

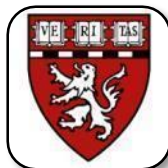
# Technology to Improve Practice Efficiencies

Orrin I. Franko, MD

California Orthopaedic Association  
Annual Meeting 2015



UC San Diego  
HEALTH SYSTEM



Rady  
Children's  
Hospital  
San Diego

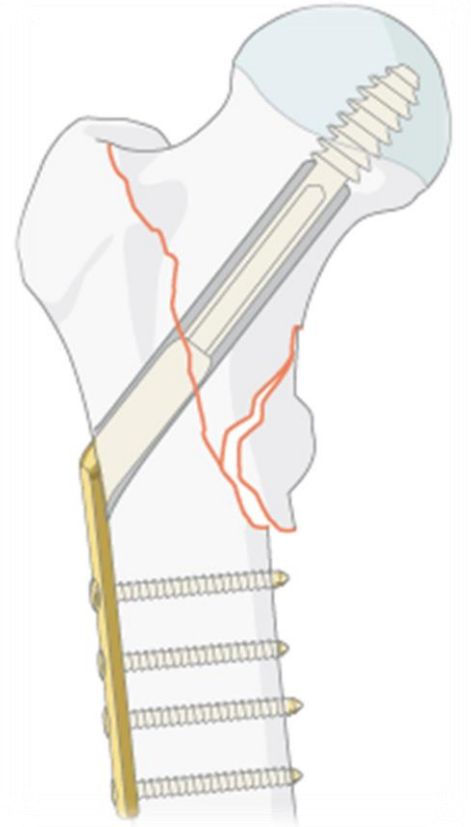
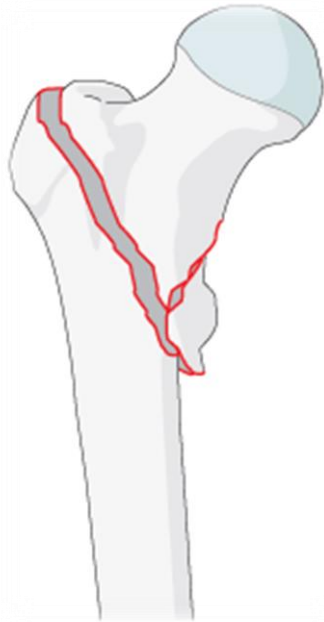
TopOrthoApps  
Mobile App Reviews for Orthopaedic Surgeons

# Disclosures

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- ▶ **Founder/Owner** of [www.TopOrthoApps.com](http://www.TopOrthoApps.com)
- ▶ **AAOS Disclosures**

<b>Item 1.</b>	DrawMD, CARE, Insights Orthopedics, iOrtho+, Mobile Coder, BoneFeed, CORE, My Knee Guide, 3D4Medical, PingMD, DocSpera
<b>Item 2.</b>	Arthrex, Zimmer
<b>Item 3B.</b>	AO Foundation, CARE LLC, DocSpera, Insights Orthopedics, Lineage Medical LLC
<b>Item 3C.</b>	OrthopaedicsOne, OrthoMind
<b>Item 4.</b>	CARE LLC, Docspera
<b>Item 8.</b>	American Journal of Orthopedics, Journal of Mobile Technology in Medicine, Orthopedics Today Magazine (Healio)
<b>Item 9.</b>	California Orthopaedic Association Technology Committee Journal of Bone and Joint Surgery Resident Committee <i>POSNA Resident Review</i>





**EXPERIMENTAL STUDY**

Acta Orthop Traumatol Turc 2013;47(4):273-280  
doi:10.3944/AOTT.2013.2854

# **Effect of 900 MHz electromagnetic fields emitted from cellular phones on fracture healing: an experimental study on rats**

**Ahmet ASLAN<sup>1</sup>, Tolga ATAY<sup>2</sup>, Kanat GÜLLE<sup>3</sup>, Vecihi KIRDEMİR<sup>2</sup>, Ahmet ÖZDEN<sup>4</sup>, Selçuk ÇÖMLEKÇİ<sup>5</sup>,  
Nevres Hürriyet AYDOĞAN<sup>6</sup>**

*<sup>1</sup>Department of Orthopedics and Traumatology, Afyonkarabisar State Hospital, Afyonkarabisar, Turkey;*

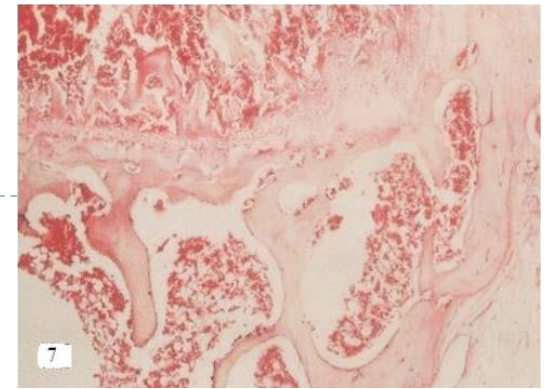
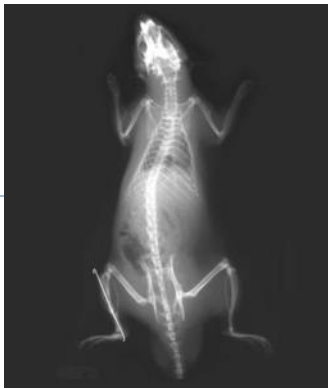
*<sup>2</sup>Department of Orthopedics and Traumatology, Faculty of Medicine, Süleyman Demirel University, Isparta, Turkey;*

*<sup>3</sup>Department of Histology and Embryology, Faculty of Medicine, Bülent Ecevit University, Zonguldak, Turkey;*

*<sup>4</sup>Department of Radiology, Private Anadolu Hospital, Kastamonu, Turkey;*

*<sup>5</sup>Department of Electronics and Communication Engineering, Faculty of Engineering, Süleyman Demirel University, Isparta, Turkey;*

*<sup>6</sup>Department of Orthopedics and Traumatology, Ankara Training and Research Hospital, Ankara, Turkey*



RF EMF at 900 MHz emitting from cellular phones has a prominent **negative** effect on bone fracture healing in a rat tibia fracture model.

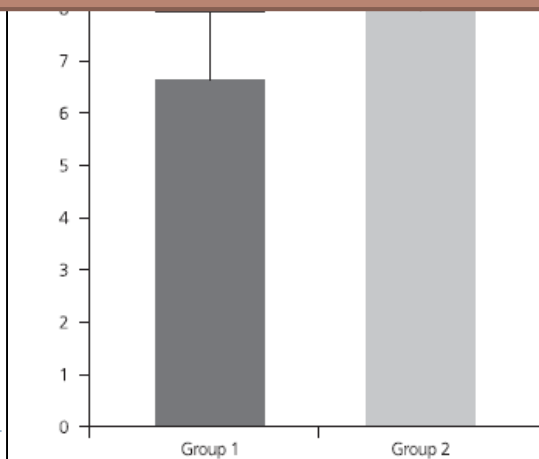


Fig. 10. Radiological evaluation results.

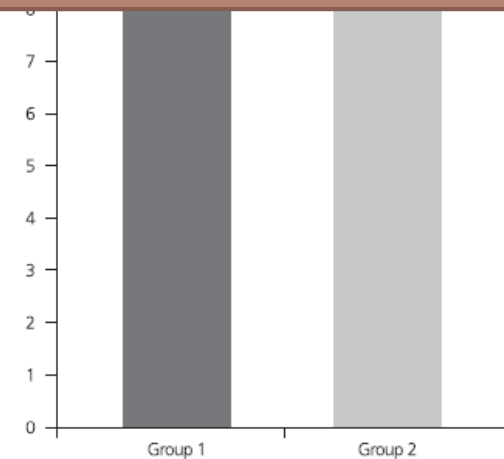


Fig. 11. Histopathological evaluation results.

# What are “Technologies?”

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- ▶ Wireless access
- ▶ Digital information storage
- ▶ Mobile devices (phones, tablets)
- ▶ The “cloud”
- ▶ Social media networks
- ▶ Automated communication services



# What will change?

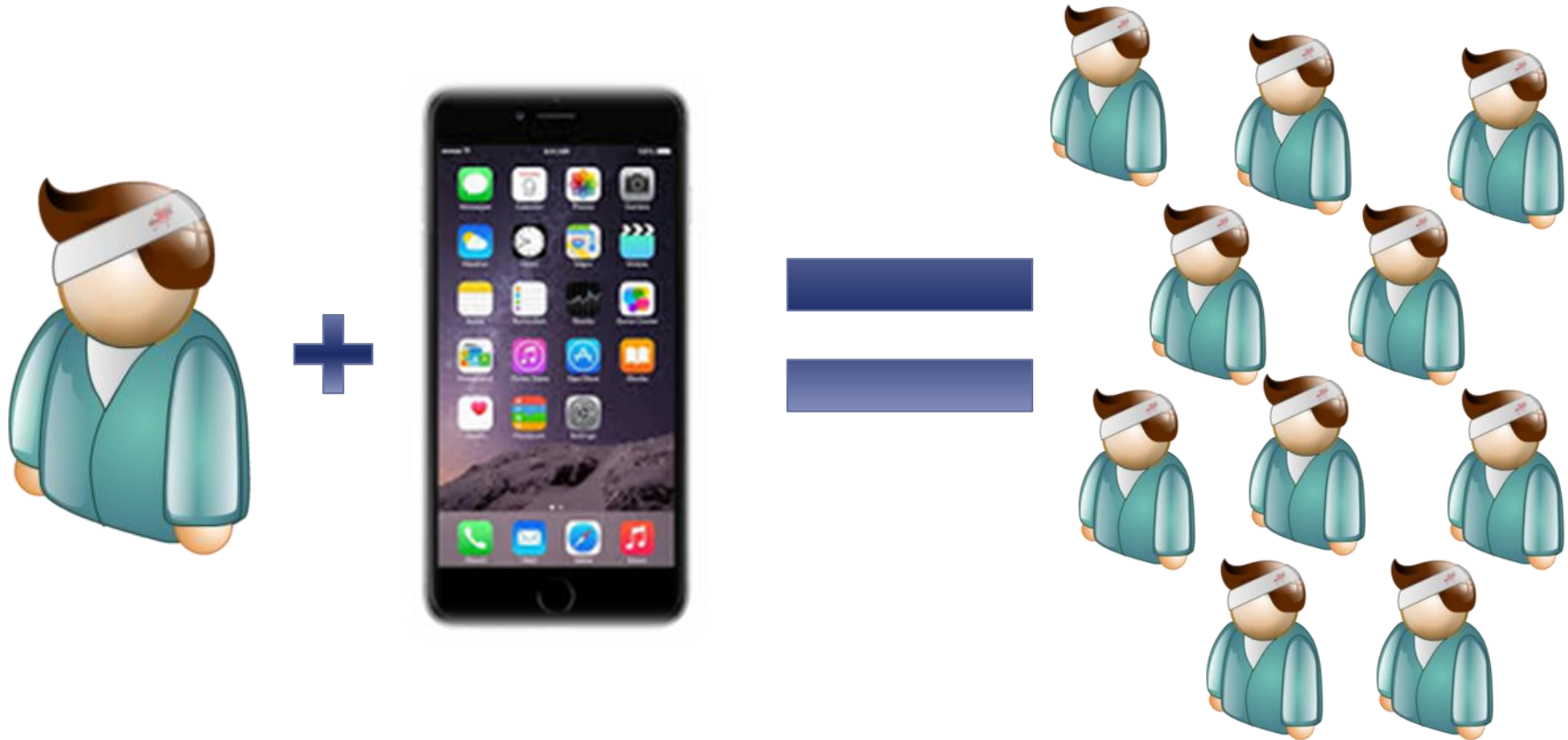
- ▶ Education
  - ▶ Virtual surgery and teaching modules
  - ▶ Literature search and evaluation tools
  - ▶ Board review and MOC exams
  - ▶ Surgical videos
  - ▶ ACGME milestone assessments
  - ▶ Case sharing
- ▶ Patients
  - ▶ Online diagnosis
  - ▶ Follow-up
  - ▶ Patient portals
  - ▶ Telemedicine
  - ▶ Mobile device usage
  - ▶ Personal network consultation
- ▶ Clinics
  - ▶ Patient scheduling
  - ▶ Reputation
  - ▶ Physician rating sites
  - ▶ Website search results
  - ▶ Publications and notoriety
- ▶ Compensation
  - ▶ US News and World Rankings
  - ▶ Objective outcomes for quality measures

**EVERYTHING!!!**



# The potential benefit:

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# Goals

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- ▶ Update on new/emerging technologies
- ▶ Review available literature
- ▶ Guide/advise safe integration
- ▶ Acknowledge risks/limitations
- ▶ Learn something new
- ▶ Improve your practice
- ▶ Increase awareness of what is coming



# Topics to Address

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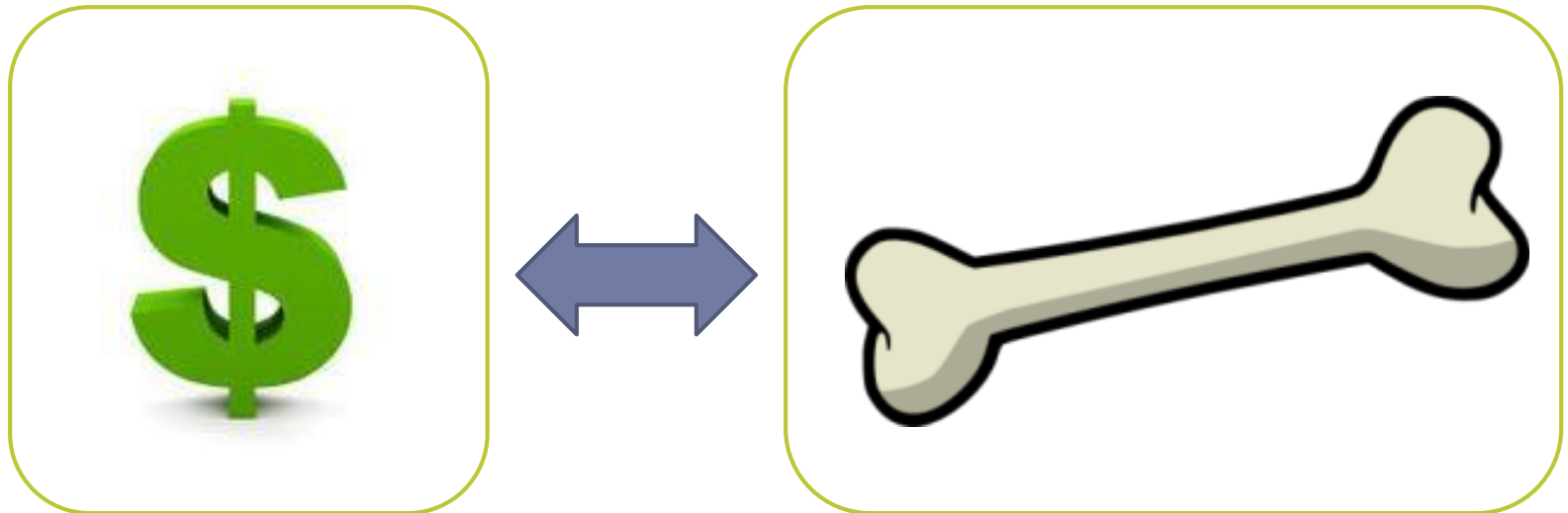
- ▶ Digital Outcome Assessments



# Electronic Outcome Measures

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- ▶ “Pay for Performance”
- ▶ Clinical outcomes difficult to measure
- ▶ Objective outcomes required for research
- ▶ Pencil/Paper is time consuming
  - ▶ For both patient and provider



Value

▶ Total

▶

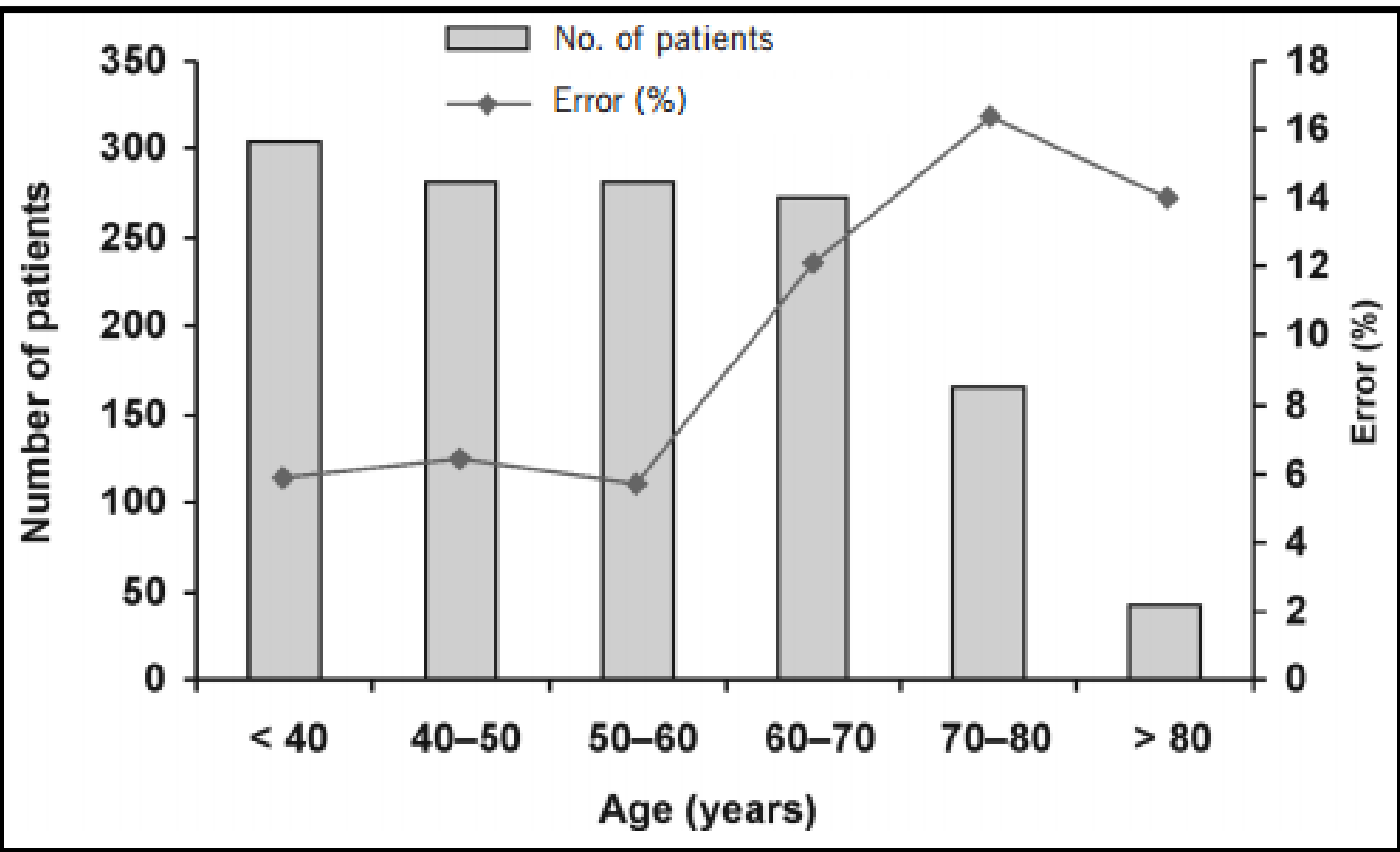
▶

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▶ Overall

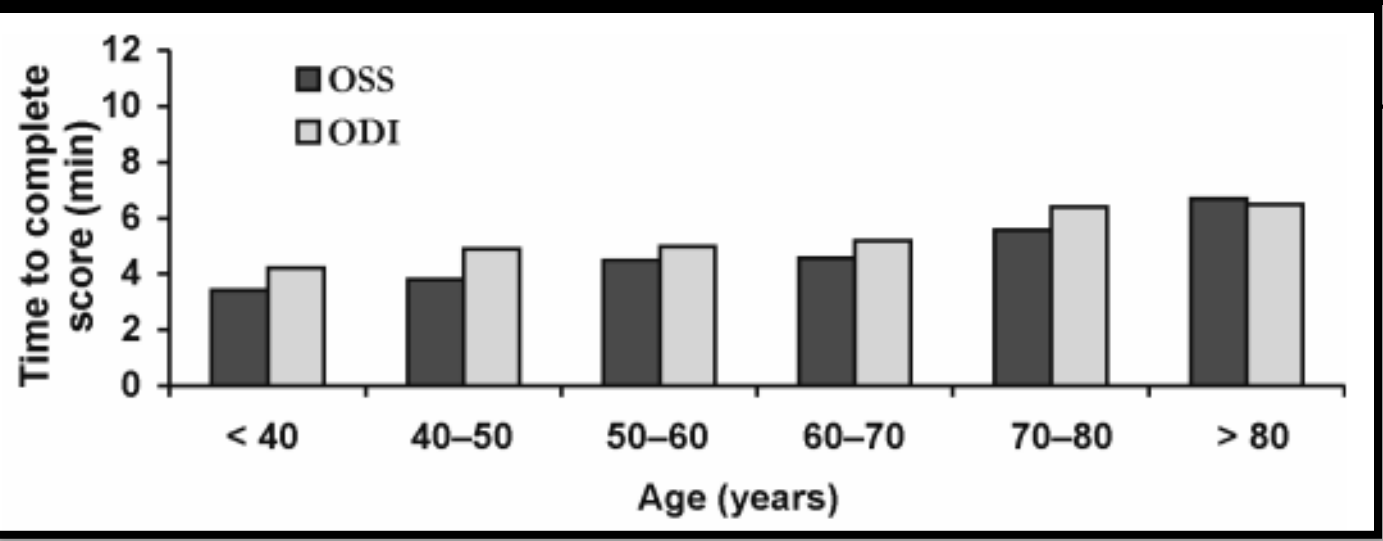


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▶ Outcome  
Dixon

# At-Home Web-Based Questionnaire

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- ▶ Gakhar et al. 2013
  - ▶ Tested a web-based questionnaire for total joint patients
  - ▶ 82 patients included in study
  - ▶ Directed to [myClinicalOutcomes.co.uk](http://myClinicalOutcomes.co.uk) for Oxford score
  - ▶ Comparable scores obtained at home compared to clinic
- ▶ Conclusion: **“Remote web-based collection of patient reported outcomes may facilitate enhanced and efficient follow-up of patients”**

# Tablet Computer Questionnaire

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- ▶ Prospective study of 223 hand clinic patients randomized to paper vs tablet
  - ▶ 43% of paper / 13% tablet had 1 question omitted
  - ▶ 14% of paper / 4% tablet not scoreable
  - ▶ Time to complete: 3.1 min paper / 4.3 min tablet
  - ▶ **“Administration of the DASH via a tablet computer resulted in more complete data, slightly increased responder burden...”**
  
- ▶ Prospective study of 222 patients with paper then 264 patients with tablet
  - ▶ 12% were unscorable (24% paper, 2% electronic)
  - ▶ More questions omitted in paper version
  - ▶ Electronic survey 14-times more likely than paper for scorable DASH
  - ▶ **“Administration of the DASH with a tablet computer may be beneficial for both clinical and research endeavors to increase completion rate and to gain other benefits from electronic data capture”**

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+ The use of a tablet computer to complete the DASH questionnaire. Dy CJ, Schmicker T, Tran Q, Chadwick B, Daluiski A. J Hand Surg Am. 2012 Dec;37(12):2589-94.

▶ + A Randomized Trial of the Disabilities of the Arm, Shoulder, and Hand Administration: TabletComputer Versus Paper and Pencil. Tyser AR, Beckmann J, Weng C, O'Farrell A, Hung M. J Hand Surg Am. 2014 Dec 17

# App-Based Questionnaire

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- ▶ **OrthoScore (\$0.99)**

- ▶ Shoulder: ASES, Constant
- ▶ Knee: Cincinnati, Lysholm, IKDC
- ▶ Hip: Hip Outcome Score, HOS Sports Subscale, Modified Harris Hip Score





# OrthopaedicScores.com

## Knee Injury and Osteoarthritis Outcome Score (KOOS)

Clinician's name (or ref) .....

Patient's name (or ref) .....

Patient's d.o.b

**INSTRUCTIONS:** This survey asks for your view about your knee. This information will help us keep track of how you feel about your knee and how well you are able to do your usual activities.  
Answer every question by ticking the appropriate box. If you are unsure about how to answer a question, please give the best answer you can.

**Symptoms** - These questions should be answered thinking of your knee symptoms during the **last week**.

S1. Do you have swelling in your knee?

Never  Rarely  Sometimes  Often  Always

S2. Do you feel grinding, hear clicking or any other type of noise when your knee moves?

Never  Rarely  Sometimes  Often  Always

S3. Does your knee catch or hang up when moving?

Never  Rarely  Sometimes  Often  Always

S4. Can you straighten your knee fully?

Never  Rarely  Sometimes  Often  Always

S5. Can you bend your knee fully?

Never  Rarely  Sometimes  Often  Always

**Stiffness** - The following questions concern the amount of joint stiffness you have experienced during the **last week** in your knee. Stiffness is a sensation of restriction or slowness in the ease with which you move your knee joint.

S6. How severe is your knee joint stiffness after first wakening in the morning?

None  Mild  Moderate  Severe  Extreme

S7. How severe is your knee stiffness after sitting, lying or resting later in the day?

None  Mild  Moderate  Severe  Extreme

Subtotal:



# Personal Practice Site (Survey Monkey)



**South Orange County Orthopaedics**  
**26730 Crown Valley Parkway, Suite 200**  
**Mission Viejo, CA 92691**  
**[www.SOCOrtho.com](http://www.SOCOrtho.com)**

**Michael J. Fitzpatrick, MD, Sports Medicine**  
**and Upper Extremity Reconstruction**

## SF-36 Questionnaire

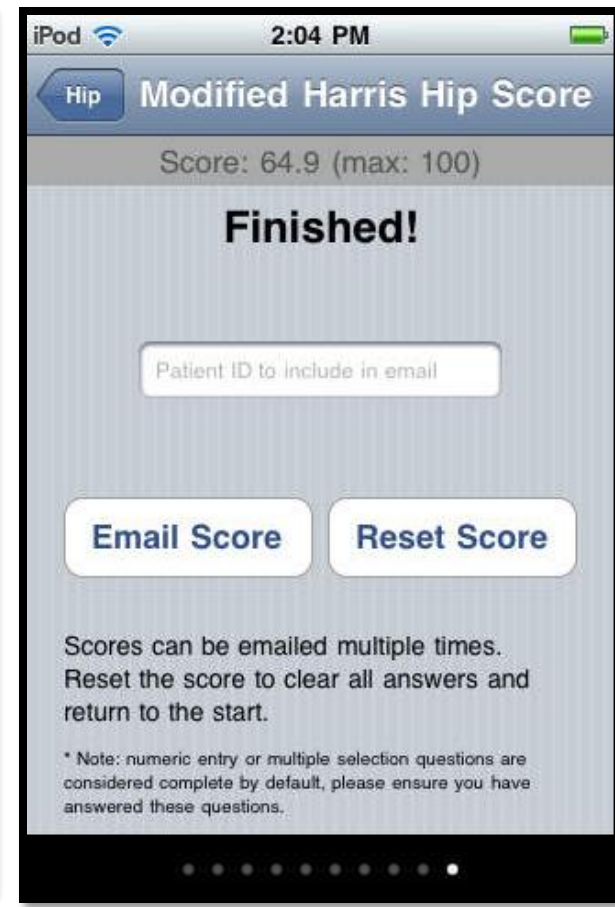
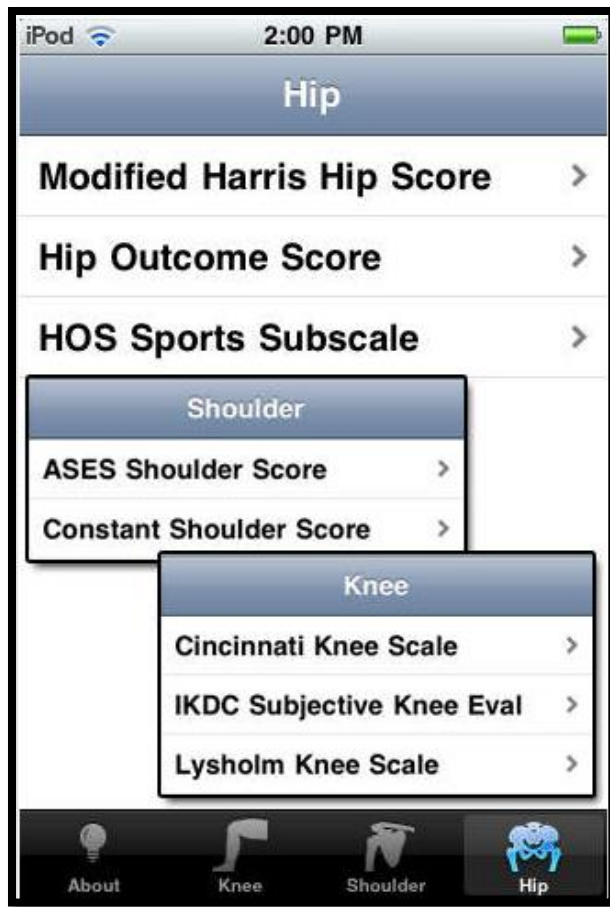
**CPT Code:**

**ICD-9 Code:**

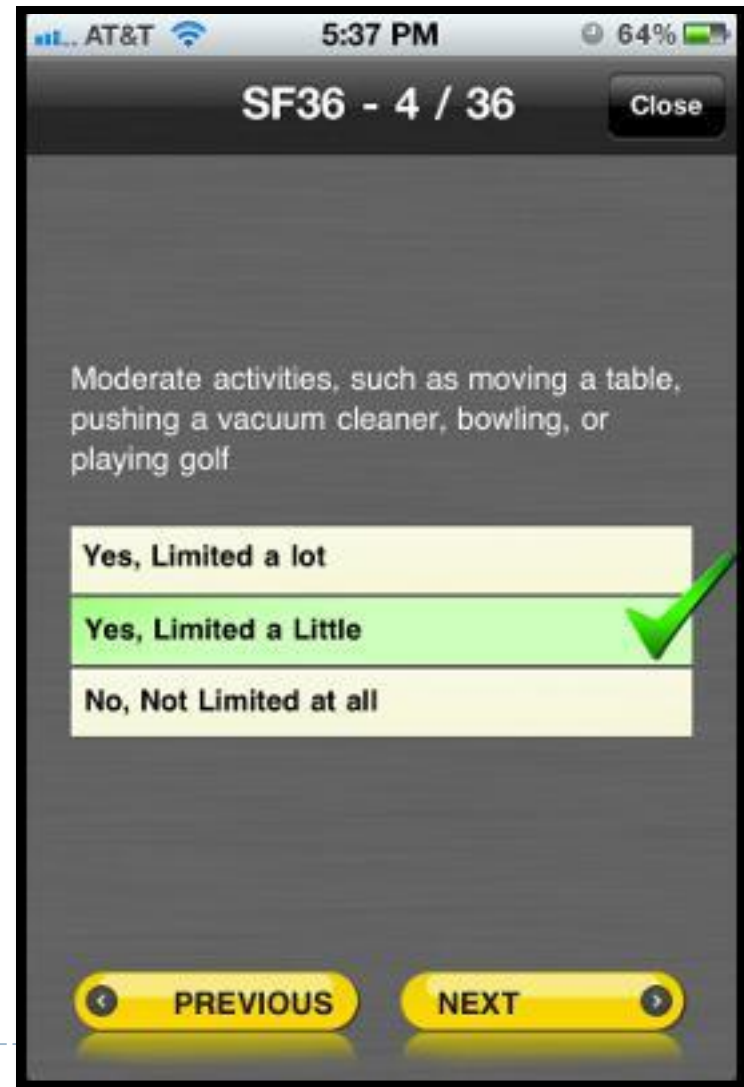
Please fill out your demographics then answer the 36 questions of the Health Survey completely, honestly, and without interruptions.

**First Name:**

# OrthoScore (App)

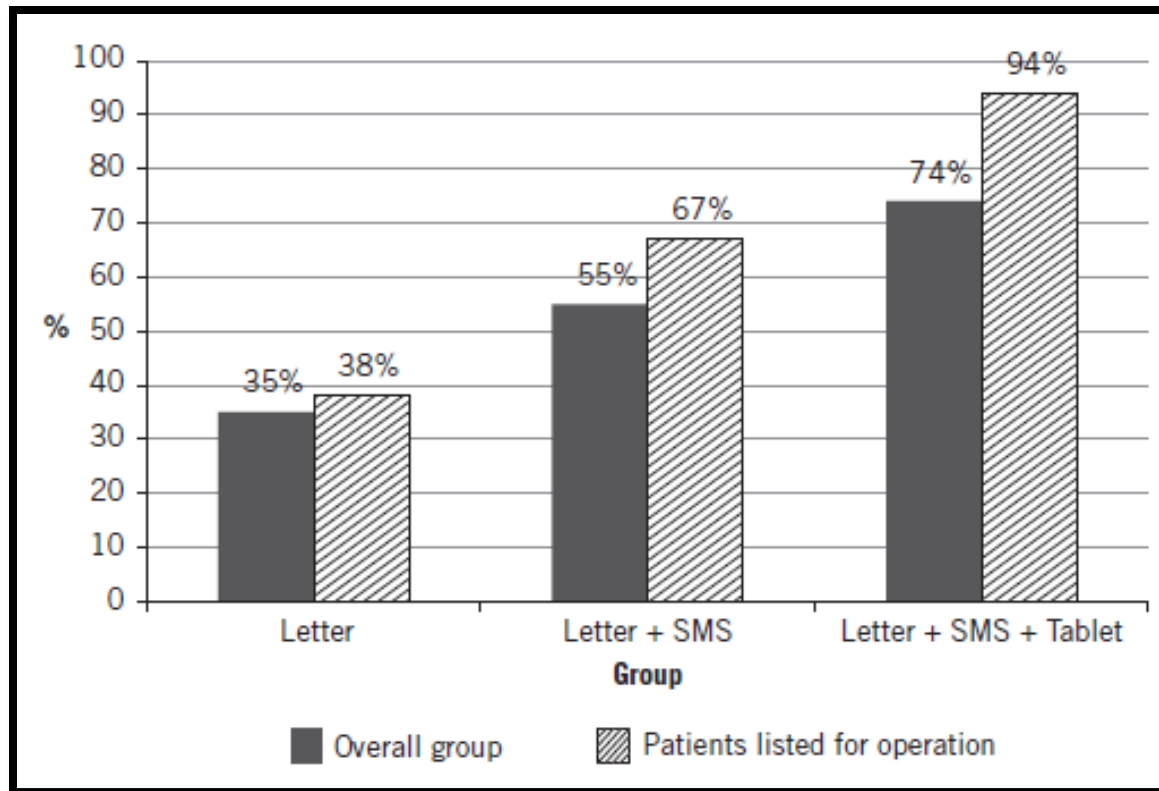


# SF-36 (App)



# SMS to Improve Data Collection

- ▶ 80 orthopaedic patients randomized to:
  - ▶ (1) Letter, (2) Letter + SMS, (3) Letter + SMS + Tablet



- ▶ Use of SMS and tablet computer improves the electronic collection of elective orthopaedic patient reported outcome measures. N Roberts, B Bradley, D Williams Ann R Coll Surg Engl 2014; 96: 348–351

# Google forms



**FOR BUSINESS**



# Topics to Address

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- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools





# Patient Education

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- ▶ One of our PRIMARY responsibilities
- ▶ Patients are sophisticated
  - ▶ They will seek information without us
    - ▶ Web
    - ▶ Apps
    - ▶ Magazines
  - ▶ Visual and interactive learners
- ▶ Leverage “waiting room time”
- ▶ Provide information to read at home
- ▶ Encourage communication
- ▶ Disseminate legitimate medical information



# Tablets in Trauma: Using Mobile Computing Platforms to Improve Patient Understanding and Experience

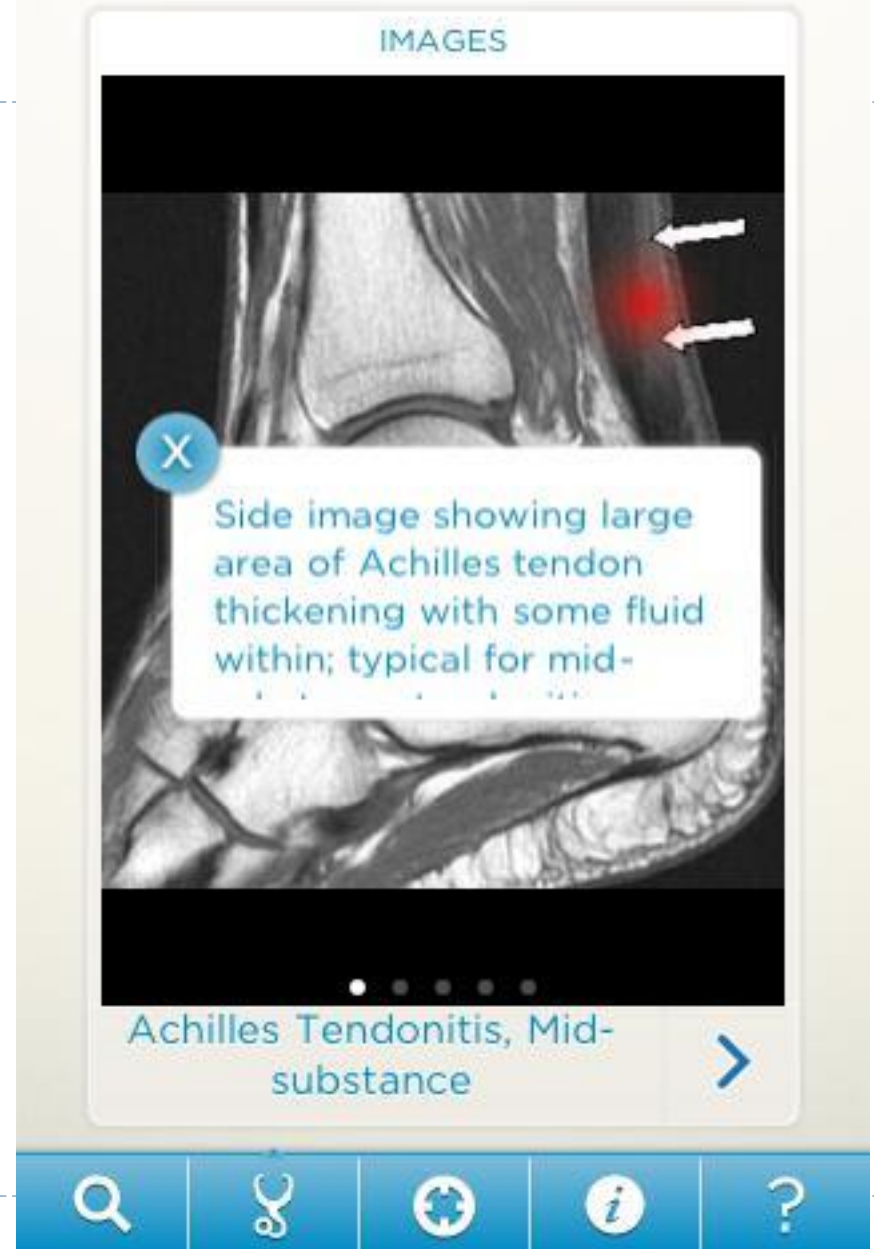
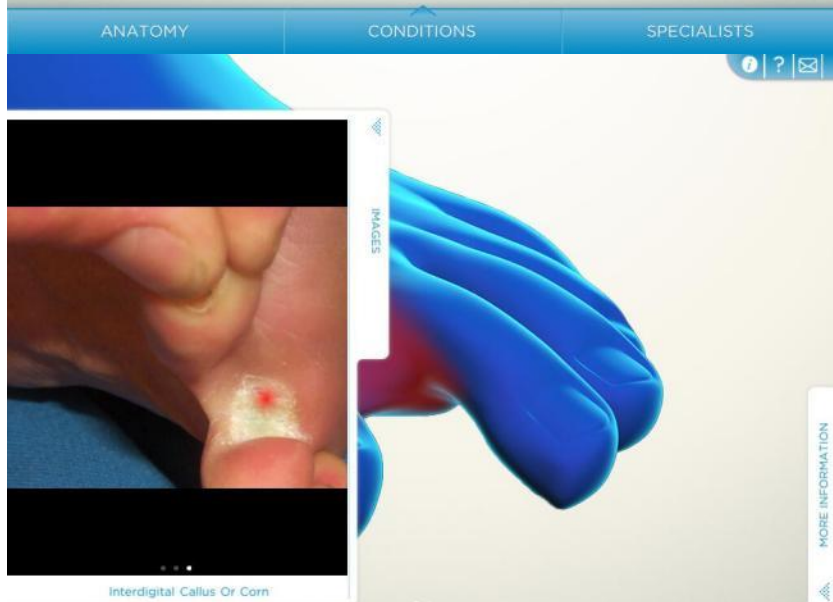
- ▶ Evaluated patient reported outcomes after using tablet to share patients' radiographs
  - ▶ 50 patients in study
- ▶ Revealed significant improvement in...
  - ▶ Perceived involvement in care decisions
  - ▶ # of patients given the "right" amount of information
  - ▶ 45/46 reported it helped them understand the surgeon
  - ▶ Satisfaction score for surgeon



# 3D4 Medical Consultation App



# OrcaHealth



# Topics to Address

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- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools
  - ▶ **Apps**



# App Trends 2009 - 2014

- ▶ 120+ iPhone/Android apps

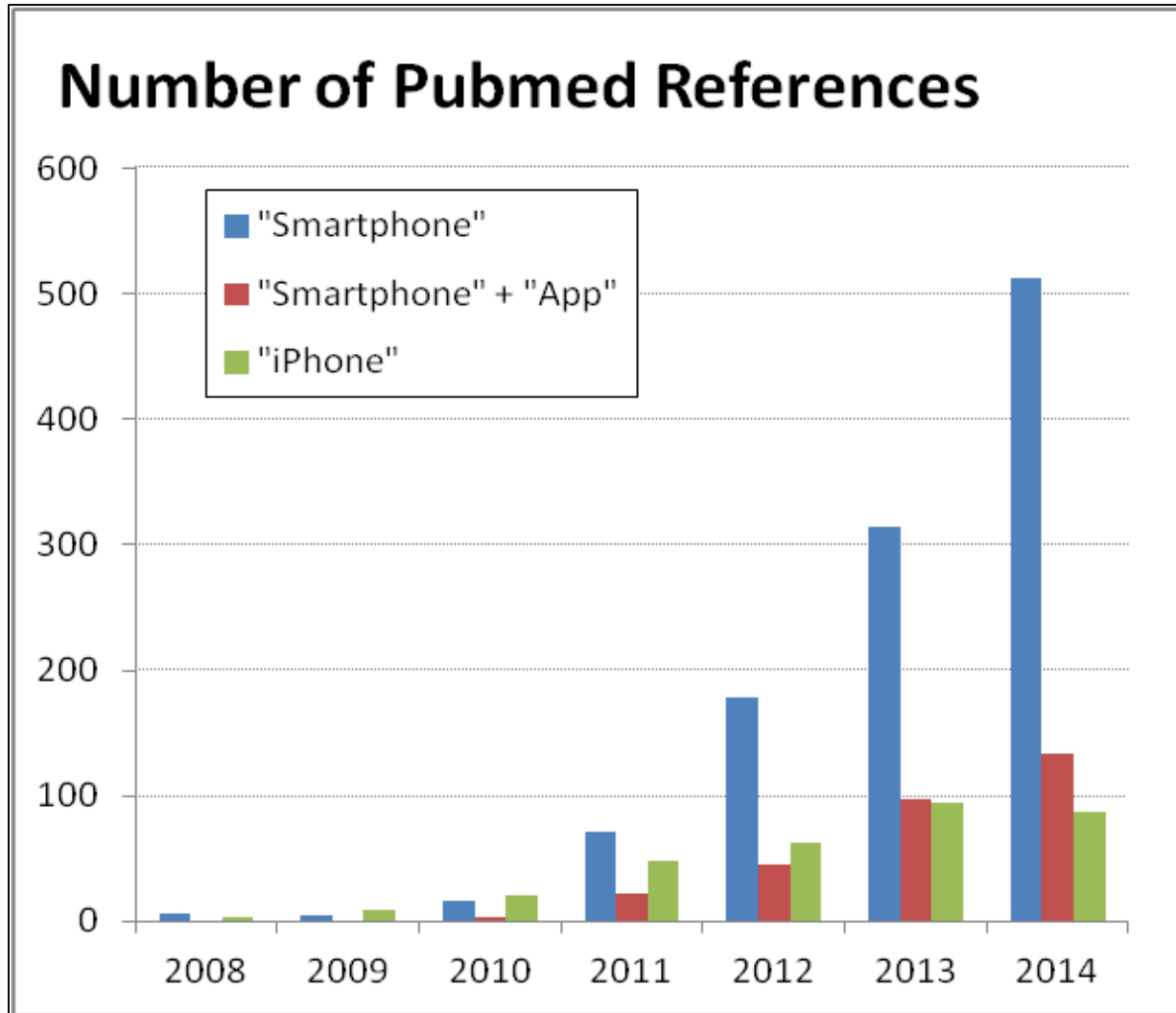
- ▶ Patient Care
- ▶ Patient Education
- ▶ Surgeon Education
- ▶ Clinical Reference

- ▶ 80+ iPad apps

- ▶ Surgical Reference
- ▶ Orthopaedic Device Catalog
- ▶ Anatomy/Imaging
- ▶ Electronic Medical Reference
- ▶ Journals/Books



# Medical App Research...

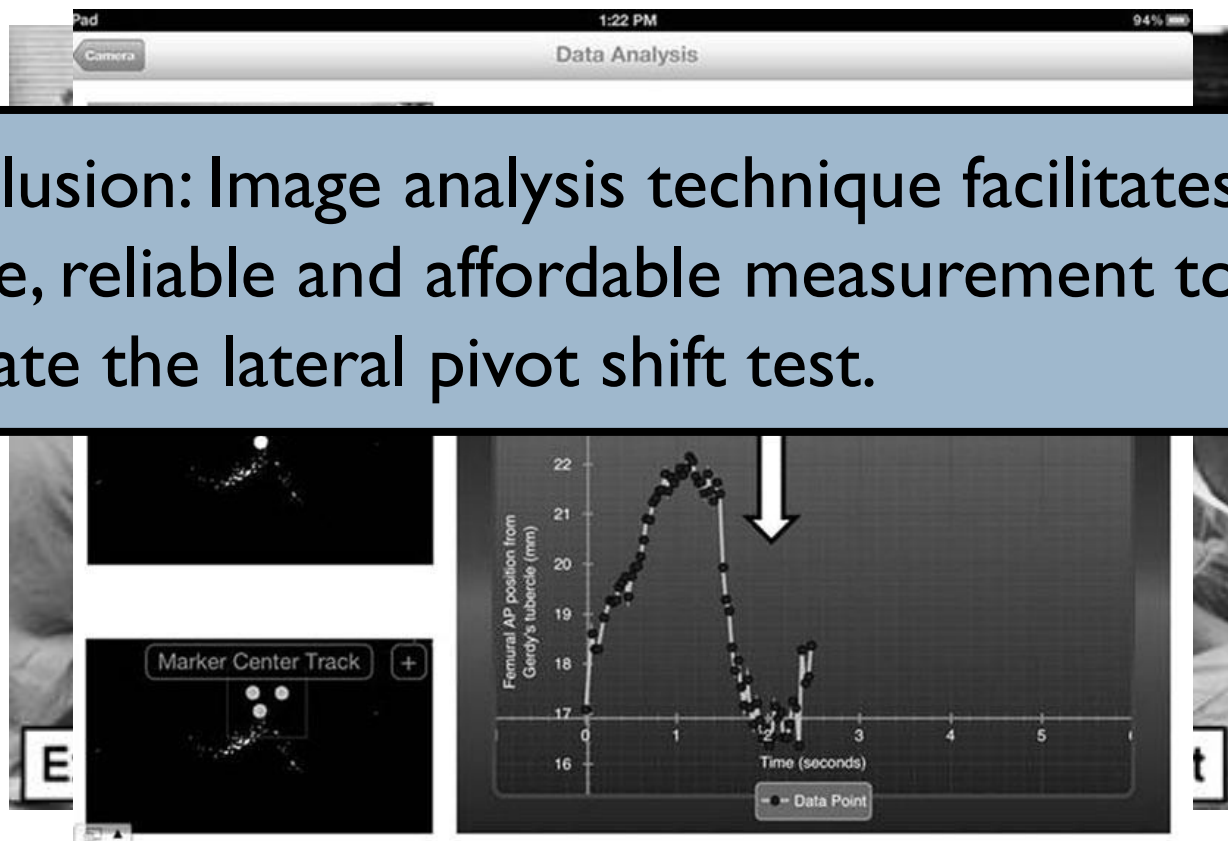




# Quantitative evaluation of the pivot shift by image analysis using the iPad

- ▶ Tested 34 knees with novel iPad application
- ▶ Software utilized image analysis

Conclusion: Image analysis technique facilitates a simple, reliable and affordable measurement to evaluate the lateral pivot shift test.



# Smartphone versus knee ligament arthrometer when size does not matter



Gamba destra

MAX (MM):11

# App Caveats

- ▶ Currently 250-300 “ortho” apps
- ▶ 76% of residents use apps
  - ▶ Increasing trend
- ▶ Risks
  - ▶ No regulatory oversight (FDA, Apple approval)
  - ▶ Hospital policies lacking/unenforceable
- ▶ Recommendations
  - ▶ 3<sup>rd</sup> party evaluations
  - ▶ Evaluate the author/creator
  - ▶ Proceed with caution



- ▶ Franko, Andrawis, Mickelson. Mobile Apps for Orthopaedic Surgeons: How Useful are They? In press. Orthobuzz. JBJS Mobile Technology and Social Media Usage Study *How to Become iPad-Savvy*; 2014.

# www.TopOrthoApps.com

- ▶ Founded in 2011
- ▶ Currently >200 app reviews
- ▶ Find apps by specialty/rating



A screenshot of the TopOrthoApps website homepage. At the top left is the logo and tagline. To the right is a green 'Join Our Mailing List' button and social media icons for Twitter, Facebook, Google+, and RSS. The main banner features the Medtronic logo and the title 'Visible Body Knee Arthroplasty' with a sub-headline: 'Download our interactive app that demonstrates use of the Aquamantys® System in total knee arthroplasty'. An image shows hands holding a tablet displaying a 3D knee model. Below the banner is a dark bar with the text 'Download Visible Body Knee by Medtronic Inc.'. At the bottom, there are three colored boxes: a green one for 'Recent iPhone Reviews' listing 'SLIC', 'HandDecide', and 'Skeleton System Pro III'; an orange one for 'Recent iPad Reviews' listing 'AgingSpine', 'Aesculap OrthoPilot USA', and 'AAOS Now'; and a blue one for 'Recent Android Reviews' listing 'Knee Pain', 'Tumorpedia Foot and Ankle', and 'BoneFeed'.

# Disease Information Apps

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- ▶ My Knee Guide
- ▶ HandCare
- ▶ Heel Thy Tendon
- ▶ Shoulder Pain
- ▶ DrawMD Orthopedics
- ▶ Orthopaedic Patient Information



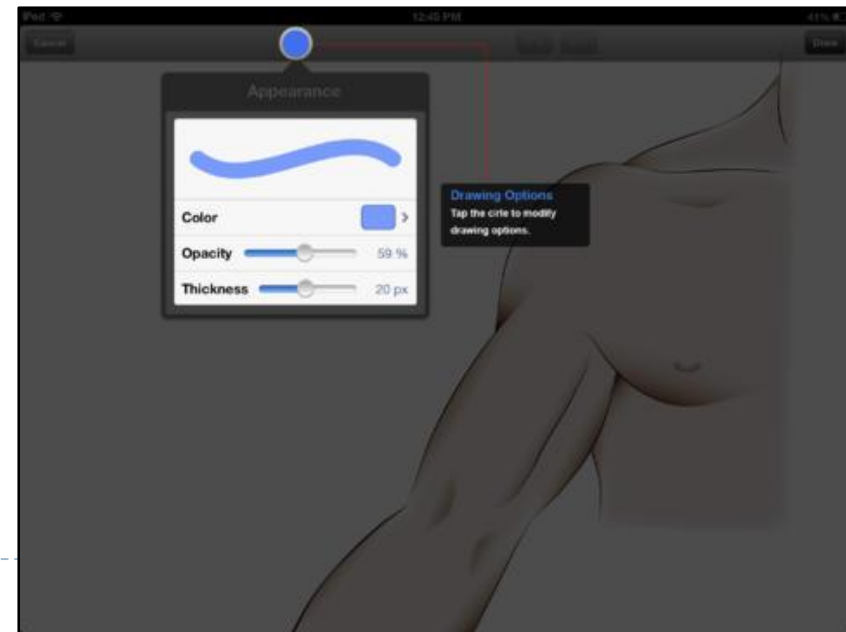
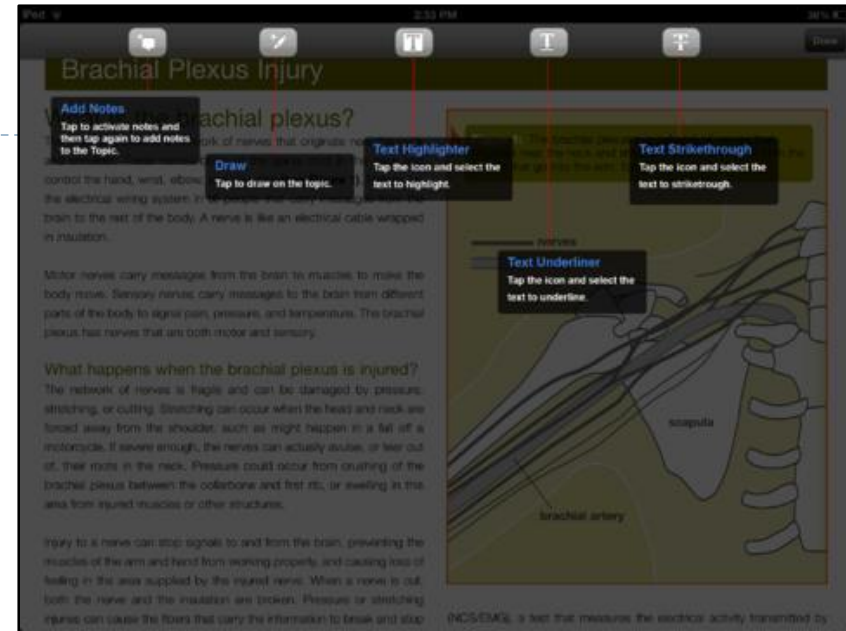


# My Knee Guide

- ▶ Created by surgeon in Daytona Beach, FL
- ▶ Peri-operative TKA information



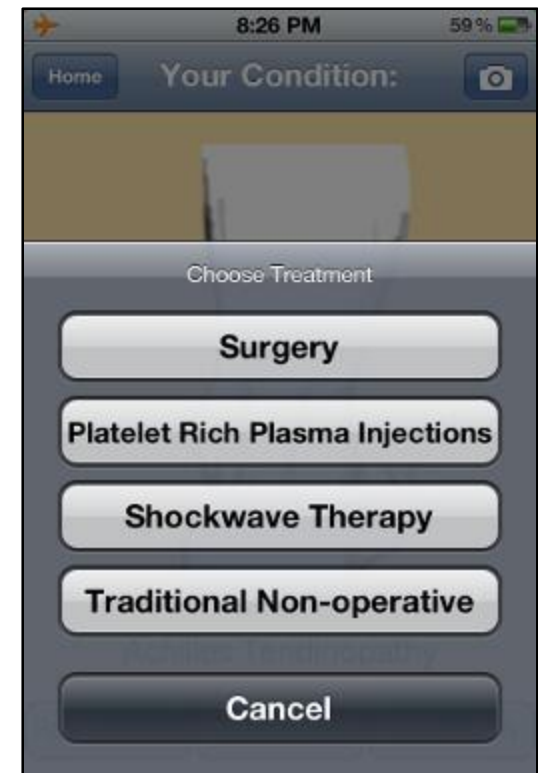
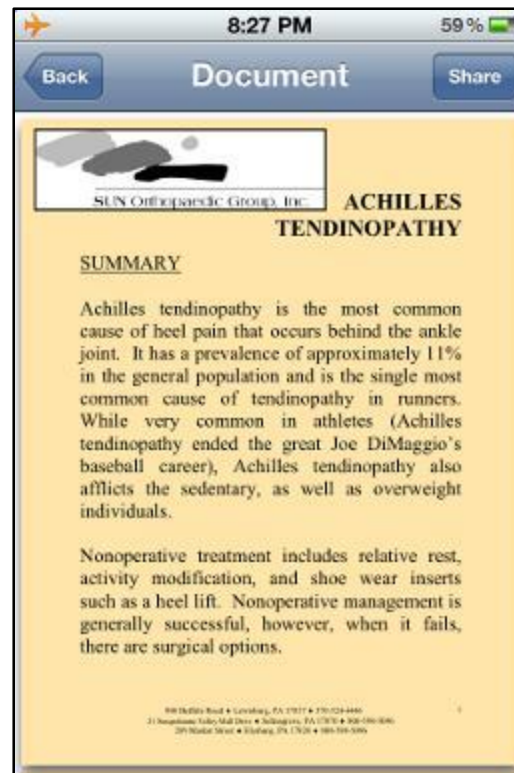
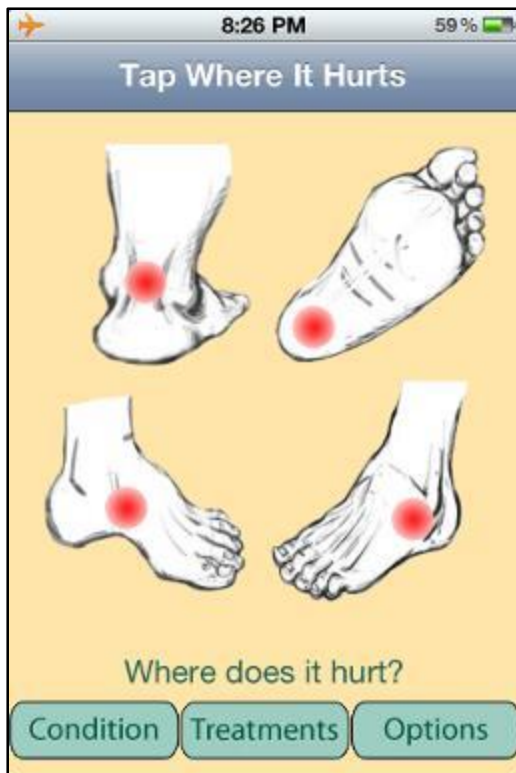
# HandCare (ASSH)





# Heel Thy Tendon

- ▶ Created by surgeon in Lewisburg, PA
- ▶ Utilizes office hand-outs for information



# Physical Therapy Apps

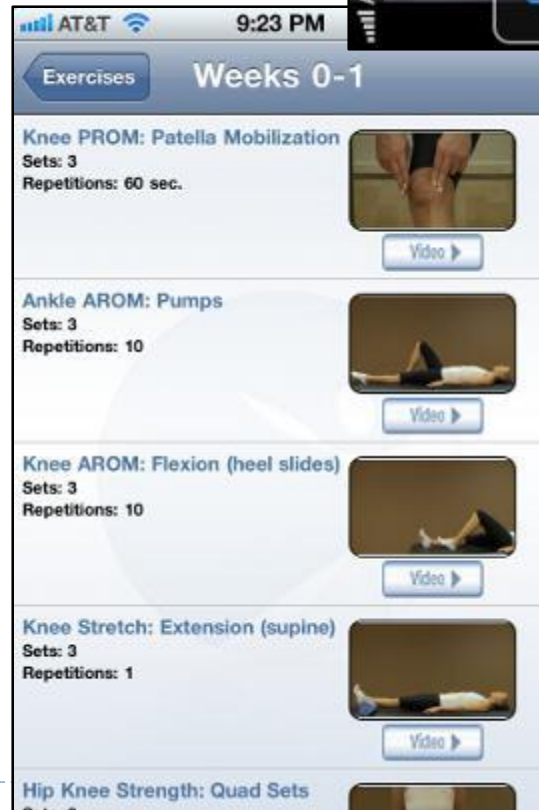
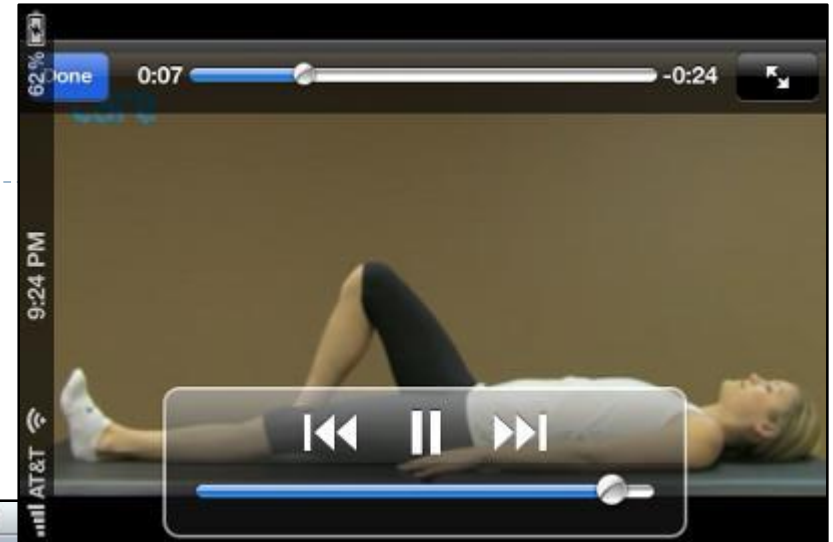
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- ▶ CARE for Patients
- ▶ PhysioMD
- ▶ iOrtho+
- ▶ Throw Like a Pro
- ▶ iPrevent Running Injuries
- ▶ iPrevent ACL Injuries



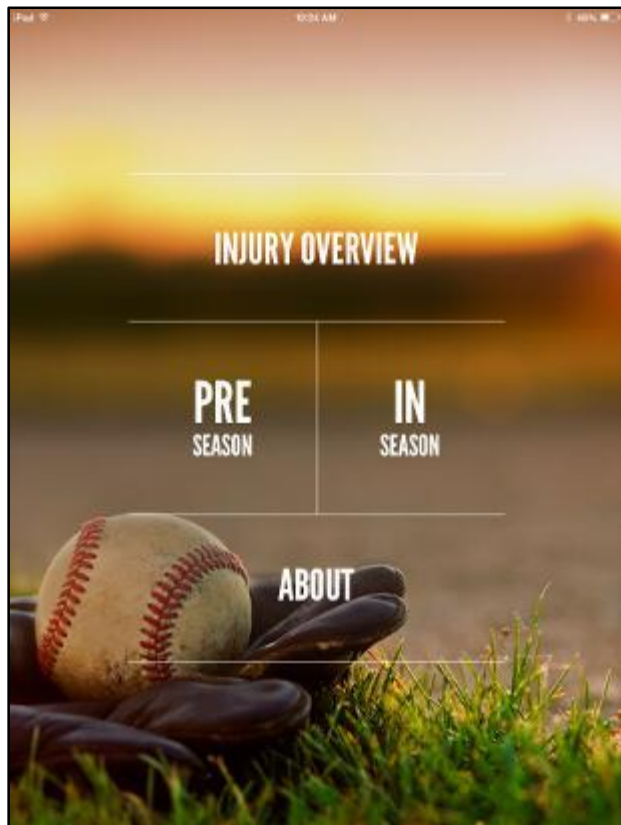
# Care for Patients

- ▶ Started in San Diego
- ▶ Personalized PT
- ▶ Subscription service



# Throw Like a Pro

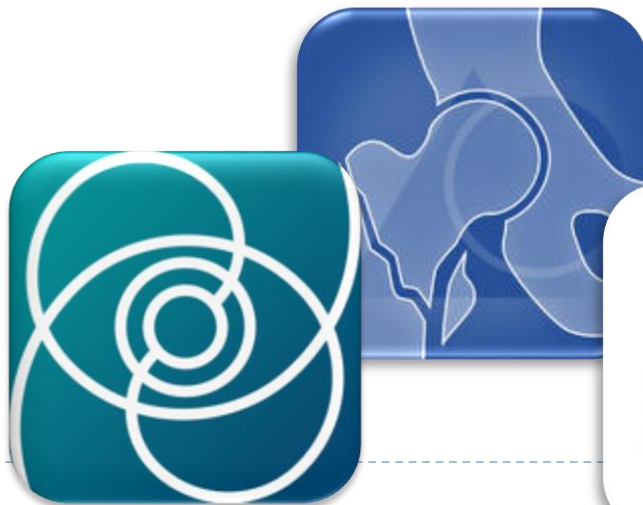
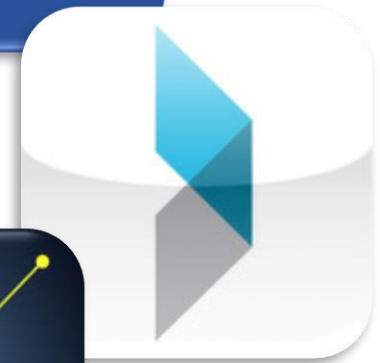
- ▶ Sponsored by Dr. Jim Andrews
- ▶ Provides formal recommendations
- ▶ High-quality developers





# Best Apps for Surgeons

- ▶ Ortho Traumapedia
- ▶ AO Surgery Reference
- ▶ Insights Orthopedics
- ▶ ICUC
- ▶ JBJS Reviews, JAAOS, etc.
- ▶ AO Orthogeriatrics



# Ortho Traumapedia

► Created by a resident

**Ortho Traumapedia**

**Dislocations**

- Acromioclavicular >
- Ankle >
- Carpal >
- Carpometacarpal (CMC) >
- Elbow >
- Hip >
- Knee >
- Metacarpophalangeal (MCP) >
- Metatarsophalangeal (MTP) >
- Midtarsal (Chopart) >

**Acetabulum**


**Facts**

- Latin for a small cup used to store vinegar
- Fractures occur primarily in young adults, resulting from high-energy mechanisms such as MVC and high velocity falls
- Geriatric acetabular fractures are typically low-energy falls
- Acetabulum is formed by the confluence of the ilium, ischium and pubis within the innominate bone
- Quadrilateral plate forms the medial wall
- 40% of femoral head is covered by the acetabulum
- Hip joint has inherent stability due to bony and soft tissue anatomy
  - Fibrocartilaginuous labrum deepens the acetabulum, increasing coverage and stability
  - Thick capsule and ligaments (iliofemoral, pubofemoral and ischiofemoral) provide further support
  - Soft tissue structures including the labrum

Facts
Image
Classify
Treat

**Acetabulum**


- Gull sign: spike of bone that protrudes laterally from acetabulum
  - Implies posterior wall fracture




**Acetabulum**

Normal AP p


- Judet views
  - Iliac obliq
  - is seen e




Posterior wall




Posterior column



Anterior wall



Anterior column



Transverse

*Elementary patterns*

Associated patterns:

- Posterior column and posterior wall: associated with posterior hip dislocation complicated by sciatic nerve injury
  - Posterior wall fragment is commonly displaced and rotated

Facts
Image
Classify
Treat



# AO Surgery Reference

**Overview** **Diagnosis**

AO Surgery Reference **Authors**

Please select an anatomical area  
Click on icon. Press to zoom

9 CMAF



- 11 Proximal humerus
- 12 Humerus shaft
- 13 Distal humerus
- 21 Proximal forearm
- 22 Forearm
- 23 Distal radius
- 7 Hand
- 01 Pelvic ring
- 02 Acetabulum
- 01 Prox. femur
- 02 Femur shaft
- 03 Distal femur

**Interactive** **List**

**Overview** **Diagnosis** **Decision**

**Proximal femur** **Authors**

**Trochanter**

**31-A1**  
pertrochanteric simple

**31-A2**  
pertrochanteric multifragmentary

**31-A3**  
intertrochanteric

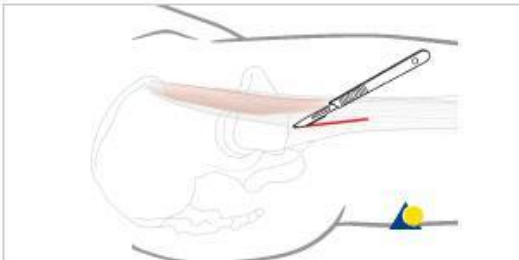
**Neck**

**31-B1**  
subcapital, with slight displacement

**Preparation** **Approach** **Reduction & Fixation**

**Overview**

**Lateral approach**

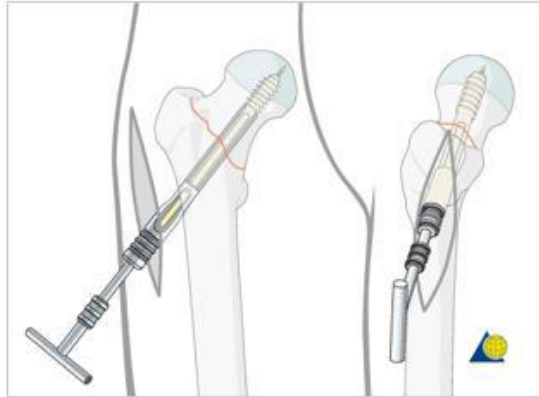


The lateral approach is used for insertion of a sliding hip screw or multiple screws after closed reduction of a proximal femoral fracture. The skin incision can be extended to accommodate a trochanteric approach.

**Nailing approach**

**Approach** **Reduction & Fixation** **Aftercare**

**Insertion of the femoral neck screw**



The correct screw is mounted on the handle and inserted over the guide wire. By turning the handle it is advanced into the bone. Do not push forcefully or you may distract the fracture.

In young patients with hard bone, it is best to use the tap to precut the thread for the screw. Otherwise the screw may not advance, and you may actually displace the fracture by twisting the



# Insights Orthopedics

LEADING JOURNALS CURRENT ISSUE

J B J S  
Cost-Effective Trauma Implant Selection: AAOs Exhibit Selection

Current Orthopaedic Practice  
PEPS JOURNALS ONLINE  
Development of enhanced responses regarding orthopedic surgery for sports athletes of the knee

THE JOURNAL OF Arthroplasty  
ARTHROPLASTY  
Forum

Arthroscopy  
The Journal of Arthroscopy and Endoscopic Surgery  
Clinical and Diagnostic Advances After Arthroscopic Repair of Full-Thickness Rotator Cuff Tears

Cranio-Maxillo-Facial Surgery  
Journal of Cranio-Maxillo-Facial Surgery  
Treatment perspectives for malocclusion-related orthopedics of the jaw (PROM)

Journal of Hand Surgery  
The Leading Edge of Hand Surgery

JOURNAL OF ORTHOPAEDIC TRAUMA  
Standardized Preoperative Planning Use of CT for Acute Trauma in Adult Lower Limb Trauma

Journal of Spinal Disorders & Technology  
SPINAL DISORDERS  
Prospective Evaluation of Quality of Life in Patients with Cervical Radiculopathy

Spine  
The Effect of Work-Related Rehabilitation Among Patients With Neck and/or Pain: A Randomized

LEADING JOURNALS CURRENT ISSUE

Harvard Orthopaedics Combined Residency Program Journal C...  
JOURNAL OF ORTHOPAEDIC PEDIATRICS  
Outcomes after patellar realignment surgery for recurrent patellar instability/dislocations: a minimum 3-year follow-up study of children and adolescents.

UC San Diego Journal Club  
Cost-Effectiveness Analysis of Endosteal Options for Interlocking Nail Fixation

Rush Medical Center Journal...  
Evaluation of Full-Low Back Between Endless and Continuous Extracorporeal Shockwave Therapy in Chronic

Stanford Medical School Journal...  
Effectiveness and Safety of Transcatheter Aortic Valve Replacement in Patients with Aortic Atherosclerosis

Radly Children's Specialists...  
Prevalence of Cervical Injuries in a Pediatric Population

Spine Fellowship at Stanfor...  
JOURNAL OF THE AMERICAN ACADEMY OF SURGEONS  
Surgical Management of Lumbar Degenerative Spinal Stenosis

San Diego Sports Fellows  
CURRENT SPORTS MEDICINE REPORTS  
Injury management for head to toe of the athlete: a review

ORTHOEVIDENCE  
www.orthoevidence.com  
Ortho 2014 Special Issue: The Role of the Orthopedic Surgeon in the Future of Orthopedics

Do you have a suggestion for a future reading list?  
Get in contact with us!

AGGREGATOR

Search for Insights ...

PREDEFINED TOPICS

- Arthroscopy
- Arthroplasty
- Cranio Facial
- Carpal Tunnel Syndrome
- Dysplasia
- External fixation
- Joint revision
- Joint replacement
- Ligament repair
- Musculoskeletal disorder
- Meniscectomy

CLEAR ALL

THE PATIENT'S ROAD TO RECOVERY - EVERYTHING YOU  
2014-11-27

GOLDEN 10 SECONDS OF PATIENT CARE - EVERYTHING  
2014-11-17

DETECTING MALINGERING, MISLEADING PATIENTS  
2014-11-03

DR. NABIL EBRAHEIM - DEPARTMENT OF  
2014-10-11

OSGOOD SCHLATTER DISEASE - EVERYTHING YOU NEED TO  
2014-10-28

THUMB-METACARPAL BASE FRACTURE INJURY  
2014-10-21

PIP DORSAL FRACTURE DISLOCATION - EVERYTHING  
2014-10-23

2014 GARRICK LECTURESHIP - MONDAY SPORTS CLINIC  
2014-10-13

CHILD ABUSE - EVERYTHING YOU NEED TO KNOW - DR.  
2014-10-01

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JOURNAL CLUBS MUST READS

RADLY CHILDREN'S SPECIALISTS - ORTHOPEDICS AND SCOLIOSIS

Radly Children's Specialists - Orthopedics and Scoliosis  
http://www.rchsd.org/programs/services/e-ortho/orthopedics/index.htm  
The Orthopedic and Spine Center provides the highest quality care for all orthopedic disorders and conditions, including traumatic injuries. Our renowned orthopedic surgeons from Radly Children's Specialists of San Diego focus on the unique musculoskeletal needs of growing children and adolescents. At our state-of-the-art facility, all orthopedic and rehabilitative medicine services are in one central location, under one roof: the 20,000-square-foot space houses 58 exam rooms, two cast rooms, six-friendly X-ray suites, the EOS ultra-low dose orthopedic imaging system, a rehabilitation assessment room and a spacious reception area.

"PROXIMAL FEMORAL RESECTION WITHOUT POST-OPERATIVE TRACTION FOR THE PAINFUL DISLOCATED HIP IN"  
"REVIEWED IN JUNE 2014: Proximal femoral resection (PTR) is a proven pain-relieving procedure for the management of patients with severe cerebral palsy and a painful displaced hip. Previous authors have recommended post-operative traction to immobilize..."  
BJF (2014-06-20) PLOS Medicine (2014-06-20)

PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES: THE PRISMA STATEMENT  
"REVIEWED IN JUNE 2014: Systematic reviews and meta-analyses have become increasingly important in health care. Clinicians read them to keep up to date with their field [1,2], and they are often used as a starting point for developing clinical practice..."  
PLOS Medicine (2014-06-20)

LACK OF BENEFIT OF PHYSICAL THERAPY ON FUNCTION FOLLOWING SUPRACONDYLAR HUMERAL FRACTURE  
"REVIEWED IN JUNE 2014: Background: The goal of the study was to evaluate the efficacy of physical therapy in restoring function and mobility after a pediatric supracondylar humeral fracture. Methods: The study included sixty-one patients from 8..."  
BJF (2014-06-20)

FUNCTIONAL OUTCOME ANALYSIS OF TRIPLANE AND TILLAUX FRACTURES AFTER CLOSED REDUCTION AND  
"REVIEWED IN JUNE 2014: Background: There are limited data regarding the outcomes of triplane and Tillaux fractures. The purpose of our study was to provide a long-term follow-up analysis of the functional outcomes as they relate to articular step..."  
Journal of Pediatric Orthopaedics (2014-06-20)

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AO: 11-C2 / 60y

Overall Assessment: Not Recommended

< 1 Week

SURGICAL APPROACH

Deltoidpectoral extended approach. Locked plate.

HIGHLIGHTS

A not elegant approach. Insufficient reduction. Plate overlaps bicipital groove. Intra-articular screw. Self drilling screws should not be used at the humeral head.



DISPLACEMENT



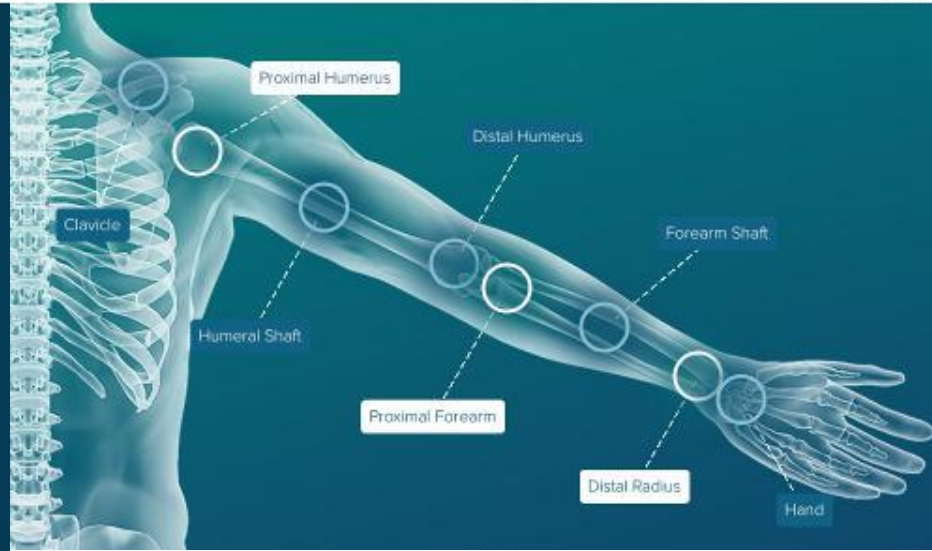
COMPLEXITY



REDUCTION



IMPLANT POSITION



Extra Articular

Valgus Impacted

Varus Displaced

ICUC Library

Reference Cases

Expert Opinions



Valgus Impacted



Varus Displaced



Extra Articular



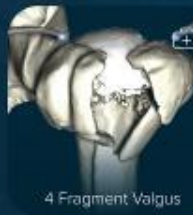
X-Ray View Tips



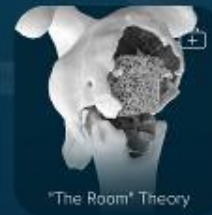
Retraction of the Cephalic



Avoid using Sharp Screws



4 Fragment Valgus

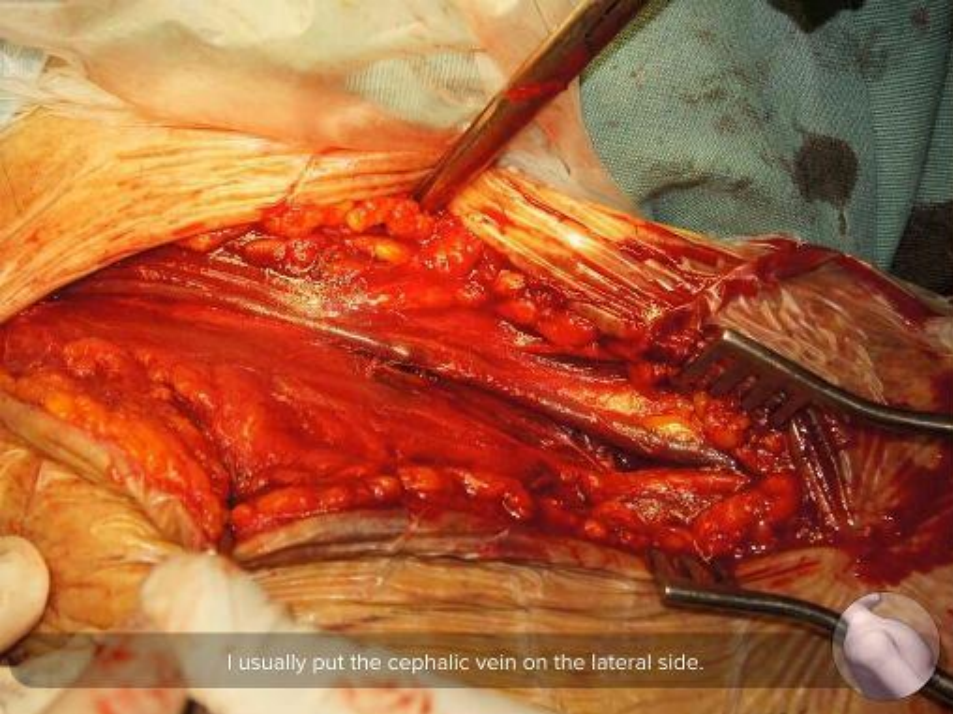


"The Room" Theory



Philos Drilling Tips

Patient in supine position

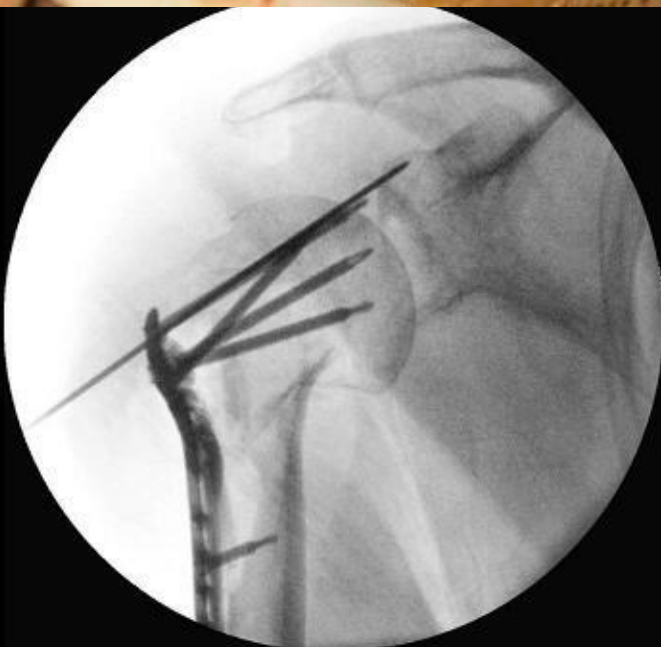


I usually put the cephalic vein on the lateral side.

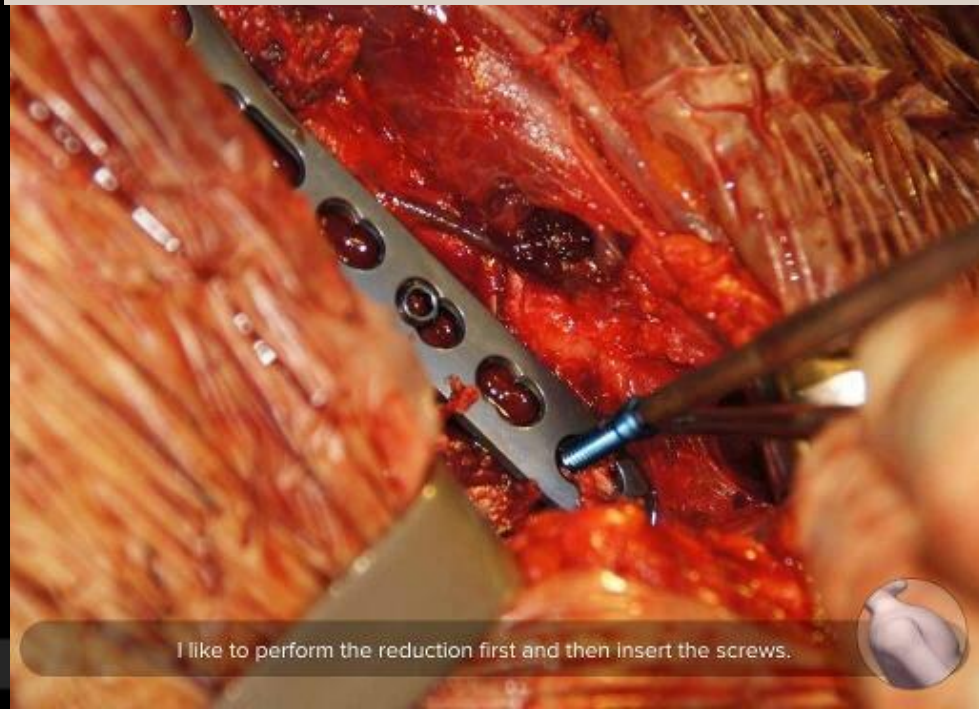
9w



Quite bad function.



This does not look too bad. I think the head is too much in varus.



I like to perform the reduction first and then insert the screws.



# Journals

The image displays several screenshots from the JBJS mobile application. The top-left screenshot shows the journal's cover for December 2014, featuring the title 'THE JOURNAL OF BONE & JOINT SURGERY' and 'JBJS' in large letters. The top-right screenshot shows a 'Case' article. The middle-left screenshot shows a table of contents for 'Dec 2014, Vol. 96, No. 24', listing various scientific articles. The middle-right screenshot shows the full text of an article titled 'Preliminary Results of a New Test for Rapid Diagnosis of Septic Arthritis with Use of Leukocyte Esterase and Glucose Reagent Strips'. The bottom-right screenshot shows an advertisement for Conformis knee implants with the slogan 'No More Compromises with customized knee implants'.

**Table of Contents (Dec 2014, Vol. 96, No. 24):**

- Scientific Articles
  - Osteotomies About the Knee
  - Postoperative Myocardial Infarction and Cardiac Arrest Following Primary Total Knee and Hip Arthroplasty: Rates, Risk Factors, and Time of Occurrence
  - Preliminary Results of a New Test for Rapid Diagnosis of Septic Arthritis with Use of Leukocyte Esterase and Glucose Reagent Strips

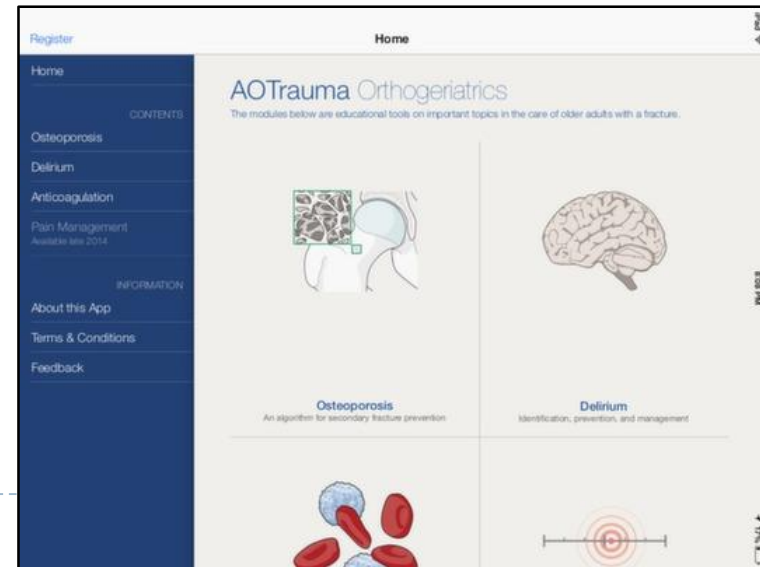
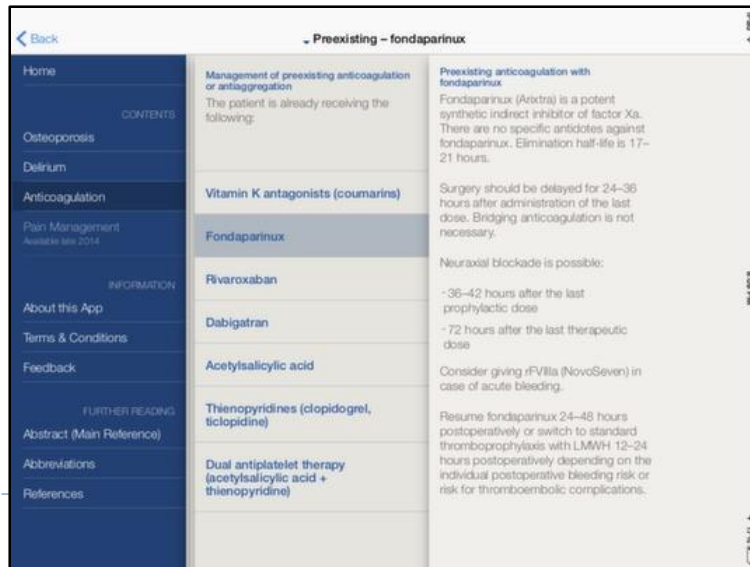
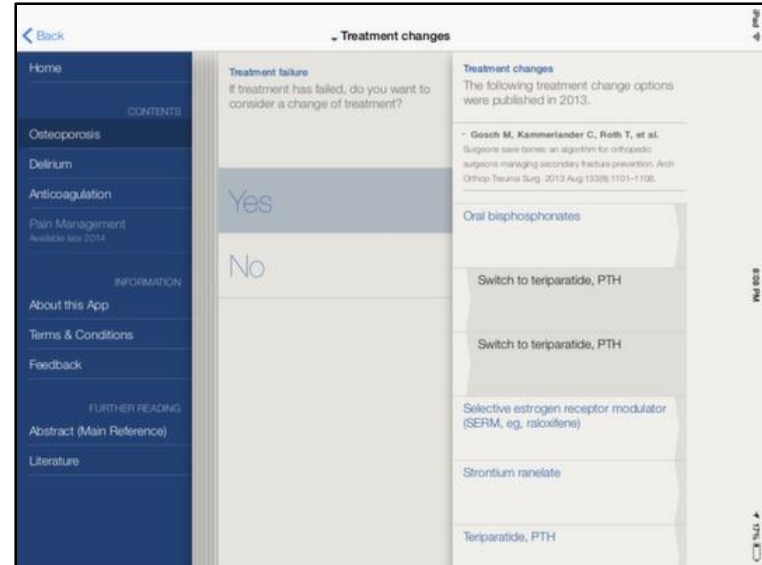
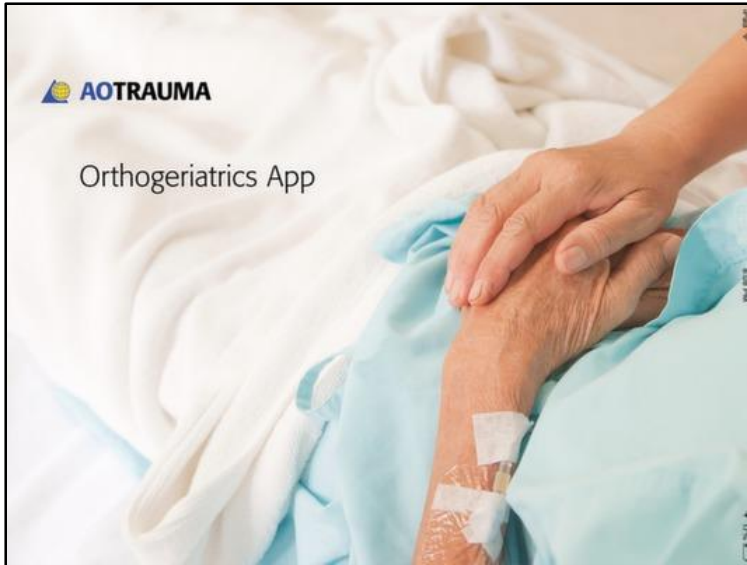
**Article: Preliminary Results of a New Test for Rapid Diagnosis of Septic Arthritis with Use of Leukocyte Esterase and Glucose Reagent Strips**

**Background:** Most currently used tools to diagnose septic arthritis are either not readily available or fail to provide real-time results. Reagent strip tests have identified infections in various body fluids. We hypothesized that combined leukocyte esterase and glucose strip tests can aid in diagnosing septic arthritis in native synovial fluid because (1) leukocyte esterase concentrations would be elevated at the infection site because of secretion by recruited neutrophils, and (2) glucose concentrations would be reduced because of bacterial metabolism.

**Methods:** We prospectively investigated synovial fluid from consecutive patients with an atraumatic joint effusion who underwent arthrocentesis in our emergency department during a one-year period. Leukocyte esterase and glucose strip tests were performed on the synovial fluid. Synovial fluid leukocyte count, crystal analysis, Gram staining, culture, and glucose concentration results were also assessed.

**Results:** Nineteen fluids were classified as septic and 127 as aseptic. Considering septic arthritis to be present when the leukocyte esterase reading was positive (++ or +++) and the glucose reading was negative (-) yielded a sensitivity of 89.5% (95% confidence interval [CI], 66.9% to 98.7%), specificity of 99.2% (95% CI, 95.7% to 99.9%), positive predictive value of 94.4% (95% CI, 72.7% to 99.9%), negative predictive value of 98.4% (95% CI, 94.5% to 99.8%), positive likelihood ratio of 114, and negative likelihood ratio of 0.11. The synovial leukocyte counts and polymorphonuclear cell percentages were consistent with the semiquantitative readings on the leukocyte esterase strip tests, and the glucose concentrations were consistent with the glucose strip test results.

# Orthogeriatrics (AO Trauma)



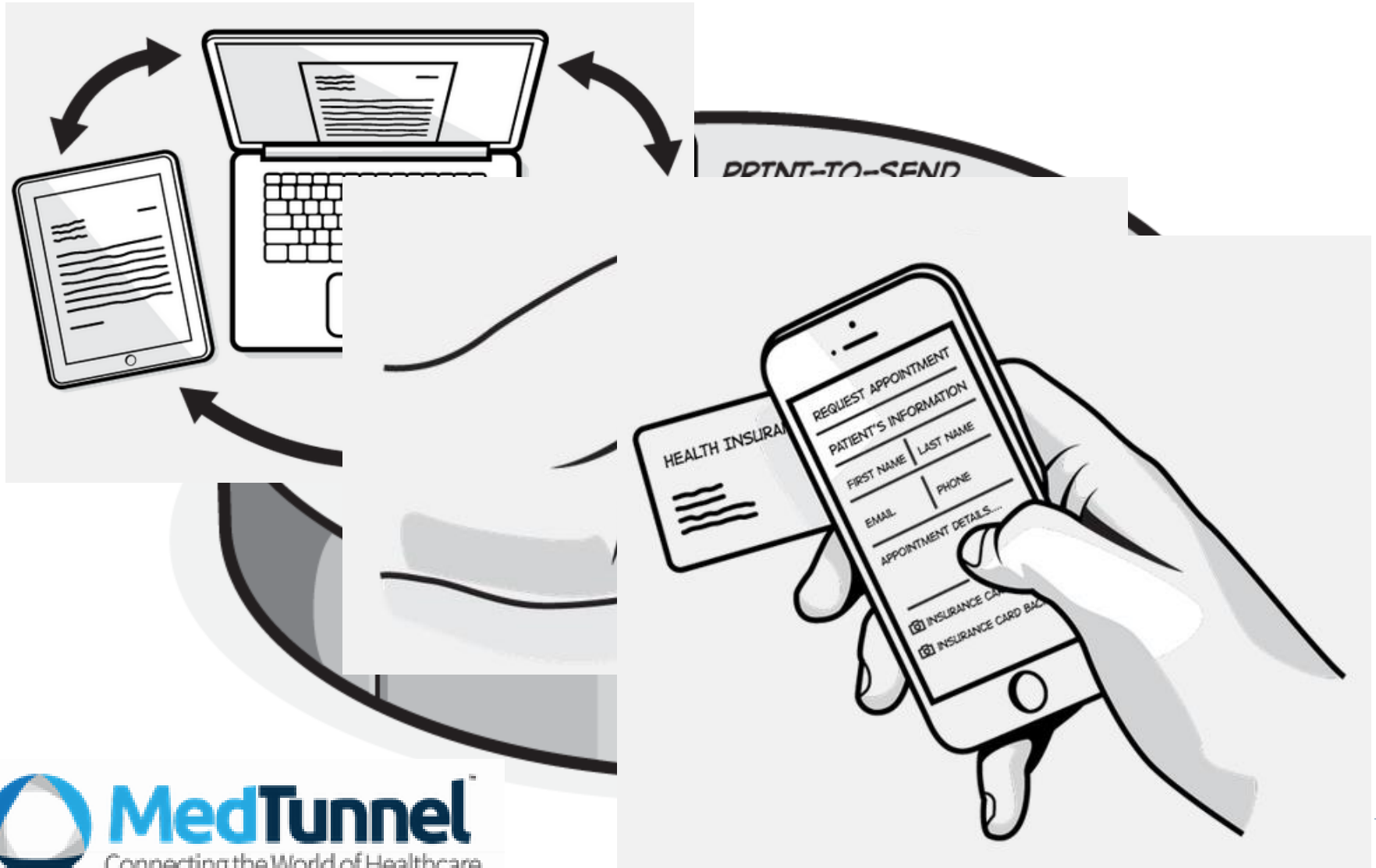
# Topics to Address

---

- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools
  - ▶ Apps
- ▶ **Mobile Communication / Sharing**



# MedTunnel for Texting/Documents



# DocSpera for Case Sharing



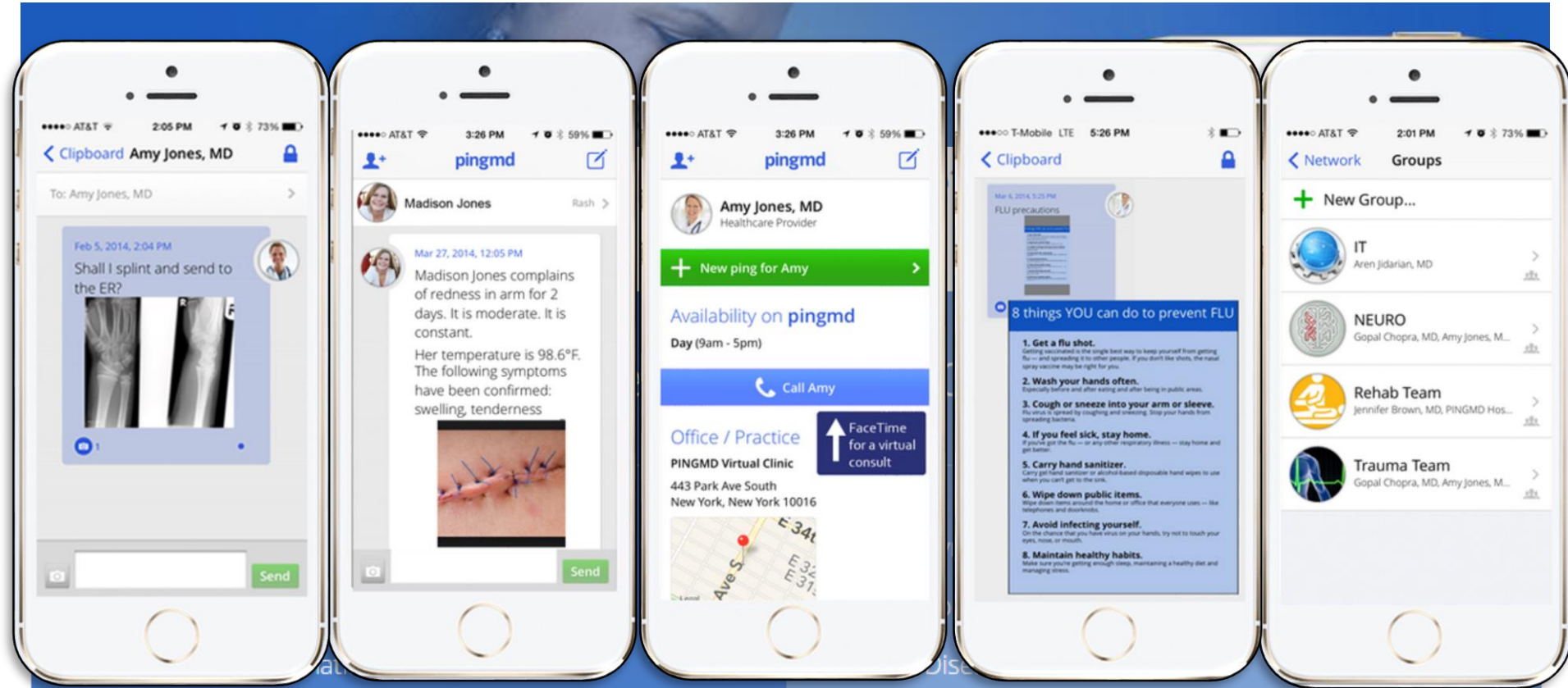
## Real-Time Access to Surgery Schedule and Pre-op Information

- ✓ Mobile access to surgical schedule including pre-op info, case images, and logistics.
- ✓ Collaborative schedule with alerts and confirmation across all care delivery members.
- ✓ Integrated device rep access for improved coordination.





# PingMD for Provider Communication



• Medication Reconciliation

• Post-Procedural Follow-up



# Topics to Address

---

- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools
  - ▶ Apps
- ▶ Mobile Communication / Sharing
- ▶ **Online Reputation Management**



# Personal Practice Website



UC San Diego Orthopaedic Residency  
**Orrin I. Franko, MD**

Home

About Orrin I. Franko, MD

Health Library

Location & Hours

Specialties



Mobile App Reviews for Orthopaedic Surgeons

iPhone

iPad

Android

## Contact Information

### University of California, San Diego

350 Dickinson St MC 8894

San Diego, CA USA 92103

[View map](#)



Phone 619-543-7247



[www.TopOrthoApps.com on](#)

## About Orrin I. Franko, MD

### Background

 [Orrin Franko - Curriculum Vitae](#)

### Harvard Medical School, Class of 2009

#### Undergraduate

University of California, San Diego, La Jolla, CA

BS, Biology, Summa Cum Laude 2001-2004

#### Medical

Harvard Medical School, Boston, MA



UC San Diego Orthopaedic Residency

## Orrin Franko, MD

EDIT:

Home

About

Health Library

Location & H

Specialties

Forms & Payr

Image Gallery

EDIT:

EDIT:

Home

About

Health Library

Location & Hours

Specialties

Forms & Payment

Image C

Number of Vi

Number of Visits: 687

◦ [Administra](#)

*Note: if yo*

◦ [Change or](#)

◦ [Add Other](#)

◦ [Change or](#)

◦ [Add Your A](#)

◦ [Change or](#)

- [Administrative Options to Manage Your Website](#)

*Note: if you wish to completely remove your site, please contact [Orthodoc@aaos.org](mailto:Orthodoc@aaos.org) with your request.*

- [Change or Remove Your Practice Name](#)

- [Add Other Staff in Your Practice](#)

- [Change or Reset How Your Name is Displayed](#)

- [Add Your Approach to Treatment](#)

- [Change or Remove Facebook Link](#)

- [Change or Remove Twitter Link](#)

- [Treatment, Anatomical Specialties, Patient Ages](#)

# Professional Practice Website

Pay My Bill



Search



7485 MISSION VALLEY ROAD, SUITE 104A, SAN DIEGO, CA 92108

PHONE (619) 291-8930 FAX (619) 291-8491

HOME

OUR TEAM

FOR PATIENTS

TESTIMONIALS

PATIENT EDUCATION



## ABOUT US

# Unique Features

---

- ▶ Improve your search engine position (SEO)
  - ▶ Advertise yourself
  - ▶ Introduce your staff
  - ▶ Patient intake forms and consent forms
  - ▶ Post-op instructions
  - ▶ Maintain a blog / share interesting articles
  - ▶ Provide verified disease information / videos
  - ▶ Appointment requests
  - ▶ Online outcome questionnaires
  - ▶ Workers' Compensation information
  - ▶ View actual wait times
  - ▶ Collect payments
  - ▶ Patient portal / messaging / communication
- 



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Beyond a website...

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# Personal Practice Apps

12:12 PM 95% battery

**HAND.MD**  
ORRIN FRANKO, MD

- About Your Condition
- Instructional Videos
- Your Provider
- More Info

12:12 PM 95% battery

[Back](#) **Provider**

**Orrin Franko, MD**  
Orthopaedic Surgeon

**UCSD Orthopaedic Surgery**  
200 West Arbor Drive MC #8894  
San Diego  
CA, 92123

[Phone](#)

619-543-7247

[Website](#)  
Click Here

12:12 PM 95% battery

[Condition](#) [More Info](#)

**Anatomy and Injury**

The shoulder joint consists of the humerus (arm bone), the glenoid (part of the scapula bone), the labrum, and the surrounding tendons and ligaments. The humeral head sitting in the glenoid can be thought of as a "golf ball on a tee" because of the large humeral head and small labrum. As a result, the shoulder has a very large range of motion, but in exchange loses stability and is easily injured or dislocated. The four most important muscles and tendons that surround and stabilize the shoulder are the rotator cuff muscles: supraspinatus,

12:13 PM 95% battery

[Back](#)

**Shoulder AROM: ER (sitting)**

**Sets: 3**  
**Repetitions: 10**

Let your provider know you have viewed this

Special Instructions



# Topics to Address

---

- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools
  - ▶ Apps
- ▶ Mobile Communication / Sharing
- ▶ Online Reputation Management
  - ▶ **Social Media**



# Twitter Account

- ▶ 191 accounts listed “orthopedic surgeon”
- ▶ Small percent of total orthopaedic surgeons
- ▶ Mostly professional posts for patient education
- ▶ May be most appropriate for younger populations; e.g. Sports Medicine



# Personal Testimony

---

- ▶ **Medicine is a commodity**
  - ▶ Patients have many options
- ▶ **Allows you to “stand out”**
- ▶ **Essentially “free” to do**
- ▶ **Takes about 1-minute/week**
- ▶ **Can have surprising effects**
  - ▶ Mary Lou Retton tweet
- ▶ **Provides website content**
- ▶ **It’s FUN to do**



# Topics to Address

---

- ▶ Digital Outcome Assessments
- ▶ Patient Education Tools
  - ▶ Apps
- ▶ Surgical Simulators
- ▶ Mobile Communication / Sharing
- ▶ Online Reputation Management
  - ▶ Social Media
  - ▶ **Physician Rating Websites**



# About Physician Rating Sites



- ▶ 37% of Americans consult online ratings for physicians
- ▶ ~30% select/avoid physicians because of those ratings
- ▶ Ortho has 2<sup>nd</sup> highest number of views among 170 specialties
- ▶ One study examined 1299 IM physicians from 2011-2012
  - ▶ Developed Quality Measures (QM) based on medical record and patients
  - ▶ Compared them to online physician rating sites
  - ▶ 61% of physicians had online reviews
    - ▶ 5.6 reviews/physician
    - ▶ Average rating of 81.6%
    - ▶ Web-rating and clinical QMs had no correlation
    - ▶ Web-rating and patient experience QM had small correlation

Health Website
Healthgrades
UCompareHealthCare
Vitals
Avvo
Wellness
RateMDs
Vimo
ZocDoc



# Online Ratings of Orthopedic Surgeons: Analysis of 2185 Reviews

- ▶ Surveyed 4 physician-rating sites in Sept 2012 for St. Louis
- ▶ Mean rating for Ortho Surgeons = 81.8
- ▶ 5 variables statistically significant to determine rating
  - knowledge, bedside manner, scheduling, time with patient, wait time
- ▶ **Conclusion:**
  - ▶ Online rated surgeons tend to receive generally high ratings
  - ▶ Ratings may not correlate with skill, but still influence patient decisions
  - ▶ **“...important that surgeons take ownership and proactively ask patients with positive experiences to submit surveys...”**

	Mean Overall Rating <sup>a</sup>	Questions in Survey	Surgeons Reviewed	Reviews Submitted
HealthGrades.com	89%	6	121	822
Vitals.com	77%	7	87	555
UCompareHealthcare.com	78%	6	129	511
RateMDs.com	77%	4	92	297

Bakhsh W, Mesfin A. Am J Orthop (Belle Mead NJ). 2014 Aug;43(8):359-63.

Phys  
(Hea

## Dr. Orrin I Franko MD

4.0 Add your rating: ★★★★★ ? / 4  
2 reviews

Surgical Specialist, Orthopaedic Surgeon  
1 years of experience

Hillcrest

200 W Arbor Dr  
San Diego, CA 92103

[Phone number & directions](#)

[Read Reviews](#)

[Check Insurance Plans](#)

[Summary](#)

**[Patient Reviews](#)**

[Credentials](#)

[Locations & Availability](#)

[Accepted Insurance](#)

### Patient Reviews ⓘ

[Write a Review](#)

Overall Rating:

4.0 ★★★★★

Total Ratings

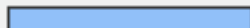
2

Total Reviews

2

Ratings

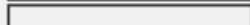
4 stars



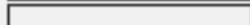
3 stars



2 stars



1 star



Ease of Appointment: ★★★★★



Bedside Manner: ★★★★★



Promptness: ★★★★★



Spends Time with Me: ★★★★★



Courteous Staff: ★★★★★



Follows Up After Visit: ★★★★★



Accurate Diagnosis: ★★★★★



Average Wait: 5 minutes

Most recent ▼

★★★★★ | [Great doctor](#) | [show details](#)

Mar 25th, 2010

Dr. Franko is a great doctor. Before my surgery, my nurses wanted to start IV fluids. I'm scared of needles, and Dr. Franko was able to convince them that I didn't need fluids.

[Mark as Helpful](#)

[Report Abuse](#)

# Options to Address Bad Reviews?

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Ask the site to remove a review

- ▶ Nearly impossible (website terms of service)



Get a lawyer

- ▶ Costly, “poor form,” can instigate more posts



Ignore it

- ▶ Changes nothing



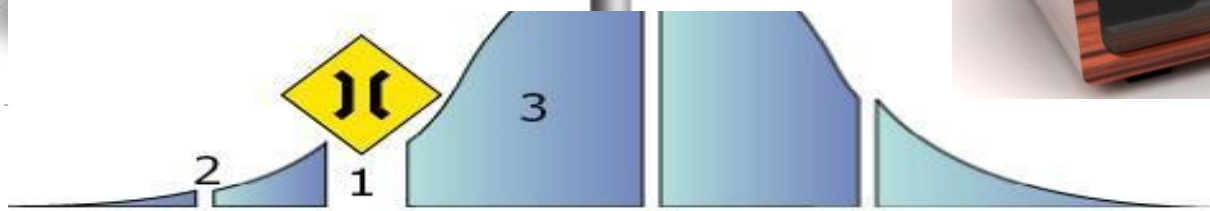
“The solution to pollution is dilution”

- ▶ Prepare for bad reviews by encouraging good ones



# Final Thoughts...

- ▶ Change is coming
- ▶ Unknown which technology will succeed
- ▶ Not for everyone
- ▶ Low barrier to entry
- ▶ Peer review



# HOTTEST New Apps for Orthopaedic Surgeons



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Email: [Orrin@TopOrthoApps.com](mailto:Orrin@TopOrthoApps.com)