Sports Medicine Potpourri

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Sports Medicine Potpourri

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Department of Orthopaedic Surgery
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Disclosures

- Consultant
  - None

- Intellectual Properties/Ownership
  - None

- Royalties
  - None

- Board Member/Advisor
  - None
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

ROTHMAN INSTITUTE

Sidney Kimmel Medical College
at Thomas Jefferson University
Barbotage: Calcific Tendinitis
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
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
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
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](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<sup>a</sup>

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

<sup>a</sup>Values are presented in mean ± SD or No.

<sup>b</sup>Significantly different between the intervention and control groups (P < .05).

<sup>c</sup>After the end of the intervention period (weeks 13-52).
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
All that lacks ROM is not Adhesive capsulitis...

- Favors adhesive capsulitis
- Acute to subacute onset of pain and loss of ROM
- Endocrine disorders
  - DM
  - Thyroid dysfunction
- Favors osteoarthritis
  - Chronic, dull achy pain

• x-rays
Hip Impingement

ROTHMAN INSTITUTE

Sidney Kimmel Medical College at Thomas Jefferson University
Common in the Asx population

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
© European Society of Radiology 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.
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.
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

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

Patrícia do Carmo Silva Parreira\textsuperscript{a}, Lucíola da Cunha Menezes Costa\textsuperscript{a}, Luiz Carlos Hespanhol Junior\textsuperscript{a}, Alexandre Dias Lopes\textsuperscript{a}, Leonardo Oliveira Pena Costa\textsuperscript{a, b}

\textsuperscript{a} Masters and Doctoral Programs in Physical Therapy, Universidade Cidade de São Paulo, Brazil; \textsuperscript{b} Musculoskeletal Division, The George Institute for Global Health, Australia

\textbf{KEY WORDS}

Kinesio taping
Systematic review
Musculoskeletal conditions

\textbf{ABSTRACT}

\textbf{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? \textbf{Design:} Systematic review of randomised trials. \textbf{Participants:} People with musculoskeletal conditions. \textbf{Intervention:} Kinesio Taping was compared with sham taping/placebo, no treatment, exercises, manual therapy and conventional physiotherapy. \textbf{Outcome measures:} Pain intensity, disability, quality of life, return to work,
Ligamentous laxity
If you suspect hypermobility syndrome, document a Beighton score.
Arthroscopic Meniscectomy
Flashback: 2014

Arthroscopic Meniscectomy versus Sham Surgery

Raine Sihvonen, M.D., Ari Itälä, M.D., Ph.D., Juha Kalska for the Finnish Department of Orthopedic Surgeons
Mechanical Symptoms and Arthroscopic Partial Meniscectomy in Patients With Degenerative Meniscus Tear
A Secondary Analysis of a Randomized Trial

Raine Siivonen, 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.

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).
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. 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. The evidence base for arthroscopic surgery is known to be weak, and a pressing need exists for more high quality multi-centre randomised controlled trials, systematic reviews, and meta-analyses to inform clinicians and improve care for patients. Researchers have already reported that trials of arthroscopic surgery find no benefit over control interventions ranging from exercises to placebo surgery.

Another possibility is that surgeons are falling prey to confirmation or myside bias, 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 philosophical 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.”

One thing is clear from all randomised variety of factors that alter beliefs and expectations.

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.
avicular Stress fracture
Bad stress fracture

Maintain a low index of suspicion for stress fracture

- Tenderness at medial foot
- High rate of non-union
Os Trigonom
21 yr old dancer with posterior ankle pain

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

Neuromuscular training programs

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

http://smsmf.org/smsf-programs/pep-program
Questions at the end!
U.S. SOCCER CONCUSSION GUIDELINES

A main component of Recognize to Recover is focused on head injuries, including concussions. U.S. Soccer has taken a lead in education, research and proposing rule changes to improve player safety for several years.

U.S. Soccer Concussion Initiative 2016

In December of 2015, U.S. Soccer unveiled the U.S. Soccer Concussion Initiative that provides information guidelines that have been implemented since January of 2016.

The elements contained in the initiative are intended to give U.S. Soccer Organization Members, as well as players, parents, team/club staff and coaches and referees, guidance and direction when dealing with head injuries and potential head injuries during soccer participation.

Included in the U.S. Soccer Concussion Initiative are specific changes to rules on substitutions and heading for certain age groups. Those changes included:

- Modify substitution rules to allow players who may have suffered a concussion during games to be evaluated without penalty
- Eliminating heading for children 10 and under
  - Please note that U11 is listed in the U.S. Soccer Concussion Initiative document because U11 players can be 10 years old at the beginning of the season
- Limiting the amount of heading in practice for children between the ages of 11 and 13

For more information, please refer to the frequently asked questions, which should help clarify questions regarding the new initiatives.
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.

   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
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
DOI: 10.1177/03635465156080804
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.
PITCH SMART.

A series of practical, age-appropriate guidelines to help parents, players and coaches avoid overuse injuries and foster long, healthy careers for youth pitchers.

EXPLORE
Valgus stress at the elbow
Valgus load to elbow
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....
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
THANK YOU.