

How effective is exercise based rehabilitation for non-operative management of triangular fibrocartilage complex (TFCC) injuries: a systematic review.

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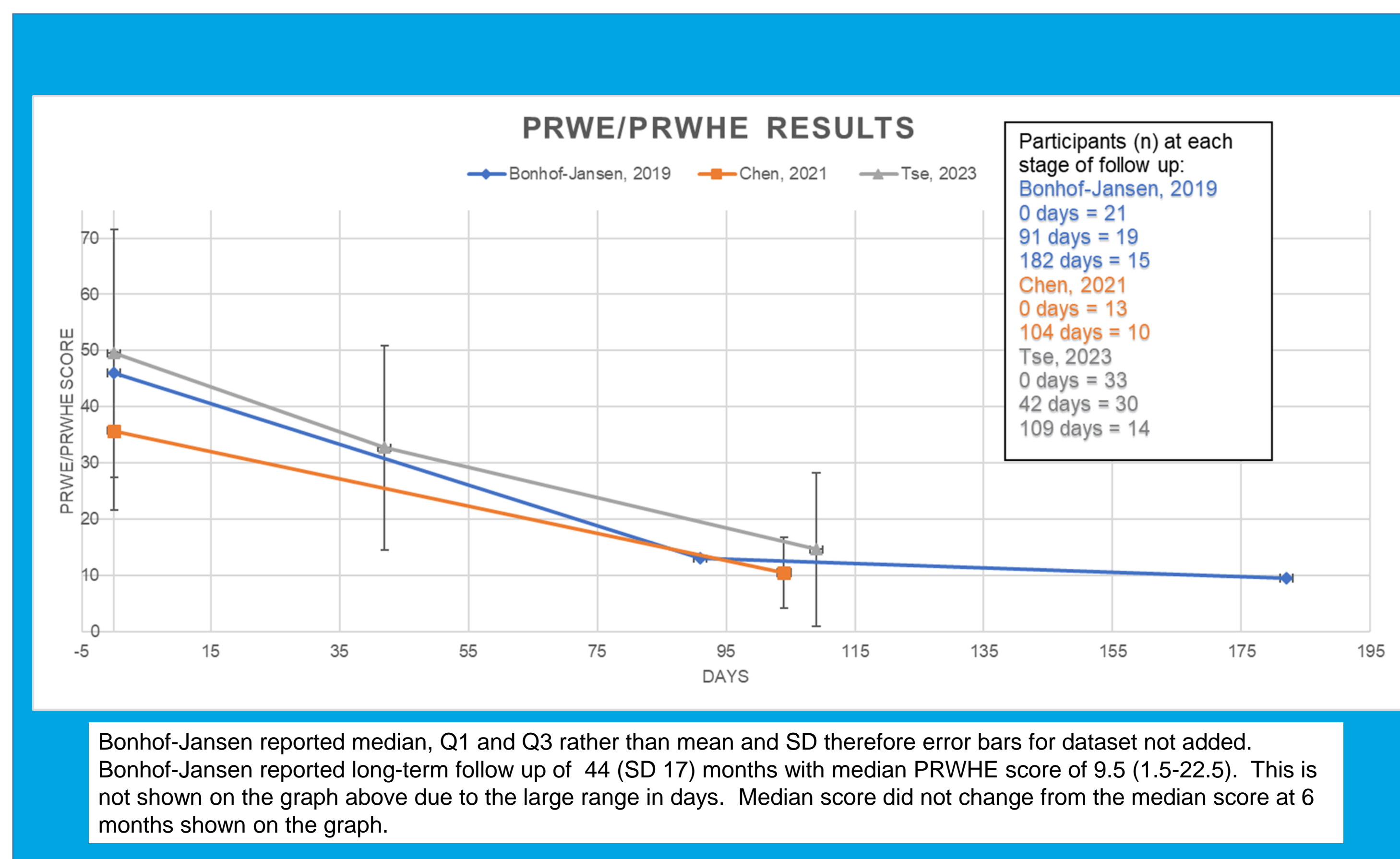
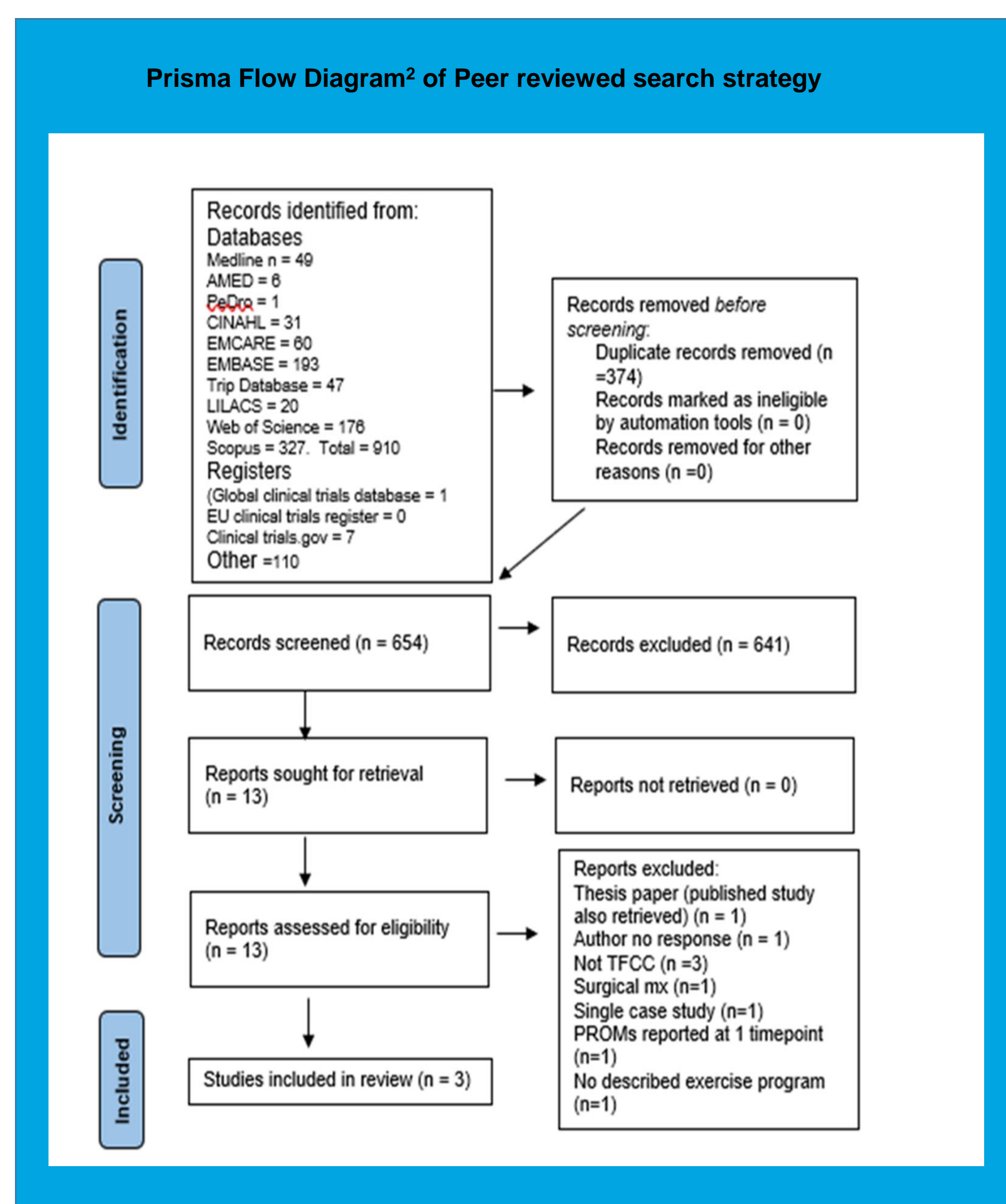
Aims and Background

- Define what exercise programmes exist for TFCC injuries and evaluate any evidence of efficacy.
- Identify ongoing research priorities or gaps and help to define reporting guidelines.
- Triangular fibrocartilage complex (TFCC) traumatic injuries can be managed surgically and non-surgically. It has been reported that non-surgical management can have similar outcomes to surgical management, particularly without the presence of DRUJ instability.¹
- Non-surgical management is often recommended to be trialled before surgery is considered however there is no gold standard on what that should be, and rehabilitation regimes are described poorly in the surgical literature.

Methods

- Review pre-registered on PROSPERO (CRD42024463168). PRISMA reporting guidelines followed.
- **Inclusion criteria:** Adults with a TFCC injury managed non-surgically with a described exercise program.
- **Exclusion criteria:** other causes of ulnar sided wrist pain, splinting as the sole intervention, or no intervention.
- **Outcomes:**
Primary outcome: A PROM captured at a minimum of two time points.
Secondary outcomes: Grip strength, pain, conversion to surgery, patient satisfaction.
- Two reviewers screened independently. Disagreements were resolved with discussion, with a third reviewer included if required.

Results



Change in mean or median PRWHE/PRWE score from baseline to post treatment met the published MIC in all 3 studies.

Similarities

- All measured effect of progressive sensorimotor exercises including:
 - kinetic chain training
 - Specific training of wrist stabilising muscles
 - Proprioceptive training
 - Progressive loading
 - Reactive muscle training
- All set criteria for exercise progression and tailored treatment.
- All included supervised sessions and HEP.

Differences

- Time since injury differs in papers: 8/12, 5/12, 2/12
- Presence of DRUJ instability
- Different length of follow up
- Differences in exercise program
- Content, frequency, duration
- Different secondary outcome measures

Risk of Bias Assessment: JBI checklist for quasi-experimental studies⁶

Study	Domain	1	2	3	4	5	6	7	8	9
Bonhof-Jansen, 2019	PRWHE	Green	Red	Yellow	Green	Green	Green	Green	Green	Green
Chen, 2021	PRWHE	Green	Red	Yellow	Green	Green	Green	Green	Green	Green
	Grip strength	Green	Green	Green	Green	Green	Green	Green	Green	Green
Tse, 2023	NPRS	Green	Green	Green	Green	Green	Green	Green	Green	Green
	PRWE	Green	Red	Yellow	Green	Green	Green	Green	Green	Green
	Grip strength	Green	Green	Green	Green	Green	Green	Green	Green	Green
	NPRS	Green	Green	Green	Green	Green	Green	Green	Green	Green

- Bias related to temporal precedence
- Bias related to selection and allocation
- Bias related to confounding factors
- Bias related to administration of intervention/exposure
- Bias related to assessment, detection and measurement of the outcome
- Were the outcomes of participants included in any comparisons measured in the same way?
- Were outcomes measured in a reliable way?
- Bias related to participant retention
- Statistical Conclusion Validity

Takeaways

A progressive, therapist directed exercise program with a duration of 3-4 months, was effective at improving function and pain in TFCC injuries across three studies with small numbers of participants

Limitations

- Unable to perform a meta-analysis due to the heterogeneity of the data and different statistical methods used across studies.
- Low numbers, difficult to make conclusions with certainty.
- Length of time post injury left undefined in research question resulting in the inclusion of acute and chronic TFCC injuries.
- PRWHE/PRWE has not been validated specifically for TFCC injuries and the MIC has not been defined in this population and may differ to published MIC.
- MIC only reported against the mean, median rather than as a proportion of the sample data
- Risk of bias assessment used more appropriate for drug trial rather than rehabilitation papers.

Recommendations

- Further study of PROM's in the TFCC population
 - Validation
 - MIC to be established
- Standardise reporting of exercise programs in studies.
- Further study is needed to assess the effectiveness of sensorimotor exercise

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