

potential NISE pain mechanism. This can also be used to aid in screening for suitable laboratory tests for suitable interventions. The items can be translated into clinical practice as a subjective history for those whose past medical history indicates further screening.

Funding Acknowledgements: There was no funding

Ethics Approval: The Health Research Ethics Authority deemed this stage of the project as program development, therefore full ethics approval was not required

Disclosure of Interest: None Declared

Keywords: Autonomic, Endocrine, Pain mechanism

Advanced assessment/practice and managing complex patients

PO4-PA-063

RELIABILITY OF MECHANICAL DIAGNOSIS AND THERAPY CLASSIFICATION FOR EXTREMITY PROBLEMS USING REAL PATIENTS

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Background: The McKenzie System of Mechanical Diagnosis and Therapy (MDT) is a reliable system for the management of spinal problems and uses non-pathoanatomically specific classifications to guide a management strategy. For classification of extremity disorders, inter-examiner reliability has not been investigated using real patients. In the literature, reliability studies using real patients have two methodologies: 1) simultaneous assessments, where one therapist performs the assessment and the other observes and 2) successive assessments, where each therapist assesses individually, usually with a short time period in between.

Purpose: The purpose of this study was to investigate the reliability of MDT provisional classification for extremity disorders using real patients during simultaneous and successive assessments.

Methods: A MDT Credentialed therapist observed the assessments of two MDT Diploma therapists who successively performed a MDT assessment of 33 real patients with extremity pain on the same day. Immediately after each evaluation, the Credentialed therapist and both Diploma therapists assigned the most appropriate MDT classification out of 15 categories, where they were blinded to each other's choice. Observed agreement and Cohen's kappa were calculated for the reliability of MDT classification.

Results: The observed agreement for the 15-MDT categories of classification between the MDT Credentialed therapist and the first MDT Diploma therapist was 78.8%. Cohen's kappa (95% confidence interval) was 0.72 (0.54 – 0.89), indicating good reliability. However, the observed agreement between the two MDT Diploma therapists when the patient was assessed separately was 42.4%. Cohen's kappa was 0.21 (0.01 – 0.41), indicating poor reliability.

Conclusion: This study found that inter-examiner reliability for provisional MDT extremity classification was good when the assessor and observer were concurrently seeing that same patient, but poor when the patient was seen successively. Further studies are required to establish which factors, including study methodology, were responsible for the divergent results for the MDT assessment of extremity disorders.

Implications: This finding would suggest that trained MDT practitioners have achieved standardized clinical reasoning skills through the MDT educational curriculum and can reliably assign a classification for musculoskeletal extremity disorders. Importantly, it is a feature of MDT that the classification of a subgroup at the initial session is provisional and changing the provisional subgroup is possible according to patient's symptomatic and/or mechanical responses to a loading strategy prescribed as home exercises at the initial session. It would be required to consider a robust methodology to investigate the inter-examiner agreement of a concluding subgroup for full understanding the inter-examiner MDT classification reliability reflecting clinical practice.

Funding Acknowledgements: This study was supported by Saitama Prefectural University Research Grant.

Ethics Approval: Ethical approval for the study was gained from the Human Medical Ethics Committee in the Saitama Prefectural University, Japan.

Disclosure of Interest: None Declared

Keywords: Classification, Musculoskeletal pain, Reliability

Advanced assessment/practice and managing complex patients

PO4-PA-066

A PAIN NEUROSCIENCE EDUCATION PROGRAM FOR FIBROMYALGIA PATIENTS WITH COGNITIVE DEFICITS: A CASE SERIES

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Background: The literature has suggested that Pain neurophysiology education (PNE) can have positive effects on pain, disability and maladaptive pain cognitions in fibromyalgia (FM) patients but no significant changes in these variables have been found in response to PNE in FM patients. Reasons for these findings may relate with the design of the PNE programmes, traditionally composed of only 1 or 2 sessions with a wide variety of complex contents, which do not take into account the memory and concentration problems identified in those patients.

Purpose: This case series aims to describe the effects of a combined programme of PNE and exercise for FM patients. The PNE was specifically designed for FM patients with cognitive deficits and included 6 sessions of PNE in a face-to-face format complemented with an educational booklet, the discussion of a case study and involvement of family members in treatment sessions.

Methods: Nine consecutive patients with a diagnosis of FM and concentration and memory problems (identified by the concentration subscale of the checklist of Individual strength- CIS-20, and a numeric scale to access memory) were included in this case series. All patients underwent in a 6-week programme (first 3 weeks) followed by 6 sessions of individualized exercise (aerobic exercise, motor control training and aquatic exercise). Participants were assessed at the baseline, 3 and 6 weeks, and at 3 and 6 months follow-ups. Outcomes measures included the Numerical Pain Rating Scale, the Tampa Scale of Kinesiophobia, the Pain Catastrophizing Scale, and the Patient Global Improvement of Change Scale.

Results: All 9 participants were women with a median age of 53 years (range: 38–64). Six weeks after the beginning of the intervention, all the patients reported perceived benefits in perception of overall change, and 7 of the 9 patients (78%) demonstrated a clinically meaningful improvement in pain intensity. Of the 9 participants, 8 exhibited reductions in pain catastrophization and 7 in kinesiophobia. However, at the 6 months follow-up, the proportion of patients with a clinically meaningful improvement in pain intensity and in the perception of overall change decreases to 5/9 and 7/9, respectively.

Conclusion: This case series suggests that an adjusted programme of PNE followed by individualized exercise could change maladaptive pain cognitions and decrease pain intensity in FM patients. The dilution of the course content for several sessions and the inclusion of additional learning strategies may have been critical for these results.

Implications: This study's results suggest that cognitive characteristics of FM patients should be considered in the design of PNE programmes in order to optimize their results. However, since a cause-effect relationship cannot be deduced from this case series, a randomized controlled trial should be taken into account to evaluate the effectiveness of this programme in FM patients.

Funding Acknowledgements: Not applicable

Ethics Approval: Approved by the Ethics Committee - Castelo Branco Local Health Unit

Disclosure of Interest: None Declared

Keywords: Fibromyalgia, Pain neuroscience education

**Advanced assessment/practice and managing complex patients
PO4-SP-067**

WHAT DO PHYSIOTHERAPISTS CONSIDER TO BE THE OPTIMAL SITTING AND STANDING POSTURE?

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Background: Postural education and provision of advice are integral parts of physiotherapy practice. Despite that sitting and standing posture predominate in many lifestyles and workplaces the definition of optimal sitting and standing posture diverge in the literature.

Purpose: There is evidence that education of specific postures may help reduce spinal symptoms. On top of that, widely accepted clinical beliefs concerning “good” and “bad” posture exist among physical therapists. Interestingly, there is limited evidence of what healthcare professionals perceive as the best sitting or standing posture.

Methods: A range of postures observed in clinical practice (7 sitting, 5 standing) were chosen and data (9 sagittal angles) were obtained by using VICON motion analysis system. Photographs of these postures were taken and used for a survey. In this survey 403, so far, Greek physiotherapists participated and were asked to select the best posture and to justify their selection. Furthermore, physiotherapists were surveyed about their qualifications, level and years of experience, area of expertise and clinical setting. Finally, they were asked to rate the importance of postural education in clinical practice.

By using SPSS posture selection frequency was calculated. The chi-square test was used to assess significant differences in posture selection frequency and level and years of experience, qualifications, area of expertise and clinical setting. The level of significance was set at $p < 0.05$.

Results: 95.5% and 98.2% of physiotherapists selected one of three sitting and one of two standing postures. One upright sitting posture was significantly selected more frequently (41.5%) than others [$\chi^2(1, N=275)=12.658$ both] and one standing significantly selected more frequently (57.7%) than the other [$\chi^2(1, N=395)=12.053$] (all $p < 0.001$). The most frequent sitting and standing posture did not varied between genders, years of experience and qualifications (all $p < 0.05$). The significance of postural education was rated as important or very important by 94% of the physiotherapists.

Conclusion: The majority of physiotherapists consider sitting and standing posture important in clinical practice. Despite the big percentage of selected postures, the definition of optimal spinal posture remains unclear even among health professionals.

Implications: The selected sitting and standing postures were quite different from each other indicating a lack of agreement. This study highlighted that several spinal segment’s configurations meet the criteria of qualitatively described “optimal” sitting and standing posture.

Funding Acknowledgements: Funding none

Ethics Approval: University of Thessaly ethics committee

Disclosure of Interest: None Declared

Keywords: Physiotherapy, sitting posture, Standing posture

**Changing roles and scope of practice
PO1-AP-006**

PHYSIOTHERAPISTS COULD PLAY A ROLE IN NEUROMUSCULOSKELETAL DIAGNOSIS AND TRIAGE IN FRANCE. EXAMPLE OF A CASE REPORT OF A PATIENT CONSULTING A PHYSIOTHERAPIST IN SECONDARY CARE FOR GROIN PAIN AND A MEDICAL DIAGNOSIS OF TENDINOPATHY

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Background: French physiotherapists (FPT) do not have direct access and therefore cannot offer primary care, as this is the monopoly of the French

medical profession. There is, in the mean time, an increased number of physiotherapists trained in neuromusculoskeletal (NMS) and enrolled in post-graduate fellowship programs taught in France by physiotherapists from countries where there is direct access. Data exists showing a high prevalence of primary care visits to general practitioners (GP) concerning NMS complaints but these professionals have limited training in this field. French publications are scarce regarding the capacity of the FPT to thoroughly examine and triage NMS conditions either in secondary or primary health care facilities, whereas there are a number of reports showing safety and efficiency of NMS physiotherapists working in primary care around the world.

Purpose: The aim of this case report is to demonstrate that FPTs with neuromusculoskeletal education are able to carry out a thorough clinical examination, make a NMS differential diagnosis, and assist primary care practitioners in deciding the best course of action for their patients.

Methods: A 33 year old male mechanic was sent to physiotherapy by his GP with a prescription for « electrophysical modalities for the left iliopsoas ». This patient’s main complaint was a transfixing stabbing intermittent pain in the groin and in the buttock with referred pain in the thigh and leg felt more at rest or after work. He started to develop this pain two months ago while he was on holidays , for no particular reason. A week ago, he started to develop severe night pain which forced him to get out of bed to move. The patient did not report any other pain anywhere else except for some episodic migraines. Imaging ultrasound of the hip and lumbar MRI were ordered by his GP but turned out to be normal.

Results: A subjective examination and a lower quadrant scan were performed. The scan included observation/posture, functional tests, active/passive movements of the low back, hip, knee, ankle/foot, resisted movements at these same joints, neurological examination, neurodynamic testing, lumbar and sacroiliac provocation tests, palpation, and muscle flexibility. The clinical examination highlighted the inaccuracy of the medical diagnosis as the patient did not present with a tendinopathy but rather with a hip joint problem. Considering the sudden onset of pain without any particular history, the severity of the pain, the history of night pain, pain at rest, his past history as a heavy smoker, his family history of inflammatory arthritis, and the fact that all hip movements were painful, the decision was taken to refer the patient back to his doctor to rule out any vascular problem of the femoral head or inflammatory arthritis of the coxo-femoral joint. The GP sent the patient to the hospital for more investigations where he underwent hip x-rays, blood tests and analysis of synovial fluid in his hip revealing the presence of infection in the hip joint. The patient was then put on an antibiotic treatment with monitoring.

Conclusion: This case report shows how a thorough clinical examination and differential diagnosis in the musculoskeletal field in the French context, may result in success triage.

Implications: Although the French physiotherapists are considered a secondary health care profession, an educated physiotherapist has the knowledge and clinical skills for doing primary health care screening for NMS conditions. Making proper use of these skilled clinicians would allow patients to be screened sooner and would save money for social security.

Funding Acknowledgements: No funding sources supported this work.

Ethics Approval: Ethics approval was not required.

Disclosure of Interest: None Declared

Keywords: Differential diagnosis, Triage, France

**Changing roles and scope of practice
PO1-LB-042**

EFFECT OF POPULAR SPINAL MANIPULATIVE THERAPIES ON ACUTE RADICULOPATHY IN RAT MODEL

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Background: The Spinal manipulative therapy (SMT) has been argued for decades in treating patient with lumbar disc herniation (LDH), especially during the acute episode of radiculopathy. Despite of ambiguity SMT is now still taken for granted as a one of the most “effective” treatments to LDH patients as it had done for thousands of years. There is still a high need for well-designed laboratory study to probe deeply the pathomechanics of