RAPID RESEARCH

@physicaltherapyresearch

April 2023

Inside This Week:

Hand & Wrist Injuries

- Hand & Wrist Injuries in Professional Athletes
- Assessment Accuracy for Non-Chronic Hand and Wrist Injuries
- Can Vitamin C Prevent Complex Regional Pain Syndrome After Wrist Fracture?

HAND & WRIST INJURIES IN PROFESSIONAL ATHLETES

APRIL 2023

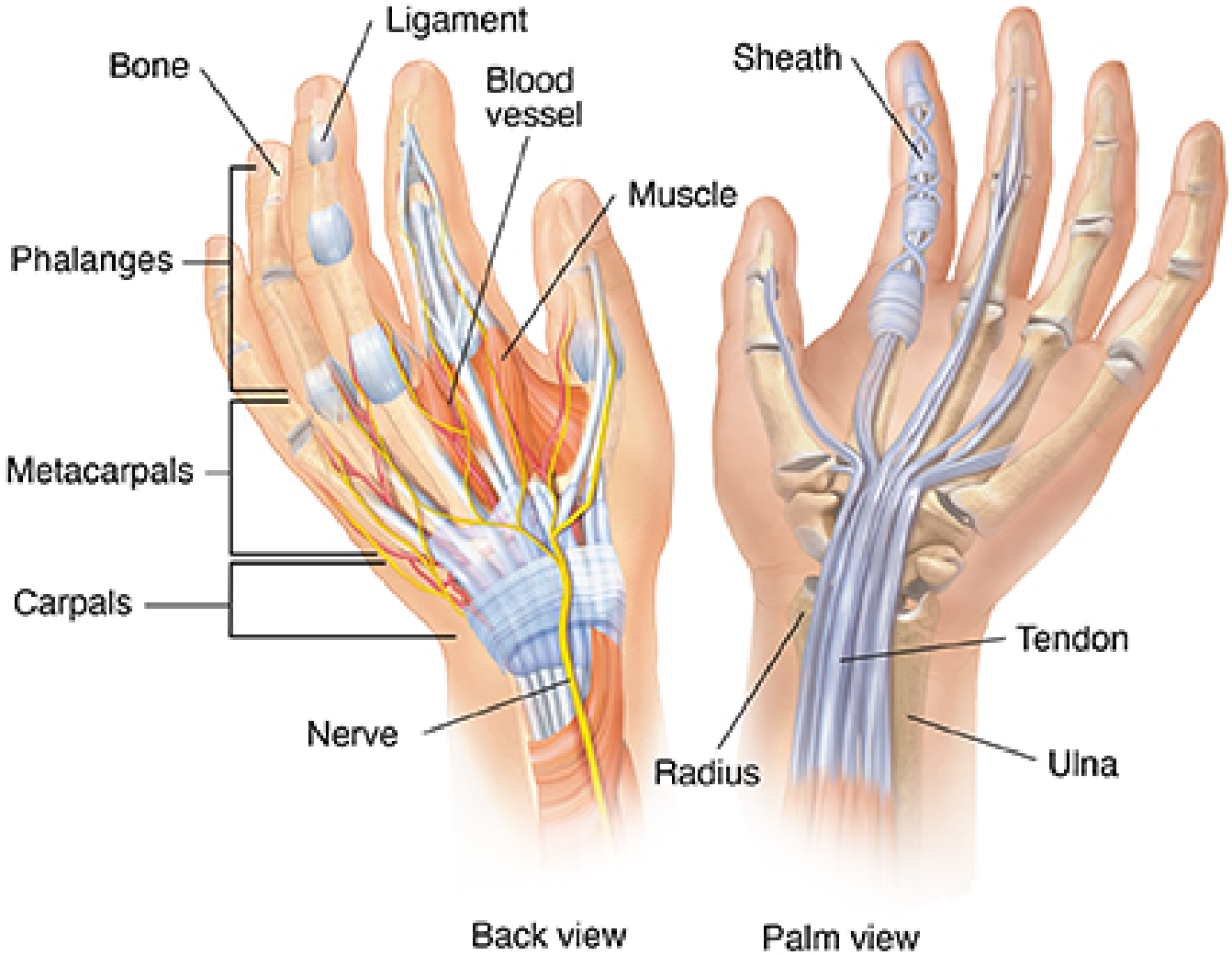
Click for Full Text (Lehman et al. 2020)

JBI 8/10 [80%]

Quality Check

*see appx

This systematic review determined the prevalence and types of injuries sustained in professional sports, the management and clinical outcomes of these injuries, and statistics regarding return to play.



KEY FINDINGS

32 studies included; 4299 participants

Most Common Sports Studied:
Baseball [8], Football [7], Boxing [6], Basketball [5]

Most Common Injury Types: Included in 29/32 studies and totaled 792 injuries.
Metacarpal fractures [273; 34.5%]
Thumb collateral ligament injuries [110; 13.9%]
Phalangeal fractures [87; 11.0%]
Scaphoid fractures [56; 7.1%]

Overall operative rate was 18.3% [708 of 3867].
Return to play [Avg. 2.8 months; 0.5-9 months].

MAIN TAKEAWAYS

Distal upper extremity injuries in professional athletes are **frequently managed non-operatively** and are associated with a **high rate of return to play.**

We also found that athletes with these injuries **return to play relatively quickly**, as compared with athletes with injuries and interventions related to the ankle, shoulder, knee, or hip.

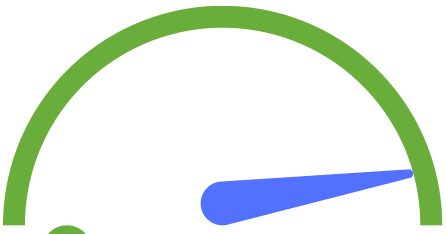
Players were able to **return to pre-injury levels of performance** in most cases reported.

ASSESSMENT ACCURACY FOR NON-CHRONIC HAND & WRIST INJURIES

APRIL 2023

Click for Full Text (Krastman et al. 2020)

JBI 10/11 [90%]



Quality Check

*see appx

This systematic review update determined the diagnostic accuracy of tests for detecting non-chronic ligament and tendon injuries of the finger, hand and wrist.

KEY FINDINGS

23 studies were included; 2010 participants

None of the studies involved history taking.

Accuracy determined by:

Sensitivity (Se), Specificity(Sp), Accuracy (Ac) Positive (+) & Negative (-) Predictive Value

Physical Examination Accuracy; :

Triangular Fibrocartilage Complex (TFCC)

Se: 58%-90%, Sp: 20-69%, Ac: 56-73%, +ve: 53-71%, -ve: 55-65%

Hand & Finger Injuries

Se: 88-99%, Sp: 75-100%, Ac: 34-88%, +ve: 91-100% and -ve: 75-95%

Accuracy of MRI:

TFCC: 89-91%

Interosseous Ligaments of Proximal Carpal Row: 75-100%

MAIN TAKEAWAYS

There is still a gap in knowledge regarding valid diagnostic tests for non-chronic wrist ligament and tendon injuries.

The lack of high-quality evidence for the diagnosis of ligament and tendon injuries in the hand and fingers has been highlighted.

Some imaging modalities seemed to be acceptable for the diagnosis of ligament and tendon injuries in the wrist.

There are limited tools for adequate diagnosis available.

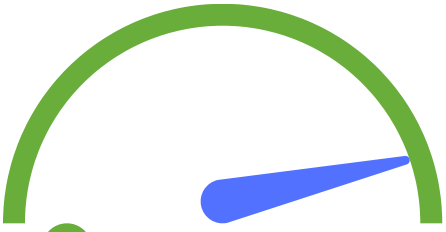
If not diagnosed and treated properly, patients may experience lifelong pain and functional limitations that have major effects on the quality of life.

CAN VITAMIN C PREVENT COMPLEX REGIONAL PAIN SYNDROME AFTER WRIST FRACTURE?

APRIL 2023

Click for Full Text (Aim et al. 2017)

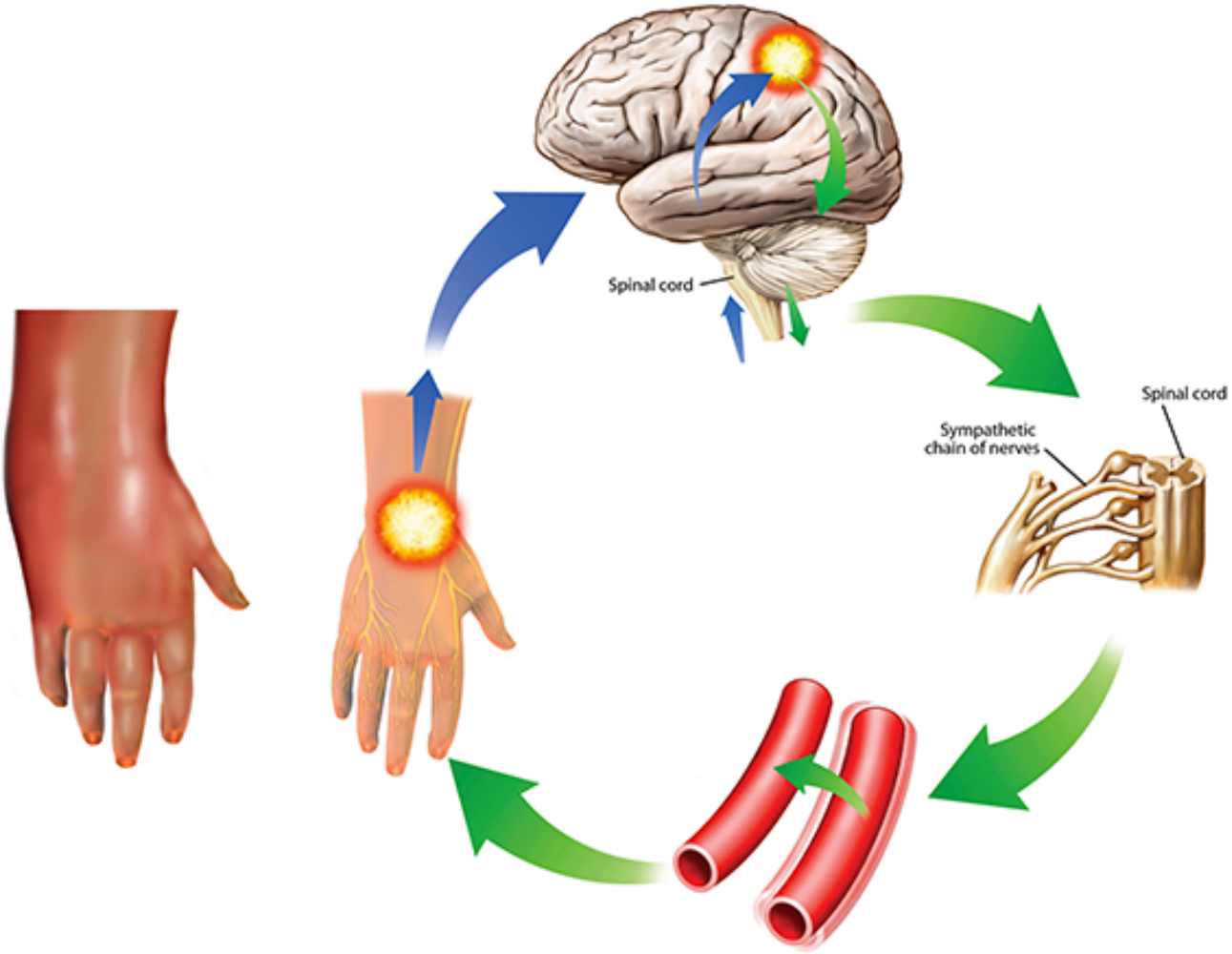
JBI 11/11 [100%]



Quality Check

*see appx

This systematic review assessed the efficacy of vitamin C therapy in preventing CRPS-I after a wrist fracture, as CRPS-1 is common after conservatively or surgically treated wrist fractures.



KEY FINDINGS

3 RCT studies included; 875 participants

Dosing:
Vitamin C given on the day of the injury and continued for 50 days.
200mg, 500mg, 1500mg tested.

Treatment Types for Fractures:
Non-operative [758/890; 85.1%]
Operative [132/890; 14.9%]

Outcomes:
500mg daily: Risk ratio [0.54] for CRPS-I was statistically significant.

Heterogeneity rate was 65% and non-significant

MAIN TAKEAWAYS

Vitamin C supplementation in a daily dosage of 500 mg for 50 days **can reduce the risk of CRPS-I by ~50% within the first year** after a wrist fracture and is therefore recommended.

Further double-blind randomized placebo-controlled trials are needed to further support this recommendation.

GIVE US YOUR FEEDBACK!

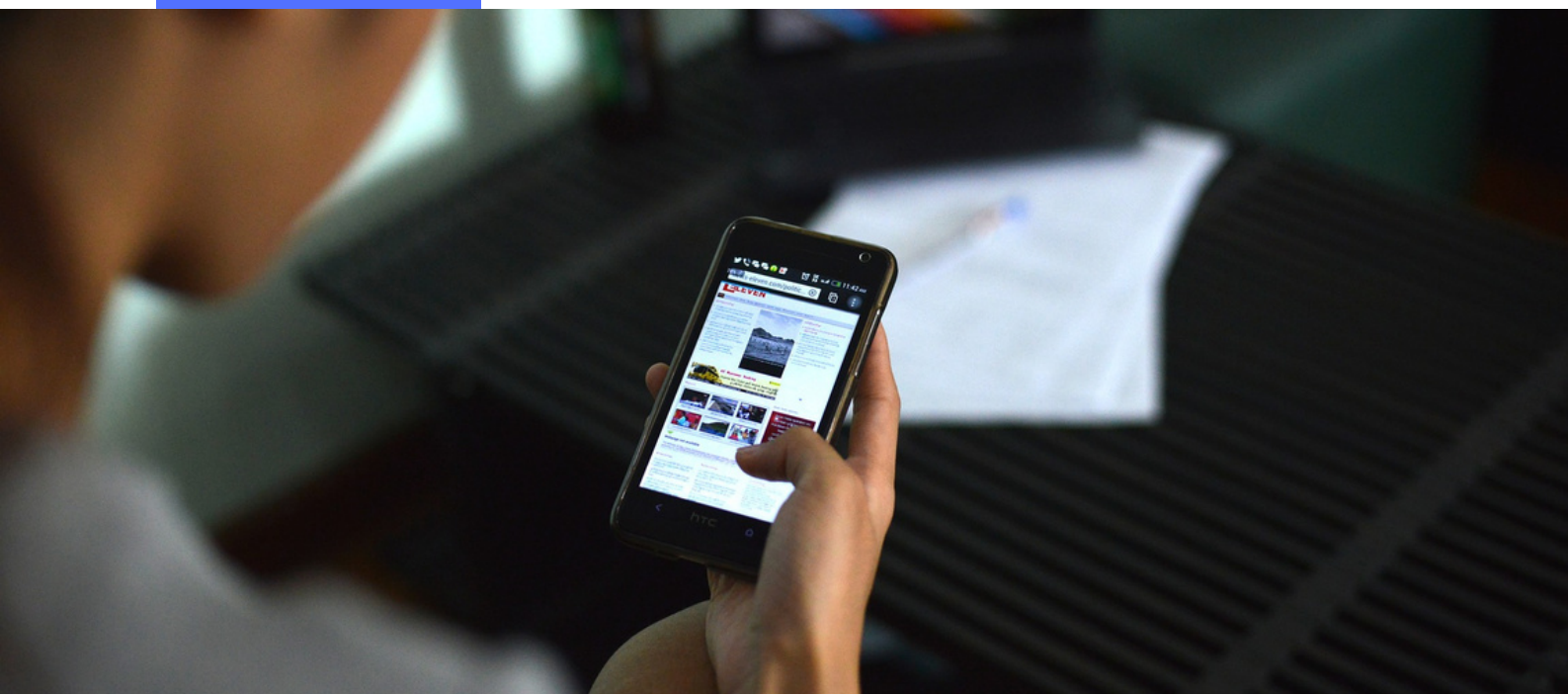
MEMBERS

We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

Leave Review



JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Lehman et al. Year: 2020

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	☐	☐	X	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	☐	☐	☐	X
9.	Was the likelihood of publication bias assessed?	☐	X	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 8/10 (80%)

LIMITATIONS:

Non-English language studies were not included.

Low number of studies using performance metrics for return to play.

Most of the studies included in our study were retrospective in nature and were not designed to compare different treatment options.

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Krastman et al. Year: 2020

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	+	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	+	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	☐	X	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 10/11 (90%)

LIMITATIONS:

Studies on wrist injuries published before 2000 were not evaluated and not included, as these were adequately described in published systematic reviews.

Studies that evaluated the same pathologies showed marked diversity in population, index tests, reference test and methodological quality

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Aim et al. Year: 2017

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	+	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	+	☐	☐	☐
3.	Was the search strategy appropriate?	+	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	+	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	+	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	+	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	+	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	+	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	+	☐	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	+	☐	☐	☐
11.	Were the specific directives for new research appropriate?	+	☐	☐	☐

Overall appraisal: 11/11 (100%)

LIMITATIONS:

Small number of included studies.

The report by Ekrol et al. does not indicate the proportions of patients treated conservatively and surgically in each group.

Reporting of two studies by the same group at an interval of a few years may have resulted in publication bias.