Rehabilitation of the Masters' Athlete Shoulder

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DECEMBER 1, 2023

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OBJECTIVES

Upon completion of this lecture, participants should be able to:

1. Define a Masters athlete.
2. Describe rehabilitation considerations for a Masters athlete.
3. Be able to implement an appropriate rehab protocol for a Masters athlete for RTC injury both surgical and nonsurgical, GH OA, and post op TSA vs rTSA.

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Who is a Masters' Athlete

Worlds Masters Athletics (WMA) defines a master's athlete as a male or female 35+ years old.
- For this talk, we will define it at a male or female 50+ years old.

The International Masters Games Association (IMGA) lists 35 sport disciplines of that athletes can participate it.
- For today we will focus on overhead sports including swimming, volleyball, tennis, softball, golf, pickleball, etc.

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Prevalence of Shoulder Injuries & Aging Population

- Lifetime prevalence of shoulder pain is up to 70% of general population
- Rotator cuff related shoulder pain accounts for 50-85% of diagnoses for the shoulder.
- Glenohumeral OA accounts for an estimated 5-17% of shoulder pain.
  - Increases to 16-20% in those 65+ years old.

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Aging Muscle Considerations

- Atrophy is inevitable & chooses no favorites
- Muscles of Masters athletes are slower to recover
- Muscle fibers of older athletes are more susceptible to contraction-induced injury
- Plyometric training can increase strength and power to help prevent subsequent injury.
  - Avoid in older athletes with moderate to severe OA, clinically impaired proprioception, or severe osteoporosis.

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Special Rehab Considerations For Masters Athletes

- Treat the Masters athlete as you would a younger athlete.
- Take account for special factors or comorbities.
- Prepare for a longer rehab period than their younger counterparts.
- Incorporate cross training vs inactivity.
- OA is NOT a contraindication to exercise.

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Common Injuries in Masters Athletes

- Rotator cuff injuries
- Achilles tendinopathies
- Meniscal tears
- Osteoarthritis

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Considerations for the Aging RTC

- Acute vs chronic
- Tear size
- Tissue quality
- Risk of tear progression
- Risk of irreversible degenerative changes

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What does rehab of the nonsurgical RTC injury in the Masters Athlete look like?

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Acute Phase of Rehab for Nonsurgical RTC Injury in Masters Athlete

Goals:

- Reduce pain & inflammation
- Protection of rotator cuff
- Painless full ROM

Rehab Strategies

- Activity modification
- Physical modalities
- Medications
- PROM -> AAROM -> AROM
- Periscapular strengthening
- Cross-training
- Core strength

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Recovery Phase of Rehab for the Nonsurgical RTC Injury in Masters Athlete

Goals:

- Normal RTC strength
- Normal flexibility ROM
- Correct any kinetic chain abnormalities

Rehab Strategies:

- Advanced periscapular strengthening
- Stretching (posterior capsule, pectoral muscles)
- Rotator cuff strengthening

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Functional Phase of Rehab for the Nonsurgical RTC Injury in Masters Athlete

Goals:

- Adequate kinetic chain function
- Return to sports-specific activities

Rehab Strategies:

- Multiangle functional exercise
- Plyometric exercises
- Eccentric exercises
- Return to practice (sports specific drills and exercises)

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What is different with rehab for the surgical RCR in the Masters Athlete?

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Post op RCR Rehab Considerations

- Size of the tear
- Tissue quality
- Slowed down protocol
- Return to sport at same level

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What about glenohumeral osteoarthritis?

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Non-op Rehab for Masters Athlete with GHOA

- Initial focus on activity modification
- Education
- Improve multi-planar glenohumeral mobility
- Strength – focus on deltoid and scapular girdle

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Differences in rehab following TSA vs rTSA

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Early Rehab Considerations following TSA

- Protect the subscapularis
  - Limit ER
- Focus rehab on ROM first -> then progress to rotator cuff strength
- Avoid pulleys early on

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Early Rehab Considerations follow rTSA

- Protect the prosthesis from dislocation
- Avoid acromial overload
- Good prehab and education to set appropriate rehab outcomes/expectations
- Middle phase rehab focus on deltoid strength

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Return to Activity following TSA & rTSA

- TSA rate of return:
  - 75-96% of patients returned to golf, tennis, swimming, and cycling recreationally
  - 37% reported persistent restrictions on their sports after surgery
- rTSA rate of return:
  - Garcia et al reported 85.5% of patients returned to at least 1 sport following rTSA
  - Highest rate of return in swimming, running, cycling, and golf
  - 60.5% discontinued 1 or more sports
  - <70 y/o demonstrated an improved rate of return
- Timeline after surgery before returning to sports:
  - After TSA 4.5 months
  - After rTSA 5.3 months
  - Average time to return to sports after TSA & rTSA was 5 months.

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Special Considerations for Return to Activity following TSA & rTSA

- True relationship between athletic activity and rate of revision surgery remains unclear.
- Existing literature is unclear on return to sports or high risk activity after total joint arthroplasty
  - Overuse is related to prosthesis loosening or excessive wear.
  - High impact activities are more likely to need a revision
- Avoid sports that create high stress in the shoulder or high contact potential.

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Key Take Aways

- These patients are going to show up in your clinic.
- Treat a Masters athlete shoulder as you would treat a younger athlete but allow for a longer recovery and rehab period.
- Educate them that they will likely be able to return to their sport, but possibly not at the same intensity and frequency.
- Avoid sports that create high stress in the shoulder or high contact potential when returning to sports after TSA or rTSA.

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REFERENCES

1. *World masters athletics*. World Masters Athletics. (2023, March 15). https://world-masters-athletics.org/world-masters-athletics/
2. *Masters Athletics - Sport Competition for Masters athletes*. IMGA. (2023, September 25). https://imga.ch/masters-sports/sports-and-disciplines/athletics/
3. Rodriguez-Santiago, B., Castillo, B., Baerga-Varela, L., & Micheo, W. F. (2019). Rehabilitation management of rotator cuff injuries in the master athlete. *Current Sports Medicine Reports*, *18*(9), 330–337. https://doi.org/10.1249/jsr.0000000000000628
4. Dubé, M.-O., Desmeules, F., Lewis, J., & Roy, J.-S. (2020). Rotator cuff-related shoulder pain: Does the type of exercise influence the outcomes? protocol of a randomised controlled trial. *BMJ Open*, *10*(11). https://doi.org/10.1136/bmjopen-2020-039976
5. An aging nation: The older population in the United States - time. (n.d.). https://time.com/wp-content/uploads/2015/01/p25-1140.pdf
6. Faulkner, J. A., Larkin, L. M., Claflin, D. R., & Brooks, S. V. (2007). Age-related changes in the structure and function of skeletal muscles. *Clinical and Experimental Pharmacology and Physiology*, *34*(11), 1091–1096. https://doi.org/10.1111/j.1440-1681.2007.04752.x
7. Tayrose, G. A., Beutel, B. G., Cardone, D. A., & Sherman, O. H. (2014). The masters athlete. *Sports Health: A Multidisciplinary Approach*, *7*(3), 270–276. https://doi.org/10.1177/1941738114548999
8. Klouche, S., Lefevre, N., Herman, S., Gerometta, A., & Bohu, Y. (2015). Return to sport after rotator cuff tear repair. *The American Journal of Sports Medicine*, *44*(7), 1877–1887. https://doi.org/10.1177/0363546515598995
9. Cools, A. M., Johansson, F. R., Borms, D., & Maenhout, A. (2015). Prevention of shoulder injuries in overhead athletes: A science-based approach. *Brazilian Journal of Physical Therapy*, *19*(5), 331–339. https://doi.org/10.1590/bjpt-rbf.2014.0109
10. Ibounig, T., Simons, T., Launonen, A., & Paavola, M. (2020). Glenohumeral osteoarthritis: An overview of etiology and diagnostics. *Scandinavian Journal of Surgery*, *110*(3), 441–451. https://doi.org/10.1177/1457496920935018

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REFERNCES

11. Bullock, G. S., Garrigues, G. E., Ledbetter, L., & Kennedy, J. (2019b). A systematic review of proposed rehabilitation guidelines following anatomic and reverse shoulder arthroplasty. *Journal of Orthopaedic & Sports Physical Therapy*, *49*(5), 337–346. https://doi.org/10.2519/jospt.2019.8616
12. Yamamoto, N., Szymski, D., Voss, A., Ishikawa, H., Muraki, T., Cunha, R. A., Ejiniman, B., Noack, J., McCarty, E., Mulcahey, M. K., & Itoi, E. (2023). Non-operative management of shoulder osteoarthritis: Current concepts. *Journal of ISAKOS*, *8*(5), 289–295. https://doi.org/10.1016/j.jisako.2023.06.002
13. Takamura, K. M., Chen, J. B., & Petrigliano, F. A. (2018). Nonarthroplasty options for the athlete or active individual with shoulder osteoarthritis. *Clinics in Sports Medicine*, *37*(4), 517–526. https://doi.org/10.1016/j.csm.2018.05.003
14. Vogel, L. A., Carotenuto, G., Basti, J. J., & Levine, W. N. (2011). Physical activity after total joint arthroplasty. *Sports Health: A Multidisciplinary Approach*, *3*(5), 441–450. https://doi.org/10.1177/1941738111415826
15. Christensen, J., & Brockmeier, S. (2018). Total Shoulder Arthroplasty in the athlete and active individual. *Clinics in Sports Medicine*, *37*(4), 549–558. https://doi.org/10.1016/j.csm.2018.05.005
16. Garcia, G. H., Taylor, S. A., DePalma, B., Mahony, G. T., Dines, J. S., Dines, D. M., Warren, R. F., Craig, E. V., & Gulotta, L. V. (2016). Patient activity levels after reverse total shoulder arthroplasty: What are patients doing? *Journal of Shoulder and Elbow Surgery*, *25*(10). https://doi.org/10.1016/j.jse.2016.07.041

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