

# PhysioFindings

Caroline White on the latest physio research



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## Exercise pain doesn't equal tissue damage

Therapeutic exercise that temporarily aggravates pain needn't be ruled out or avoided in people with painful musculoskeletal disorders, concludes a systematic review of the available evidence. This is because it can lessen pain, overall, at least in the short term.

The researchers drew on nine studies (covering seven trials), which compared the impact of home-based exercise programmes designed to encourage/allow pain with those designed to avoid it, on overall pain levels, physical function, and disability.

The studies involved 487 people aged from 19 to 83 years with low back, shoulder, achilles tendon or plantar heel pain.

Pooling the data from the six trials (385 participants) which reported on pain levels



showed that pain-inducing exercises conferred a small but significant benefit compared with pain-free exercises, in the short term.

The pooled data also showed a moderate but significant benefit for pain-inducing exercises in the medium term, but there was no difference on pain levels between either type of exercise over the long term.

And there was no difference in the impact on physical function and disability at any time point between the two types of therapeutic exercise.

Small numbers of participants and differences in trial design

meant that the quality of the evidence was low to very low, as measured by GRADE (Grading of Recommendations Assessment, Development and Evaluation) criteria.

In theory, the positive effect of exercises 'into pain,' which typically involve higher loads/resistance and longer duration may be due to their impact on the central nervous system, suggest the study authors.

'Specifically, the exercise addresses psychological factors, such as fear avoidance,

kinesiophobia [fear of movement] and catastrophising, and is set within a framework of "hurt not equalling harm", thus in time, reducing the overall sensitivity on the central nervous system, with a modified pain output,' they write. Smith BE *et al.* Should exercises be painful in the management of chronic musculoskeletal pain? A systematic review and meta-analysis. *British Journal of Sports Medicine* 2017 <http://bjsm.bmj.com/content/early/2017/06/07/bjsports-2016-097383>

### Need to Know

This review uses the standardised mean difference (SMD) for the meta-analysis of pain scores reported on different scales.

The SMD is widely used and is calculated by dividing the mean difference in each trial by the pooled standardised deviation for that trial's outcome. But this format may not be well

understood by clinicians for presenting the size of treatment effect, and may be perceived as less useful than other formats, such as dichotomous (see paragraph below) outcomes<sup>[1]</sup>.

The Cochrane Pain, Palliative and Supportive Care (PaPaS) review group has produced guidance on reporting outcomes for acute

and chronic pain. This highlights that trials in chronic pain generally don't produce data with normal distributions for pain relief measurements, favouring an approach that uses dichotomous outcomes<sup>[2]</sup>.

#### Implications

If pooling trial data is judged to be appropriate, future meta-analysis of the evidence could

include dichotomous outcomes for pain. The PaPaS group suggests that outcomes relating to pain reduction should be meaningful for patients. It refers to at least 30 per cent and at least 50 per cent pain reduction in pain intensity, reflecting, respectively, moderately and substantially important benefit<sup>[2]</sup>.

#### Resource

[1] Johnston BC, *et al.* Do clinicians understand the size of treatment effects? A randomized survey across 8 countries. *Canadian Medical Association Journal* 2016; 188: 25–32. [www.ncbi.nlm.nih.gov/pubmed/26504102](http://www.ncbi.nlm.nih.gov/pubmed/26504102)  
[2] The Cochrane PaPaS review group. Author and Referee Guidance 2011. [bit.ly/2tsdl8P](http://bit.ly/2tsdl8P)

by CSP research adviser Katherine Jones

## Comments and conclusions



■ A fishy diet may help curb rheumatoid arthritis symptoms, suggests a study of 176 people. Eating two or more weekly portions was linked to lower disease activity (swollen/tender joint counts along with other assessments) than eating fish less than once a month or never. And the more servings that were eaten, the lower were the levels of disease activity. SK Tedeschi *et al.* *Arthritis Care & Research* 2017 <http://onlinelibrary.wiley.com/doi/10.1002/acr.23295/full>

■ Treating chronic low back pain with radiofrequency denervation doesn't lessen pain originating from the facet and/or sacroiliac joints, or intervertebral disks, shows a study of 681 patients at 16 pain clinics in the Netherlands. JNS Juch *et al.* *JAMA* 2017 <http://jamanetwork.com/journals/jama/article-abstract/2635632>

■ A study of nearly 130 girls and young women suggests that concussion may be linked to a heightened risk of abnormal menstrual bleeding patterns. Concussion may adversely affect the function of the hypothalamic-pituitary-ovarian axis, which governs the menstrual cycle, it suggests. ML Snook *et al.* *JAMA Pediatrics* 2017 <http://jamanetwork.com/journals/jamapediatrics/fullarticle/2633491>

## Pulmonary rehab doesn't seem to affect inflammation

Pulmonary rehabilitation doesn't seem to affect the inflammatory response in chronic obstructive pulmonary disease (COPD), suggests a small study.

Pulmonary rehabilitation can improve exercise tolerance, health-related quality of life, and help reduce symptoms. But one of its main components, exercise, can also increase the inflammatory response related to COPD, depending on the intensity and duration.

To gauge the potential impact of

exercise, the researchers tracked the inflammatory response in 60 patients with COPD who took part in a two-hour, high intensity pulmonary rehabilitation programme twice weekly for 12 weeks.

They assessed various indicators of inflammation at the start of the programme, and then again at four, eight, and 12 weeks. These included C-reactive protein level, erythrocyte sedimentation rate, neutrophil and

eosinophil counts, full blood count, the six-minute walk test and responses to the 50-item St George's Respiratory Questionnaire.

Serum amyloid A levels were also assessed at the start of the programme and at weeks eight and 12, while exhaled nitric oxide was measured at the beginning and end of the intervention.

In total, 49 participants completed the programme.

And the results showed that there were

no changes in any of the indicators of inflammation, but that there were significant improvements in both the distance completed for the six-minute walk test and in health-related quality of life.

Sciriha A *et al.* Systemic inflammation in COPD is not influenced by pulmonary rehabilitation. *European Journal of Physiotherapy* 2017 <http://dx.doi.org/10.1080/21679169.2017.1332682>

