functioning and social adjustment, two important components of health-related quality of life. Increased attention to effective management of pain in pediatric scleroderma will likely lead to improved functioning and quality of life.

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FRI0706-HPR COMPARISON OF IMPACT OF VERUM AND PLACEBO THUMB BASE ORTHOSES ON SKIN SURFACE TEMPERATURE AND PRESSURE : A PROOF OF CONCEPT STUDY

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Background: Basal thumb osteoarthritis (OA) can cause significant pain and cause a decline in hand function (Litwic et al 2013). Guidelines for treatment of symptomatic basal thumb OA supports a conservative approach, including splinting to support the carpometacarpal joint (CMCJ) and reduce the painful movements of the thumb joint during functional tasks (Zhang et al 2000). Lack of legitimate placebo thumb splint has been a barrier to research to distinguish the specific mechanism of the perceived therapeutic effect of wearing thumb splints. Despite this, splinting of the basal thumb joint remains a common intervention for pain. This research contributed to a national CRN portfolio adopted study examining the clinical effectiveness and efficacy of basal thumb splints for people with basal thumb OA.

Objectives: In the present study, the efficacy of two novel placebo splint designs are examined in comparison to widely used verum thumb splint and no splint for the effect at skin surface interface whilst performing a functional task

Methods: This proof of concept study used a single blind, cross-over design that assessed the effect of wearing different splint conditions on the skin surface interface during a functional hand task.

17 healthy participants (male n=8; female n=9) who met the inclusion criteria were recruited to take part in the study. Skin surface temperature (°C) and pressure exerted at the skin surface interface was recorded during performance of a standardised hand function task, the nine-hole peg test (9HPT) for four splint conditions i) verum splint (Promedics NC79562), ii) placebo lycra splint (P1); iii) placebo lycra splint "lite" (P2) and iv) no splint. Data were recorded and analysed by one rater using MatLab and SPSS software.

Results: It was observed from the mean rank that the verum splint condition caused the greatest pressures compared to all other splint conditions. Post hoc analysis revealed there was no difference in pressure exerted over the CMCJ between the no splint condition and P1 ($Z = -1.577$, $p=0.115$) and P2 ($Z = -0.365$, $p=0.715$). The verum splint caused a significant increase in pressure over the CMCJ in comparison to all other test conditions ($Z = -3.516$, $p<0.0005$).

ANOVA showed a significant effect of splint design on temp ($F(3,16)=22.96$, $p<0.05$). Post hoc analysis revealed that the verum splint produced a significantly higher skin surface temperature ($32.67^{\circ}\text{C} \pm 1.10^{\circ}\text{C}$) than P1 ($31.75^{\circ}\text{C} \pm 1.10^{\circ}\text{C}$, $p<0.0005$), P2 ($31.85^{\circ}\text{C} \pm 1.11^{\circ}\text{C}$, $p=0.001$) and no splint ($31.06^{\circ}\text{C} \pm 1.24^{\circ}\text{C}$, $p<0.0005$) conditions. No differences in skin temperature was shown between placebo designs ($p=1.00$).

Conclusion: This study is the first to characterise the effect of different thumb splint designs on the skin surface temperature and the mechanical loading force local to the CMCJ.

This study further informs the specific effect of thumb splints at the joint interface. Identifying that new placebo splint designs do not provide additional support to the thumb joint is a novel supplement to research surrounding thumb splinting intervention and can support the use of these devices as placebo splint conditions in future trials.

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FRI0707-HPR IS A TAILORED DELIVERY OF NORDIC WALKING ACCEPTABLE FOR PEOPLE WITH INFLAMMATORY RHEUMATIC DISEASE?

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Background: People with inflammatory rheumatic diseases find it more difficult to stay physically active. Although interventions delivered in a clinical setting lead to short-term benefits, sustaining physical activity is challenging. Nordic Walking is a whole-body physical activity that involves walking with poles. It has been shown to be beneficial in long-term conditions but not specifically for inflammatory rheumatic diseases.

Objectives: To establish the acceptability of a tailored Nordic Walking intervention in this population as preparation for a full efficacy trial.

Methods: The intervention was developed collaboratively with patient research partners and involves a 30-minute training session followed by 10 one hour sessions of Nordic Walking over 10 weeks. Twelve people received the intervention between May and July 2018 and 12 more from September to November 2018. The intervention differed from standard Nordic Walking in several ways; initial training was provided in small groups of 2 to 3 by an instructor and a rheumatology physiotherapist. Flexible routes enabled participants to self-select their pace and distance. Routes radiated from, and circled back to, a central base with seats and drinking water.

Participants completed a Short Form (36) Health Survey (the RAND) at baseline and post-intervention and took part in a focus group or interview.

Results: Eighteen females and six males; mean age 60 years (range 35-82) were recruited from rheumatology clinics in the Southwest of England. All participants had a diagnosis of an inflammatory rheumatic disease including rheumatoid arthritis, psoriatic arthritis, axial spondyloarthritis, connective tissue disease and systemic vasculitis. SF-36 data suggested a trend towards improvements and qualitative data provided insights into why the intervention was acceptable. All 24 participants enjoyed being active outdoors and reported benefits such as 'walking taller', 'better posture', 'better balance' and 'improved well-being'.

Results reveal how important the adaptations with this tailored delivery of Nordic Walking were to participants. They found it reassuring that rheumatology specialists had contributed to the design of the intervention and that delivery was supported by a physiotherapist. Learning Nordic Walking in small groups alongside people with similar conditions was popular and meant that participants could walk at their own pace, engage with peers and felt supported. Participants said they would not join a non-specialised Nordic Walking group. Several participants subsequently purchased their own Nordic Walking poles and have arranged to meet independently to continue, indicating the potential for sustainability.

Conclusion: This tailored delivery of Nordic Walking has the potential to offer acceptable, beneficial and sustainable physical activity for patients with inflammatory rheumatic diseases. Further research is now needed to investigate the long-term impact in a full efficacy trial.

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FRI0708-HPR PROGNOSTIC FACTORS ASSOCIATED WITH AN EARLY RESPONSE TO PHYSIOTHERAPY TREATMENT IN PATIENTS WITH CHRONIC NONSPECIFIC NECK PAIN: AN EXPLORATORY PROGNOSTIC MODEL

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Background: Chronic nonspecific neck pain (CNP) is a common health problem worldwide. Previous studies identified sociodemographic and clinical factors associated with successful outcomes in patients at discharge of physiotherapy treatment. However, the prognostic factors associated with an early response to physiotherapy treatment in patients with CNP are unclear. This knowledge may allow to identify a profile of patients with higher odds of improvement at the beginning of treatment, supporting clinical decision-making considering benefits versus non-benefits at short-term.

Objectives: This study aimed to identify prognostic factors associated with an early successful response to Physiotherapy treatment in patients with CNP. The successful response was defined as a reduction on disability of $\geq 30\%$ after 3-weeks of physiotherapy treatment.

Methods: A prospective cohort study was conducted on 52 patients with CNP lasting ≥ 3 months, undergoing a physiotherapy treatment programme of mobilisation and exercise (coordination, strength, endurance). Patients were assessed at baseline, and then 3-weeks later. Participants were categorised as having a successful outcome if they scored a difference in their disability above the Minimal Clinical Important Difference (MCID) of the Neck Disability Index (NDI). Logistic regression analysis (backward stepwise conditional method) was used to identify the associations between baseline prognostic factors and outcome. Socio-demographic and clinical characteristics of CNP were included as potential prognostic factors.

Results: A total of 51 participants completed the intervention. At 3-weeks post-treatment, 75% (38/51) of the participants achieved a successful response to physiotherapy treatment. In the final multivariate model (Omnibus Tests $p < 0.001$), an early successful response to Physiotherapy treatment was significantly associated with the disability score (OR 1.16 – CI 95% 1.02-1.32), and pain intensity (OR 1.81 – CI 95% 1.03-3.20) at the baseline. This model improves the classification ability from 74.5 to 86.3%, explaining 50.6% of the outcome, with good predictive ability of sensibility (94.5%) and modest specificity (61.5%). The area under the ROC curve for disability score (0.8; 95% CI: 0.6-0.9) and pain intensity (0.7; 95% CI: 0.5-0.9) indicated good and acceptable discriminatory ability, respectively. After 3-weeks of mobilisation and exercise, the patients with scores ≥ 12 on NDI and ≥ 7 on Numeric Pain Rating Scale at baseline have increased odds of achieving an early response to treatment in the presence of both variables (+LR=1.71 95% CI: 0.84-3.50) or one variable (+LR=1.45 95% CI: 0.69-3.04).

Conclusion: This study suggests that patients with medium to high levels of disability and high levels of pain at the baseline, treated with a physiotherapy programme of mobilisation and exercise, are more likely to experience an early reduction on their disability score. References:

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FRI0709-HPR EFFECTS OF LAND- AND WATER-BASED EXERCISE INTERVENTIONS ON PAIN IN PEOPLE WITH FIBROMYALGIA: A PRELIMINARY REPORT FROM THE AL-ÁNDALUS RANDOMISED CONTROLLED TRIAL

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Background: Non-pharmacological approaches are the mainstay of treatment in fibromyalgia. The current recommendations of the European League Against Rheumatism (EULAR) for the management of fibromyalgia highlight that exercise is the only therapy with a 'strong' evidence [1]. Exercise has been typically implemented on either land- or water-based settings. However, it is unclear whether to perform exercise in different settings has different effects on pain; this knowledge might help to maximise the beneficial effects that exercise has in fibromyalgia [2]

Objectives: To compare the effects of two exercise interventions (land- and water-based training) on pain in people with fibromyalgia.

Methods: From 272 initially randomized, a total of 151 participants (50.6 $\pm$ 7.6 years old, 98% women) completed all the assessments and attended to at least 70% of the programme; 48, 42 and 61 participants pertained to the land-based exercise, water-based exercise, and usual care (control) groups, respectively. The intervention groups trained 3 non-consecutive days/week (45-60 minutes per session) for 24 weeks. Each session included aerobic exercises, muscular strengthening and stretching for all the major muscle groups. Pain was measured by the 0-100 mm visual analogue scale (VAS) from the Fibromyalgia Impact Questionnaire (FIQ). Catastrophizing and self-efficacy pain-related cognitions were assessed by the Pain Catastrophizing Scale (PCS total score) and pain management subscale (PSE) of the Chronic Pain Self-efficacy Scale (CPSS), respectively. We calculated an algometer score based on the sum of pain thresholds (kg/cm²) of the 18 tender points according to the 1990 American College of Rheumatology fibromyalgia diagnostic criteria. Participants were evaluated at baseline (pre-test), at the end of the 24-week intervention (post-test) and after a 12-week detraining period (re-test).

The groups were comparable in sociodemographic and clinical characteristics; they only differ on age, which was included as a covariate along with baseline levels of pain.

Results: Adjusting for Bonferroni, most of the between-group comparisons of pain changes over time were not significant. As exceptions, in comparison to the control group, participants in the land-based exercise group lowered catastrophizing and improved algometer score at the post-tests; mean difference (95% interval confidence) [MD(95% CI)] = -4.0 (-7.5 to -0.5) and 6.2 (2.0 to 10.5), respectively. These differences became non-significant at the re-test.

Conclusion: These preliminary results suggest that a 24-week land-based exercise intervention had beneficial effects by reducing pain catastrophizing and increasing algometer score in people with fibromyalgia. However, these benefits were unsustainable after the detraining period. In comparison to the control group, a water-based exercise intervention did not show any effect on pain. Although our findings suggest that a land-based exercise intervention may have short-term beneficial effects on pain, these findings must be considered as preliminary until more robust analyses are performed.

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