Office Orthopedics in Primary Care

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Disclosure

I have no financial interests or relationships to disclose.

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"The First Wealth Is Health"

Ralph Waldo Emerson, 1860

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Agenda

- Warm up MSK ARS questions
- Answers and discussion of these ARS questions
- 7 questions asked to me by 2024 attendees
- Attendees requested these future topics:
- Knees, knees…I see so many patients with knee pain."
- Knee examination, aspiration and injection – Slow motion so everyone in this room can inject/aspirate like a champ

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"Orthopedic Lecture"

- More like a discussion
- This will not be a list of 20 joints, their anatomy, a review of what goes wrong with them and how to fix it
- More of a caregiver approach to the patient based on 30+ years at the bedside.
- It's new for me and I hope you like it
- I started with over 300 slides!

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The quarterback of the local HS football "Warriors" is in your office following a shoulder (gleno-humeral) dislocation the previous day. It was relocated by the athletic trainer and the patient is in a sling.

You Tell Him That:

A. After a period of rest for the swelling to go down, he can return to sport and it probably won't dislocate again.
B. Since it was his non-dominant shoulder, he can get back on the field straight away.
C. He has a high potential for a 2nd dislocation and needs to see the Orthopedic Surgeon.

Amanda, 18, was in the ED a couple of days ago with a broken foot while playing volleyball. She was given copies of her x-rays but forgot them at home.
She is feeling much better, less pain and less swelling.
She mumbles something about "It's a 5th meta-something fracture."

Which of the Following Is the Most Appropriate Next Step in the Management of This Patient?

A. Some 5th metatarsal fractures have a high rate of non-union and we need to be careful here.
B. Most metatarsal fractures are benign and heal quickly. We can just leave her immobilized for a few weeks and she'll be fine.
C. These bones rarely fracture, and a genetic work up is in order.

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Frank is a mechanic at the local garage who complains of atraumatic elbow pain.
"The guys say I have Tennis Elbow, but I couldn't play tennis if you paid me."
Your diagnosis agrees with the guys.

What Is the Most Appropriate Initial Management for This Patient?

A. You tell him that a quick steroid shot should do the trick.
B. He needs a different occupation from turning wrenches.
C. Give him Glucosamine and chondroitin (it's not habit forming) daily for 6 weeks and it should eliminate the pain.
D. You would offer him a conservative course of activities to avoid, possibly a brace, exercises and maybe even and NSAID if not allergic.

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ARS#1 Dislocated Shoulder

- The quarterback of the local HS football "Warriors" is in your office following a shoulder (gleno-humeral) dislocation the previous day. It was relocated by the athletic trainer and the patient is in a sling. You tell him that:

- We have the index (first) shoulder dislocation in a teenager.
- Of the large joints, the shoulder is the most common joint to dislocate
- Treatment is somewhat controversial
- Natural history? Untreated? Surgically repaired?

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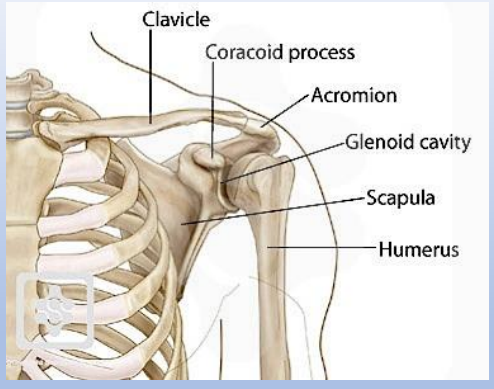
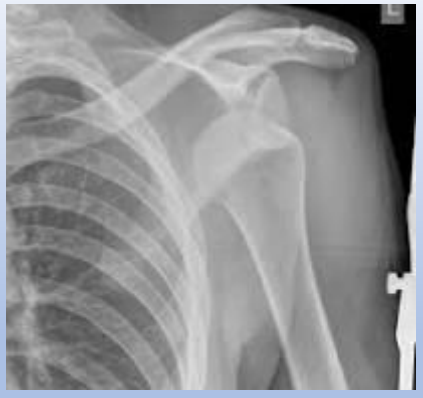
ARS #1 Shoulder, Anatomy and X-ray





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ARS #1 Shoulder Dislocation, a Few Facts

- Shoulders are 50% of all dislocations
- 97% are anterior dislocations
- Mechanism – blow to an abducted, externally rotated, extended extremity
- Can be reduced, often with conscious sedation
- Reduction maybe subtle without obvious “clunk”

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ARS #1

- If the shoulder has a low potential for re-dislocation, non-surgical Rx
- If the shoulder has a high potential for re-dislocation, surgical Rx
- So the question is how do we predict recurrence?
- We follow the natural history. Recurrent instability 14% to 100%

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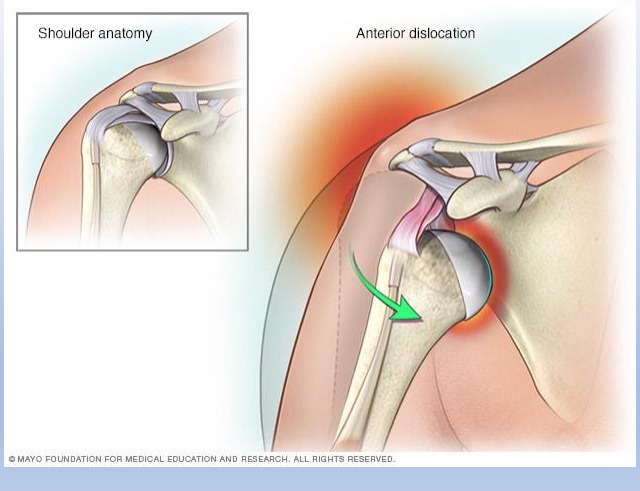
ARS #1

- In patients less than 20 years old, 72-100% recurrence
- 20 to 30 years old, 70-82%
- Over 50 years old, 14-22%
- Other studies have different #s
- Is a dislocation benign**??**
- Primary stabilizers?
- Articular cartilage? Bone?



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ARS #1

- So, the question we ask this first time dislocator, “Would surgical intervention alter the natural Hx?
- Age <25, collision sport, arm used at or above chest level
- This group has a high potential for recurrent dislocation and further damage to the shoulder. Some may request surgery after first dislocation

For those over 40, or more sedentary, the probability of recurrent dislocation is less and non-operative care is typically recommended

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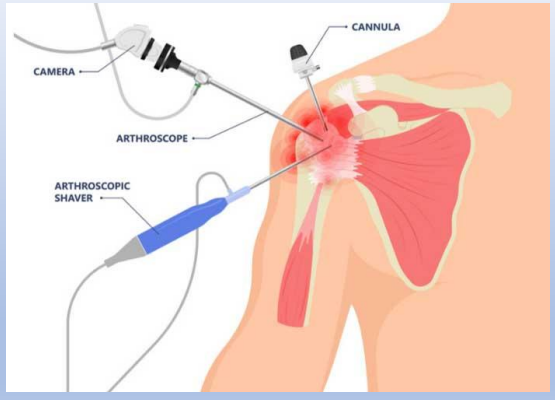
ARS #1

- The take away:
- Arthroscopic repair offers good objective long term outcome, especially in the at-risk group under 25 years of age.
- Gleno-humeral arthritis can be a long term aftermath of recurrent shoulder dislocations



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ARS #2

- Amanda, 18, was in the ED a couple of days ago with a broken foot while playing volleyball. She was given copies of her x-rays but forgot them at home. She is feeling much better, less pain and less swelling. She mumbles something about "It's a 5th meta something fracture."
- First, let's have a quick review of the anatomy.

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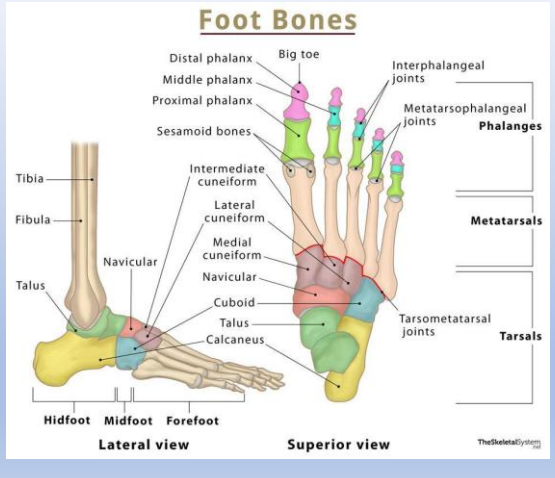
ARS #2



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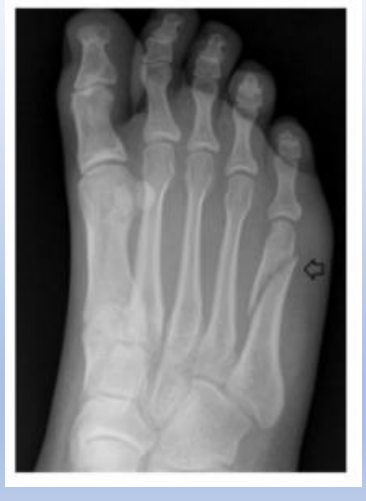
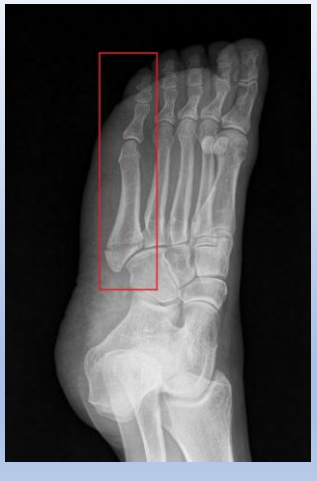
ARS #2 Shaft and More Proximal Fractures – Let's Palpate Our Own 5th Metatarsal





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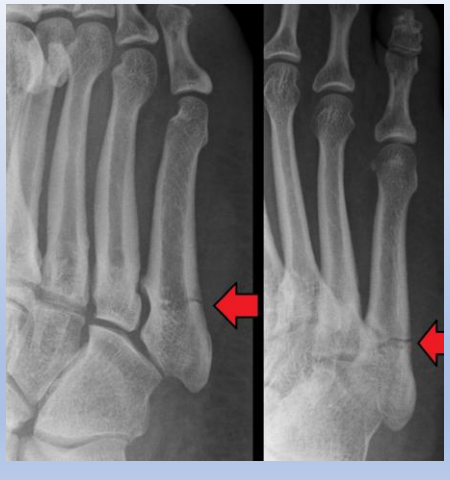
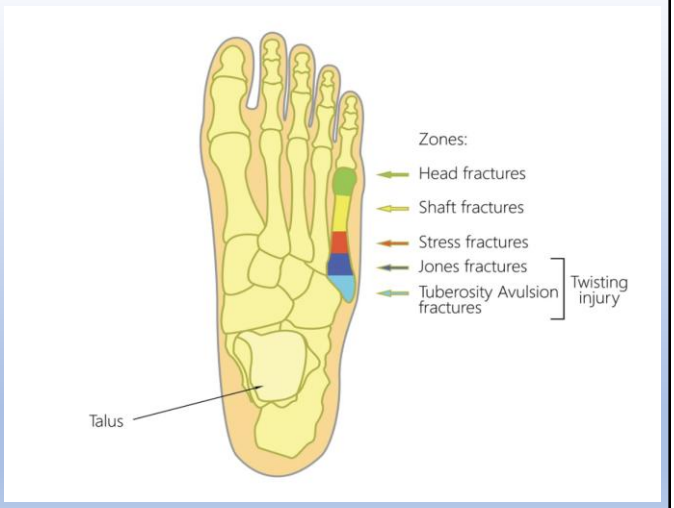
ARS #2 The Dreaded "Jones Fracture"





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Sir Robert Jones

- Interested in new ideas
- Installed a rudimentary x-ray machine in his Liverpool clinic within months of Wilhem Roentgen announcing the discovery of x-rays
- Used it to locate a bullet in a child's wrist
- After he injured his foot, he x-rayed it, diagnosed his own fracture
- Had other patients with a similar fracture pattern
- Published it in Lancet in 1902
- Now known as the **Jones fracture.**

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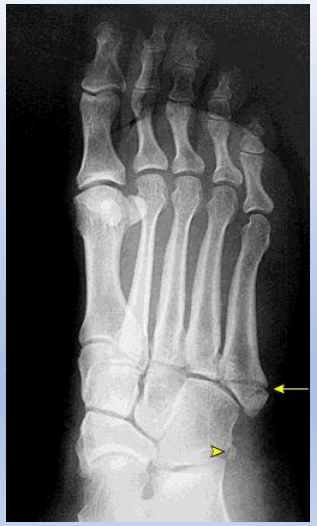
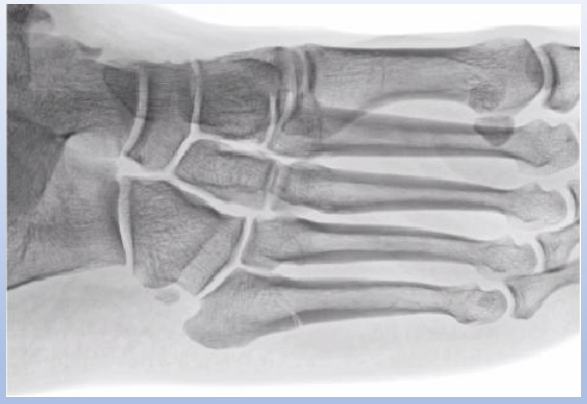
ARS #2 Put Your Pens Down for a Minute and Let's Palpate the Difference





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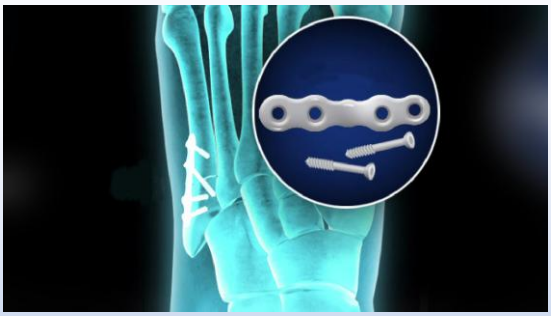
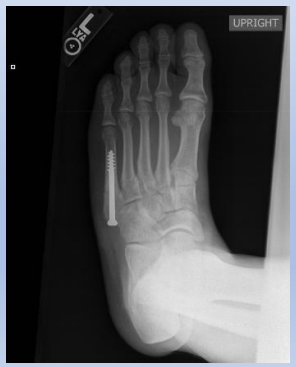
Jones Fractures

- Take much longer to heal
- May not be treated with a weight bearing appliance
- Much more likely to need surgery, especially if displaced





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ARS #2 5th Metatarsal Fractures

- Usual treatment
- Non-surgical, fracture shoe, walking boot, possibly a cast
- Some can tolerate a stiff soled shoe
- Partial weight bearing, often with crutches

Ice, rest, pain meds

- Rarely Surgical
- Intramedullary screw or ORIF with plate and screws
- Jones fx (So called zone 2 fx)
- If it worries you…ship it! (And don't feel bad about it!)

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ARS #3

- Frank is a mechanic at the local garage who complains of atraumatic elbow pain. "The guys say I have tennis elbow but I couldn't play tennis if you paid me." Your diagnosis agrees with the guys.
- Let's think about the lateral elbow.
- Palpate yours. Lateral humeral condyle, radial head
- Now pronate/supinate your forearm, finger on the radial head

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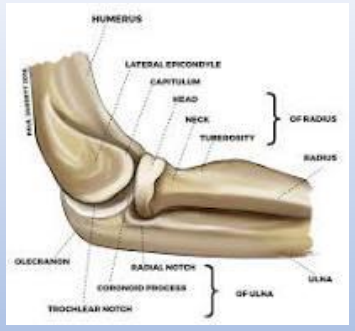
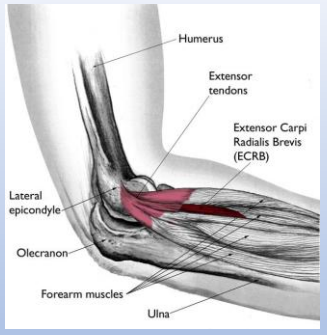
ARS #3





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ARS #3

- Lateral epicondylitis (Tennis elbow)
- Inflammation, swelling or even tearing of the tendons which insert on the outside elbow
- Can radiate down the arm
- Worse with extension of wrist
- Repetitive motions of wrist and arm
- Can be work related like plumbing, painting, auto mechanic
- Tennis – poor backhand, too tightly strung racket, weak wrist/shoulder muscles
- Most people with TE don't play tennis

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ARS #3

- Dx- pain on palpation
- Pain blocked extension
- NV intact
- X-ray- DJD? Other issue?
- Possible MRI

- Rx – rest! No miracle pill
- Avoidance of causative factors
- Ice to lateral elbow
- Short term use of cock-up wrist splint, TE strap/brace
- NSAIDs, stretching, strengthening- let's do that now
- Injection
- Rarely surgery

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ARS #3

- Long term TE?
- Injection
- Corticosteroid
- PRP
- U/S – shockwave therapy (break up scar tissue, increase blood flow

- Last resort = surgery

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ARS #3

- How to give a trigger point injection
- Palpation to get close
- Let's palpate our own elbow – start with the radial head
- Now lateral epicondyle
- If you're thinking of pin point accuracy all of a sudden it becomes a pretty big place

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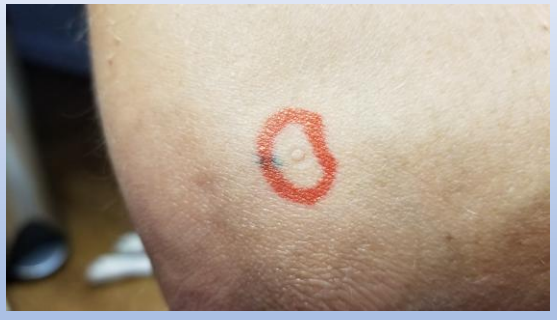
ARS #3 Injection Technique

- Sometimes ink marks wash off the skin with alcohol so try a pen point



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ARS #3 Injection Technique

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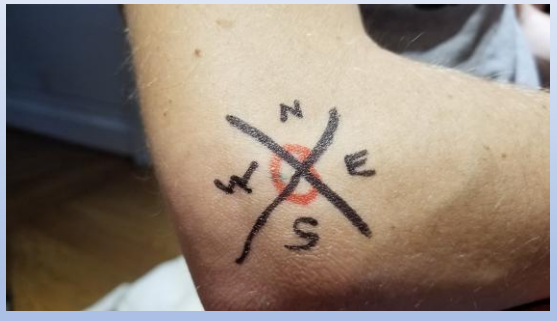
ARS #3 Injection Technique

- Now all you have to do is palpate "North," then "South," etc. at the center, and then inject it



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Details, Details

- There is one way to mess up, however. (From the net recently)

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7 Questions Asked by 2024 Attendees

- Pickleball. At a venue near you.

Ortho referral, model 2025.

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1) "Should I Be Using Glucosamine and Chondroitin for Knee Health? How About My Patients?"

- Confusing issue
- Not free
- Hard to get a definite yes/no
- Let's talk about it

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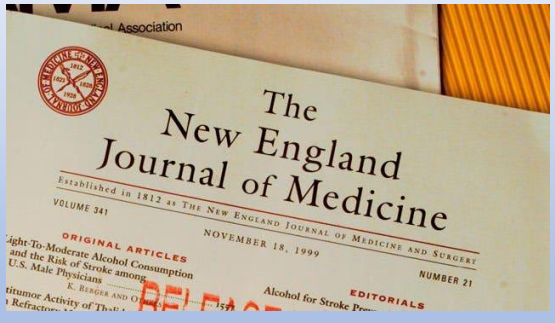
"Should I Be Using Glucosamine Chondroitin for "Knee Health?"



- There cannot be two kinds of medicine — conventional and alternative. There is only medicine that has been adequately tested and medicine that has not, medicine that works and medicine that may or may not work.

- Marcia Angell, former Editor, NEJM

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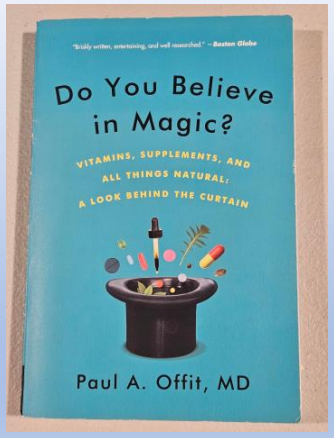
1) Should I Be Using Glucosamine Chondroitin for "Knee Health?"

- "It is easier to fool people than to convince them they've been fooled."
- Attributed to Mark Twain
- As an aside – my bias



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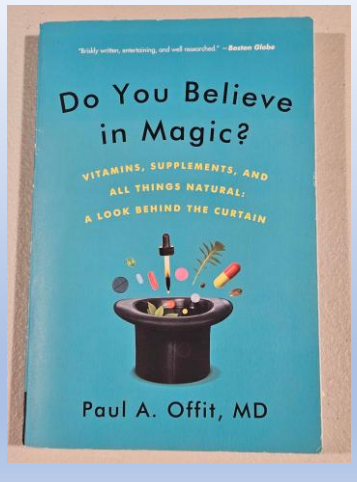
2) Should I Be Using Glucosamine Chondroitin



"Health food stores are wonderlands of promise. If people want to burn fat, detoxify livers, shrink prostates, avoid colds, stimulate brains, boost energy, enliven sex, or eliminate pain, all they have to do is walk in."

Paul Offit, MD

Fifty-Four Thousand Supplements

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2) Should I Be Using Glucosamine Chondroitin

- The question, however, is which products work? And how do we know they work?
- Cleveland clinic
- "May support joint health. It could slow the breakdown of cartilage in the joints, which may reduce pain and swelling. The FDA has not evaluated this supplement for any medical use.
- It may contain ingredients not listed"
- Cleveland Clinic, *Health*, 2025

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2) Glucosamine Chondroitin

- Harvard –
- "When it comes to health supplements, glucosamine and chondroitin are among the most popular. Worldwide, annual spending on these supplements is predicted to reach $3.5 billion by 2025. So you'd think they must be highly effective."
- "And yet that's not so clear."
- Robert H. Shmerling, MD, Sr. Faculty Editor, Harvard Health Publishing
- "Glucosamine and chondroitin, taken individually or in combination, are touted not only as relievers of joint pain but also as treatments to *prevent* joint disease. Yet a number of past studies have come to mixed conclusions; some small studies, most looking at osteoarthritis of the knee, found that people felt modestly better taking glucosamine and/or chondroitin, but at least as many have found no benefit."

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Mayo Clinic Website

Osteoarthritis. Oral use of glucosamine sulfate might provide some pain relief for people with osteoarthritis of the knee. Some research shows that it may also help slow knee joint degeneration associated with osteoarthritis. More studies are needed to determine the benefits of glucosamine sulfate supplements for osteoarthritis of the hip, spine or hand.

- **Rheumatoid arthritis.** Early research suggests that oral use of glucosamine hydrochloride might reduce pain related to rheumatoid arthritis. However, researchers didn't see an improvement in inflammation or the number of painful or swollen joints.

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Mayo Clinic – Our Take

- “Glucosamine sulfate might provide some pain relief for people with osteoarthritis. The supplement appears to be safe and might be a helpful option for people who can't take nonsteroidal anti-inflammatory drugs (NSAIDs). While study results are mixed, glucosamine sulfate might be worth a try

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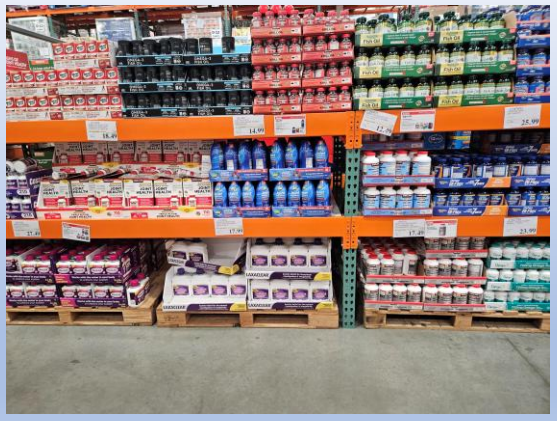
Glucosamine Chondroitin

- Glucosamine chondroitin might work.
- Photo at Costco



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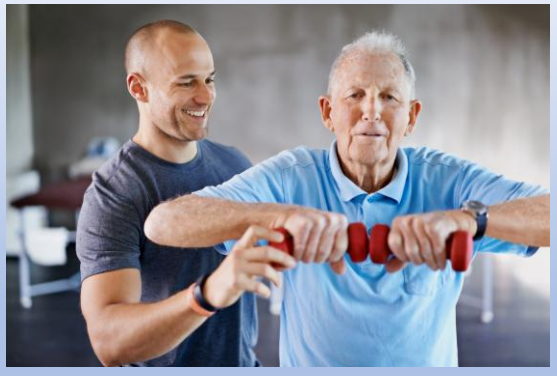
2) How Do You Convince Your Patients to Just Get Out There and Exercise?



- That's not a question with an easy answer, is it?

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2) How Do I Convince My Patients to Just Get Out There and Exercise?

- This is my morning exercise group
- It's called SEALTeam PT

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How Do I Convince My Patients to Just Get Out There and Exercise?

Would many of us, upon awakening and seeing snow outside, be inclined to dress and head to the park for exercise?

I think not many

BUT, if you know someone is waiting for you, maybe you'd reconsider. And if it's lots of some ones…

It's enough to get you going

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How Do I Get My Patients to Just Get Out There and Exercise?

- In other words, this question does have an acceptable answer.
- Show them, lead them
- Not the, "Here, take this sheet and do these exercises."
- But you still want the patient to walk out to family in the waiting room saying, "She wants me to do some exercises, and **I'm going to do them**."
- So many patients have chronic issues
- They feel mentally and physically unprepared or defeated before they even leave your office
- But if you can convince them that you **believe,** maybe they will believe too.

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How Do I Get My Patients to Just Get Out There and Exercise?

- It could be:
- Step 1, a short in office video and written instructions amplifying what you want them to do
- The video website – as simple as possible – for them to review at home.
- Your assistant teaching them

A written referral to someone their insurance covers, PT, athletic trainer, etc.

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How Do I Get My Patients to Just Get Out There and Exercise?

- In the words of Becky Kennedy, Clinical Psychologist, founder of Good Inside:
- "My second grade teacher Ms. Edson, told us: If something feels too hard to do, it just means that the first step isn't small enough. So often when we're struggling, we tell ourselves that it's a sign that we're broken or that something is our fault, and then we freeze. But when something is too hard in the moment, tell yourself Ms. Edson's advice."

In other words, big things start with small steps.

- NYT 1/25/2025

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How Do I Get My Patients to Just Get Out There and Exercise?

- "If you want to change the world, start off "by making your bed."
- Admiral McRaven's talk:
- https://www.youtube.com/watch?v=pxBQLFLei70&t=495s

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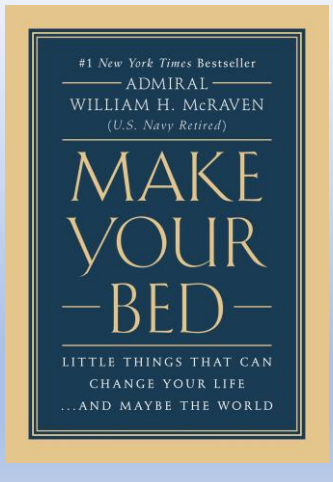

"If you make your bed every morning you will have accomplished the first task of the day. It will give you a small sense of pride and it will encourage you to do another task and another and another.

By the end of the day, that one task completed will have turned into many tasks completed. Making your bed will also reinforce the fact that little things in life matter."
- Naval Admiral William McRaven

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SEALTeam PT

- But many show up
- And at the end of the hour, it's all smiles. Everyone's day starts on a positive note
- Some stay and chat, some go for coffee. The camaraderie is impressive. No one feels left out

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SEALTeam PT

- Accountability
- Camaraderie (US vs the instructor)
- Friendship
- Fun
- Fitness
- Even on days it's pouring rain, snowing, etc., everyone is getting wet
- "You don't get this at the gym people"

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Motivation

- So how can we translate those intentions to our elderly clientele who need to do more but may not have the motivation to take that first step?
- Yet (Your cue here!)

55

Where Does This Kind of Motivation Come From?

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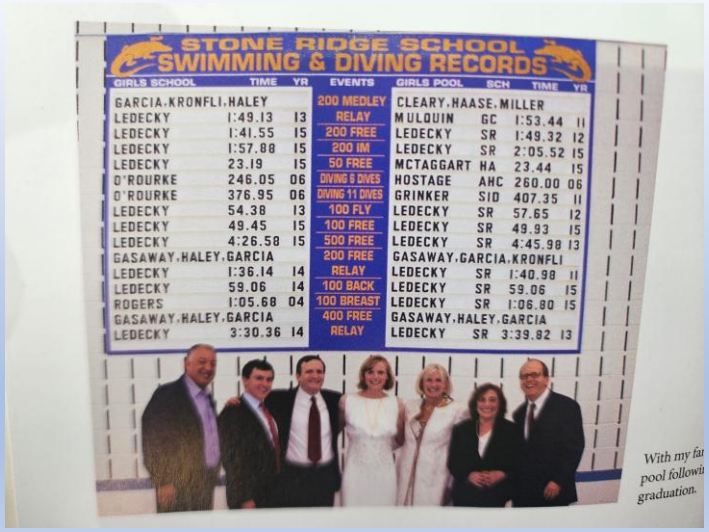
Katie Ledecky



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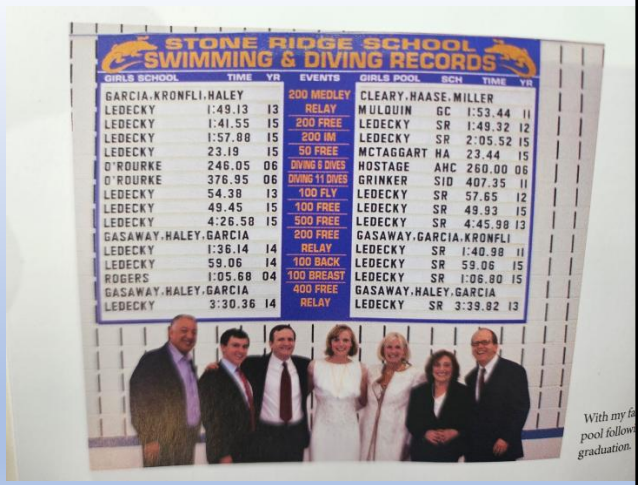
Family Practice Friend's Response

"Hmm. I see some names that don't match. Not good enough. Get back in the water."

Mark, MD



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Balance and Fall Risk (Not an Exercise Plan)

- The first step
- Your referral – in my community it's to the Senior Center
- Enter Jane, Fitness director
- "They come thru the door because you send them or word of mouth."
- "While they may eventually try music, books, etc., it's 'fitness that gets them in the door"
- "All they have to do is take the first step…and we can take it from there."
- "My doctor said I need your free eval for balance and fall risk."
- Jane turns this around and says to them "What do you want?"
- Maybe something as simple as "Be able to put my own socks on in 5 years."

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Balance and Fall Risk

- As this conversation occurs, Jane is walking them to the elliptical machine. (They're in the gym, lots of people doing things they couldn't dream of – a little (lot?) intimidating)
- She has them hop (sort of) up on the elliptical with NO tension, shows them how it works, gives them the go ahead, and then starts talking about a movie, trip they want to take, etc. and go two minutes.

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Balance and Fall Risk

- They are almost always able to do this small task!
- She then asks if they can do this 3X/wk for two weeks…and then maybe they go for 2.5 minutes
- For those who “thought I was going to die” for 2 minutes, they back off to 1.5 minutes and re-eval in two weeks- with her!

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Balance and Fall Risk

They have been introduced to the gym. Are shown that “yes” they belong there. Have committed to seeing Jane in 2 weeks.

Once they progress they become more interested in the classes themselves. Some simple, seated, chair based. Then they start telling other people.

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Your Name Here – Handout

Your tips for staying healthy

While you may have missed January 1st as a time for a New Year's resolution, let's pretend today is that day in your life and you get a do over. Some of us exit the holiday season celebrations with food, drinks, friends- and the eternal battle of the bulge. It often leads to a New Year's resolution of better health.

Sadly, while many Americans enter each new year with wonderful intentions, these typically fizzle as we get back into our routines and stressors that led to sub optimal habits in the first place. Here are some simple tips to make your next year the one you finally stick to your changes.

It's not a about the result; It's about the journey. So many of us set goals, such as "lose a certain number of pounds," "stop eating/drinking particular things," "run a 5K in a certain time period." While goals are important, make sure they relate to the journey not the result. Studies show focusing on the controllable variables is the best way to approach your goals: am I eating smaller portions? Am I eating the Mediterranean diet) carbs from fresh fruit and vegetables, less saturated fat and sugar?) Am I minimizing unhealthy foods like alcohol, soft drinks, refined sugars, high fructose corn syrup? Did you know there are 80 calories in 1 ounce of 100 proof whiskey? Am I "active" - taking 8,000 to 10,000 steps per day whether it is in a gym, at home or walking, etc.?

If you actually engage in these lifestyle modifications and focus on sustaining them, your result (goals, weight, waistline, 5K time) should follow. Don't be afraid to use an exercise app to actually track your calorie intake versus exercise/activity output. These can be very informative- giving you confidence you are on the right track. Remember that one pound of adipose tissue (fat) equals 3500 calories. That's a big number so slow and steady wins the race with weight loss.

63

Exercise is "movement!" Be creative, but be active. Choose forms of exercise that you enjoy and can sustain. If you like the gym, schedule it into your daily routine. If you like running, hiking or walking, find friends to join you- even a day or two a week. Beware of the pitfall of setting your goals too high - like I'm going to run every day"- and setting yourself up for failure when you get shin splints three weeks into your new routine and can hardly walk.

Core strength and flexibility are critical as we age. So many folks who have gained weight jump into aerobic exercise too fast. They focus on trying to improve their motor, when they forgot the shocks were blown, the tires were low on air and the chassis was rusting out through the floorboards. (Credit to doctor Bob Wilder the UVA Health running physician- for this wonderful analogy.) Start slow and work your entire body as a unit.

- **And finally, perfection is the enemy of good.** This is all about "lifestyle change' - become that person who builds healthy habits into how they live each day, not just jumping on a diet/exercise plan for a month. When you only think of "giving up" certain habits, you are usually doomed to fail. Think of the positives- choosing newer, healthier things. **And when you aren't perfect, give yourself some slack- but get right back** to the person you strive to be.

64

Balance and Fall Risk

- So they came there for their free 15 minute balance and fall risk eval which they're taught to share with you, and they keep coming to class.
- Instructors – 10 minutes early/after class- chat up the new people
- Maybe learn something as simple as get down/up from the floor safely
- Puzzles, games, conversation and the realization that, yes, they can do these things called fitness. And have fun doing it.

65

So, Hear It Comes!

- The one thing I want you to take home from this lecture
- If you only remember one thing from this 2 hours, I want it to be-
- Ready?

phone

66

The One Thing

- If you can prevent your patients from falling…
- "I was carrying the laundry down the steps, not using the handrail and…"
- "One of the dog's toys was on the floor and I thought I'd pick it up later…"
- "Help, I've fallen, and I can't get up."

67

Darcy

- Enter:

Darcy Higgins, DPT

Doctor of Physical Therapy

Human Movement Specialist

"Many people here at The Center,

Likely over half, have a fear of falling!

68

Fear of Falling

- 80? Anybody in the room

over 80?

Darcy made a strong point, as it was made to him by his clients, that we are not over 80, so we can conjecture but we really don't know what this fear is like.

What it's like to know, "If I fall I may not be able to get back up."

Fear of falling – they do less

- Less physically active, balance continues to deteriorate
- It's a spiraling process
- Course in fall prevention
- 20 minute free consult – understand *their* issues
- Whole body movement eval

69

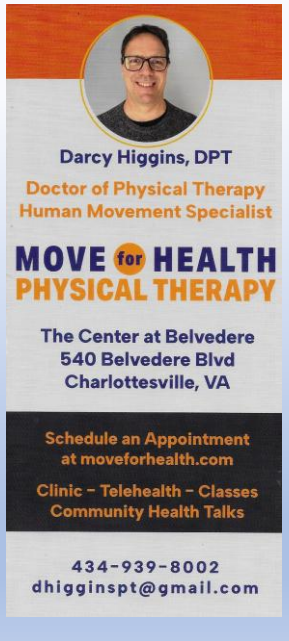
Darcy Eval

- Eval starts with a 10 point movement screen
- He shows them where they are and where they should be
- Can be done over zoom
- Long energizing discussion at their level, on their terms
- Then he launched into the "walk them to the gym…" that we've already discussed
- I give them the "ticket" to be there – show them where to hang their coat and leave their car keys

70

Fear of Falling Evaluation

- 10 point movement screen
- Then they buy in!!!
- Especially if they've been sent by their doc/NP- written referral!
- Accountability/attendance
- They try not to charge much
- $5/month
- Scholarships for those in need
- They even have a bus
- He loves his job!



71

- They come to The Center for strength and balance, migrate to other classes – 150 classes/week
- The place is not for profit. They try not to charge seniors to much $$
- $49/month

72

Past vs Present

A reporter asked Michael Jordan if the 90s Chicago Bulls could beat the 2025 LeBron James era Los Angeles Lakers

- MJ: yes.
- Reporter: By how much?
- MJ: Two or three points.

73

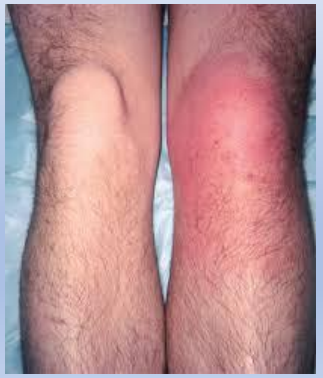
Past vs Present

- Reporter: Why so close?
- MJ: Most of us are almost 60 now.

74

3) Can You Give Us Some Examples of Orthopedic Emergencies We Might See in the Office…and What to Do About Them?

- What do you do when this hot, red, swollen knee walks into your office?



75

I'm on Your Side Here

- "You know what people are most afraid of? That which they don't understand."
- Sean Connery, *Finding Forrester,* 2000

76

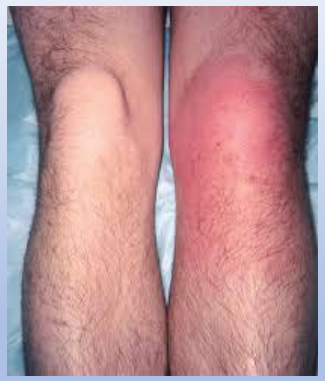
Orthopedic Emergencies

- Lifeguards
- Certification in 2024
- Guarded the little kids…and then the elderly
- Worried sick that every time I took the stand, someone would croak…and I might not be fast enough
- But how many rescues have I made? Zero.

- The “emergencies” that we will discuss are pretty darn rare.
- So, you need to have an index of suspicion, but not fear
- You are a professional!

77

Orthopedic Emergencies – Septic Arthritis



- Septic arthritis
- Infection in the joint
- Can lead to permanent damage to the joint if not treated
- Severe pain, erythema, fever, inability to move the joint
- Can be hematogenous spread
- Penetrating injury, animal bite, trauma

78

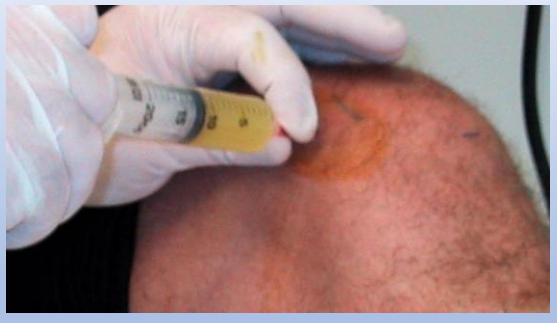
Orthopedic Emergencies – Septic Arthritis

- Knees are most common
- Reaches of the age spectrum; infants and older adults
- Hips, shoulders
- Previous arthroplasty
- Make it somebody else's problem
- Ship it. Fairly rapidly
- Most would say you wouldn't give the first dose of antibiotics
- You wouldn't give any antibiotics until the joint was aspirated and the fluid sent to the lab

79

Orthopedic Emergencies – Septic Arthritis

- Considered infected until proven otherwise
- Fever, elevated WBC, C-RP, ESR helpful but not diagnostic
- Best, most definitive test, joint aspiration (gram stain)
- Cultures



80

Orthopedic Emergencies – Septic Arthritis

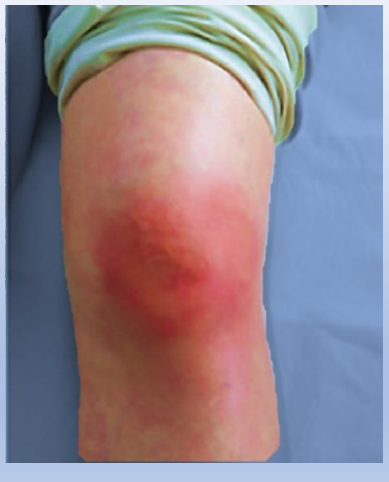
- If you don't feel comfortable with an aspiration, **refer**
- Once completed, single dose of broad spectrum antibiotics
- Aerobic and anaerobic C + S
- Gram stain

- Crystals, gout, long, needle shaped, negatively birefringent under polarized light.
- Pseudogout, rhomboidal crystals, positively birefringent
- Cell count. ?> 50,000 WBC/high-power field

81

Septic Arthritis

- Septic Arthritis
- Suspected? Surgical irrigation
- Arthroscopy low risk/benefit
- May need to repeat



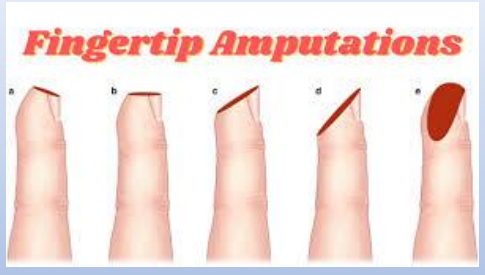
82

Extremity Amputations (Likely a Digit)

- Extremity Amputations (digit)
- may never see one
- panicked phone call from hysterical patient
- hasn't thought things through to just go to the ER
- give them these instructions:

83

Extremity Amputations



- put the amputated digit in a clean , moist cloth and place it in a plastic bag. Seal the bag and place it in a 2nd bag filled with ice.
- Cooling the amputated part will increase its viability and the odds that the replant (if indicated) will be successful

84

Extremity Amputations

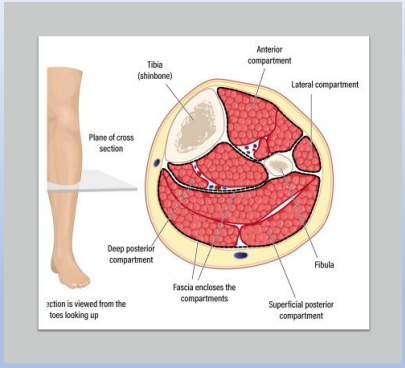
- call 911 and request an ambulance for expedient transportation to the nearest emergency department
- not recommended that these pts drive themselves. Shock, poor judgement, even LOC

- *In the holler - Va Mabry, her sister and husb (poor vision-no drive), Va thr in TN…and it started to rain – "I don't drive in the rain"

- do not eat or drink anything
- if a candidate for replant, immediate surgery is best and an empty stomach is safer for general anesthesia if needed

85

Orthopedic Emergencies



- Post-traumatic compartment syndrome
- Can lead to irreversible injury to both muscles and nerves
- The most important management of compartment syndrome is early recognition and treatment

86

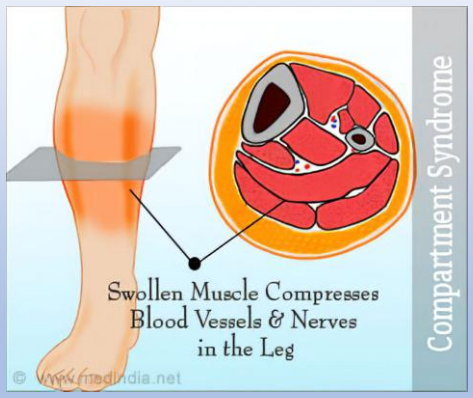
Orthopedic Emergencies

- Post-traumatic compartment syndrome
- Rapidly evolving, potentially devastating complication of a blunt injury to an extremity. Don't forget crush injuries.
- Most common in the legs.
- As pressure rises, blood flow slows leading to muscle ischemia.
- IIHS crash test – leg room – where I live

87

Orthopedic Emergencies

- Post-traumatic compartment syndrome
- Multiple fractures in a single extremity
- Pain out of proportion to the injury
- Firm, swollen, tense extremity
- Pain with passive motion of the distal parts
- 4 P's - pain, pallor, paresthesia, pulselessness
- 4Ps may occur late in the course; <u>especially pulselessness!</u>



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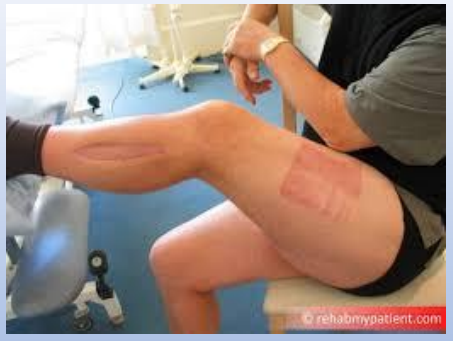
Post Traumatic Compartment Syndrome

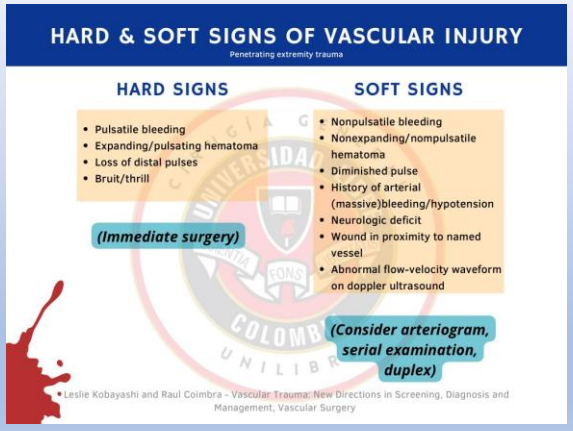
- No medical treatment
- Surgical compartment release is in order
- Be aware of potential for rhabdomyolysis from muscle damage and need for aggressive hydration to avoid renal injury



89

Orthopedic Emergency

- Vascular injuries
- Warm ischemia time
- About 4 hours – blood flow must be reestablished by then to avoid irreversible damage
- Deformity present? Can try to reverse
- Cooling the extremity can buy you time – not directly on skin
- Arteriogram
- Vascular surgeon

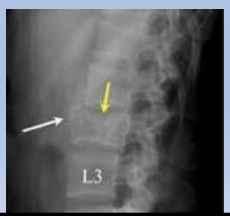


90

Orthopedic Emergencies

- Unstable Spine (severe neck or back pain)*
- Pain is quite subjective, hard dx to make, err on the side of caution
- If there's any doubt or neurologic symptoms, numbness, tingling or weakness, an emergency eval is needed

*I live in the south –last thing redneck?



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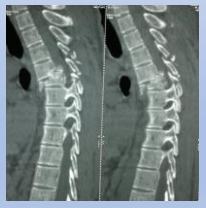

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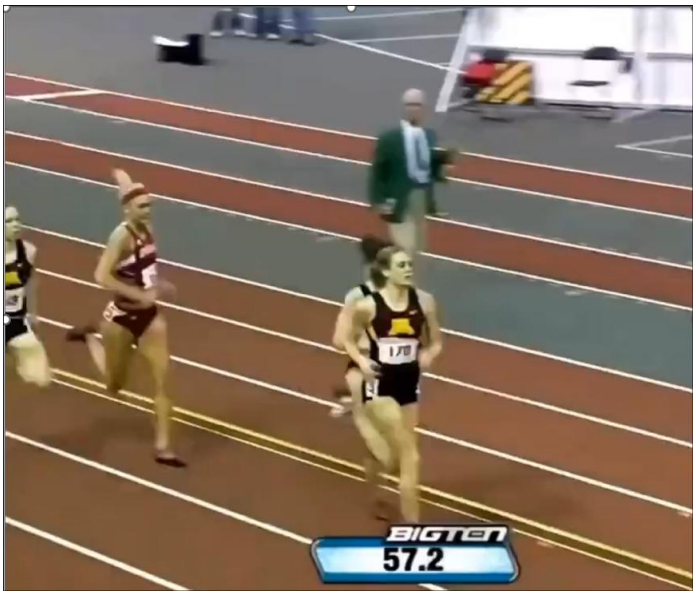
Orthopedic Emergencies

- Dislocations
- With NV deformity, definite emergency
- Without, still important
- Permanent joint damage can occur while dislocated
- Compromise blood flow to the joint – AVN down the road
- If reduced, re-eval NV and document

92

- A quick break
- At an indoor track meet

93



94

4) Should I Encourage My Runner Patients to Keep Running or Cease If They Have Knee DJD

- Exercise is addictive
- Especially for runners
- A physician who is not a runner might not understand
- They feel complete when they run (exercise)
- Far beyond aerobic fitness
- Days are easier if they ran before work

95

Should I Stop Them Running? (Exercising?)

- Runners are often injured
- Too long, too fast, ?recovery?
- Sidelining a runner – only when absolutely necessary
- Adjust form, training load, occasional rest day for older runners
- Running does not cause arthritis

96

Harvard Health – “Take Control of Your Knee Pain”

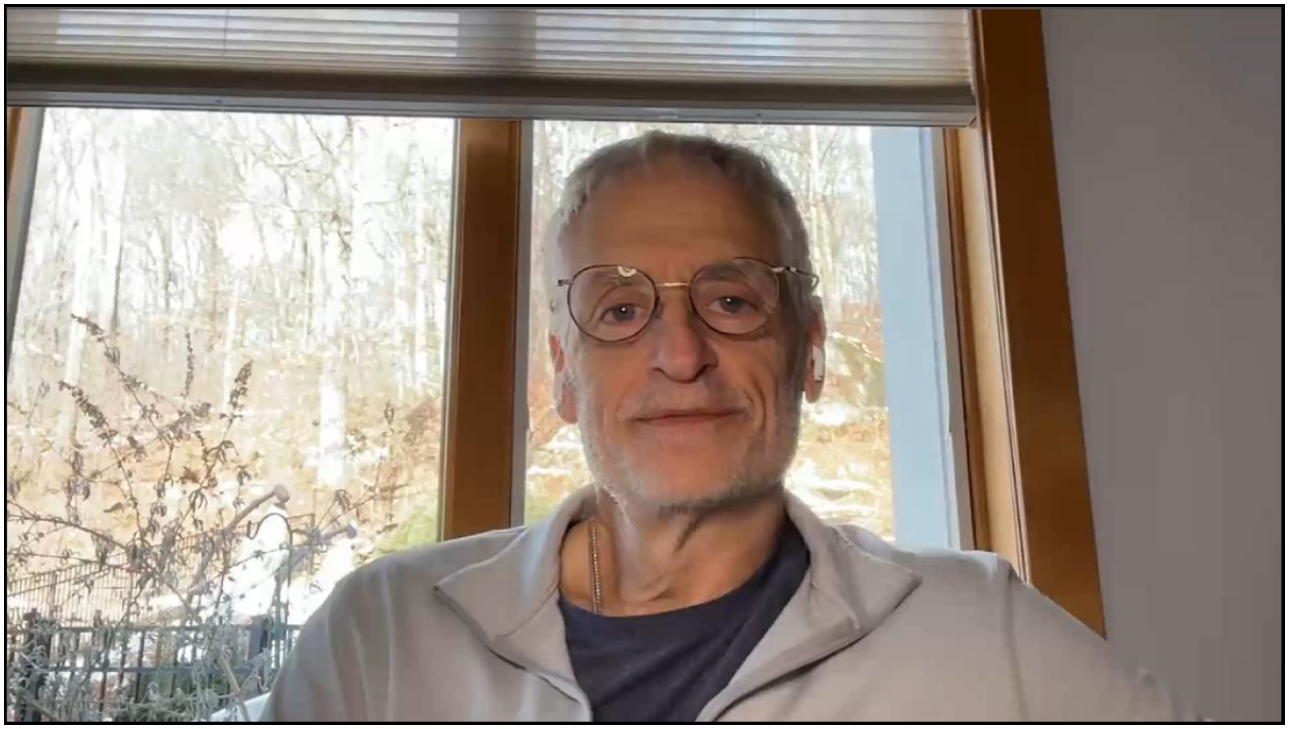
- https://www.health.harvard.edu/pain/take-control-of-your-knee-pain
- If you've got sore knees, exercise might seem like the hardest thing you can do — but it's also one of the best.
- "Exercise is one of the most important things you can do for knee pain," says Dr. Lauren Elson, an instructor in Physical Medicine and Rehabilitation at the Harvard Medical School.

97

Should I Encourage My Runner Patients to Keep Running or Cease If They Have Knee DJD

- Howard Luks, MD widely known for care of athletes

98



99

#5 What Is an Alternative to Crutches?

- Let's look at a few

- How about something with wheels?
- Knee walkers. Many brands to choose from

100

Freedom Leg

- Pretty good.
- Fairly specific requirements. Body habitus.
- Moderate daily activity. Can be irritating with too much.

- How about something with wheels?
- Knee walkers. Many brands to choose from

101

Knee Walker

102

103

Knee Walker

- And the gent with the cup of hot coffee doesn't spill a drop? Really? I think if it were me I'd be wearing whatever was in that cup.

- And the most recently developed – Velcro unilateral crutch

104

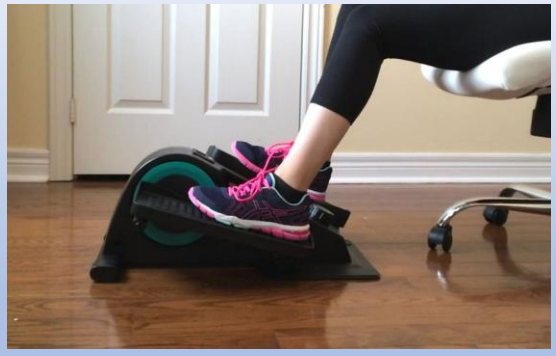
105

So, Which, If Any, Does Your Patient Need?

- My suggestion is that you send them to PT/OT
- They have the experience in:
- Choosing which orthosis works best in which situation
- Order enough, maybe they can get the patient a discount
- Willing and able to fit/teach the fine points, safety
- The patient gets the best fit

106

6) Do Those Under Desk Ellipticals Work?



107

Do Those Under Desk Ellipticals Work?

Pros

- If you struggle to get to the gym
- Negative effects of sitting at a desk all day
- Popular during the pandemic
- Low impact, low intensity, can go a long time
- Cons
- Not effective for weight loss- big variability between units
- Still need to do other types of workouts
- Only burn 150 calories/hour

108

Under Desk Elliptical

- Benefits of under-desk ellipticals
- **Cardio**: Pedaling in place can help you get your heart rate up.
- **Extra steps**: You can add a few thousand steps to your day.
- **Exercise while working**: You can use it in your office or home office.
- Tips for choosing an under-desk elliptical
- Make sure it fits under your desk and gives your legs enough room to move.
- Look for adjustable resistance levels to increase the intensity of your workout.
- Consider the noise level.

109

Too Many Choices

- How to tell which one is the best for your needs?
- If the elliptical user in the TV ad is wearing bunny slippers, this may not be the unit for you.
- Or……

110

111

Some Are Too Good to Be True

- True exercise?
- I have to admit though, that was a pretty slick piece of advertising!
- Maybe we should watch the video again
- “My core is engaged.”
- What?
- I must have missed the part

112

Variable Resistance Load

113

Compact Elliptical Device

- Has anybody tried one?
- So if you're looking to supplement your training for the Boston Marathon or summitting Mt. Whitney
- This might not prove the perfect addition
- But it's better than nothing
- Could lead to the next step of strapping on those running shoes they got for Christmas and going out for a walk.
- Q. Is walking an hour a day enough to lose weight?

114

Walking and Weight Loss – An Hour a Day?

- Absolutely!

115

Quick Orthopedic Problem Solving Online

- Write this down

- Orthoinfo.org
- This is the Orthopedic version of Epic Up to date*
- I'm told that with UTD you can earn CME credits with each use

116

Something I've Been Thinking About

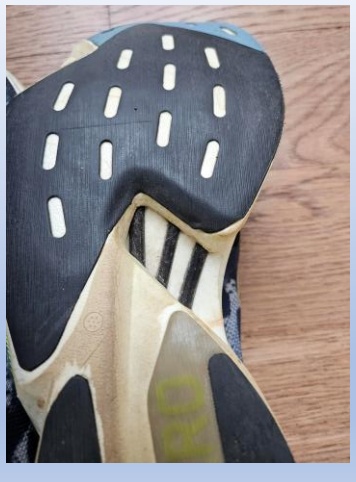
- Patient with foot pain in your office
- They are wearing running shoes so you assume they run
- Not so fast there. 31% of those who wear running shoes never run a step*

*Adidas big wig- our oldest son.

117

5 Things I've Been Thinking About - #2

- Carbon fiber rods/plates in running shoes
- Why yes they do make runners faster, they do so by slightly changing the biomechanics of the running/walking gait
- In short, wearing shoes with these implants too much can lead to pain, particularly in the midfoot/forefoot



118

From Paris 2024

- After this long – you could a bit of a break
- I have three quick videos for you
- The first two are from the Paralympic Games
- The third is just fun

119

120

121

Knees, Knees, Knees

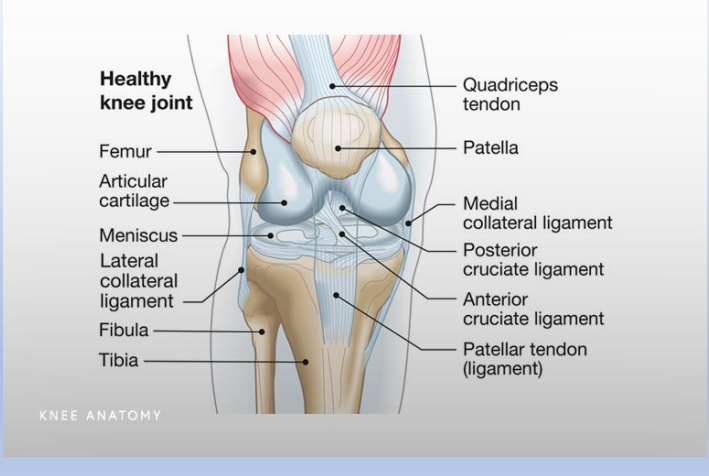
122

Let's Spend Some Time with Knees

- Knee pain accounts for a significant percent of doctor visits
- At least 25% of adults experience it
- 10th most common reason for outpatient visits
- Prevalence of knee pain has increased 65% over past 20 yrs
- So what are the most common knee issues seen in the Primary Care office?
- Patella-femoral pain
- Ligament sprains
- Meniscus tears
- Tendinitis
- Arthritis

123

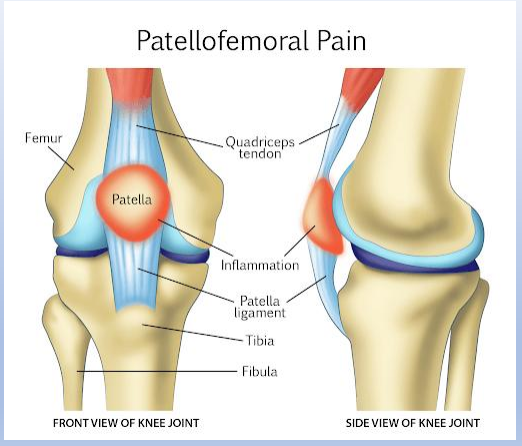
Knee Anatomy (Would It Be an Ortho Talk without a Little Anatomy?)



124

Patella-femoral Pain Syndrome - PFPS

- Let's get the hardest one out of the way first
- So, what exactly is it?
- While there's no consensus on the definition, Orthoinfo.org says "…PFPS is a broad term used to describe pain in the front of the knee and around the patella, or kneecap.



125

PFPS

- Females 7X males
- Pain and stiffness
- Worse with stairs, kneeling, squatting or running, and often a general aching at rest.
- Anteriorly based
- Oftentimes atraumatic
- Overuse injury?
- Patella tendinopathy
- <u>Poor muscular conditioning for the demand placed on the joint</u>
- Accelerated programs
- I'm going to talk mostly about girls given the distribution but the same holds for male patients

126

It's a Beautiful Labor Day Weekend in Florida and the Girl's Cross Country Is Out for a Run

127

PFPS

- The preseason Cross Country practice has been underway for a couple of weeks now. They started a little later than usual this year since the coach had mid summer Army reserve drill.
- Perhaps they had to compress the training a tad
- This would be an important point to uncover/emphasize in your history taking/recording.

128

….and You're in the Office on Tuesday





129

When the Mother of One of the Eighth-grade Girls with Knee Pain in Room 2 Exclaims…….

- *Whatdyamean rest, back off, give it some time? Petunia's Cross Country season starts next Wednesday!!*
- *Petunia!*

130

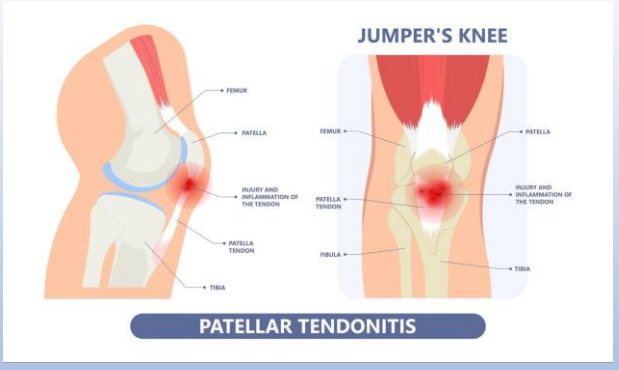
PFPS

- Mechanics?
- Actual patella-femoral cartilage pathology? (rare – old days used to tell patients it's "softening of the cartilage on the back of the knee cap)
- Maltracking?
- Multifactorial more than likely in many cases
- Unfortunately, patients with PFPS may have both different etiologies but similar symptoms
- Muscular imbalance? Valgus knees? Weak adductors? Weak core? Weak quads?
- RX- P.T., P.T., P.T.

131

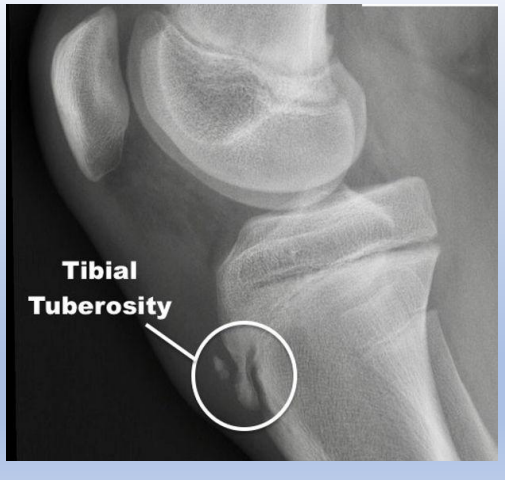
PFPS – Patellar Tendonitis (Jumper's Knee)

- What if they point directly to the patella tendon?
- Is this a tendon issue?
- Patella tendinitis. Acute? Chronic? Jumpers knee?
- Tendon inflammation? Rupture?
- Separation from patella?



132

- Remember Osgood Schlatter that you learned a long time in training?
- Tibial tuberosity – sports active adolescents. 8-11 in girls, 12-15 in boys, swelling just below the patella at the attachment point
- Worse with running, jumping, et
- Tibial tubercle growth plate



133

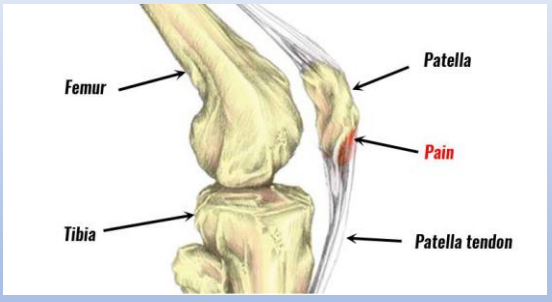
Osgood Schlatter - PFPS

- Do not need to rest completely
- Pain as guide
- Ice, ice, ice and quadriceps stretching

134

OK, Back to Patella Tendinitis

- Chronic?
- Acute?
- Location in tendon?
- Distal
- Proximal-Jumper's knee
- Greater in Extension
- Less at 90 degrees



135

Patellar Tendinitis

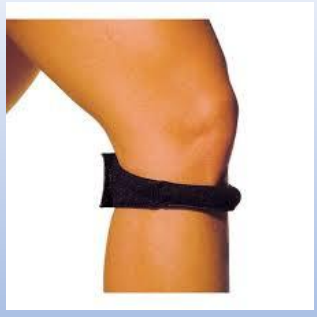
- Chopat strap/brace, NSAIDs
- Eccentric exercise – exercise where muscles lengthen under tension
- Like slowly lowering into a squat
- Strengthens both muscles and tendons
- Single leg eccentric knee ext
- Isometric holds

136

Patellar Tendinitis

- Start slowly, few reps, increase as tolerated – Maintain form
- Stop if pain is experienced
- Always warm up
- Surgery? Tenotomy vs Tenex

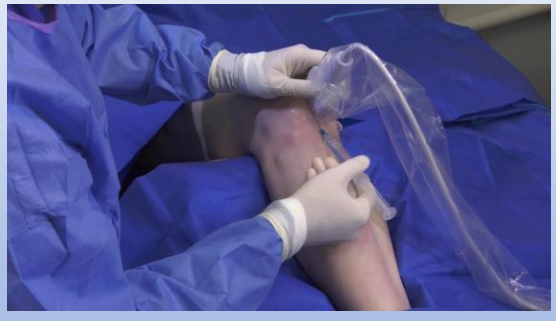
- Tenotomy vs Tenex



137

Patellar Tendinitis

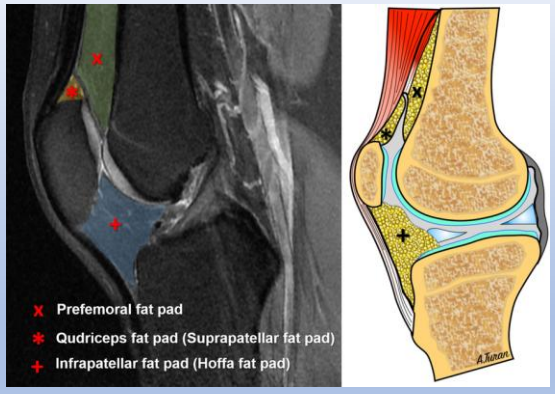
- Tenex
- Ultrasound guided percutaneous needle tenotomy for treating tendinopathy (tendon degeneration
- Jumper's knee, plantar fasciitis, tennis and golfer's elbow, Achilles tendonitis



138

PF Pain, Fat Pad Impingement

- Etiology not always clear
- Chronic, maltracking
- Post injury, post surgery
- Rx-PT, injections, arthroscopic debridement



139

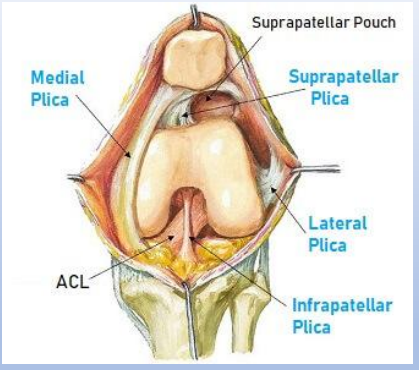
Patello-femoral Pain, Plica

- What is a plica
- Plica syndrome, also known as medial plica syndrome, is a condition characterized by irritation and inflammation of the plica, a fold of synovial tissue within the knee joint.
- Medial knee/patellar pain.

140

Patello-femoral Pain, Plica

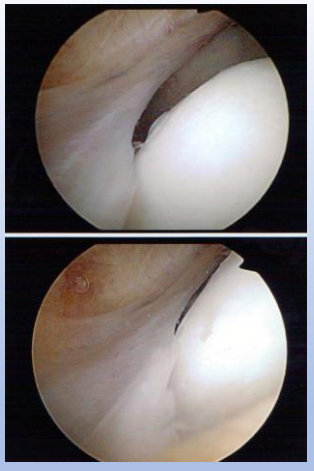
- While the plica is a normal structure present in the knee during fetal development, it typically diminishes in size as the knee matures. However, in some individuals, the plica may persist and become symptomatic, leading to pain, swelling, and discomfort.



141

Patello-femoral Pain, Plica

- The exact cause of plica syndrome is not fully understood, but it is believed to result from repetitive stress or trauma to the knee joint.



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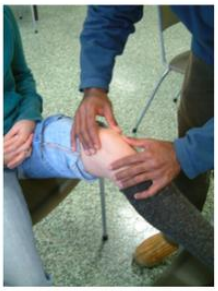
Patello-femoral Pain, Plica

- Activities that involve repetitive knee movements, such as running, jumping, or cycling, may contribute to irritation and inflammation of the plica. Additionally, individuals with a history of knee injuries, overuse, or misalignment of the patella (kneecap) may be at an increased risk of developing plica syndrome.

Mediopatella Plica test



- Passive
- Supine
- Flex the affected leg to 30°, then move the patella medially.
- Pinch the plica between the medial femoral condyle and the patella.
- (+): ↑ Pain = the plica is adhered to the patella and is inflamed

143

Patello-femoral Pain Take Home Points

- No real consensus definition
- Consider multifactorial etiology
- PT, PT, PT
- Patience, patience

144

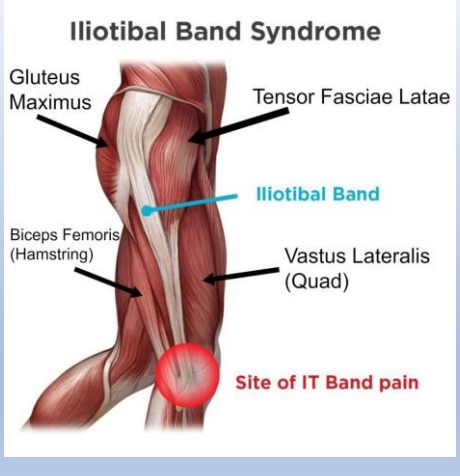
Meniscus Tears

- More common than we realize
- Degenerative or traumatic tear?
- Twisting of a loaded joint
- Sports, slip in the rain
- Knee can be “locked’ or click
- Usually conserve RX initially
- Goal is preservation/repair of meniscus

145

Tendonitis

- Quadriceps, patella, hamstring
- Overuse; enthusiasm
- Patella tendonitis most common under 40, quadriceps over 40
- IT band syndrome
- Rest, ice, meds, knee support
- Evaluation of knee mechanics
- PT



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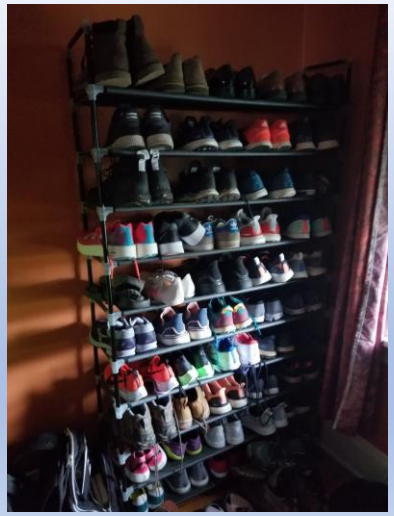
Tendonitis

- Prevention if possible
- Pre-exercise warm up is key – so many do NOT respect that
- Chris and Sallie? Overdo it?
- Stretch prior to exercise. Warm up before your physical activity
- Pain? Try not to push thru it
- Focus on technique, even when tired

147

Sallie Has "Some" Shoes



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You Get…..

Arthritis!

149

Knee OA

- Pain, swelling and stiffness primary sxs
- ?Difficulty with ADLs
- Stiff first thing in the morning or after a period of rest
- Weakness or “giving way” (pain)
- Some complain of locking, creaking, “it sticks”

- Try non-op RX
- Lifestyle mods, exercise. Move.
- Weight loss. 5-10 lbs
- Strengthening, ROM
- Bracing, knee sleeve
- NSAIDs, no opioids
- Corticosteroids, PRP
- Hyaluronic acids

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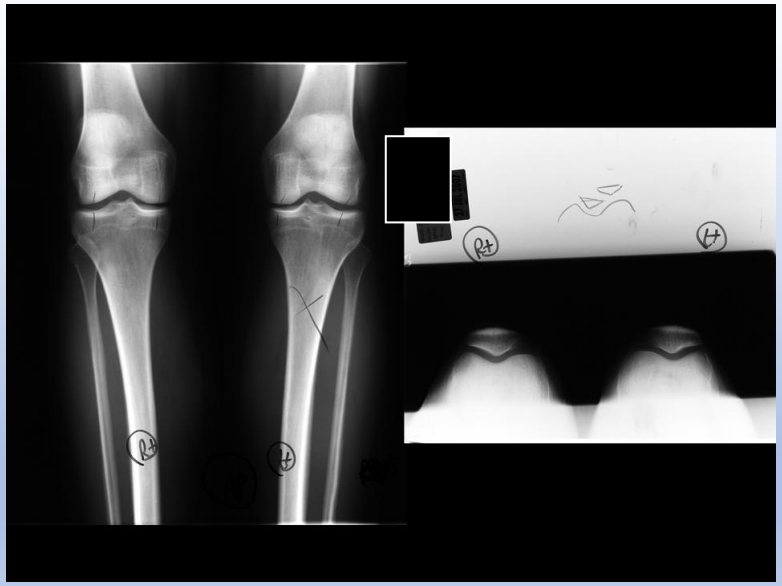

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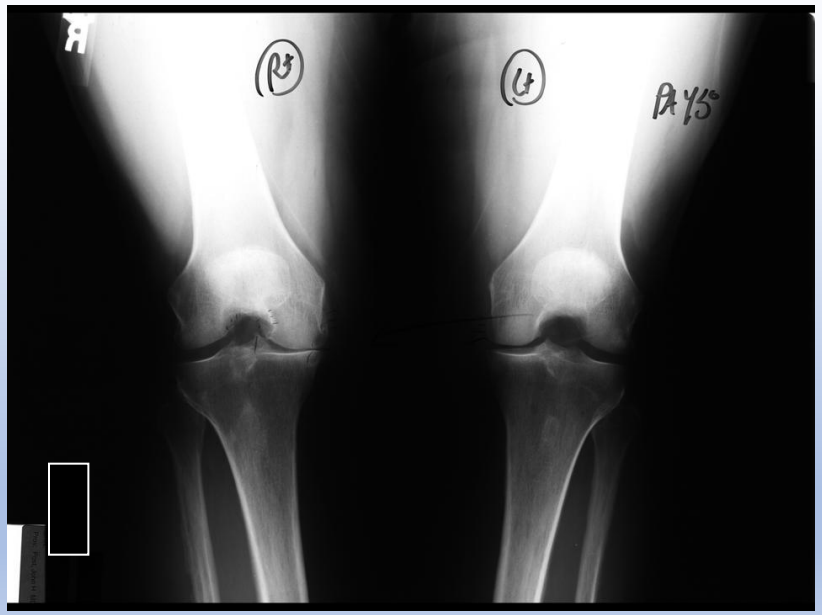

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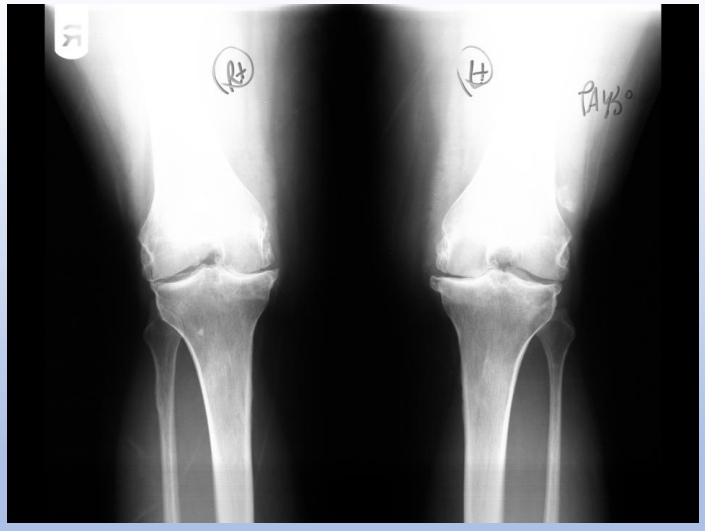

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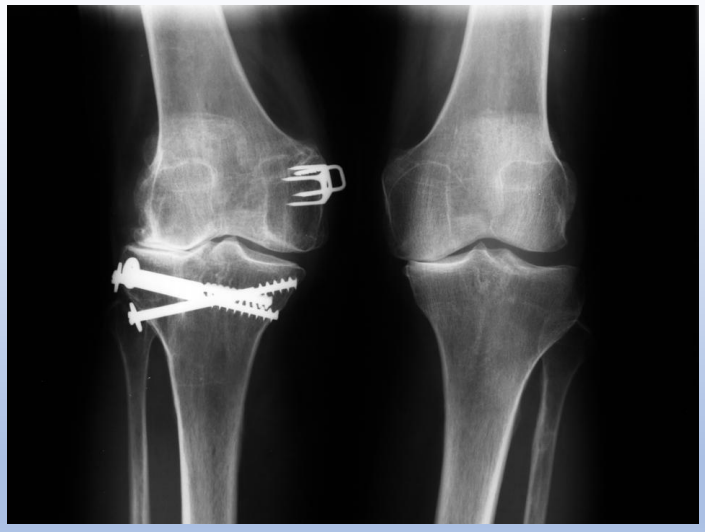

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Patient/Physician Expectations?

- The biggie
- Does a human joint, partially or completely replaced with an artificial joint, function similar to one with a native joint?
- Does it matter if it's a new hip or new knee?
- Does a replaced joint last the remainder of its owner's years?
- Does running on an artificial joint shorten its lifespan?
- In short, "primum non nocere", first, do no harm

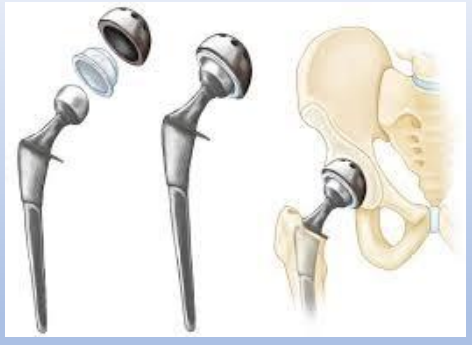
155

Key Point!

- Many a replaced joint does not function painlessly. Especially knees.
- "Pre-operative counseling regarding the risks of incomplete pain relief could reduce substantially the number of lawsuits related to primary total knee replacement."

156

Total Hip Replacement, THR



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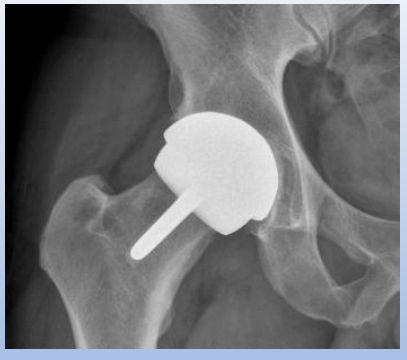
Hip Resurfacing Arthroplasty, HRA



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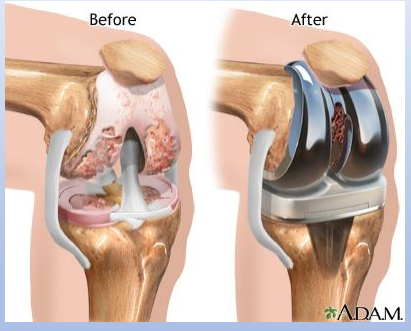
Total Knee Replacement, TKR



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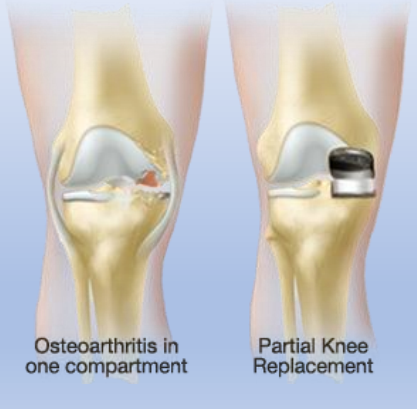
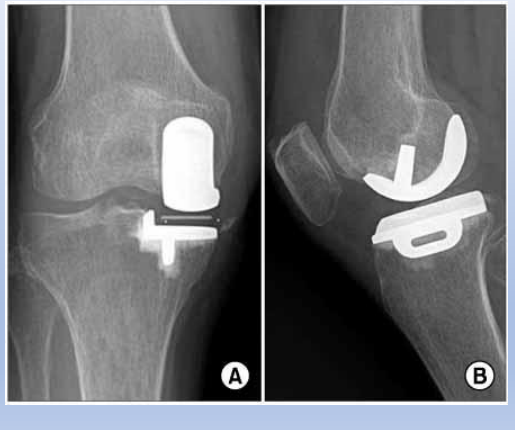
Unicondylar Knee Arthroplasty, UKA, "Uni"

Partial Knee Replacement

Unicompartmental Knee Replacement





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The Way It's Always Been

"It's a death sentence"

"You have a joint replaced and your sports days are gone"

161

Where this negative approach came from

Longevity of a prosthetic joint early:

1960s Sir John Charnley, PTFE (Teflon) total hip replacement

1980s "They'll be lucky if it lasts for 12 – 15 years."

1991 "Revision surgery seen more frequently in highly active patients."

1999 "Only 14% of patients had surgeon approval to play tennis."

162

Traditional Advice

- Wait for your joint pain to get unbearable
- Wait until you are old enough for joint replacement

- Once you have the total joint replacement
  Don't exercise too much
  DON'T RUN!

- You'll loosen or wear out the joint and have to have it done again

163

Traditional Advice

- "Done again"
- Likened to an oil change in your car. "well, we'll just unzip your knee and…….

- Surgeon's perspective: Revision of an artificial joint is considerably more difficult than the index procedure, higher level of complication, infection or failure, death

164

Obstacle Course Racing

- Spartan Race
- Tough Mudder
- Adventure Challenge
- Rugged Maniac
- Warrior Dash

165

Benefits of Athletic Activity Following Total Joint Arthroplasty Undeniable

- Psychological satisfaction derived from athletic activity
- Improved muscle strength, coordination, balance, endurance, proprioception, weight maintenance
- These contribute to better body control
- May help to prevent injury from simple falls or other minor trauma
- Cardiovascular fitness is positively affected by exercise after both hip and knee arthroplasty
- May allow patients to return to high levels activity and recreational exercise!

166

Special Risks

- Acute injuries
- Periprosthetic fractures and dislocations
- Greater wear of the joint, osteolysis leading to loosening
- High impact activities traditionally prohibited
- Low impact encouraged for maintenance of general health
- Ultimately, each case has to be evaluated on an individual basis
- Maximize the chance of a long-term, pain-free, complication-free prosthetic joint in an athletic patient

167

Patient Factors

- Most important determinant of sport participation after TKA and THA?
- Preoperative participation in the sport itself

- Rarely will preop sedentary pt take athletics after TJA
- At least 65% of those athletic preop will return to same sport
- Participation in athletics the year before surgery was most accurate

168

Implant Factors

- With first generation TJA, catastrophic failure was a major concern
- Currently use stronger, biocompatible metal alloys
- Preparation, sterilization and storage significantly lowered wear.
- Excellent fixation, lower loosening rates from press fit components
- Alternative bearings: ceramic, metal-on-metal

169

Sport Factors

- Consider the specific demands of particular sport
- Impact vs tortional load applied to TJ
- Frequency of repetitive load
- Fall or heavy contact concerns

170

Post Op Then vs Post Op Now

1980 – Stand At Bedside for a Few Minutes
2025 – Dressed, Full Weight Bearing, in Car 6 Hours After Surgery

171

Athletics After TKR Need 2025

- Literature more limited in sports following TKR
- Results not as encouraging as those after THA
- Most likely to return to sport if active in the year before surgery
- 77% of athletic patients returned to athletics
- Of those, 91% were low impact only
- 20% to high impact

172

No Consensus??

- Allowed – recommended
- Allowed with previous experience
- Not allowed-recommended
- No conclusion

173

Joint Replacement in Athletes 2025

- Our advice is to exercise more than you have in years
- Focus on body muscle building and *weight optimization*
- You can likely return to most sports when you are fit enough to protect your joints

174

Kathleen Spillane, 62, Triathlete, 2019

- 17 years s/p THR
- Hip dysplasia diagnosed in her 30s
- Was told after surgery "You'll never do another squat again."
- "The results are beyond anything I ever imagined at the time of my surgery."

175

Kathleen Spillane

176

Kathleen Spillane

- Rt THR , 23 years ago, age 46
- Usually does 10 – 12 triathlons each year
- Has done 20 – 25 70.3s since surgery
- Lake Tahoe Ironman in 2013
- Hand full of running races each year
- Qualified twice for 70.3 Worlds
- "I don't think the surgery hurt my competitive results."
- Backed off the run miles, less junk miles. Recovers more.

177

Kathleen Spillane, 5 Years Later

- 23 years post op
- "I'm so glad that you are spreading information in the ortho medical community about what is possible after hip replacements. There sure was no guidance for me after surgery no footsteps to follow.
-
- So I am fine, older and slower of course. I did my last 70.3 race in September 2021. If I do race tri in future, it'll be a sprint. Not at all on account of the hip, just lost the desire to commit time and energy to the training. I started tri in 1995, so I think that's probably longer than most. I do a little run racing. Ran a half marathon in December 2023 and some 10ks. Swimming in summers only as the lake temperatures allow. I always have spent a lot of time on the bike. And I lift weights 3x a week and have lifted since taking up tri in 1995.

178

Kathleen Spillane, 2025

- "So life goes on and I change up some things to keep it fresh and to stay motivated. I am happy to say that the hip has not gotten in the way of whatever I wanted to do.
- You make the modifications you need to do and carry on paying attention to what the body says." KS

179

Frank Meade

180

Frank Meade
56, Obstacle
Course Racer

- Soccer and baseball injuries in HS
- Genetics issue, hips “angled out”
- Good shape going into surgery
- Returned to recumbent bike, walking, a little elliptical

181

Frank Meade

Spartan Beast Race

12+ Miles
30 – 35 Obstacles
3 Hours Fastest Time

182

Frank Meade

Took up body pump 4 years post op, a little weight training	10 years ago, Wintergreen Adventure Race, on ski slopes (hard)	X-rays at that time, “encouraging”
Believes in weekly strength training	Runs “but never on pavement.” Done a half marathon on trail	Spartan Sprint, Super and Beast

183

Frank Meade Video

184

185

Frank Meade, 2025 (Phone Call)

- “How’s my life? Not a lot different.”
- I really don’t think about the hip, or my surgery.
- My activity level has probably dropped a fair amount but mostly due to choices. Other things I’m interested in now. You can’t spend your whole life lifting heavy things. Well, maybe you can and I still enjoy it some, but work and hobbies seem to lead me in a different direction.”

186

- KNEE EXAM
- INJECTION?ASPIRATION LOCATION

187

Left Knee Injection

- Lateral Approach

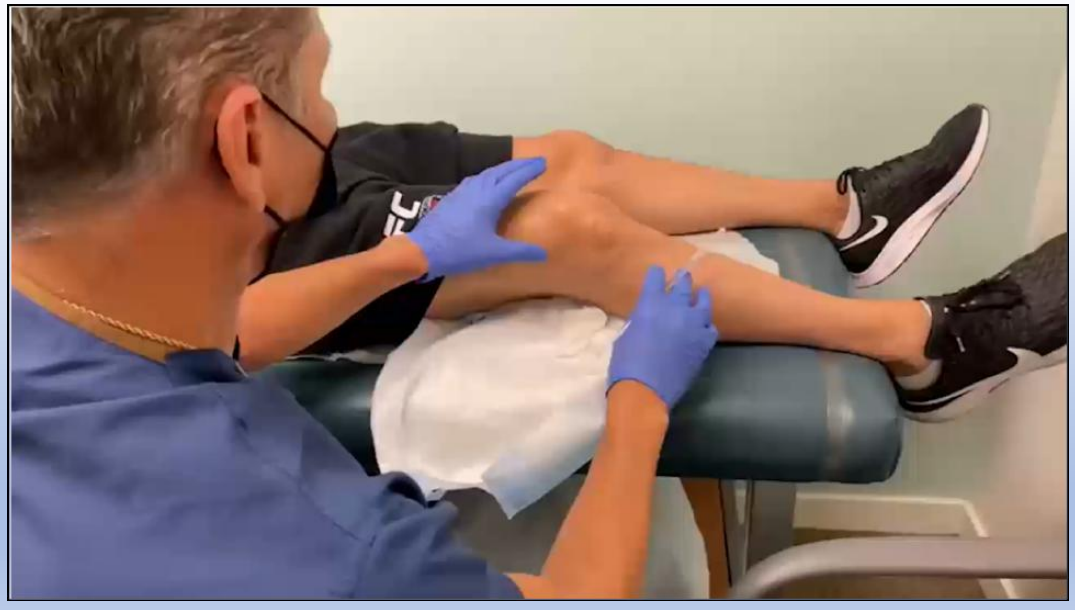
188

189

Right Knee

Superior Lateral Aspiration Site

190



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Exam

192

Things I Want You to Remember

- 1) With shoulder dislocations, glenohumeral (shoulder joint) arthritis can be a long-term sequelae of recurrent dislocations.
- 2) Palpating the foot of the patient with 5th metatarsal pain, proximal to the bump- think avulsion type fracture – distal, think Jones fracture
- 3) Trigger point injection coming up? Make an "X" centered over the painful area to start then think N-S-E-West
- 4) Orthoinfo.org, an immediate resource for your patient in the exam room with a diagnosis you haven't treated in a while
- 5) The swollen knee – quick management – first guess

– A) hemarthrosis

193

Things I Want You to Remember

B) gout

C) Osteo – arthritis

D) Septic - arthritis

Describe the limb and the fluid (how do you obtain the fluid?)

Cascade of questions in the history - Fever, chills, erythema, other joints, trauma, prior history, DM? YOU GOT IT!

6) Patello-femoral pain – patience and PT, PT, PT

7) Meniscus tears – don't all need surgery. But, if candidate for repair, early eval can be helpful

194

Patients Tell You the Best Jokes

- One of the very best things about medicine is the patients
- Not all of them and not all the time of course
- But many just absolutely make your day

- Picture an elderly, very quiet, reserved local woman
- Broke her hip when I was on call
- Always has a joke for me at the end of our visits

195

Women's Friends

- A woman didn't come home one night. The next day she told her husband that she had slept over at a friend's house. The husband called his wife's ten best friends. None of them had seen her or knew what he was talking about..

196

Men's Friends

- A man didn't come home one night. The next day he told his wife that he had slept over at a friend's house. The wife called her husband's 10 best friends. Eight of them confirmed that he had slept over, and two claimed that he was still there.
- One more good side of patient care

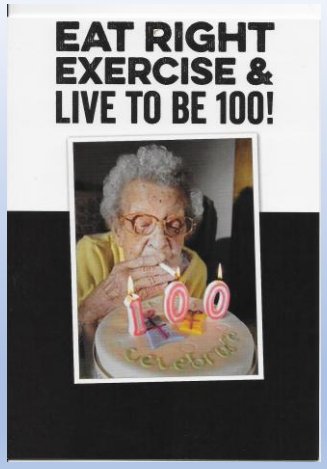
197

Motivation

- So what has been a common theme throughout this talk?
- Your patients respect you, and your opinion, enough to be in your exam room.
- You are giving them the inspiration, the incentive to be better.
- From when they walk out of your office, to make better choices. To do better. You are giving them that encouragement, that "permission" so to speak"

198

Thank You



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200

201

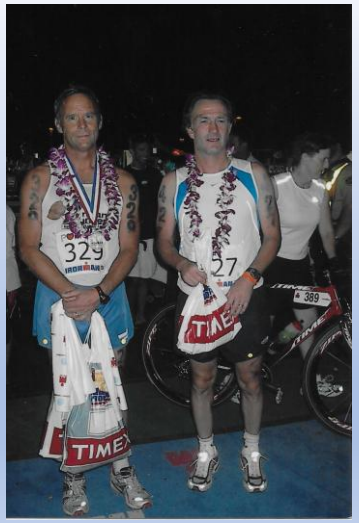

8 year old cancer patient
is about to get the surprise
of a lifetime❤️

202

203

204

Mike, Kailua-Kona, HI Ironman Finisher



205

2 Quick Things I've Been Thinking About - #1

- 1) Advice to your back pain, and pre-back pain patients
- "When you're putting on your socks – and shoes – bring your foot to you, not you to your foot."
- Let's do this

206