RAPID RESEARCH

@physicaltherapyresearch

December 2022

Inside This Week:

Pectoralis Major & Shoulder Rehab

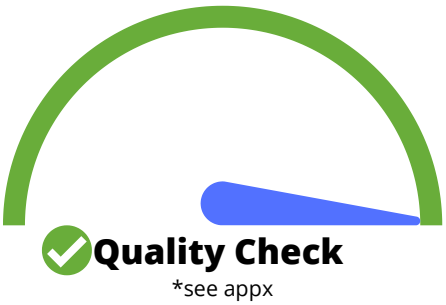
- Return to Sport Following Pec Major Repair
- Pectoralis Major Tendon Tears: Operative vs. Non-operative Treatment
- Role of Kinetic Chain in Shoulder Rehab

RETURN TO SPORT FOLLOWING PEC MAJOR REPAIR

DECEMBER 2022

Click for Full Text (Yu et al. 2019)

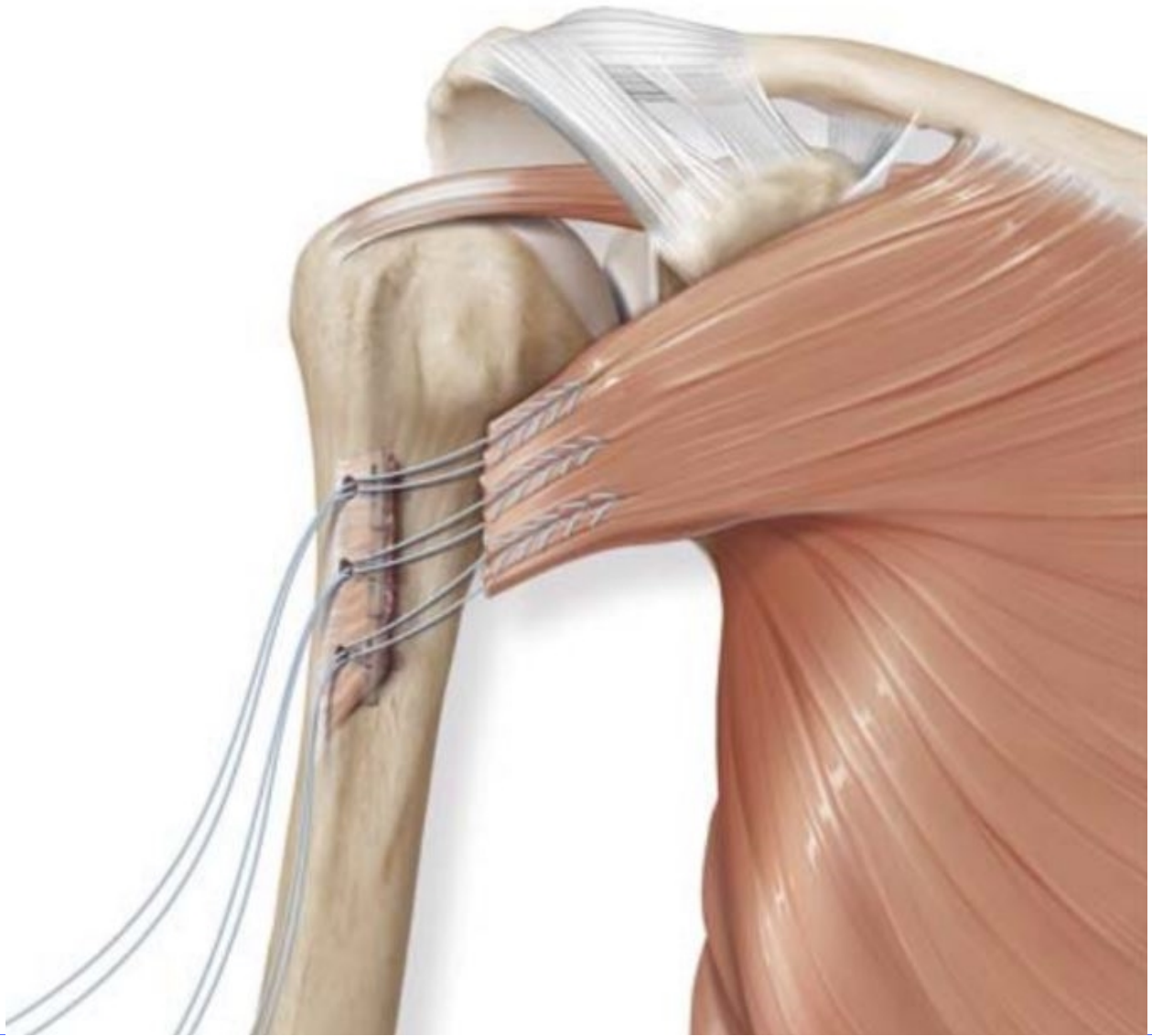
JBI 11/11 [100%]



Quality Check

*see appx

This systematic review summarized and synthesized the clinical outcomes and rate of return to activity after isolated Pectoralis major tendon repair.



KEY FINDINGS

18 articles included; 536 patients

Most Common Causes of Pectoralis major Rupture:
Bench press 49% (300/608) of cases
Contact sports in 8% (47/608)
Weight lifting in 7% (41/608).

Return to Sport:
90% of patients undergoing Pectoralis major tendon repair successfully returned to sport at an average of 6.1 ± 1.7 months post-surgery.

74% successfully returned to their pre-injury level of sport.

95% patients returned to work at an average of 6.9 ± 1 months.

81% experienced complete pain relief after the surgery.
19% had cosmetic complaints after Pectoralis major repair.

MAIN TAKEAWAYS

Current literature suggests pectoralis major tendon repair results in 90% return to sport and 95% return to work, with the majority of patients reporting pain relief and improved cosmetic appearance.

Nearly half of reported causes were from bench press.

Complications were reported in 18% of patients, with re-operation required in 7% of patients.

The evidence supporting all outcomes was limited by the rarity of the injury and the variable surgical techniques, rehabilitation protocols, and outcome assessment criteria.

PECTORALIS MAJOR TENDON TEARS: OPERATIVE VS. NON-OPERATIVE TREATMENT

DECEMBER 2022

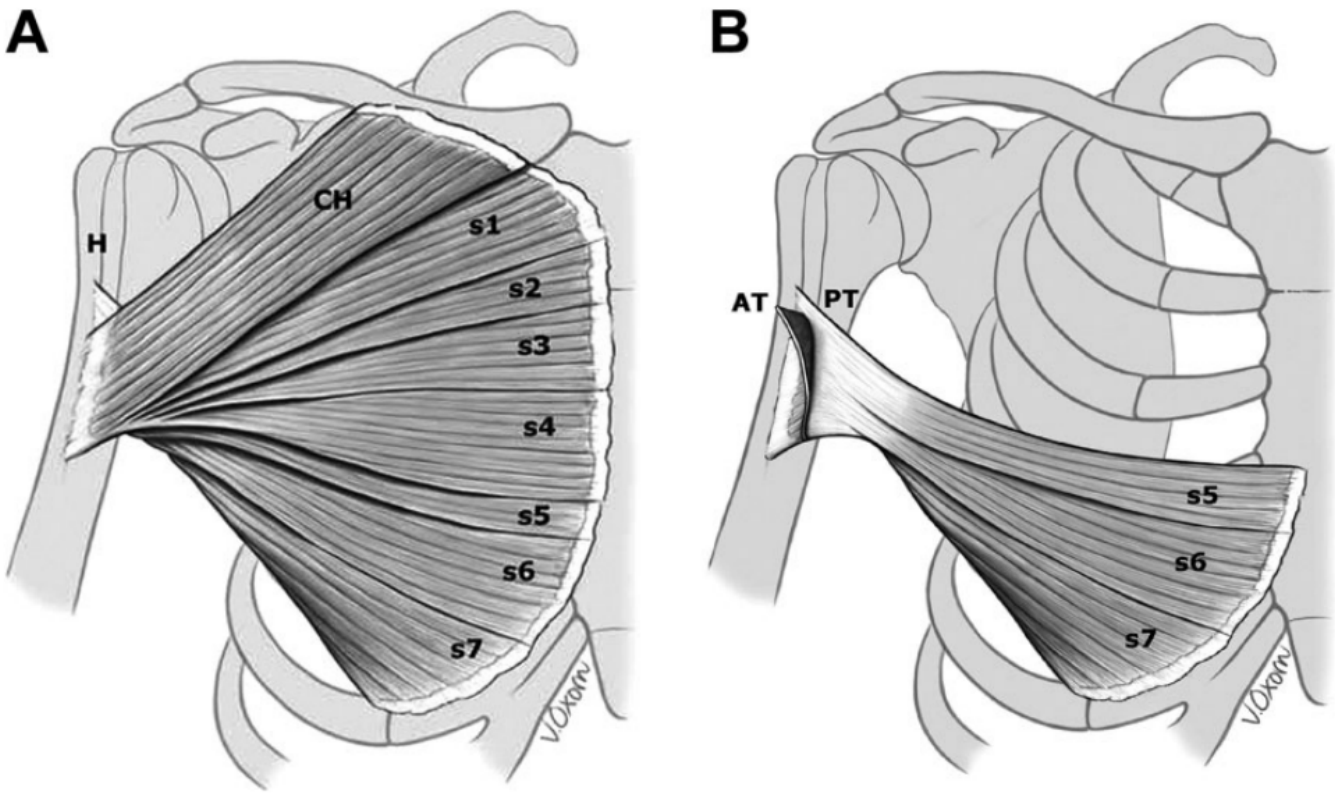
Click for Full Text (Bodendorfer et al. 2020)

JBI 10/11 [90%]

Quality Check

*see appx

This systematic review compared the outcomes of operative and nonoperative treatment of pectoralis major tendon tears.



KEY FINDINGS

23 studies included; 664 injuries
Included studies had moderately high methodological quality.

Demographics:
All patients were male, average age of 31.48 years;
63.2% of injuries occurred during weight training.
Average follow-up was 37.02 months.

Operative treatment significantly superior, improvements in:
Functional outcome by 23.33%.
Full isometric strength 77.07%.
Isokinetic strength 28.86%
Cosmesis satisfaction 13.79%.
Resting deformity 98.85%
Complication rate for operative treatment 14.21%
Rate of re-rupture 3.08%.

MAIN TAKEAWAYS

Patients with PMT ruptures who undergo operative repair have significantly better functional outcome, isokinetic strength, isometric strength, cosmesis, and resting deformity compared with nonoperative treatment.

Reconstruction with graft augmentation appears to have an advantage over nonoperative treatment for isometric strength.

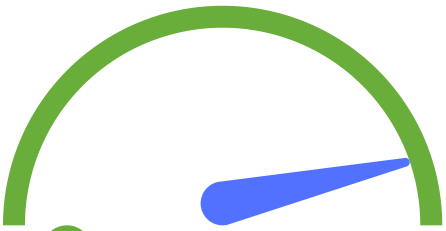
Operative treatment was associated with a 14.21% complication rate.

ROLE OF KINETIC CHAIN IN SHOULDER REHAB

DECEMBER 2022

Click for Full Text (Richardson et al. 2020)

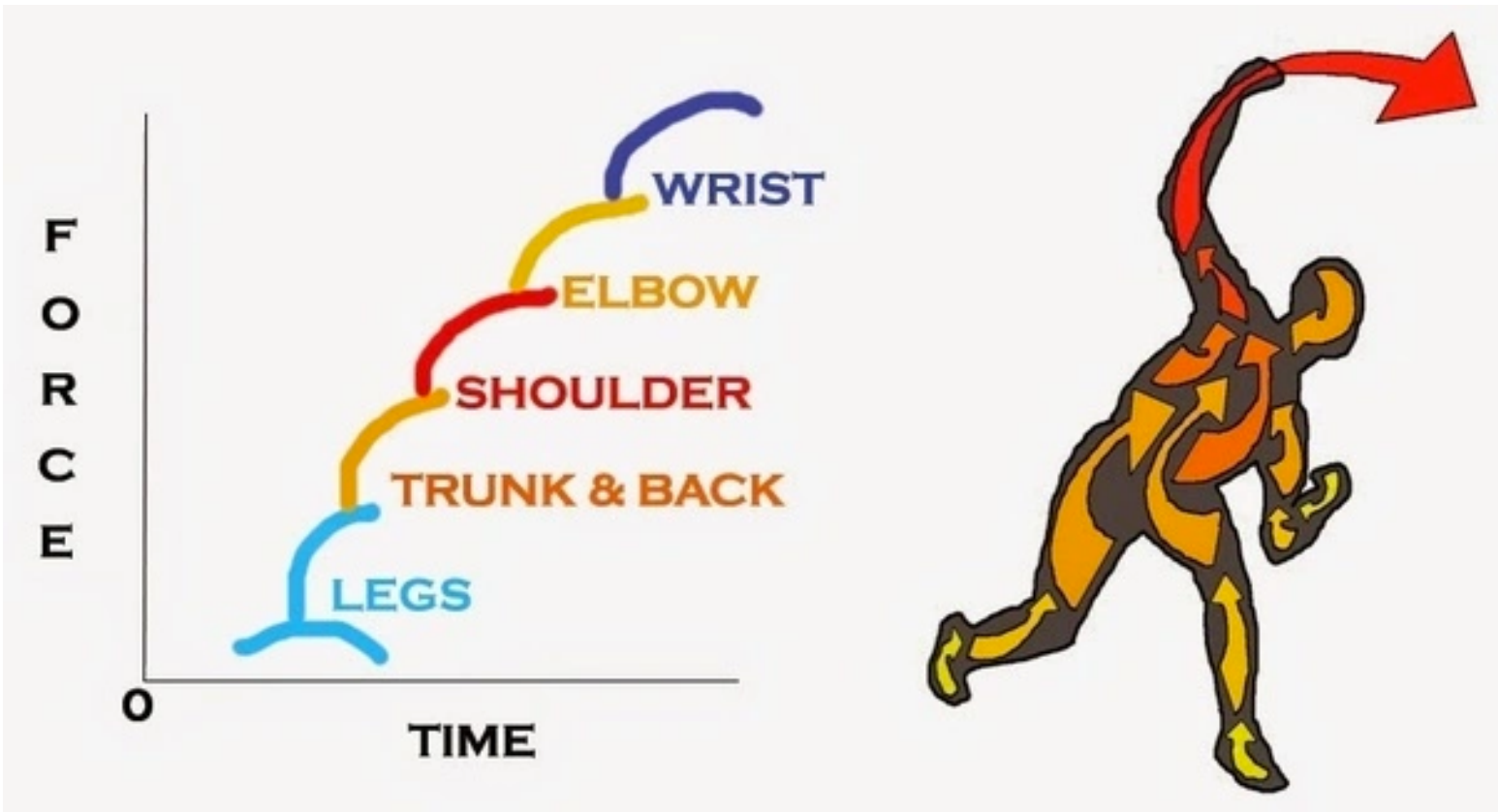
JBI 10/11 [90%]



Quality Check

*see appx

This systematic review investigated the influence of trunk and lower limb motion on electromyography (EMG) muscle activity and recruitment patterns around the shoulder.



KEY FINDINGS

12 articles included.

Kinetic Chain Exercises:
Produced greater EMG activation levels in lower trapezius.
Produced greater EMG activation levels in serratus anterior.
Produced the lowest trapezius muscle ratios in all studies.

Non-Kinetic Chain Exercises:
Produced greater EMG activation in infraspinatus.

Inconsistent findings for:
Upper trapezius, middle trapezius, supraspinatus, subscapularis, biceps brachii, latifissimus dorsi, pectoralis major, deltoid, and trapezius and serratus anterior ratios showed inconsistency.

MAIN TAKEAWAYS

Integrating the KC into shoulder rehabilitation exercises may enhance axio-scapular muscle recruitment, produce lower trapezius muscle ratios and reduce the demands on the rotator cuff.

Stepping may be more beneficial over common KC integration strategies such as squatting.

Conflicting evidence suggests that nKC exercises are preferable when the rehabilitation goal is to isolate and strengthen the rotator cuff, whereas KC exercises may be more suited when targeting enhanced efficiency.

GIVE US YOUR FEEDBACK!

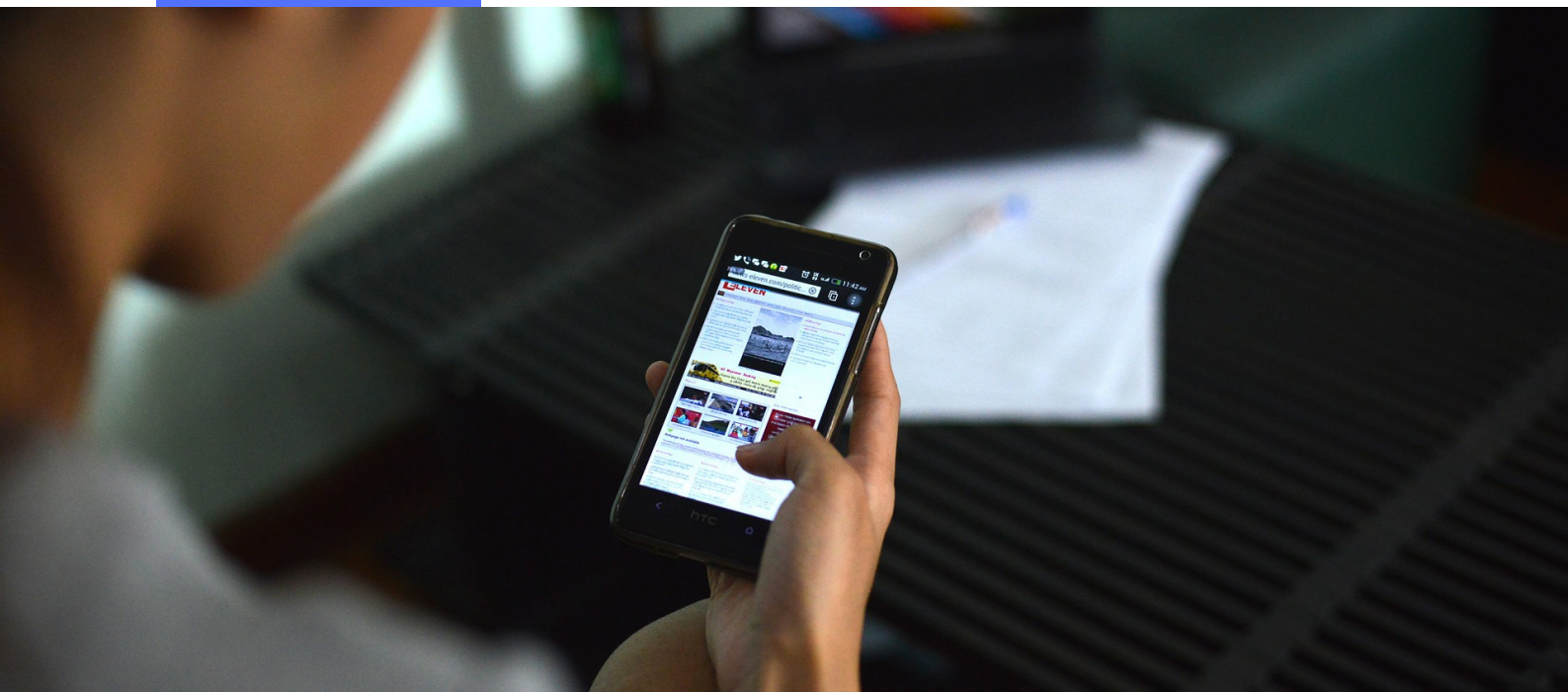
MEMBERS

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: Yu et al. Year: 2019

		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:

The majority of included studies were of level 4 methodologic quality, which is a limitation of the current literature.

Variability between studies was significant because of differences in surgical technique, rehabilitation protocols, and reporting of outcomes, including various scoring systems.

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Bodendorfer 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:

The majority of studies from which the data were extracted had low methodological quality.

Limitations in quality were mostly the result of differing surgical techniques, limited long-term follow-up, and lack of randomization or blinding.

The diversity of reported outcomes in each of the included studies required aggregation of the results into large groups for data analysis.

JBI Critical Appraisal Checklist for systematic reviews and research syntheses

Author: Richardson 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:

Not all studies included in this review investigated KC exercises where the KC segment involved provided a direct movement comparison of their nKC counterpart exercise.

direct conclusions from the data cannot be drawn but instead use these comparisons to inform the narrative discussion around the interpretation of the collective results across all studies.

No meta-analysis performed.