1-12-2017

Sports Medicine Potpourri

Marc I. Harwood, MD
Thomas Jefferson University

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Sports Medicine Potpourri

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Disclosures

- Consultant
  - None
- Intellectual Properties/Ownership
  - None
- Royalties
  - None
- Board Member/Advisor
  - None

Objectives

At the conclusion of this talk, the learner will be:

- Thoroughly confused by the whirlwind of information presented.
- But…able to delve into any of the topics at greater length when time permits.

Anniversary

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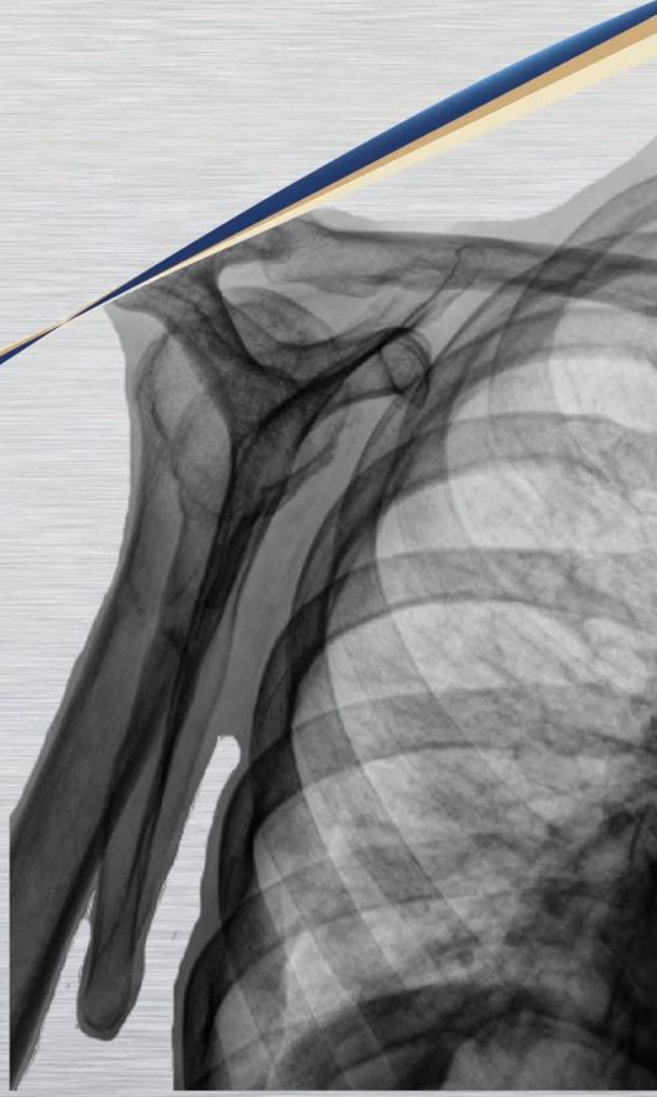
Barbotage:
Calcific Tendinitis



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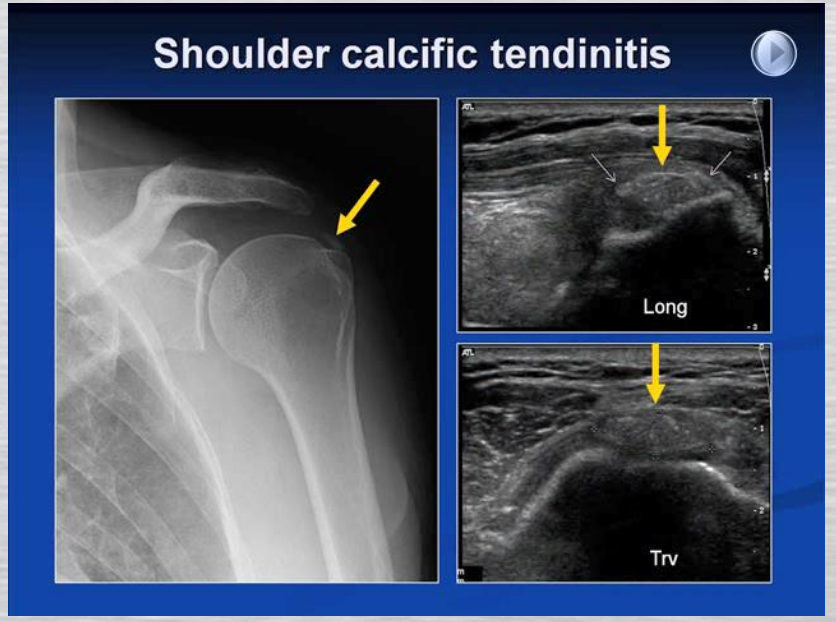
Calcific Tendinitis: Rotator Cuff

- **Acute on chronic shoulder pain**
- **Examination findings c/w impingement**
- **MRI not necessary**
  - RTC tear or calcific tendinitis– never both
- **Treatment options**
  - Subacromial injection
  - ?Physical Therapy



Musculoskeletal Ultrasound: How to Treat Calcific Tendinitis of the Rotator Cuff by Ultrasound-Guided Single-Needle Lavage Technique
Kenneth S. Lee and Humberto G. Rosas
American Journal of Roentgenology 2010 195:3, W213-W213

Evidence?

Systematic Review

Ultrasound-Guided Barbotage for Calcific Tendonitis of the Shoulder: A Systematic Review including 908 Patients

Daniel L. Gatt, M.D., and
Charalambos P. Charalambous, B.Sc., M.B.Ch.B., M.Sc., M.D., F.R.C.S.(Tr&Orth)

Purpose: A systematic review was performed to assess the outcomes and complications of ultrasound-guided barbotage (repeated injection and aspiration) for calcific tendonitis of the shoulder. **Methods:** A literature search of the Medline, Embase, and Cochrane databases using all relevant keywords found 1,454 original articles. After removal of duplicates and application of inclusion criteria, 13 original articles were selected for review. Articles that used fluoroscopic guidance rather than ultrasound guidance were excluded from the review. All studies analyzed except 1 were case series, with no comparative studies being available. **Results:** Thirteen articles with a total of 908 patients were analyzed. In all articles reviewed, the authors reported a good clinical outcome, with many achieving marked improvement in clinical scores or overall satisfaction with the treatment. **Conclusions:** Ultrasound-guided barbotage is a safe technique, with a high success rate and low complication rate. There is no evidence assessing its effectiveness compared with other major treatment modalities; a randomized trial comparing ultrasound-guided barbotage, extracorporeal shock wave therapy, and arthroscopic calcific deposit excision would be of great value. However, while awaiting such a trial, on the basis of the results of this systematic review, we can recommend ultrasound-guided barbotage. **Level of Evidence:** Level IV, systematic review of Level IV studies.

Dreaded black line

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Anterior cortex of tibia

- **Bad stress fracture**
- **High rate of non-union**
- **Tensile side of the tibia**
  - Can complete resulting in transverse, fracture of the tibia requiring ORIF

YouTube: Louisville 2013 broken leg

Eccentric Training: Tx AND Prevention

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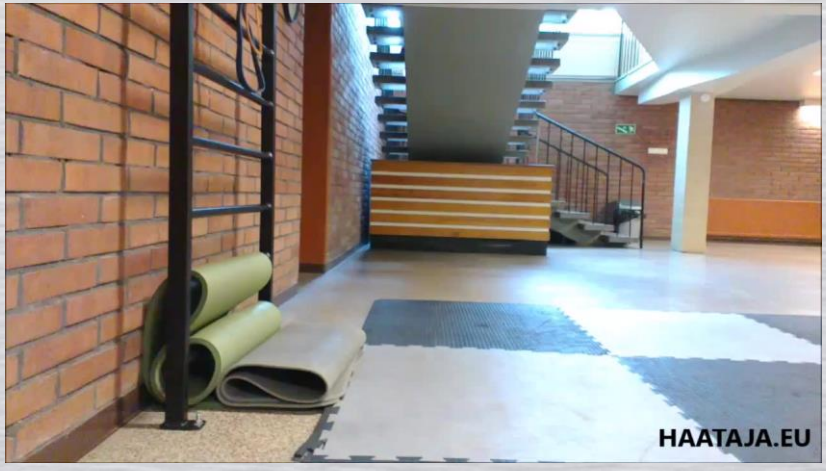
Highest load for tendon= Eccentric Loading

- **Cornerstone of tendinosis Tx**
  - Progressive loading of the tendon
  - Induces remodeling/ ultrastructure of tendon
- **Concentric vs. Eccentric contraction**
  - Concentric= shortening
  - Eccentric= lengthening



https://www.youtube.com/watch?v=_TOAv0YGGp4

Evidence

The American Journal of Sports Medicine
http://ajs.sagepub.com/

TABLE 3
Comparison of the Intervention and Control Groups[a]

	Intervention Group	Control Group
Exposure per player, h		
Total	90.5 ± 15.4	96.6 ± 16.0
Matches	34.0 ± 13.8	35.1 ± 14.3
Training	56.5 ± 17.0	61.5 ± 17.7
Hamstring injuries[b]	11	25
Before end of intervention period (wk 1-13)	5	7
After end of intervention period (wk 13-52)[b]	6	18
Soccer absenteeism due to hamstring injuries	31 ± 15	28 ± 19
Injuries by hamstring injury severity[c]		
Slight (0 d)	0	1
Minimal (1-3 d)	0	1
Mild (4-7 d)	0	2
Moderate (8-28 d)	4	5
Severe (>28 d)	2	9

[a]Values are presented in mean ± SD or No.
[b]Significantly different between the intervention and control groups ($P < .05$).
[c]After the end of the intervention period (weeks 13-52).

Question?

Case:

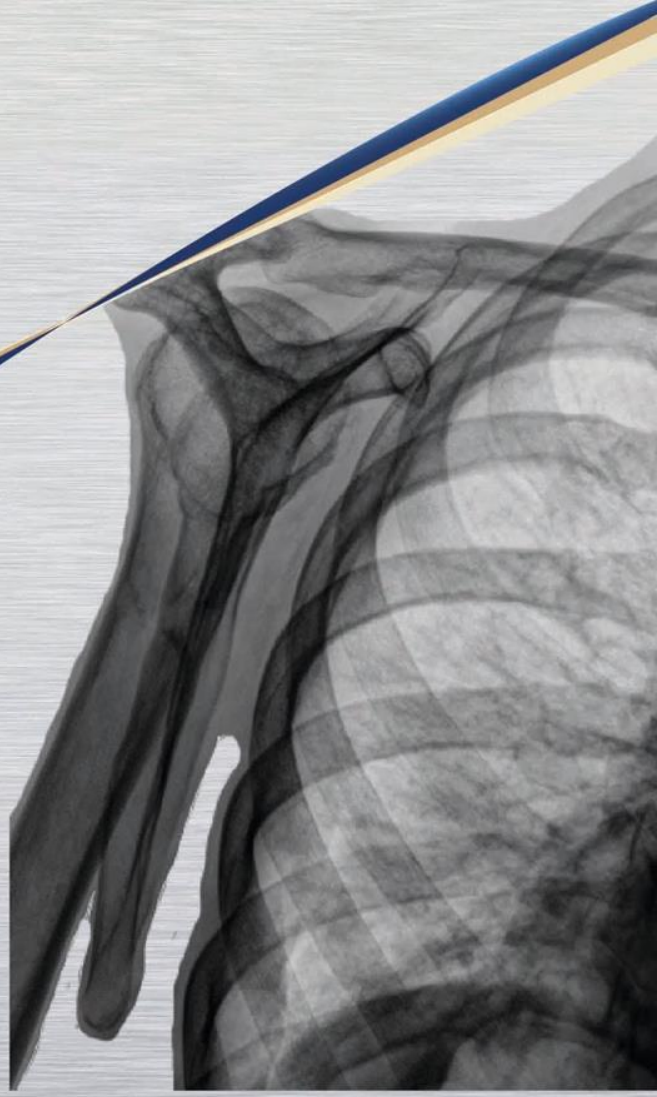
65 yr old female with PMH Type II DM with shoulder pain x7 months and progressive loss of ROM. Has been using NSAIDs over the counter (against your advice) and it hasn't helped.

I know what the textbook says, but…Which of these statements best reflects real world management of this patient:

A. I would send this patient to Physical Therapy for restoration of ROM without getting an x-ray of the shoulder first.

B. I would get an x-ray of the shoulder prior to recommending Physical Therapy.

Frozen Shoulder vs. Glenohumeral DJD



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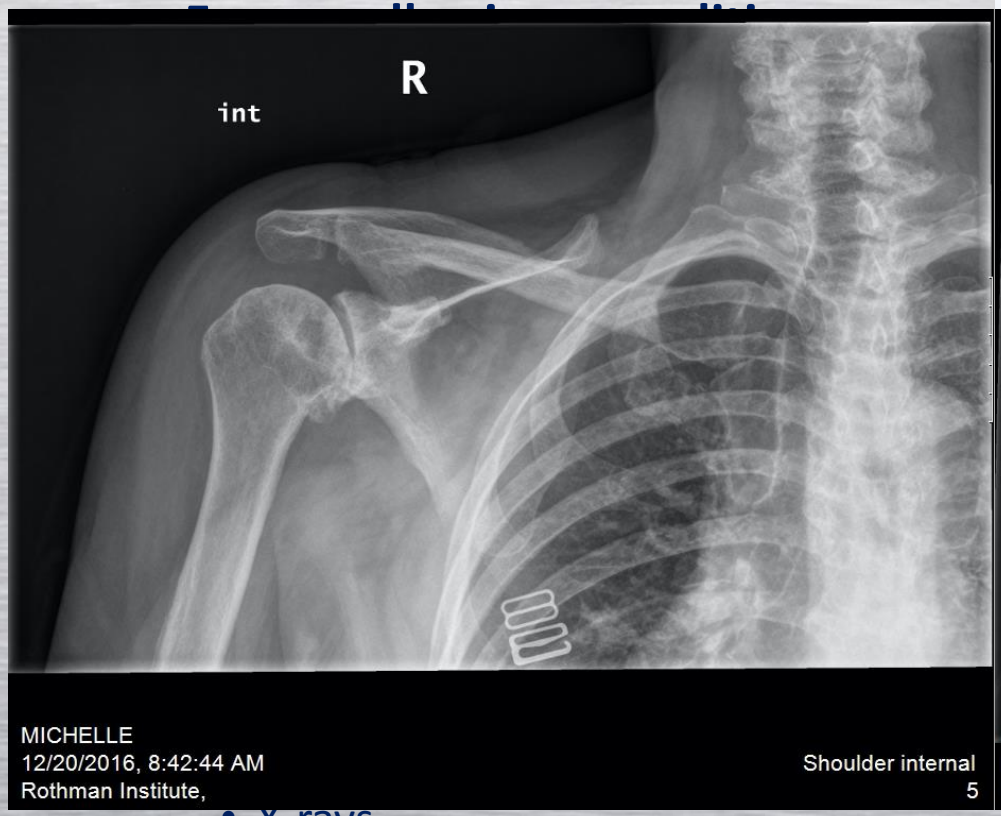
All that lacks ROM is not Adhesive capsulitis…



- X-rays

Hip Impingement

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Common in the Asx population

Eur Radiol (2013) 23:3131–3139
DOI 10.1007/s00330-013-2912-0

MUSCULOSKELETAL

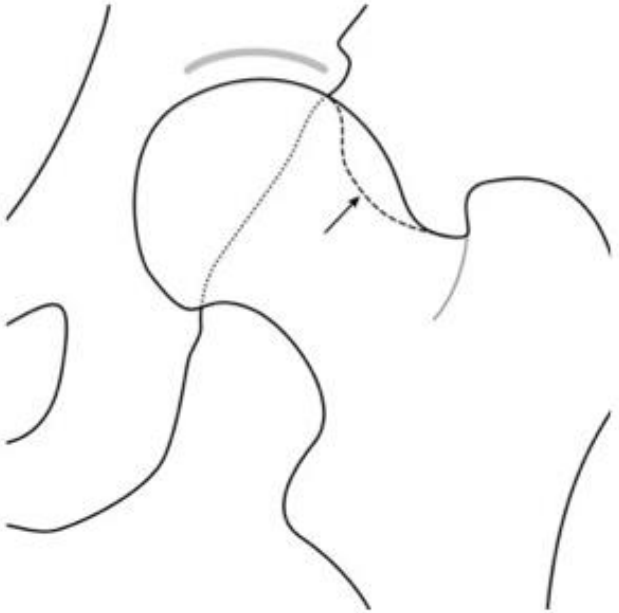
Radiographic signs associated with femoroacetabular impingement occur with high prevalence at all ages in a hospital population

F. de Bruin · M. Reijnierse · V. Farhang-Razi · J. L. Bloem

Received: 4 January 2013 / Revised: 16 April 2013 / Accepted: 5 May 2013 / Published online: 16 June 2013

Cam-type impingement

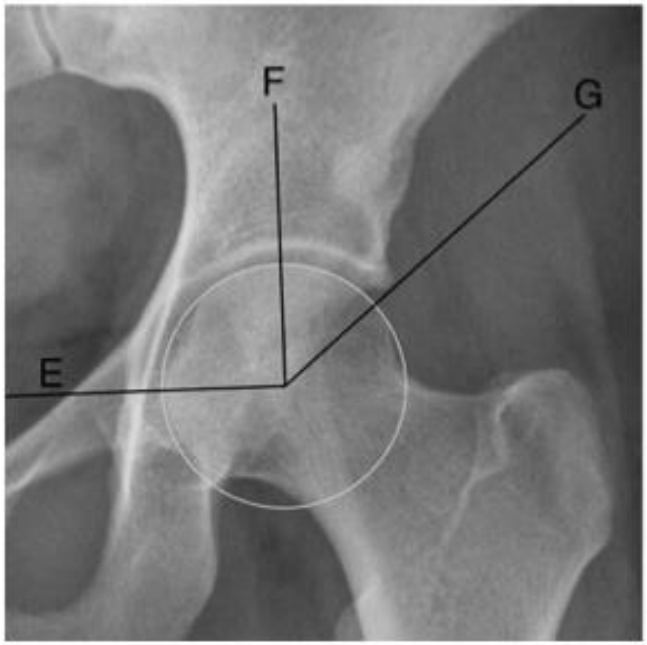
Fig. 1 AP conventional radiograph and schematic drawing of the left hip shows a pistol grip deformity. In the schematic drawing, the *dotted line* indicates the normal configurations of a femoral head-neck junction

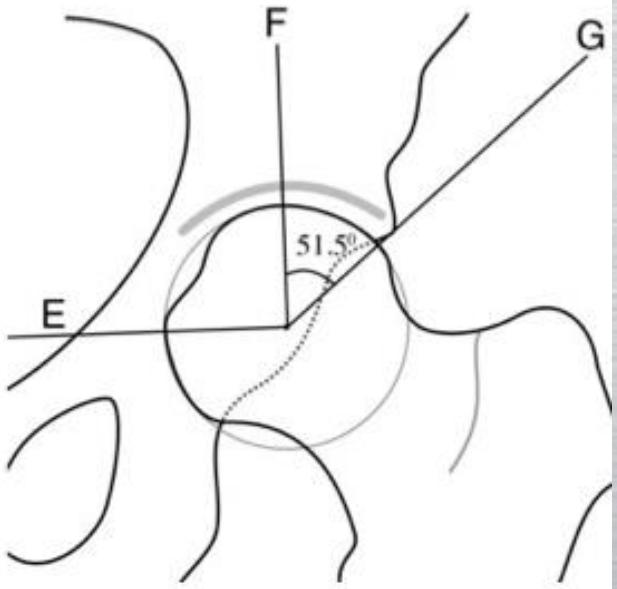


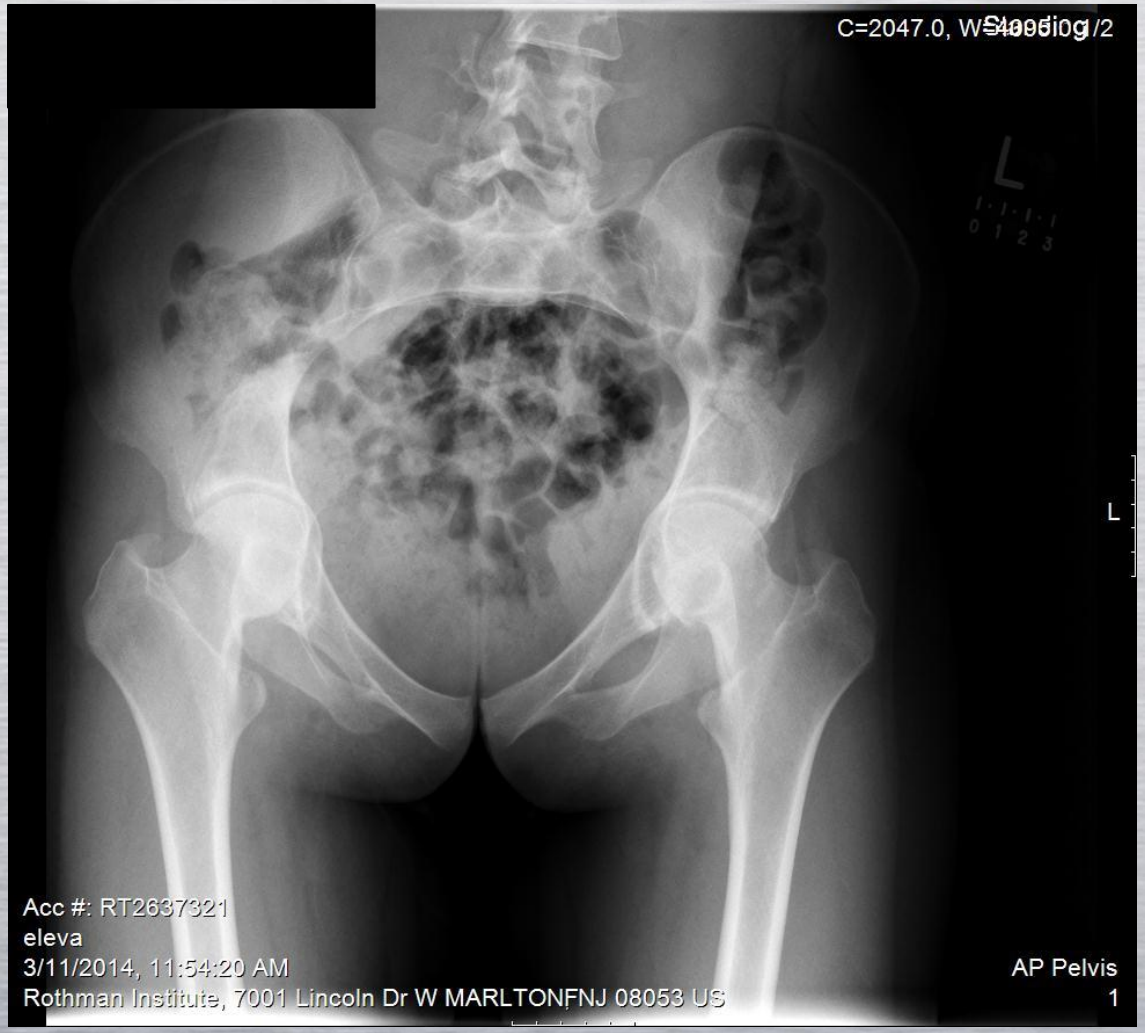

R

Pincer imgingement

Fig. 4 AP conventional radiograph and schematic drawing of the left hip show the centre edge angle. In this patient the acetabular overcoverage is present







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FAI

- **History**
  - Pain in the groin
  - C-Sign
  - Not debilitating– chronic, nagging, annoying
  - Difficulty getting in/out of a car
- **Physical Exam**
  - No tenderness elicited
  - Decreased ROM
  - FADIR testing
  - Passive flexion results in external rotation at the hip

Tip #1

- **Treat people, not x-rays**
- **Ignore “FAI” on radiology report if H&P not suggestive.**

Arthroscopy for FAI

- **Bony work**
- **Soft tissue (labral) work**
- **+/- sports hernia work**

Arthroscopic Acetabular Labral Debridement in Patients Forty-five Years of Age or Older Has Minimal Benefit for Pain and Function

Geoffrey Wilkin, MD, Gerard March, MD, FRCSC, and Paul E. Beaulé, MD, FRCSC

Investigation performed at the Division of Orthopaedic Surgery, The Ottawa Hospital, Ottawa, Ontario, Canada

Wilkin G, March G, Beaulé PE. Arthroscopic acetabular labral debridement in patients forty-five years of age or older has minimal benefit for pain and function. *J Bone Joint Surg Am*. 2014;96(2):113-118.

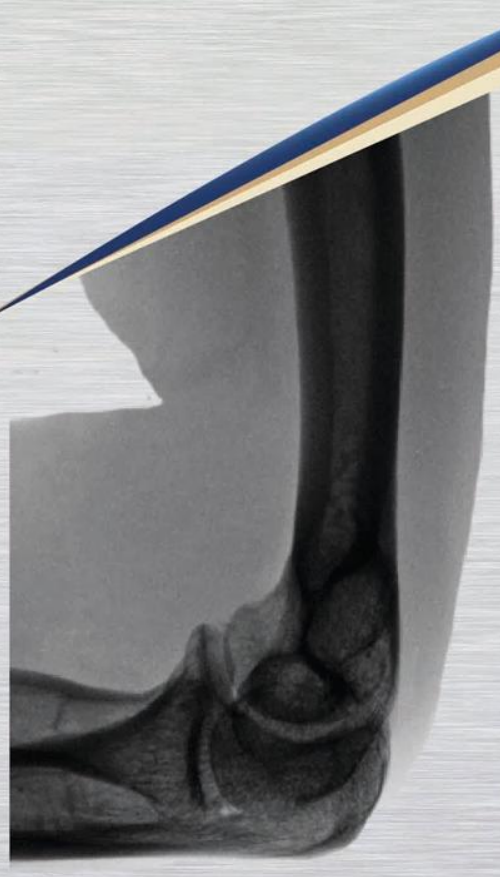
Tip #2

Ignore FAI if arthritis is present.

Consultation

- **H&P suggestive of FAI**
- **X-rays suggestive of FAI**
- **Symptoms bad enough to warrant surgical intervention?**
  - Post-operative pain
  - 3-6 months of rehab

Frank Jobe, MD



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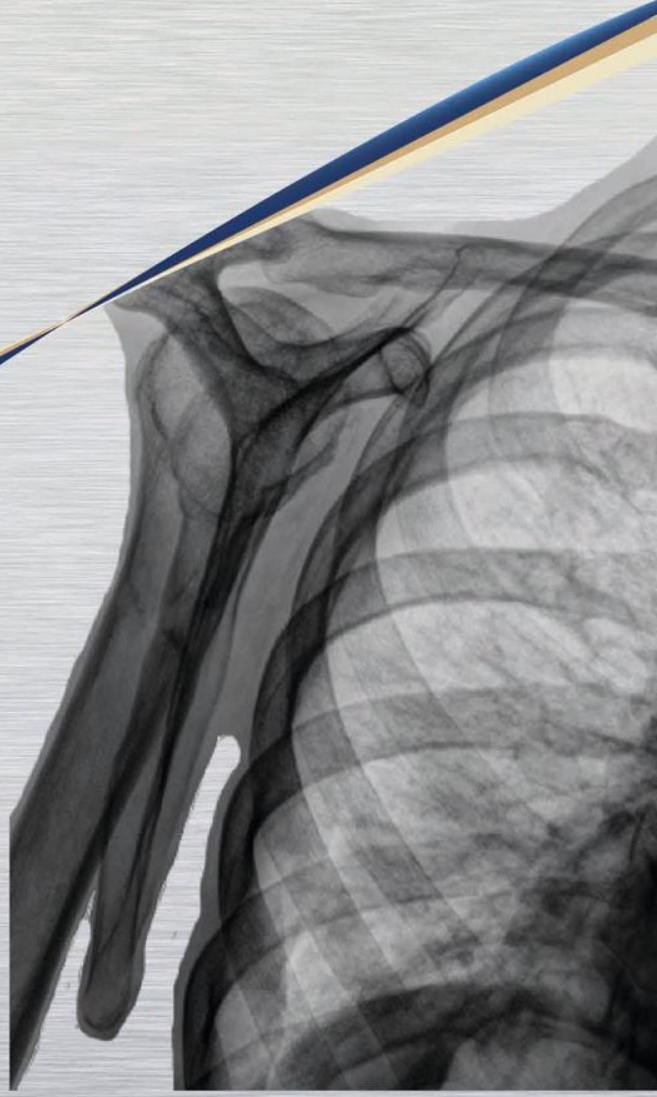
K-Tape



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K-Tape

Journal of Physiotherapy 60 (2014) 31–39

ELSEVIER

Journal of PHYSIOTHERAPY

journal homepage: www.elsevier.com/locate/jphys

Research

Current evidence does not support the use of Kinesio Taping in clinical practice: a systematic review

Patrícia do Carmo Silva Parreira[a], Lucíola da Cunha Menezes Costa[a], Luiz Carlos Hespanhol Junior[a], Alexandre Dias Lopes[a], Leonardo Oliveira Pena Costa[a,b]

[a] *Masters and Doctoral Programs in Physical Therapy, Universidade Cidade de São Paulo, Brazil;* [b] *Musculoskeletal Division, The George Institute for Global Health, Australia*

KEY WORDS

Kinesio taping
Systematic review
Musculoskeletal conditions

ABSTRACT

Questions: Is Kinesio Taping more effective than a sham taping/placebo, no treatment or other interventions in people with musculoskeletal conditions? Is the addition of Kinesio Taping to other interventions more effective than other interventions alone in people with musculoskeletal conditions? **Design:** Systematic review of randomised trials. **Participants:** People with musculoskeletal conditions. **Intervention:** Kinesio Taping was compared with sham taping/placebo, no treatment, exercises, manual therapy and conventional physiotherapy. **Outcome measures:** Pain intensity, disability, quality of life, return to work,

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Ligamentous laxity

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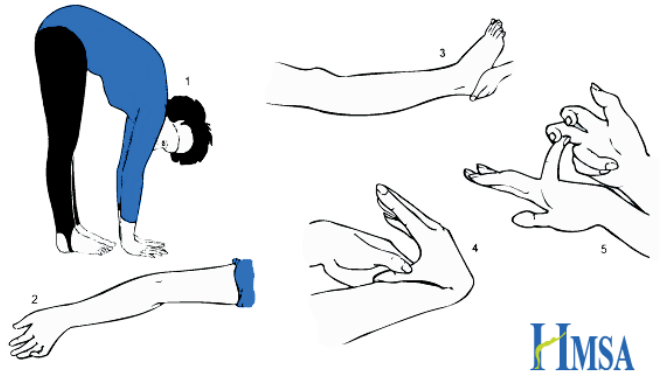
Beighton Score

If you suspect hypermobility syndrome, document a Beighton score

The Beighton score is calculated as follows:

1. One point if while standing forward bending you can place palms on the ground with legs straight
2. One point for each elbow that bends backwards
3. One point for each knee that bends backwards
4. One point for each thumb that touches the forearm when bent backwards
5. One point for each little finger that bends backwards beyond 90 degrees.



Arthroscopic Meniscectomy

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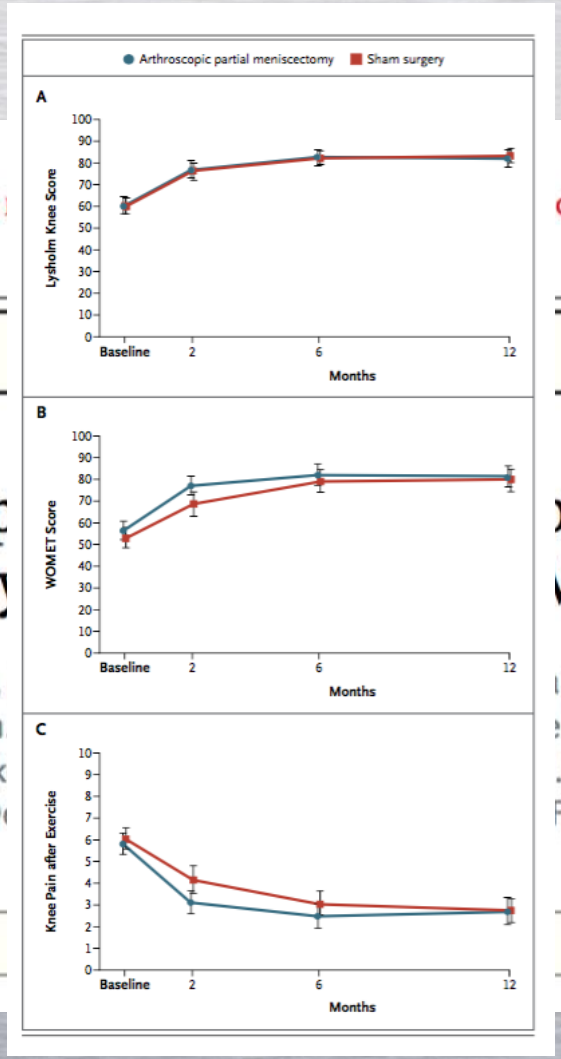
Flashback: 2014



The N CINE

Arthroscop omy versus
Sham Surgery Meniscal Tear

Raine Sihvonen, M.D., lmivaara, M.D., Ph.D.,
Ari Itälä, M.D., Ph ikki Nurmi, M.D.,
Juha Kalsk .D., Ph.D.,
for the Finnish D FIDELITY) Group

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Update: Feb 2016

Annals of Internal Medicine ORIGINAL RESEARCH

Mechanical Symptoms and Arthroscopic Partial Meniscectomy in Patients With Degenerative Meniscus Tear

A Secondary Analysis of a Randomized Trial

Raine Sihvonen, MD, PhD; Martin Englund, MD, PhD; Aleksandra Turkiewicz, MSc; and Teppo L.N. Järvinen, MD, PhD, for the Finnish Degenerative Meniscal Lesion Study Group*

Background: Recent evidence shows that arthroscopic partial meniscectomy (APM) offers no benefit over conservative treatment of patients with a degenerative meniscus tear. However, patients who report mechanical symptoms (sensations of knee catching or locking) may benefit from APM.

Objective: To assess whether APM improves mechanical symptoms better than sham surgery.

Design: Randomized, patient- and outcome assessor–blinded, sham surgery–controlled, multicenter trial. (ClinicalTrials.gov: NCT00549172)

Setting: 5 orthopedic clinics in Finland.

Patients: Adults (aged 35 to 65 years) with a degenerative medial meniscus tear and no knee osteoarthritis.

Intervention: APM or sham surgery.

Measurements: Patients' self-report of mechanical symptoms before surgery and at 2, 6, and 12 months after surgery.

Results: 70 patients were randomly assigned to APM, and 76 were assigned to sham surgery. Thirty-two patients (46%) in the APM group and 37 (49%) in the sham surgery group reported catching or locking before surgery; the corresponding numbers at any follow-up were 34 (49%) and 33 (43%), with a risk difference of 0.03 (95% CI, −0.06 to 0.12). In the subgroup of 69 patients with preoperative catching or locking, the risk difference was 0.07 (CI, −0.08 to 0.22).

Limitation: Analyses were post hoc, and the results are only generalizable to knee catching and occasional locking because few patients reported other types of mechanical symptoms.

Conclusion: Resection of a torn meniscus has no added benefit over sham surgery to relieve knee catching or occasional locking. These findings question whether mechanical symptoms are caused by a degenerative meniscus tear and prompt caution in using patients' self-report of these symptoms as an indication for APM.

Primary Funding Source: Academy of Finland.

Ann Intern Med. 2016;164:449-455. doi:10.7326/M15-0899 **www.annals.org**

For author affiliations, see end of text.

This article was published at www.annals.org on 9 February 2016.

* For a list of Finnish Degenerative Meniscal Lesion Study group members, see the **Appendix** (available at www.annals.org).

Editorial, BJSM 2015

Republished editorial from *The BMJ*

Arthroscopic surgery for degenerative knee: Overused, ineffective, and potentially harmful

Andy Carr

The most frequent indication for knee arthroscopy is degenerative joint disease in middle aged and older patients. Each year, more than 700 000 knee arthroscopies are done in the United States and 150 000 in the United Kingdom.[1] Magnetic resonance imaging evidence of meniscal abnormality, osteophytes, cartilage damage, and bone marrow lesions is often present. All these imaging abnormalities are common in the general population and are often asymptomatic.[2] The evidence base for arthroscopic surgery is known to be weak, and a pressing need exists for more high quality multicentre randomised controlled trials, systematic reviews, and meta-analyses to inform clinicians and improve care for patients.[3] Researchers have already reported that trials of arthroscopic surgery find no benefit over control interventions ranging from exercises to placebo surgery.[4]

poorly described and given at a suboptimal dose.

Another possibility is that surgeons are falling prey to confirmation or myside bias,[9] whereby robust and high quality evidence is contested and ignored in favour of deeply held convictions or entrenched attitudes. Such bias is not new and was well described by Leo Tolstoy in 1899: "I know that most men not only those considered clever, but even those who are very clever, and capable of understanding most difficult scientific, mathematical, or philosophic problems can very seldom discern even the simplest and most obvious truth if it be such as to oblige them to admit the falsity of conclusions they have formed, perhaps with much difficulty conclusions of which they are proud, which they have taught to others, and on which they have built their lives."[10]

One thing is clear from all randomised

variety of factors that alter beliefs and expectations.[12]

Importantly, Thorlund and colleagues also review the harms associated with arthroscopic knee surgery. They were unable to identify harm from randomised trials alone because the trials were too small, so they did a wider review including observational studies. These studies were heterogeneous and inconsistent, but the risks associated with non-surgical treatment including exercises are clearly rare and minor. Harms associated with arthroscopic surgery are also rare but include serious adverse events such as deep venous thrombosis, infection, pulmonary embolus, and death.

Supporting or justifying a procedure with the potential for serious harm, even if this is rare, is difficult when that procedure offers patients no more benefit than a placebo. If, as reported, the mortality associated with arthroscopic knee surgery is 0.96 (95% confidence interval 0.04 to 23.9) per 1000 cases and the rate of deep venous thrombosis is 4.13 (1.78 to 9.60) per 1000 cases then, with rates of surgery at their current level, a substantial number of lives could be saved and deep venous thromboses prevented each year if this treatment were to be discontinued or diminished.

We may be close to a tipping point

Navicular Stress fracture

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Bad stress fracture

Maintain a low index of suspicion for stress fracture

- Tenderness at medial foot
- High rate of non-union

Os Trigonum

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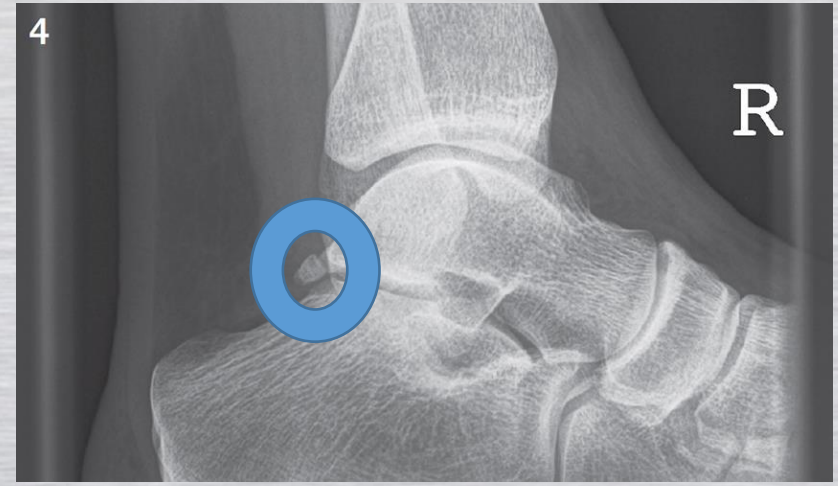
Posterior ankle pain

21 yr old dancer with posterior ankle pain

- “Achilles tendinitis” for years.
- On-and-off
- Increased pain on pointe



http://www.aspetar.com/journal/viewarticle.aspx?id=51#.VzkMIGOMKaY

PEP ACL Prevention Program

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Neuromuscular training programs

PLOS | ONE

RESEARCH ARTICLE

Effectiveness of Knee Injury and Anterior Cruciate Ligament Tear Prevention Programs: A Meta-Analysis

Laurel A. Donnell-Fink[1☯], Kristina Klara[1☯], Jamie E. Collins[1,2], Heidi Y. Yang[1], Melissa G. Goczalk[1], Jeffrey N. Katz[1,2,3], Elena Losina[1,2,4*]

1 Orthopaedic and Arthritis Center for Outcomes Research, Department of Orthopedic Surgery, Brigham and Women's Hospital, Boston, Massachusetts, United States of America, 2 Harvard Medical School, Boston, Massachusetts, United States of America, 3 Division of Rheumatology, Immunology and Allergy, Brigham and Women's Hospital, Boston, Massachusetts, United States of America, 4 Department of Biostatistics, Boston University School of Public Health, Boston, Massachusetts, United States of America

☯ These authors contributed equally to this work.
* elosina@partners.org

CrossMark

OPEN ACCESS

Citation: Donnell-Fink LA, Klara K, Collins JE, Yang HY, Goczalk MG, Katz JN, et al. (2015) Effectiveness of Knee Injury and Anterior Cruciate Ligament Tear Prevention Programs: A Meta-Analysis. PLoS ONE 10(12): e0144063. doi:10.1371/journal.pone.0144063

Abstract

Objective

Individuals frequently involved in jumping, pivoting or cutting are at increased risk of knee injury, including anterior cruciate ligament (ACL) tears. We sought to use meta-analytic techniques to establish whether neuromuscular and proprioceptive training is efficacious in

http://journals.plos.org/plosone/article/asset?id=10.1371%2Fjournal.pone.0144063.PDF

http://smsmf.org/smsf-programs/pep-program

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Questions at the end!

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New Soccer Rules

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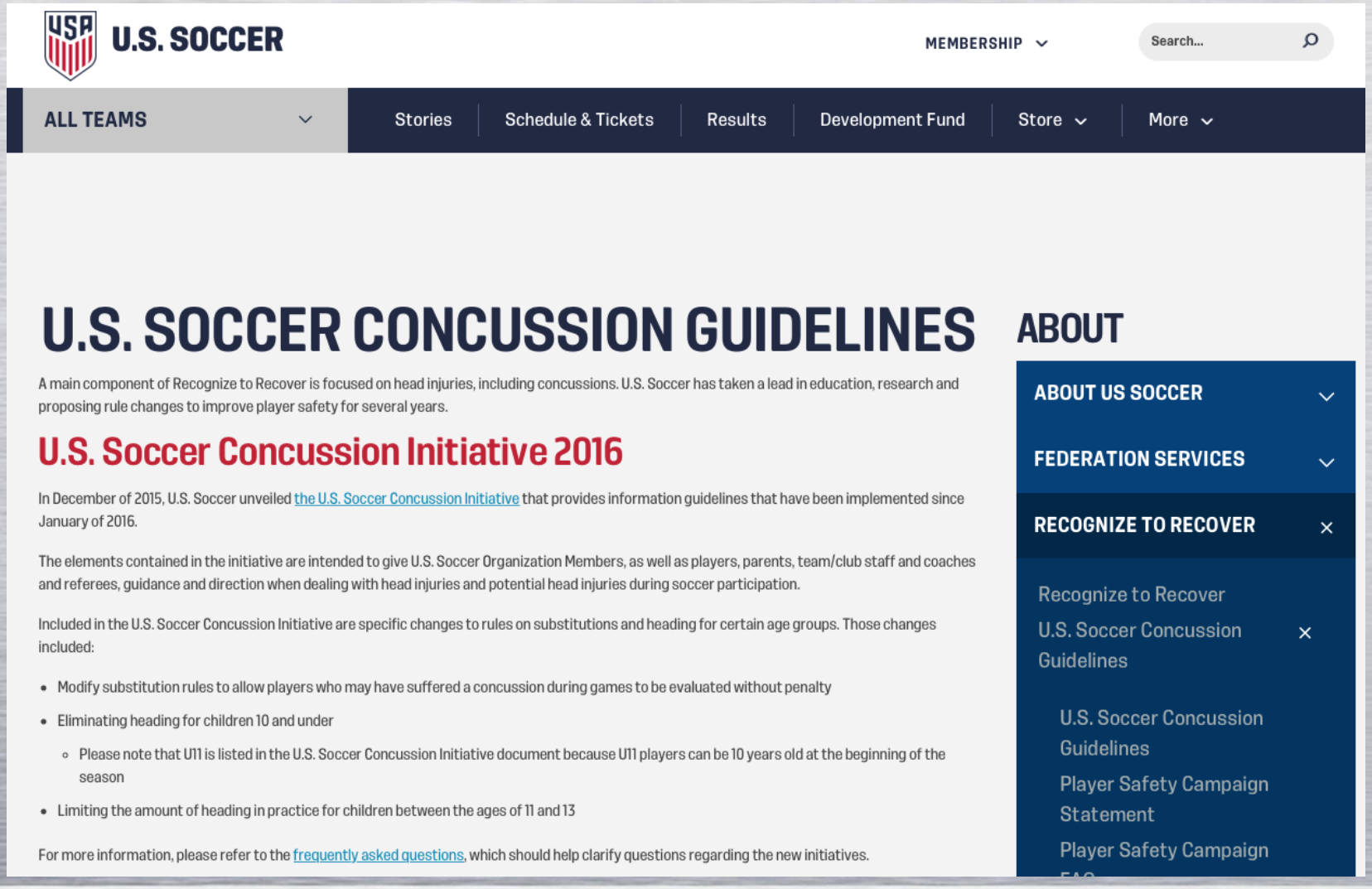
www.ussoccer.com



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No Heading U11

V. HEADING

A. U.S. Soccer Recommendations

1. U11 and younger.

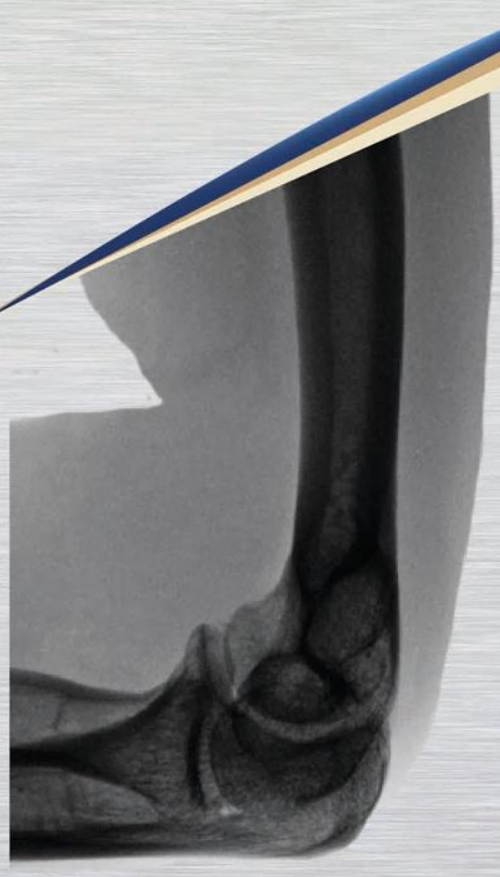
a. U.S. Soccer recommends that players in U11 programs and younger shall not engage in heading, either in practices or in games.

2. U12 and U13.

a. U.S. Soccer further recommends for players in U12 and U13 programs, that heading training be limited to a maximum of 30 minutes per week with no more that 15-20 headers per player, per week.

3. All coaches should be instructed to teach and emphasize the importance of proper techniques for heading the ball.

Reconstruction "Tommy John" UCL surgery



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Epidemiology of UCL reconstruction

The American Journal of Sports Medicine
http://ajs.sagepub.com/

Trends in Medial Ulnar Collateral Ligament Reconstruction in the United States: A Retrospective Review of a Large Private-Payer Database From 2007 to 2011

Brandon J. Erickson, Benedict U. Nwachukwu, Sam Rosas, William W. Schairer, Frank M. McCormick, Bernard R. Bach, Jr, Charles A. Bush-Joseph and Anthony A. Romeo

Am J Sports Med 2015 43: 1770
DOI: 10.1177/0363546515580304

The online version of this article can be found at:
http://ajs.sagepub.com/content/43/7/1770

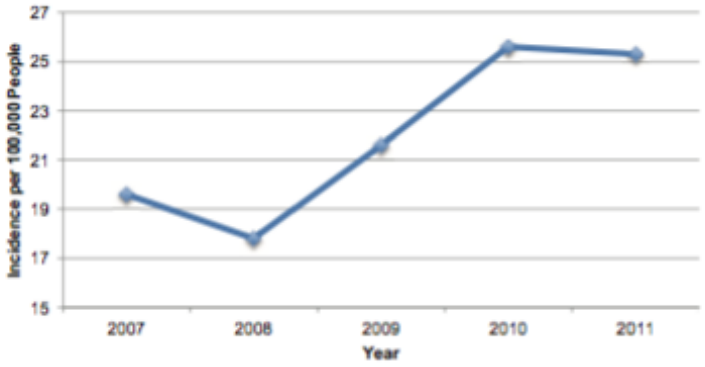
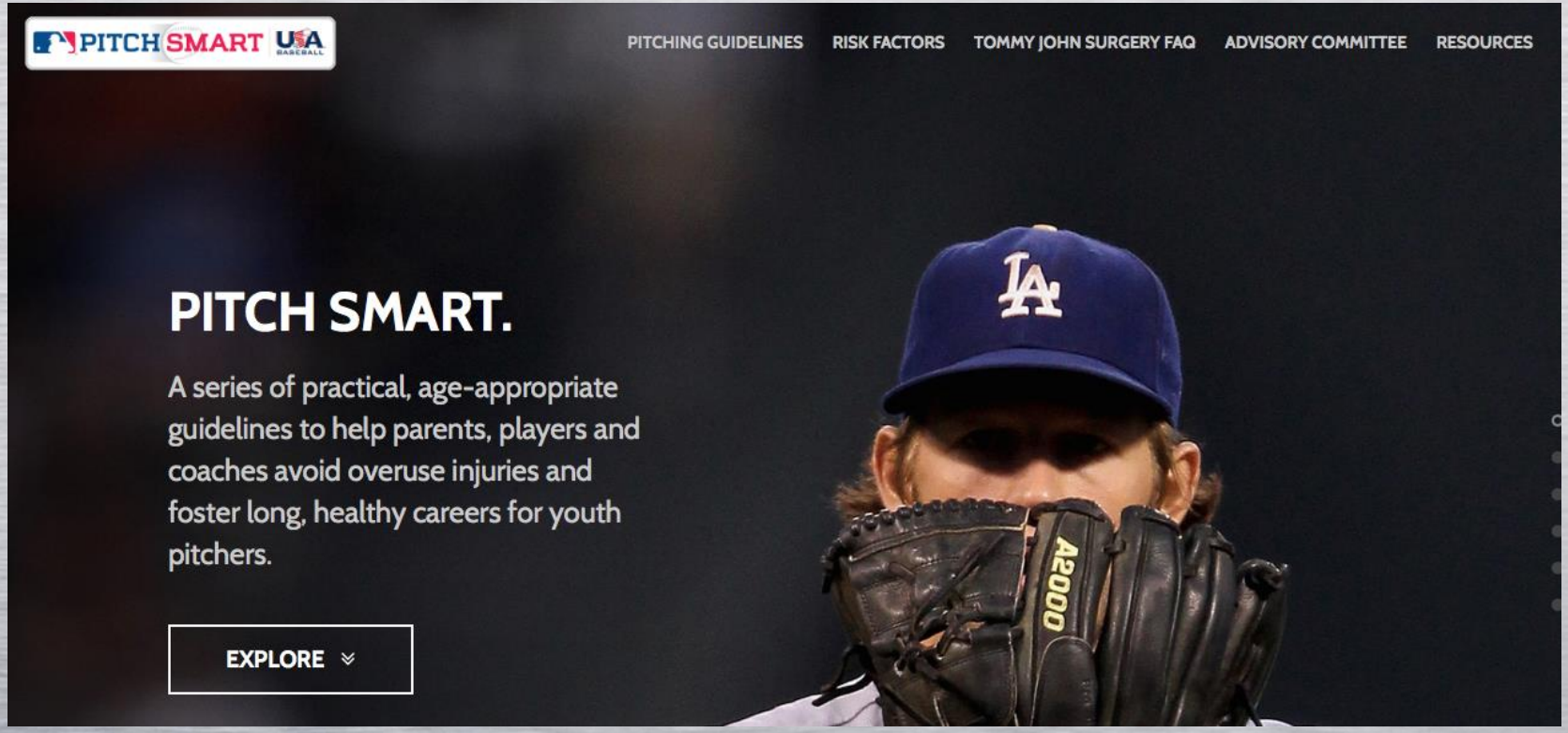


Figure 3. Annual incidence of ulnar collateral ligament reconstruction in patients aged 15-19 in the PearlDiver database in the years 2007-2011.

http://m.mlb.com/pitchsmart/



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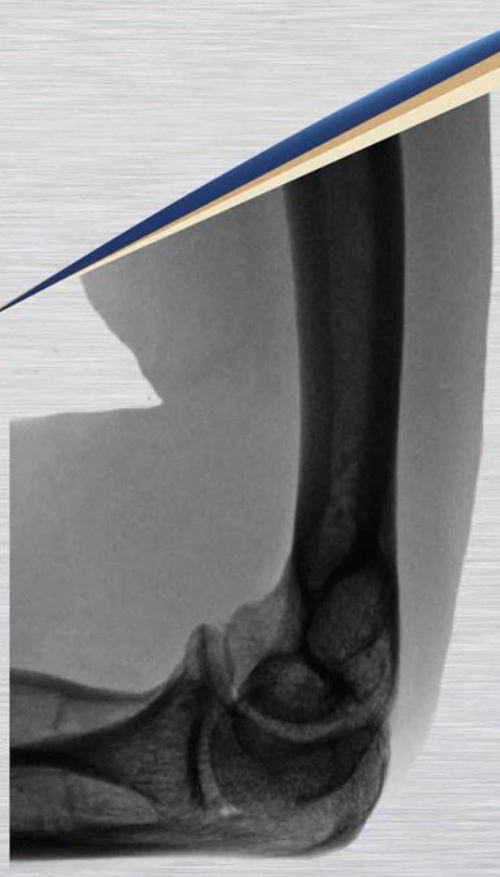
Valgus stress at the elbow



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Valgus load to elbow

Facts

The amount of valgus force at the elbow at this moment in time is:

- Equivalent to hanging a bag with 5+ bowling balls from the pitcher's right hand.
- Equivalent to the load-to-failure of the ulnar collateral ligament (UCL).
- Can cause either an acute tear of the UCL or an attritional tear of the UCL over time.

Out of time: It's WXYZ or Dr. Parente's talk….

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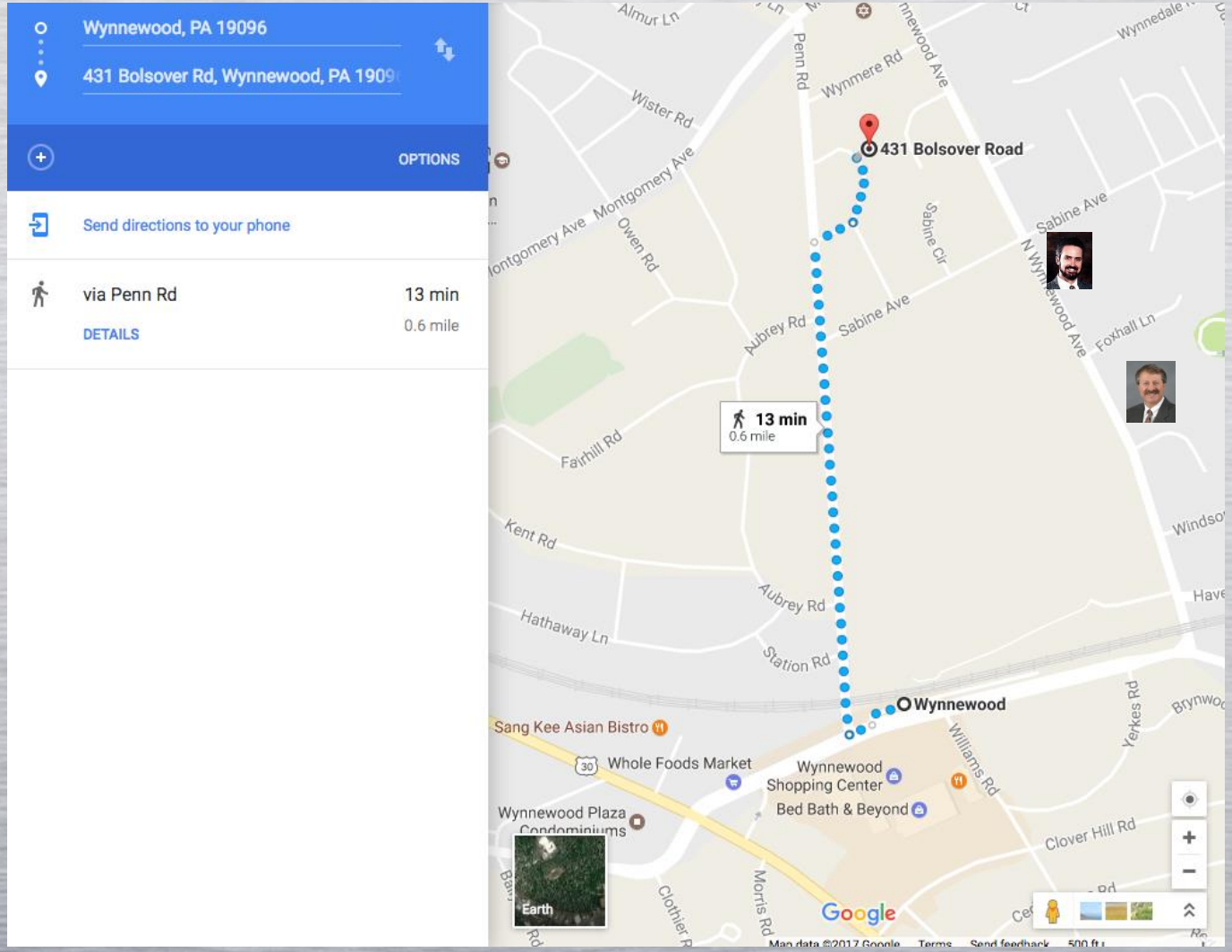
Sports Medicine Opportunities

- **Weekly Conference**
  - Tuesday mornings
  - 6:30 AM
  - 925 Chestnut St, 5th floor
  - Historic Conference Room
  - Email joshua.okon@jefferson.edu to get on the distribution list

- **Journal Club**
  - Wednesday, Feb 1st
  - My Home
  - 431 Bolsover Rd, Wynnewood, PA
  - 6:00 PM
  - RSVP marc.harwood@jefferson.edu
  - Food/wine/beer



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THANK YOU.

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