.

Methods: An exploratory mixed-methods multiple-case study was conducted in community-dwelling unilateral transtibial amputees aged ≥65 years with dysvascular aetiology and established prosthetic use. Following Faculty and University Research Ethics Committee approval, participants completed a 12week home programme of progressive "power squat" exercise (3 sets × 8–12 repetitions daily), using a weighted vest to provide progressive resistance.

Outcomes were assessed pre/post using the Berg Balance Scale (BBS), Falls Efficacy Scale–International (FESI), Timed Up and Go (TUG), and handheld dynamometer measures of strength and rate of force development (RFD). Semi-structured interviews explored perceived impact and feasibility.

Results: Seven participants consented; four completed the programme. Improvements in muscle strength and/or power were recorded in five participants, although not uniformly across all muscle groups. Among completers, three demonstrated improved falls-related outcomes (higher BBS scores and reduced concern about falling), with mobility generally improving on TUG. Qualitative findings indicated perceived improvements in mobility, balance, strength, and/or pain in five participants, alongside increased confidence, and activity participation. The principal feasibility barrier was the weighted vest, which was challenging to don/doff and required assistance for most participants, affecting adherence.

Conclusion: A progressive home-based power squat programme shows promising signals for improving falls-related outcomes and muscle function in older transtibial amputees and provides practical guidance for physiotherapy-led community interventions. Equipment choice and support strategies are crucial, larger studies are required to confirm effectiveness and refine progression methods.

Keywords: transtibial amputation; older adults; power training; falls risk; home exercise Programme

Title: Effects of Neuromuscular Electric Nerve Stimulation on quadriceps strength and endurance in patients with Chronic Obstructive Pulmonary Disease. A Randomised Control Trial.

Authors: Mr. Randall Debattista, Dr. Anabel Sciriha, Dr. Tonio P. Agius

Introduction: Neuromuscular Electric Nerve Stimulation (NMES) is a modality gaining interest for the management of participants with Chronic Obstructive Pulmonary Disease (COPD). Given the increased understanding of how the muscle changes structurally as the respiratory condition deteriorates, treatment options are being investigated to help maintain and improve strength and endurance in patients who are limited by poor exercise tolerance and increased dyspnoea and cannot participate in rehabilitation.

Method: Using a randomised control trial design, 33 participants who required admission to hospital due to an Acute Exacerbation of COPD, with a moderate to severe classification based on the MRC score, were recruited and randomly allocated to an experimental or control group. Ethical approval was obtained from the University Research Ethics Committee and the Faculty Research Ethics Committee of Malta (FHS-2021-00004). The study was registered on ClinicalTrials.gov (NCT05539547). Isometric Quadriceps strength was assessed using the hand-held dynamometer, and quadriceps endurance was evaluated with the Quadriceps Endurance Test. Additionally, the Rectus Femoris cross-sectional area, width, and thickness were measured using an Ultrasound. All outcome measures were assessed at baseline and upon hospital discharge in all participants. The experimental group received 30 minutes of NMES stimulation to the quadriceps muscles daily throughout their hospitalisation (mean days: Experimental – 7.78 days, Control – 9.45 days), in addition to the usual physiotherapy treatment provided to all participants by ward physiotherapists. The control group received only Physiotherapy treatment provided in the ward.

Results: This study suggests that applying 30 minutes of NMES to the quadriceps during hospitalisation for an acute exacerbation of COPD can improve muscle strength and endurance, reduce dyspnoea, and lessen the overall impact of COPD on patients. NMES was found to be safe across different levels of disease severity and intervention duration, and it produced benefits within a relatively short average hospital stay (approximately 7.9 days). The findings support the inclusion of NMES as an adjunct to conventional physiotherapy, particularly for moderate to severe AECOPD patients with very limited exercise tolerance and mobility. Improvements in health-related quality of life were observed, reflected by greater improvements in CAT scores in the experimental group. Nonetheless, the intervention demonstrated potential to reduce hospital length of stay, improve resource utilisation, and decrease healthcare costs, while offering physiotherapists a safe, simple, and effective treatment option for severely dyspnoeic patients. On both national and international levels, the study contributes more evidence on the use of NMES from admission to discharge in unstable AECOPD populations.

Conclusions: NMES is a feasible, safe, and effective adjunct to conventional physiotherapy

in hospitalised AECOPD patients, leading to improvements in muscle function, functional performance, and patient-reported outcomes. Additionally, NMES contributed to a reduced length of stay and improved quality of life in moderate-to-severe AECOPD patients with limited exercise tolerance. Overall, it represents an efficient adjunct to physiotherapy with positive implications for clinical practice and healthcare resource utilisation. Larger, multicentre trials with extended follow-up are warranted to determine long-term benefits and effects on readmissions.

Keywords: Acute Exacerbation COPD, COPD, NMES, Quadriceps strength, Ultrasound

Title: Management of Mild to Moderate Osteoarthritis: An Insight into the Perspectives of General Practitioners and Physiotherapists

Ms Christina Desira; Dr Stephen Lungaro-Mifsud

Background:
Osteoarthritis (OA) is one of the most prevalent musculoskeletal conditions, contributing significantly to disability and healthcare burden, particularly within Malta's ageing population. Effective management is essential to improve patient outcomes and reduce reliance on secondary services. This study explored how mild to moderate OA is managed by general practitioners (GPs) and physiotherapists (PTs) in Malta, identifying shared and diverging practices, communication patterns, and opportunities for integrated care.

Methods:
A mixed-methods design was employed, comprising a vignette-based survey distributed to all GPs and PTs, an interview with an orthopaedic consultant bridging primary and secondary care, and a focus group involving three GPs and three PTs. Quantitative data were analysed descriptively, while qualitative data underwent thematic analysis using NVivo software. Ethical approval was obtained from the University Research Ethics Committee (UREC).

Results:
Findings revealed that while professionals were aware of clinical diagnostic guidelines, radiographic imaging remains over-relied upon. GPs tended to initiate pharmacological management, whereas PTs favoured non-pharmacological approaches such as exercise, education, and weight management. Communication barriers between professions, particularly in the public sector, hindered continuity of care. Although both groups valued patient education, many expressed caution in using the term "osteoarthritis" due to perceived patient anxiety. Both GPs and PTs supported the concept of an integrated OA clinic to enhance collaboration and streamline care.

Conclusion:
This study highlights the need for improved interprofessional communication, earlier physiotherapy involvement, and enhanced professional education to align practice with evidence-based guidelines. Promoting integrated OA management pathways and continuous professional development can strengthen patient understanding, reduce fear, and foster self-management, ultimately improving long-term outcomes.

Keywords:
Osteoarthritis, Physiotherapy, Primary Care, Interprofessional Collaboration, Patient Education

Title: Barriers and Motivators to Gym Attendance by Older Persons

Mr Wayne Cutajar; Dr John Xerri de Caro; Dr Stephen Lungaro-Mifsud

Introduction: Population ageing and the promotion of healthy and active ageing are increasingly important globally, including in Malta, due to rising life expectancy. Improving physical fitness is a key component of active ageing. While barriers and motivators to physical activity among older adults have been widely studied, limited research has focused specifically on gym attendance. This study aimed to explore the attitudes of community-dwelling older persons aged 65 years and over towards gym attendance, with the goal of providing the evidence to support policymakers and entrepreneurs to promote workout spaces tailored to older adults' needs.

Method: A multi-method case study design was employed. Phase 1 consisted of an online survey developed by the research team and distributed via Facebook. Phase 2 involved semi-structured interviews with participants who expressed interest in further participation. Data from Phase 1 were analysed using descriptive and inferential statistics, while Phase 2 data were analysed using framework analysis guided by the socio-ecological model and social determinants of health. Ethical approval was obtained from the Faculty Research Ethics Committee (FHS-2022-00030).

Results: A total of 177 community-dwelling older adults participated in Phase 1, and 12 took part in Phase 2 interviews. Findings showed that gym attendance was more likely among the "young old" (65–69 years), individuals living with a spouse or partner, residents of the Northern Harbour District, and those with higher education levels. In contrast, non-attendance was more common among those aged 80 years and over, individuals living with children, residents of the Southern Harbour, Gozo and Comino districts, and those with lower education levels. Key barriers to gym attendance, measured on a 1–5 Likert scale, were cost (3.12), lack of age-appropriate programmes (3.07), lack of willpower (3.01), poor health (2.98), and lack of a positive attitude (2.80). The strongest motivators were good health (4.18), improved physical functioning (3.95), physical benefits (3.92), improved well-being (3.89), and health benefits (3.87). Females reported greater barriers than males. Individual factors, such as perceived health limitations and perceived negative mental health, acted as stronger barriers than social factors, while social and environmental supports were more influential motivators.

Conclusion: Whilst most older persons understand the benefits of gym attendance, this attendance is dependent on a number of factors that may impact a decision to pursue such goals. For policy makers and entrepreneurs knowing what hinders and/ or motivates older persons to attending a gym may serve to focus on reducing the barriers and promoting motivators amongst older persons in pursuit of national and global goals linked to active and healthy ageing.

Keywords: Ageing, motivators, barriers, gym attendance, older persons

Title: Muscle Energy Techniques for Chronic Obstructive Pulmonary Disease Patients: Effects on Pulmonary Function and Activities of Daily Living

Ms Kimberley Sevasta; Dr Anabel Sciriha; Dr Tonio Agius

Background: Chronic Obstructive Pulmonary Disease (COPD) represents a major public health burden in Malta, with high hospital admission rates and significant impact on functional independence and quality of life. While pulmonary rehabilitation and exercise-based interventions are well established, limited local and international evidence exists on addressing the musculoskeletal adaptations associated with altered respiratory mechanics in COPD. Muscle Energy Techniques (METs), commonly used in musculoskeletal physiotherapy, may offer a safe and effective adjunct to respiratory management by targeting accessory muscles of respiration and chest wall mobility.

Methods: A randomised controlled trial was conducted involving 108 patients diagnosed with COPD, who were randomly allocated to an intervention group or control group. Baseline assessments included pulmonary function tests (spirometry), chest excursion measurements, functional exercise capacity using the 6-Minute Walk Test (6MWT), and activities of daily living assessed with the Manchester Respiratory Activities of Daily Living (MR-ADL) questionnaire. The intervention group received a four-week METs programme targeting accessory respiratory muscles, delivered three times weekly in addition to standard medical care, while the control group continued with standard care alone. Outcome measures were reassessed post-intervention and at four-week follow-up. Ethical approval was obtained from the University Research Ethics Committee (UREC).

Results: Statistically significant improvements were observed in the intervention group for pulmonary function measures (P=0.001), chest excursion (P=0.001), and MR-ADL scores (P=0.001), with clinically meaningful improvements in functional exercise capacity. These improvements were maintained at follow-up. No comparable changes were observed in the control group.

Conclusion: METs represent a clinically relevant, safe, and cost-effective adjunct to conventional management for patients with COPD. Incorporating METs into physiotherapy practice may enhance respiratory function, improve activities of daily living, and contribute to more holistic patient-centred care within the Maltese healthcare system. This approach supports physiotherapy-led, non-pharmacological strategies aimed at reducing symptom burden and optimising long-term functional outcomes.

Keywords: Chronic Obstructive Pulmonary Disease; Muscle Energy Techniques; Physiotherapy; Pulmonary Function; Activities of Daily Living

Title: A 12-week Pilates programme for Low Back Pain: Perceived and Actual Outcomes

Ms Janette Falzon; Dr Tonio Agius; Dr Anabel Sciriha

Background: Low back pain (LBP) is a highly prevalent musculoskeletal condition associated with disability, reduced quality of life, and psychological impact. Exercise therapy, particularly Pilates, has gained attention as a conservative management strategy due to its focus on spinal stabilisation, core activation, posture, and movement control. Although previous studies report improvements in pain and function, uncertainty remains regarding optimal programme duration, long-term outcomes, and patient perceptions of Pilates as a therapeutic intervention.

Methods: This study proposes a longitudinal, three-arm observational intervention investigating perceived and actual outcomes of a 12-week Pilates programme for adults with LBP. Phase one assesses patient perceptions using pre-intervention questionnaires. Phase two randomly assigns 90 participants to Pilates, general exercise, or control groups. Outcome measures include the Numeric Pain Rating Scale, Quebec Back Pain Disability Scale, RAND-36 Health Survey, and Hospital Anxiety and Depression Scale, assessed at baseline, 4, 8, 12, 24, and 52 weeks. Quantitative statistical analyses and comparative tests will evaluate changes over time and between groups

Results: The study expects that participants undertaking Pilates will demonstrate clinically meaningful reductions in pain and disability, improved quality of life, and more positive perceptions toward exercise-based management compared with exercise and control groups. Improvements are anticipated to emerge progressively across the intervention and partially persist at follow-up assessments.

Conclusion: This research aims to clarify both subjective perceptions and measurable outcomes of Pilates for LBP, contributing evidence on programme effectiveness and optimal duration while informing clinical practice and enhancing patient adherence to rehabilitation strategies.

Poster Presentation Abstracts

Title: Physical Activity Patterns in Maltese Adults Living with Type 2 Diabetes Mellitus

Authors: Daniela Carabott Pawley, John Xerri de Caro.

Background: Standing at 11.2%, the prevalence of Type 2 Diabetes Mellitus (T2DM) in Malta exceeds the European average (9.2%) as reported by the International Diabetes Federation (2021). This high burden, closely associated with obesity and sedentary lifestyles, presents significant challenges for Maltese physiotherapy and the wider healthcare sector. Physical activity (PA) is a cornerstone in T2DM management; however, limited local data exist regarding PA patterns among Maltese adults living with T2DM.

Methods: A cross-sectional study was conducted in 2020 involving 104 Maltese adults diagnosed with T2DM. PA patterns were assessed using the International Physical Activity Questionnaire (IPAQ). A representative subgroup of seven participants also wore accelerometers to provide objective PA data. Demographic and anthropometric data were collected. Descriptive and inferential statistical analyses were performed to explore associations between PA, age, BMI, and gender. Ethical approval was obtained from the Faculty and the University Research Ethics Committees (FREC, UREC).

Results: Among participants, 47.5% were obese, 33.3% overweight, and 8.1% morbidly obese. Although not statistically significant, a trend suggested higher BMI among younger individuals. Based on IPAQ scoring, 89.9% met recommended weekly PA levels across daily activity domains. Housework was the main contributor to total PA in females, while occupational activity predominated in males. Only 19% engaged in moderate structured leisure-time exercise. Total PA was negatively correlated with age ($p=0.004$) but not with BMI or gender. Accelerometer data indicated low step counts and suggested underreporting of sedentary time.

Conclusion: Although most Maltese adults with T2DM report meeting PA guidelines, high obesity rates and sedentary behaviours persist. These findings emphasise the need for physiotherapists to focus on the quality and structure of PA, promote exercise-specific interventions, and integrate objective monitoring of PA and sedentary time into T2DM management strategies in Malta.

Keywords: Type 2 Diabetes Mellitus, physical activity patterns, obesity, physiotherapy, Malta

Title: The Effectiveness of Manual Techniques in Comparison to External Devices for Chest Clearance in Individuals with Cystic Fibrosis

Mr Silvan Chircop

Background: Manual techniques have long been a central component in the treatment and management of individuals with cystic fibrosis (CF), forming a key part of chest physiotherapy for several decades. Advances in science and technology have led to the development of external devices that aim to perform similar functions in airway clearance. This dissertation will evaluate the effectiveness of manual chest clearance techniques compared with external airway clearance devices in individuals with cystic fibrosis.

Method: The PICO design was used and divided as follows; Population: Individuals with CF of any age, gender, and race; Intervention: Manual techniques also known as Conventional Chest Physiotherapy (CCPT); Comparison: External devices which include Mechanical Percussion (MP), High-Frequency Chest Wall Compression (HFCC) and Positive Expiratory Pressure (PEP) devices Outcome: Chest clearance through dislodging and enhancing the removal of secretions. Based on the PICO elements, diagnosed CF individuals of any age, gender and race and studies published in English between 1970-2020 were included. This yielded 3 systematic reviews (SRs) and meta-analyses of randomised controlled trials (RCTs), and 5 RCTs. The CASP tools for SRs and RCTs were applied.

Results: Across the studies included in this PICO study, no statistically significant differences were identified between conventional chest physiotherapy (CCPT) and the external airway clearance devices to which it was compared. Overall, manual techniques were found to be as effective as external devices for chest clearance in individuals with cystic fibrosis. One randomised controlled trial comparing CCPT with positive expiratory pressure (PEP) therapy reported superior long-term effectiveness of PEP. The external devices evaluated in this review included mask Mechanical Percussions (MP), Positive Expiratory Pressure (PEP), and High-Frequency Chest wall Compression (HFCC). Despite comparable clinical effectiveness, patient preference tended to favour external devices, largely due to increased independence and ease of self-management.

Keywords: MANUAL TECHNIQUES/ CONVENTIONAL CHEST PHYSIOTHERAPY, POSITIVE EXPIRATORY PRESSURE, HIGH-FREQUENCY CHEST WALL COMPRESSION, CHEST CLEARANCE CYSTIC FIBROSIS

Title: Exploring the Correlation Between an Athletic Screening Programme and Injuries in Maltese Triathletes

Ms Isabella Bonello

Background: Triathlon is a physically demanding sport that exposes athletes to a high risk of overuse injuries. Athletic screening programmes are commonly used to identify physical imbalances and potential injury risk factors. However, their effectiveness in predicting injuries in triathletes remains uncertain, particularly within the Maltese context, where limited research exists.

Methods: An observational case study design was adopted involving seven Maltese triathletes. Participants completed three screening assessments: the Sit and Reach Test (SRT) to assess posterior chain flexibility, the Horizontal Jump Test (HJT) to evaluate lower-limb explosive power, and Glenohumeral Internal Rotation Deficit (GIRD) measurement to examine shoulder mobility. Three months following screening, participants completed a questionnaire to collect self-reported data on injuries, training habits, and injury prevention strategies. Each participant was analysed individually by comparing screening outcomes with questionnaire responses. Ethical approval was obtained from the Faculty Research Ethics Committee.

Results: Three participants reported injuries during the follow-up period. These individuals commonly demonstrated reduced flexibility, lower power output, and/or shoulder mobility restrictions. However, similar physical deficits were also observed in some participants who remained injury-free. This suggests that physical imbalances alone may not consistently predict injury occurrence. Injuries appeared to be influenced by multiple interacting factors, including training load, recovery practices, and individual characteristics.

Conclusion: Findings indicate a low to moderate correlation between screening outcomes and injury occurrence among Maltese triathletes. Injuries appear to be multifactorial in nature and cannot be predicted by screening tests in isolation. While screening programmes can help identify modifiable risk factors, they should form part of a broader, individualised injury prevention strategy incorporating training management, recovery, and continuous monitoring. Further research with larger samples is recommended.

Keywords: Injury prevention; Triathlon; Athletic screening; Flexibility; Power; Shoulder mobility; Case study

Comparing the Effects of Conventional Chest Physiotherapy with other Airway Clearance Techniques for Cystic Fibrosis Patients.

Ms Emma Caruana, Ms Patricia Privitera O'Brien, Dr. Anabel Sciriha and Dr. Tonio Agius

Background: Cystic fibrosis (CF) is a progressive genetic disorder caused by CFTR mutations, leading to impaired mucociliary clearance, recurrent infections and progressive pulmonary decline. Physiotherapy is a cornerstone of management, with ACTs designed to mobilise and eliminate secretions. CCPT, comprising postural drainage, percussion and vibration, has historically been the standard technique. However, challenges with adherence and caregiver dependence have encouraged the development of alternative ACTs, including the ACBT, AD, PEP devices, and OD. Despite their widespread adoption, the comparative efficacy of CCPT versus alternatives remains unclear. The research question guiding this review was therefore 'How does Conventional Chest Physiotherapy compare to other Airway Clearance Techniques in the physiotherapeutic management of Cystic Fibrosis?'.

Method: A systematic literature search was conducted in 2023 across 4 databases, using the PICO framework. Limiters included English language, systematic reviews (SRs) or meta-analyses, and publication within the last 10 years. After duplicate removal and screening of 85 titles and abstracts, 5 SRs met eligibility criteria. Studies were appraised using the Critical Appraisal Skills Programme (CASP) SR Checklist (2018).

Results: The included reviews compared CCPT with ACBT, AD, PEP, and OD in paediatric and adult CF populations. Outcome measures included FEV1, FVC, FEF25-75, sputum weight and number of pulmonary exacerbations. Across all comparisons, no statistically significant differences were observed between CCPT and alternative ACTs. Although some studies reported minor trends favouring specific techniques, results were inconsistent and lacked statistical precision. Overall evidence certainty was low to moderate, limited by small sample sizes, short follow-up, and clinical heterogeneity in populations and interventions.

Conclusion: Current evidence does not demonstrate superiority of CCPT over other ACTs in improving pulmonary outcomes in CF. While CCPT remains appropriate where patient preference, caregiver support, or resources favour its use, adherence and quality of life are important considerations, and techniques such as PEP and OD may better support independence. Further large-scale, long-term randomised controlled trials with standardised, patient- centred outcomes are needed to guide evidence-based, individualised care.

Keywords: Cystic Fibrosis, Conventional Chest Physiotherapy, Airway Clearance Techniques, Pulmonary Outcomes, Physiotherapy

Title: The Perceived Barriers and Facilitators to the Usage of Mobility Aids in Older Adults Living in the Community.

Ms Nathalie Mangion, Ms Claire Spiteri

At the heart of physiotherapy practice lies a commitment to nurturing successful ageing, particularly in response to the evolving demographic landscape of Malta's ageing population. Despite the well-established benefits of mobility aids in mitigating the adverse effects of immobility-related deconditioning, reluctance towards their utilisation persists. This study was designed to investigate the viewpoints of older adults on the barriers hindering and motivators facilitating the use of mobility aids, with the overarching objective of pinpointing areas for improvements to guide healthcare professionals in promoting their adoption. A semi-structured interview featuring open-ended questions was implemented to answer the research question; “What factors within the Maltese setting motivate or limit the use of a mobility aid in older adults?” The interviews yielded rich insights from five Maltese community-dwelling older adults who were recruited from the physiotherapy outpatient department at Saint Vincent de Paul (SVP).

Inclusion criteria comprised individuals aged sixty-five or older who had been utilizing frames, crutches, or sticks for at least one month. Following data collection, the reflexive thematic analysis uncovered three key themes: psychosocial dynamics, mobility aid equipment, and personal factors. The findings revealed prevalent barriers, namely inadequate infrastructure, and challenges in handling objects whilst using mobility aids, which consequently exacerbated difficulties in daily routines. Alternatively, improvements in balance and pain, facilitated safe mobility, thus fostering greater social interactions and independence in daily activities. This study's findings affirm iii that all types of mobility aids exhibit both facilitators and barriers, emphasizing the necessity of nationwide research to attain a holistic understanding of the topic.

In essence, the research promotes improved accessibility to personalized mobility aids coupled with increased peer and physiotherapy support to address barriers and enhance usability, thereby making a significant contribution to the overall well-being of older adults.

Keywords: AGEING, CRUTCHES, STICKS, FRAMES, COMMUNITY-DWELLING, MOBILITY

Title: The Effectiveness of a 12week Exercise Programme in Hip OsteoArthritis

Ms Ilona Dalmas; Dr Tonio Agius; Dr Anabel Sciriha

Background: Osteoarthritis (OA) is a common disease caused by the destruction of the joint cartilage. Pain, stiffness and dysfunction during activities of daily living are common reasons leading to a hip arthroplasty. Programmes based on quadriceps strengthening are now evidence-based. Therefore, this study aims to explore and investigate the effects of a 12-week hip exercise programme on pain and functional levels.

Methods: This study reports outcomes of a randomised controlled trial. 40 participants were randomly allocated into 2 groups: control group and an intervention group. All participants were asked general demographic data at baseline, followed by assessment using the NPRS, WOMAC Scale, 6 MWT and muscle testing. Participants in the control group received no intervention, whereas the others performed hip exercises. A 12-week exercise programme resulted in highly statistically significant improvements for participants in the intervention group and minimal changes for the control group.

Results: Data is presented for both groups respectively as follows: 6MWD $P<0.001$, $P=0.928$; NPRS $P=0.035$, $P=0.325$; WOMAC $P<0.001$, $P=0.032$.

Conclusion: A 12-week exercise programme resulted in clinical and statistically significant improvements for the intervention group.

Key Words: Arthritis; Management; Physiotherapy; Rehabilitation