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Physical Therapy: The Physician's Perspective

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My Approach

- I am not a surgeon



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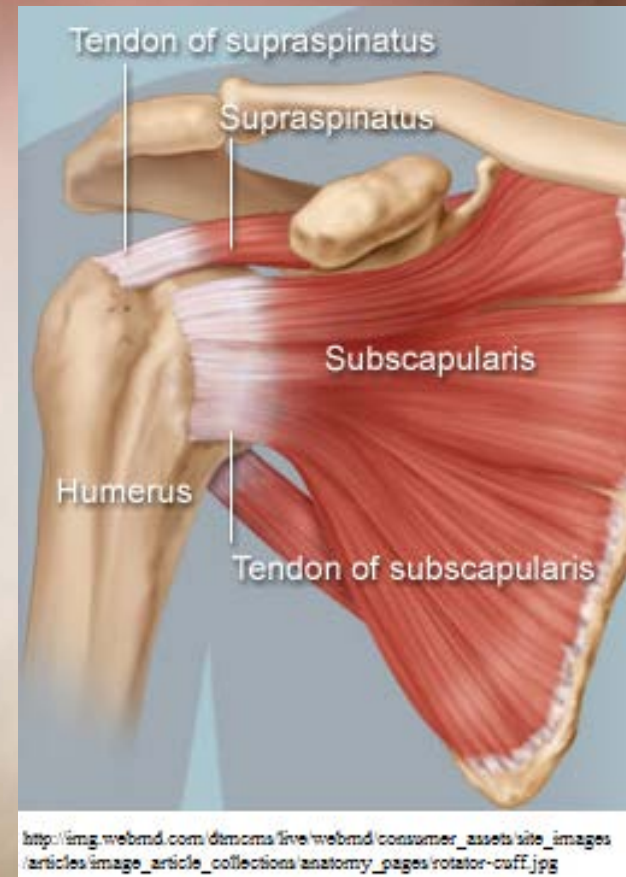
Communication

- Key for successful treatment and diagnosis
 - Face-to-face
 - Telephone
 - Written evaluations/progress notes



Shoulder

- Common conditions
 - Rotator cuff disease
 - Tendinopathy → tear
 - Adhesive capsulitis
 - Idiopathic
 - Motion restriction and pain
 - Instability
 - Traumatic
 - Atraumatic





What's the evidence?

- Rotator cuff tendinopathy/impingement
 - Exercise effective for pain, disability (Littlewood, *et al.* 2012)
 - Exercise improves pain and function, but no effect on motion or strength (Kuhn, 2009)
- Rotator cuff tear
 - Some evidence for exercise in management of full thickness tears (Ainsworth, *et al.* 2007)
 - Trial of therapy for older patients without profound weakness or acute tear (Wolf, *et al.* 2007)
 - 75% of atraumatic tears did well with therapy after 2 years (Kuhn, *et al.* 2013)
- Adhesive capsulitis
 - Therapy in conjunction with steroid injection effective (Carette, *et al.* 2003)
 - Physical therapy alone not effective (Cochrane, 2003)



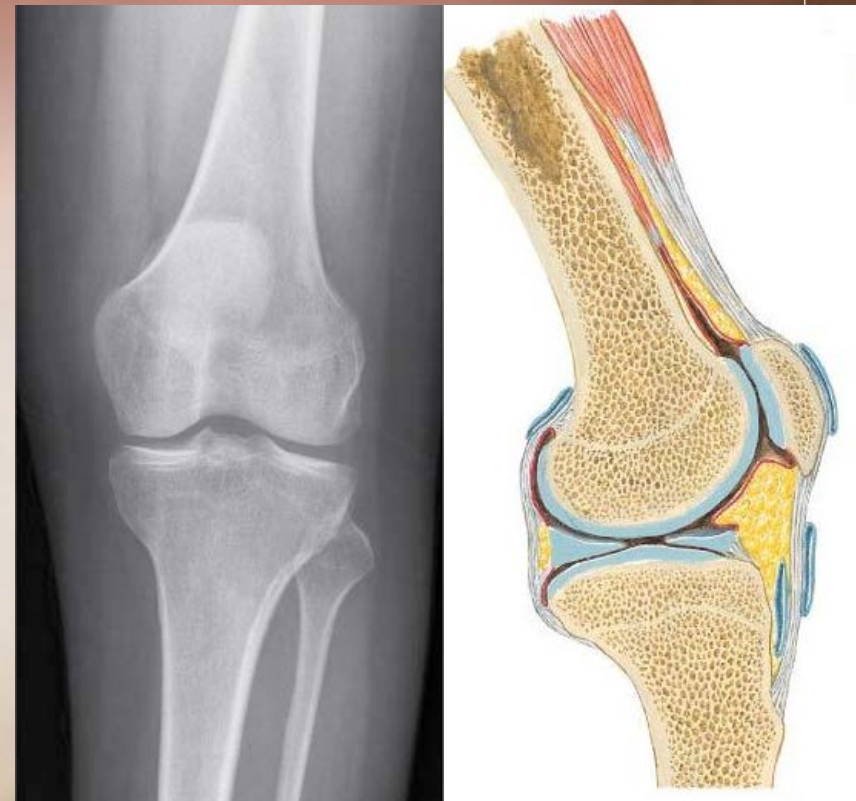
When to send to surgery?

- Rotator cuff tendinopathy/impingement
 - No improvement after 6-12 weeks of therapy
- Rotator cuff tear
 - Age <50 with symptoms <3 months
 - No improvement after 6-12 weeks of therapy
 - Large, retracted tears
- Adhesive capsulitis
 - No improvement after 6-12 weeks of therapy



Knee

- Common conditions
 - ACL tear
 - Meniscal injury
 - Patellofemoral Syndrome
 - Osteoarthritis





What's the Evidence?

- ACL tear
 - Selected athletes can return to play when treated without surgery (Hurd, *et al.* 2008)
 - Knee stability can be improved by neuromuscular rehabilitation (Delince, *et al.* 2010)
 - Preoperative quadriceps strength predicts function 6 months after ACL reconstruction (Logerstedt, *et al.* 2013)
 - Preoperative quadriceps strength is a significant predictor of knee function two years after anterior cruciate ligament reconstruction (Eitzen, *et al.* 2009)
- Meniscal injury
 - Arthroscopic partial medial meniscectomy followed by supervised exercise was not superior to supervised exercise alone in terms of reduced knee pain, improved knee function and improved quality of life (Herrlin, *et al.* 2006)
 - No significant difference in arthroscopic meniscectomy and physical therapy in degenerative tear (Yim, *et al.* 2013)
 - 58% of patients with meniscal tear successfully treated with NSAIDs, physical therapy, and rest (Rathleff, *et al.* 2013)



What's the Evidence?

- Patellofemoral Pain Syndrome
 - Quadriceps and hip strengthening important in treatment
 - Biofeedback, patella taping, and foot orthoses may augment above exercises (Bolgia and Boling, 2011)
- Osteoarthritis
 - Arthroscopic surgery provides no additional benefit over physical and medical therapy (Kirkley, *et al.* 2008)
 - Aerobic and strengthening exercise, land- and water-based, are beneficial for mild to moderate arthritis (Golightly, *et al.* 2012)
 - No difference in functional improvement between partial meniscectomy and physical therapy in patients with osteoarthritis (Katz, *et al.* 2013)



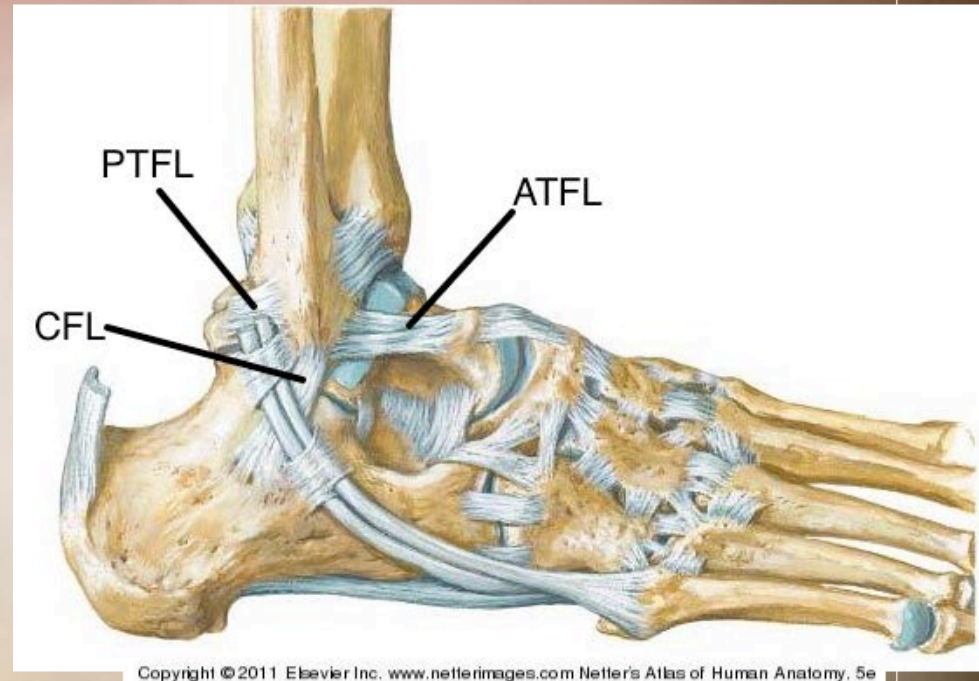
What goes to surgery?

- ACL tear
 - Young, active patient
 - Recurrent giving way episodes
 - Concomitant meniscal or collateral ligament damage
- Meniscal tear
 - Mechanical symptoms – locking, giving way, catching
- Osteoarthritis
 - Mechanical symptoms
 - Arthroplasty if conservative measures have been ineffective



Ankle

- Ankle sprain
 - Lateral ankle
 - Inversion injury
 - Injuries to:
 - Anterior talofibular ligament (ATFL)
 - Calcaneofibular ligament (CFL)
 - Posterior talofibular ligament (PTFL)





What's the Evidence?

- Acute ankle sprain
 - Systematic review by Petersen, *et al.* (2013)
 - Surgery plays only minor role in acute ankle sprains
 - Neuromuscular training should support functional rehabilitation after ankle sprain
 - Evidence that balance training can be used after an acute ankle sprain in an effort to reduce future ankle sprains.



Concussion

- Prolonged symptoms or specific deficits
- Vestibular rehabilitation
 - Improved self-report, gait, and balance performance (Alsalaheen, *et al.* 2010)
- Cervical Spine
 - Complex proprioceptive system that has connections to the vestibular and visual systems
 - Stretching, strengthening, manual therapy



Summary

- Physical therapy
 - Beneficial in most situations
 - My first line treatment
- Surgery
 - Failure of conservative treatment
 - Select conditions
 - Young patients with rotator cuff tears
 - Large amount of weakness with rotator cuff tear
 - Most ACL injuries (though therapy prior to surgery)
 - Acute meniscal tears with mechanical symptoms



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Questions?



Sources

- Ainsworth R, Lewis JS. Exercise therapy for the conservative management of full thickness tears of the rotator cuff: a systematic review. *Br J Sports Med*. Apr 2007;41(4):200-210.
- Alsalaheen BA, Mucha A, Morris LO, et al. Vestibular rehabilitation for dizziness and balance disorders after concussion. *J Neurol Phys Ther*. Jun 2010;34(2):87-93.
- Bolgla LA, Boling MC. An update for the conservative management of patellofemoral pain syndrome: a systematic review of the literature from 2000 to 2010. *Int J Sports Phys Ther*. Jun 2011;6(2):112-125.
- Burbank KM, Stevenson JH, Czarnecki GR, Dorfman J. Chronic shoulder pain: part II. Treatment. *Am Fam Physician*. Feb 15 2008;77(4):493-497.
- Cimino F, Volk BS, Setter D. Anterior cruciate ligament injury: diagnosis, management, and prevention. *Am Fam Physician*. Oct 15 2010;82(8):917-922.
- Delince P, Ghafil D. Anterior cruciate ligament tears: conservative or surgical treatment? A critical review of the literature. *Knee Surg Sports Traumatol Arthrosc*. Jan 2012;20(1):48-61.
- Eitzen I, Holm I, Risberg MA. Preoperative quadriceps strength is a significant predictor of knee function two years after anterior cruciate ligament reconstruction. *Br J Sports Med*. May 2009;43(5):371-376.
- Ewald A. Adhesive capsulitis: a review. *Am Fam Physician*. Feb 15 2011;83(4):417-422.



Sources

- Golightly YM, Allen KD, Caine DJ. A comprehensive review of the effectiveness of different exercise programs for patients with osteoarthritis. *Phys Sportsmed*. Nov 2012;40(4):52-65.
- Herrlin S, Hallander M, Wange P, Weidenhielm L, Werner S. Arthroscopic or conservative treatment of degenerative medial meniscal tears: a prospective randomised trial. *Knee Surg Sports Traumatol Arthrosc*. Apr 2007;15(4):393-401.
- Hurd WJ, Axe MJ, Snyder-Mackler L. A 10-year prospective trial of a patient management algorithm and screening examination for highly active individuals with anterior cruciate ligament injury: Part 1, outcomes. *Am J Sports Med*. Jan 2008;36(1):40-47.
- Katz JN, Brophy RH, Chaisson CE, et al. Surgery versus physical therapy for a meniscal tear and osteoarthritis. *N Engl J Med*. May 2 2013;368(18):1675-1684.
- Kirkley A, Birmingham TB, Litchfield RB, et al. A randomized trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med*. Sep 11 2008;359(11):1097-1107.
- Kuhn JE. Exercise in the treatment of rotator cuff impingement: a systematic review and a synthesized evidence-based rehabilitation protocol. *J Shoulder Elbow Surg*. Jan-Feb 2009;18(1):138-160.
- Kuhn JE, Dunn WR, Sanders R, et al. Effectiveness of physical therapy in treating atraumatic full-thickness rotator cuff tears: a multicenter prospective cohort study. *J Shoulder Elbow Surg*. Mar 26 2013.
- Leddy JJ, Sandhu H, Sodhi V, Baker JG, Willer B. Rehabilitation of Concussion and Post-concussion Syndrome. *Sports Health*. Mar 2012;4(2):147-154.



Sources

- Littlewood C, Ashton J, Chance-Larsen K, May S, Sturrock B. Exercise for rotator cuff tendinopathy: a systematic review. *Physiotherapy*. Jun 2012;98(2):101-109.
- Logerstedt D, Lynch A, Axe MJ, Snyder-Mackler L. Pre-operative quadriceps strength predicts IKDC2000 scores 6months after anterior cruciate ligament reconstruction. *Knee*. Jun 2013;20(3):208-212.
- Petersen W, Rembitzki IV, Koppenburg AG, et al. Treatment of acute ankle ligament injuries: a systematic review. *Arch Orthop Trauma Surg*. May 28 2013.
- Rathleff CR, Cavallius C, Jensen HP, et al. Successful conservative treatment of patients with MRI-verified meniscal lesions. *Knee Surg Sports Traumatol Arthrosc*. Apr 11 2013.
- Ringdahl E, Pandit S. Treatment of knee osteoarthritis. *Am Fam Physician*. Jun 1 2011;83(11):1287-1292.
- Wolf BR, Dunn WR, Wright RW. Indications for repair of full-thickness rotator cuff tears. *Am J Sports Med*. Jun 2007;35(6):1007-1016.
- Yim JH, Seon JK, Song EK, et al. A Comparative Study of Meniscectomy and Nonoperative Treatment for Degenerative Horizontal Tears of the Medial Meniscus. *Am J Sports Med*. May 23 2013.