The elephant in the room: How much pain is ok? If physiotherapy exercise RCTs don't report it, we'll never answer the question

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Exercise-related pain – why is it important?

"*Different therapists have said different things [*contradictory advice on pain with exercise*]…and it makes you wonder which therapist to believe."*

Exercise is a proven treatment for managing at least some persistent pain, including musculoskeletal related pain.[1,2] But an area often overlooked is what type of pain and what intensity of pain should be associated with exercise. What would achieve the best results? No pain? A little pain? A moderate amount of pain? How does the patient judge what is 'a little' or 'moderate'? How much pain is too much? Is there 'good pain' as patients often tell us when stretching or massaging a muscle, as well as 'bad pain' (presumably thought to be harmful)?

Qualitative research tells us that many individuals with persistent pain are uncertain when it comes to pain and exercise.[3,4] This is closely linked to pain-related fear and questions as to whether exercise is helpful or harmful. As one patient framed it, "Are you making it worse? And that's the crux of it really…if this is hurting should I really be doing this?".[3]

How should clinicians address patients' questions about whether to heed pain or not?

There are few and conflicting data on how clinicians currently advise patients on this problem.[5,6] Cross-sectional online questionnaires tell us many clinicians advise patients to avoid pain altogether, whereas others recommend patients can continue if the exercises: (a) only provoke pain below a certain level (2/10 to 4/10 where 10 is worse pain imaginable); (b) prove only 'moderately' painful (not defined); or (c) are associated with pain that remains 'acceptable to the patient'.[5,6] These widely divergent responses scream that we have insufficient clinically relevant data.

Compound the above confusion when a patient with persistent and recurrent pain receives exercise instructions from multiple clinicians.[3] Differing instructions on how much, if any, pain is to be experienced during and after exercise is likely to undermine the therapeutic alliance and discourage the patient from adhering to any of the exercises. As one patient described: "It makes you wonder which therapist to believe."[3]

The current state of play of reporting guidelines and Randomised Controlled Trials (RCTs)

Most BJSM readers will know of the CONSORT statement (for reporting RCTs) and the companion Consensus on Exercise Reporting Template (CERT); as the title suggests CERT guides researchers as to what to report.[7] With great respect to the wonderful contribution of CERT, we feel that CERT, as it stands, doesn't do enough to address the problem we outline in this editorial. CERT doesn't encourage researchers to report on what level of pain (if any) patients were advised when they undertook therapeutic exercises or play sport as part of musculoskeletal injury rehabilitation. We argue that's a critical blind spot, particularly when our systematic review investigating painful versus pain-free exercises in musculoskeletal conditions concluded that pain during exercise was not a barrier to successful outcomes and could contribute to superior clinical outcomes.[8]

In the published version of CERT, exercise-related pain only exists as an 'adverse event'. The CERT statement defines an adverse event as an untoward occurrence, which may or may not be causally

related to the intervention or other aspects of trial participation. Framing pain as an adverse event biases exercise prescription towards pain-free exercises. With no recommendation or requirement to include levels of pain during exercise reporting, this key variable is under-reported in RCTs. Only seven RCTs have investigated painful versus pain-free exercises.[8] As a result, clinicians have very little information on which to answer patients' questions about exercise-related pain and it's no surprise that clinicians advise inconsistently. Let's be honest—we are forced to use our clinical experience.

How can researchers help clinicians address exercise-related pain?

We recommend researchers add two additional items over and above CERT when reporting exercises prescribed in trials:

1. **Pain during exercise**: Is pain allowed, or recommended during the exercises? How is pain defined? How should participants with resting pain proceed if no pain is allowed; and

2. **Pain after exercise:** May pain be increased after exercise? (i.e. a 'flare up' or exacerbation)? If such pain is permitted, for how long? And how is pain defined?

Box 1 – Recommendation for researchers

For clinicians--our current recommendation

Pain monitoring tools have been used in practice, such as green, yellow, and red zones on a pain chart; or using acceptable values on a visual analogue scale (VAS). No studies have directly compared different pain monitoring tools.

In the absence of research-based guidelines for pain during or after exercise, we encourage clinicians to not only reflect on why they believe what they believe (currently held beliefs), but also to consider the uncertainty within the data we've presented and how it affects patient care.

Figure 1 - The elephant in the room: “How many reps should I do with this elephant?”

Summary

Pain experience and response associated with exercise is likely important and may for some conditions be an essential part of recovery, but we lack data. The patient’s pain experience is currently absent from the reporting guideline for exercise RCTs (CERT) and is frequently omitted from papers (Figure 1). We respectfully recommend researchers explicitly state at what level pain during and after exercise was permitted and experienced (Box 1).

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