Non-Operative Orthopedic Management in the Elderly

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About Me:

- Sports Medicine Fellowship trained physician @ Southern Illinois University, USA (CAQSM)
- Family medicine residency background with geriatric care interest
- Presently working at Pacific Orthopedics and Sports Medicine, North Vancouver, alongside 9 operative orthopedic surgeons
- Currently manage their non operative program / triage their patients
- Focused interest on musculoskeletal diagnostic and interventional ultrasound procedures (RMSK)

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Financial Disclosures:

None



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Objectives:

- **Review of common vs uncommon MSK findings in the elderly**
- **Review of surgical vs non surgical management for common MSK conditions in the elderly**
- Review of pain management options, and supportive measures
- Discussion of common injection options available
- Discussion of current orthopedic access in the province.

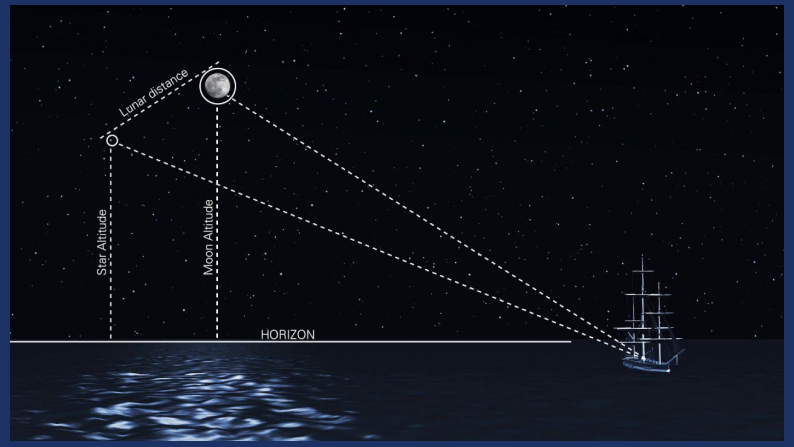
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My Approach

- Common things are common

- Diagnostic tools include not limited to
  - History / Mechanism of injury
  - Patient demographic
  - Physical exam findings
  - Imaging Investigations

- Evidence based vs practicality
- Pain – results > data



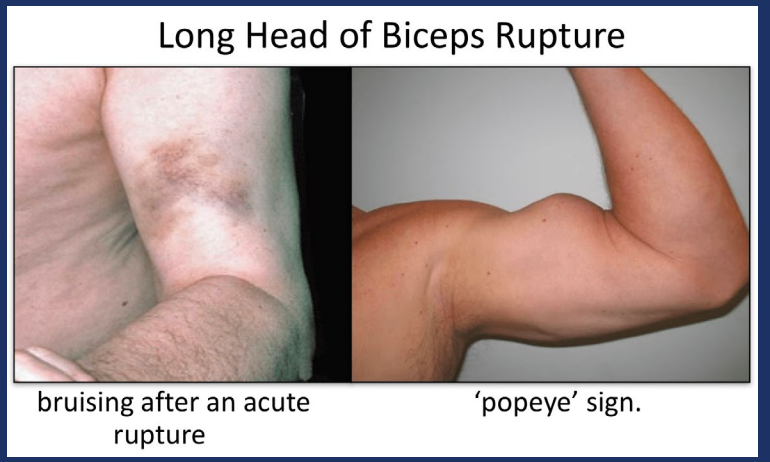


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Common Shoulder Conditions

- Rotator cuff tears are a given!
- Bursitis
- Long head biceps tear
- Glenohumeral OA
- Degenerative labrum a given!
- Cervical component
- Frozen shoulder / calcific tendinopathy
- Humeral head / neck fracture
- Unstable shoulder



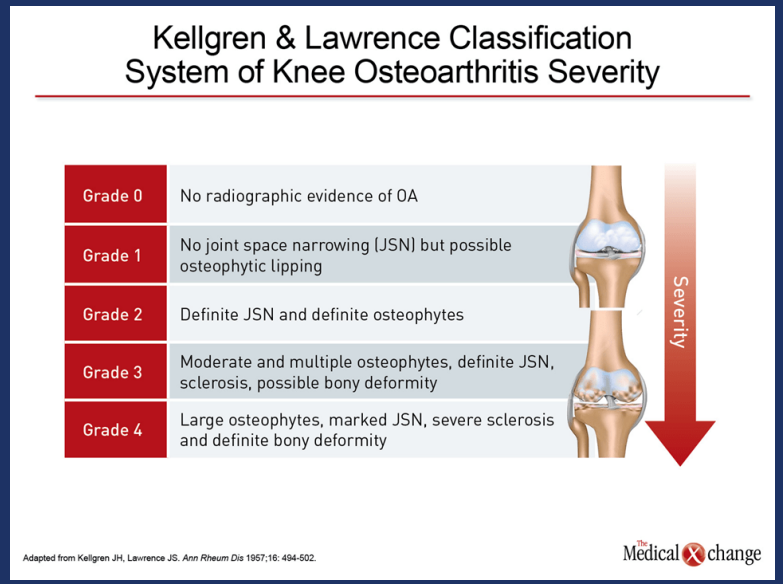


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Common Knee Conditions

Knee

- Osteoarthritis vs Chondropathy
- Degenerative meniscus is a given!
- +/ - Pes anserine bursa
- Referred hip pain
- Mechanical Locking
- SONK (Spontaneous Osteonecrosis)
- Subchondral insufficiency fracture



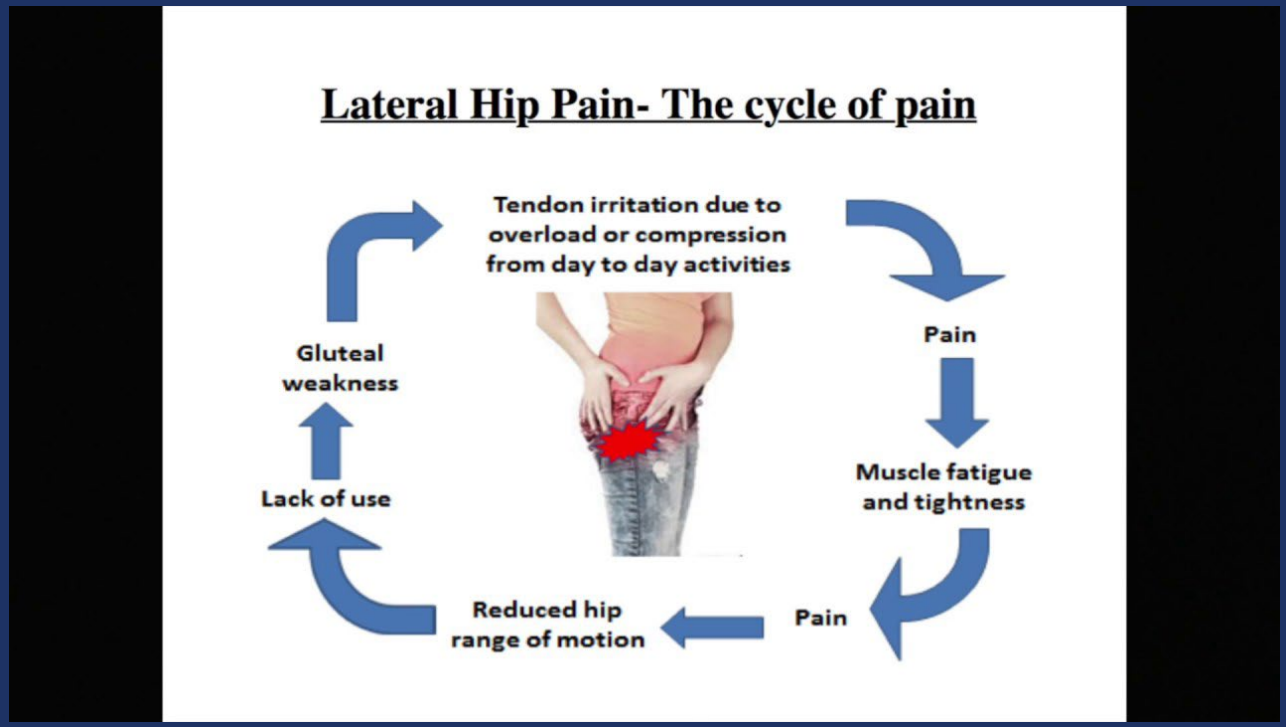


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Common Hip Conditions



- Hip OA (acetabulum?)
- Lateral hip pain
  - Trochanteric bursitis
  - Glute tendinopathy
  - Sciatica
  - Piriformis syndrome
  - SI joint dysfunction
- Labral tear is a given!
- Referred lumbar pain
- Femoral neck fracture



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Common Neck/Back Conditions

- Degenerative disc disease is given!
- Facet OA is given!
- DDD vs facet OA vs nerve root impingement

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Miscellaneous

- Post stroke deficits / pain
- Claudication 2/2 blood flow diseases
- Infectious etiology
- Inflammatory state / underlying rheum disorders
- Uncontrolled peripheral edema
- Cancer
- Polypharmacy / medication side effects

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Surgical vs Non-Surgical

- Basically, go big or go home approach
- Arthroplasty or non operative
- Not as simple as wear and tear… but “can’t patch a bad tire”
- Arthroscopy seldomly makes sense unless mechanical locking
- Hip vs knee vs reverse shoulder replacement
- Contraindications – cardiovascular, pulmonary, and cognitive status



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My Approach/Algorithm?

- 3 out of 4 stellar guidance to narrow down the differentials
- Xray undercalls but MRI overcalls – truth is somewhere in the middle
- Handheld Ultrasound = GREAT tool for soft tissue concerns
- Familiarize yourself with common conditions
- Ask yourself:

Traumatic vs atraumatic	Mechanical vs non mechanical
Visible deformity – yes / No?	Stable joint vs unstable joint
Pain within or out of proportion	Pain with or without activity
Reproducible or non reproducible	

- Always check joint above and below
- M1/M2/M3 status

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Exercise / Rehab

- Proven time and time again
- PHYSICAL Therapy – not IMS/Ultrasound
- Prevents falls, frailty, bone density loss, helps with mentals
- Weight bearing – low impact activities in controlled environment
- Aquatic exercise, yoga, elipitical, treadmill w/out incline, recumbent bike
- 150 mins of moderate or 75 mins of vigorous activities per week
- All other modalities – eternal debates

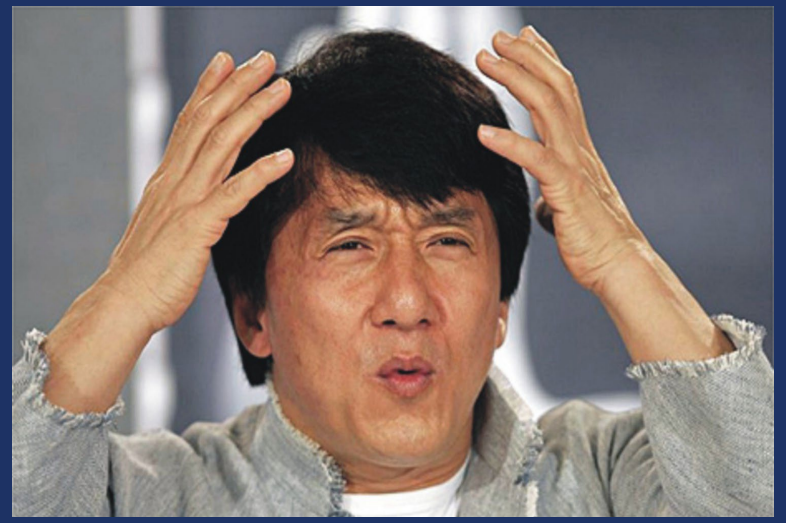




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Ice vs Heat

- What gives?
- Long standing argument
- Many studies suggesting one or the other
- My approach: ice for acute injuries, heat for chronic injuries



Pain Management

- Oral analgesics vs NSAIDS vs opiates
- Topical diclofenac (10%), lidocaine patch, tiger balm, capsaicin cream, Multiprofen CC+
- TENS unit
- Supplements – glucosamine, chondroitin, turmeric, calcium/vitamin D, B12
- Gabapentin vs TCA antidepressant vs SNRI/Duloxetine
- Peptides / CBD oil = new kid on the block but no evidence yet
- Localized injections

Supportive measures

- Knee brace –
  - Offloading vs standard hinge vs OTC
- Orthotics –
  - Custom vs OTC
- Sometimes we get too aggressive – user feedback - no point if they won't wear it
- Walker, cane – FALL is the worst outcome



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Injection: Prolotherapy, Trigger Point

- Prolotherapy, trigger point, dry needling/IMS
- Along the same concept
- Mixed efficacy – but enough positive studies and minimal risks that its worth trying [1]
- Duration of relief not long
- Largely operator dependent
- More indicated for overuse injuries than degenerative problems [1]

Injection: Corticosteroids



- Triamcinolone (Kenalog), Depo-Medrol
- Great anti-inflammatory effects, average 3-5 days time to onset [2]
- Duration of relief ~3 months
- Risk of cortisone flare (1 in 5 overall) [2]
- Risk of weakening cartilage / soft tissue with repeat injections – in vitro studies
- BUT – its cheap and effective (<$20), been around the block and still exists for a reason
- Common to inject into joint and soft tissue bursae in LTC setting, but I wouldn't inject directly into musculotendinous fibres or insertion points.

Injection: Viscosupplement

- AKA Hylauronic Acid, Rooster Comb or Gel injections
- Brands include Durolane, Synvisc, Cingal, Monovisc, Euflexxa, Supartz
- Maintenance effects, can take 3-4 weeks time to onset, post injection flare is real for first 2 weeks, especially for the hip (I can’t find data on this)
- Duration of relief ~5-6 months
- Higher molecular weight = better
- Minimal side effects, but diminishing marginal returns vs cortisone depending on severity
- Market price $500-600, extended insurance potentially covers

Injection: Platelet Rich Plasma (PRP)

- Wildcard – some great success (12-24 months of relief), others = no benefits
- All natural – centrifuged from own blood = no risks
- 4-6 weeks time to onset, worse symptoms post injection for first 7-14 days
- Jury still out (studies to date do a poor job mitigating variables), but industry standard: higher platelet concentration = better
- Out of pocket cost ranges from $600-1500
- However, older folks >65 yo = poorer quality and quantity of platelets [3]
- Overall for LTC = NOT RECOMMENDED



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Other Injectable Options

You might have heard of

- Mesenchymal Stem Cells
- Bone Marrow Aspirate Concentrate (BMAC)
- NSTRIDE
- Arthrosamid (IPAAG)

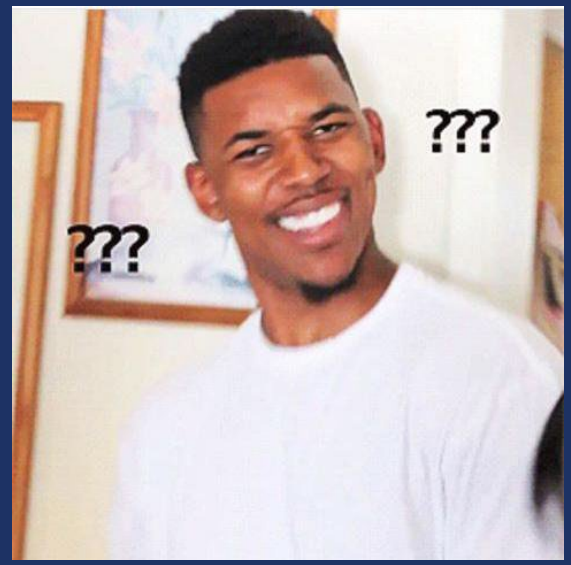


- Health Canada Limitations
- Cost to benefit ratio?
- $$$$$

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Sometimes – Less is More

Knee Osteoarthritis Treatment	Short term pain benefits	Mid to Long term pain benefits	Impact on Arthritis Progression	Risk of MAJOR side effects	Cost of Treatment	[redacted] Recommendation
Weight Management	Mild	High	Decreases	None	None	Highest
Exercise Therapy	Mild	High	Decreases	None	None	Highest
Anti-Inflammatory Diet	Mild	Mild - Moderate	May decrease	None	Minimal	Highest
Platelet Rich Plasma	Mild - Moderate	High	May decrease	None	$$	Moderate
Turmeric / Boswellia	Mild	Mild	None	None	Minimal	Low - Moderate
Hyaluronic Acid	Mild - Moderate	Moderate	None	Very low	$ - $$	Low
Trigger Point Injection	Mild - Moderate	Mild	None	None	$	Use as needed
Knee Braces	Mild	None	None	None	Minimal	Use as needed
Topical NSAIDs / Capsaicin	Mild	None	None	None	Minimal	Use as needed
Topical CBD	Mild	None	None	None	Minimal	Use as needed
Tylenol	Mild	None	None	Very low	Minimal	Use as needed
Oral NSAIDs	Mild	None	None	Low - Moderate	Minimal	Use sparingly
Cortisone Injection	Moderate	None	Increases	Low	$	Limit use
Knee replacement	Poor	High	N/A	Moderate	$$$$	Personal decision
Genicular Treatment	Mild - Moderate	None	None	None	$$	Consider prior to arthroplasty
Dextrose Prolotherapy	Mild - Moderate	None	None	None	$$	Consider prior to arthroplasty
Red Light Therapy (PBM)	Mild	None	None	None	$ - $$	Insufficient evidence
Opioids	Mild	None	None	High	Minimal	Not recommended
Knee arthroscopy	Mild	Mild	May Increase	Low - Moderate	$$$	Not recommended
Bone Marrow Stem Cells	Insufficient evidence	Insufficient evidence	Insufficient evidence	Low	$$$$	Not recommended
Adipose Tissue Stem Cells	Insufficient evidence	Insufficient evidence	Insufficient evidence	Low	$$$$	Not recommended
Umbilical Cord Stem Cells	Insufficient evidence	Insufficient evidence	Insufficient evidence	Low	$$$$	Not recommended



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Injection: Ketorolac

- New paradigm shift in industry – Toradol injection = as good as cortisone minus side effects?
- Study shows similar efficacy and duration of relief in knee OA [4]
- Study also shows no findings of necrotic effects on cartilage soft tissue in vitro post exposure [4]
- Readily available and cost effective – so why not?
- It's becoming more common around the world – soon to be the case in Canada?

Image guided vs landmark guided

- US / fluoro guided injections results in more accurate placement – but at what cost?
- Viscosity of the injectate matters
- Use a higher volume of lidocaine to help better mix the injectate + improve spread – re: flare
- Hip, Back = obvious risks due to vessels and CNS
- But why not knee, shoulder, lateral hip?
- When in doubt – inject only lidocaine/saline solution – best diagnostic tool + good practice!

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Current Orthopedic Waitlists

- https://swt.hlth.gov.bc.ca/WaitTimesResults.xhtml?rollupProcedure=58&procName=Knee+Replacement&adult=Y
- https://swt.hlth.gov.bc.ca/WaitTimesResults.xhtml?procName=Hip+Replacement&adult=Y



- 2-part list
- Part A to see surgeon for consult
- Part B to wait for hospital OR space

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Current Orthopedic Waitlists

- Advocacy please





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Take Home Points:

- Good history, mechanism of injury, patient demographic, physical exam = 75-80% of your diagnostic tool
- Utility of handheld ultrasound – steep curve but extremely useful tool
- Advanced imaging = worth it? Does it change management?
- Exercise = if you don’t use it you lose it
- When in doubt – use lidocaine injection
- Intra-articular/bursal injections with Ketorolac? Keep an eye out
- At the end of the day: No absolute right or wrong – results oriented field

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References:

- [1] https://www.aafp.org/pubs/afp/issues/2011/1201/p1208.html
- [2] https://pmc.ncbi.nlm.nih.gov/articles/PMC9950997/
- [3] https://pmc.ncbi.nlm.nih.gov/articles/PMC10245083/
- [4] https://pmc.ncbi.nlm.nih.gov/articles/PMC7153200/

QUESTIONS & COMMENTS?

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