



NORTHWEST
SPINE & PAIN MEDICINE

Overview of Newer Treatment Options

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Objectives

- Discuss emerging medication classes for pain
- Discuss newer interventional pain procedures
- Discuss newer Regenerative techniques
- Discuss adjunctive therapies





Introduction

- I am Howard Grattan, MD
- I am double board certified in pain management and physical medicine and rehabilitation
- I am a Regenexx affiliate in Vancouver, Washington





Disclosures

None

If a company is in the audience that would like to give me lots of money, I am all ears.





Introduction

- Chronic pain affects over 50 million U.S. adults, with limitations in traditional opioids driving innovation
- This lecture will focus on recently FDA-approved or cleared options emphasizing non-opioid, minimally invasive, and regenerative approaches
- Modern treatment goals: Reduce dependency, improve efficacy, minimize side effects
- Trends: Shift to targeted therapies, percutaneous treatments, neuromodulation, and biologics



Emerging medication classes for pain

- Overview: New classes target specific pain pathways, avoiding opioid risks like addiction and sedation





Calcitonin Gene-Related Peptide (CGRP) Inhibitors

- Mechanism: Block CGRP receptors or proteins involved in migraine and neurogenic pain signaling
- Examples:
 - Zavzpret (zavegepant, nasal spray, 2023): Acute migraine treatment; rapid onset for patients with nausea
 - Qulipta (atogepant, oral, 2021): Preventive for episodic migraine; daily dosing reduces frequency by 50-60%
 - Vyepti (eptinezumab, IV, 2020): Quarterly infusions for migraine prevention; sustained reduction in migraine days
 - Nurtec ODT (rimegepant, oral disintegrating, 2020; expanded 2021): Dual acute/preventive use; convenient for on-the-go relief

Class Benefits: favorable safety profile with minimal cardiovascular, sedation or addiction risks





Selective Sodium Channel Inhibitors

- Target Sodium channels like lidocaine but specific to Nav1.8 channels which block pain signals without affecting other systems
- Example: Journavx (suzetrigine, oral, 2025): For moderate-severe acute pain; first new class in 20+ years, non-opioid with targeted action
- Benefits: Reduces pain without sedation or addiction potential; ideal for post-surgical or injury-related pain





Selective Sodium Channel Inhibitors

- Quirks of suzetrigine
 - Strong CYP 3A inducer
 - Decreases effectiveness of some hormone contraceptives
 - Increases creatine phosphokinase about double the incidence vs placebo ~1-3%
 - Decreases GFR double the incidence vs placebo ~2.5%





Selective Sodium Channel Inhibitors

- Quirks of suzetrigine
 - Patient reported side effects:
 - Itching, rash, muscle spasm ~twice that of placebo
 - Dosed BID, 100 mg initial loading dose, 50 mg BID
 - Max studied 14 days
 - Indicated for post-surgical pain
 - Similar pain relief to hydrocodone in FDA studies.
Better than placebo





Kappa Opioid Receptor Agonists

Mechanism: Activate kappa receptors to modulate itch and pain, especially in chronic conditions

- Example:
- Korsuva (difelikefalin, IV, 2021): For pruritus in chronic kidney disease; addresses itch-related pain exacerbation
- Benefits: Low abuse potential (Mu is what stimulates dopamine); improves quality of life in dialysis patients





Newer Interventional Pain Procedures

- Overview: Minimally invasive techniques using devices for targeted relief in chronic back, neuropathic, and joint pain





Recent Changes in Neurostimulation

- Inceptiv Closed-Loop SCS (2024): Automatically adjusts tonic stimulation for chronic pain.
- Boston Scientific released “WaveWriter” SCS (2024): Programming changes to make multiple waveforms for low back/leg pain; paresthesia-free
- Abbott Proclaim DRG changes: Easier sheath management during placement with less kinking. Directly targets focal neuropathic pain with lead on the DRG





Recent Changes in Neurostimulation

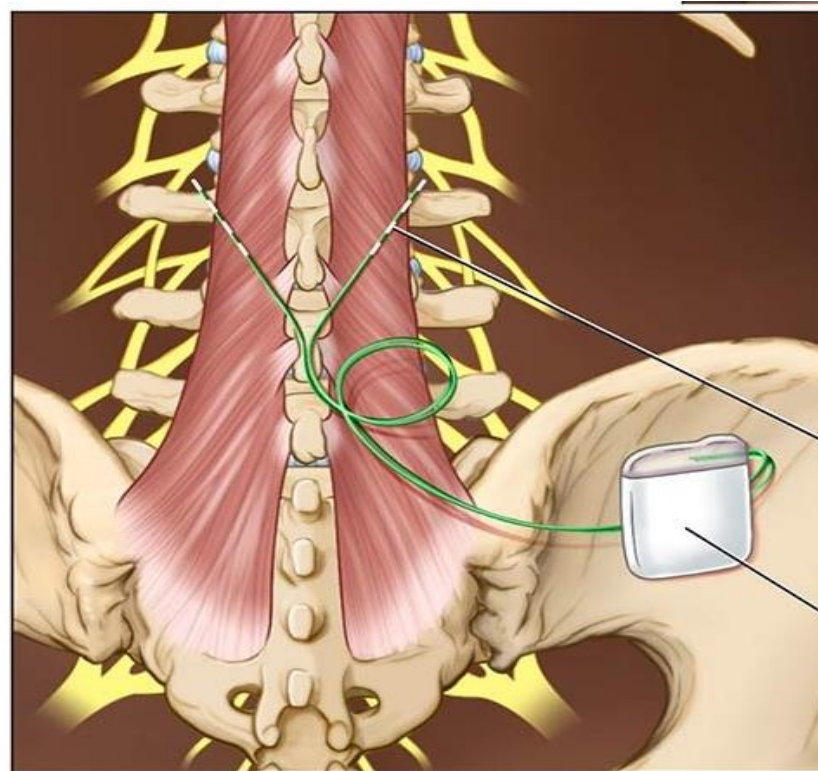
- ReActiv8 Neurostimulation (approved 2020 but still newish): Restores multifidus function for chronic low back by stimulating the medial branches instead of ablating them; Like a neuromuscular stimulator to cause improvement via deep back muscle hypertrophy and neuromuscular control





Recent Changes in Neurostimulation

- ReActiv8 Neurostimulation





Recent Changes in Neurostimulation

- ReActiv8 Neurostimulation
 - 30 minute “exercise” sessions twice a day to strengthen and activate the multifidi
 - Battery and lead implantation similar to spinal cord stimulation





Basivertebral nerve (BVN) ablation

- RF ablation for vertebrogenic low back pain
- Nerves to the discs come up through the vertebral body
- Needle placement similar to vertebroplasty but then ablation instead of cement
- Intracept and OptaBlate





Non-surgical ways of offloading nerve compression

- Decompression and Spacer Procedures





Decompression and Spacer Procedures

- MILD Procedure: Minimally invasive lumbar decompression of the hypertrophied ligamentum flavum; removes ligament portions and some laminar elements.





Decompression

MILD





Decompression

MILD





Spacer Procedures

- Vertiflex Superion: Interspinous spacer for neuroforaminal and central stenosis; relieves leg/back pain by spreading the posterior elements apart.
- Currently under recall monitoring for driver instrument tip breaking off





Spacer Procedures

- Vertiflex Superior:





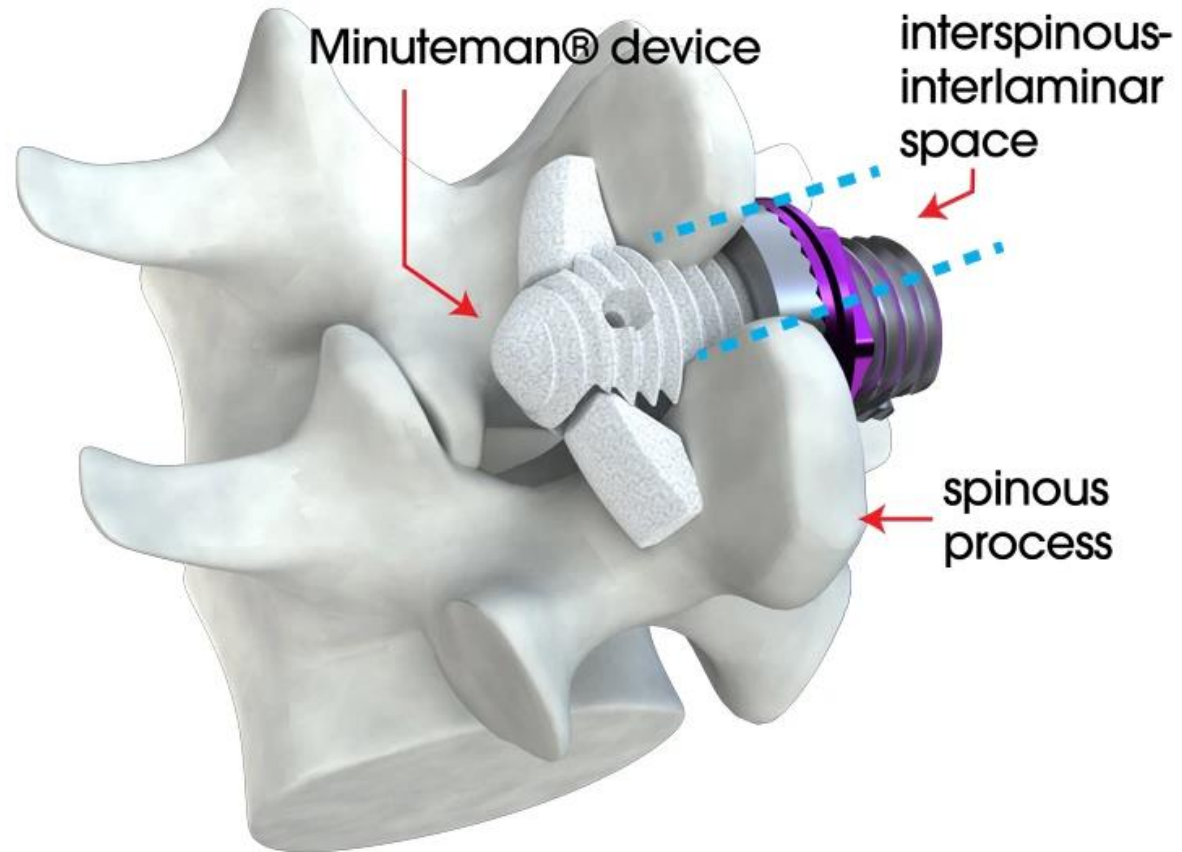
Spacer Procedures

- Minuteman device
 - Comes from the side to spread the spinous processes apart instead of from the back





Spacer Procedures





Spacer Procedures

- Questions exist in the literature about how well these work vs open laminectomy decompression in outcomes and cost
- Lower procedural risks percutaneously but a simple single level lami or microdiscectomy is fairly low risk so the population that is too sick or obese for a lami but not too sick or obese for a spacer is fairly small





Percutaneous Joint Fusion Procedures

- Percutaneous SI Joint Fusion
- Facet Joint Fusion Devices





Percutaneous Joint Fusion Procedures

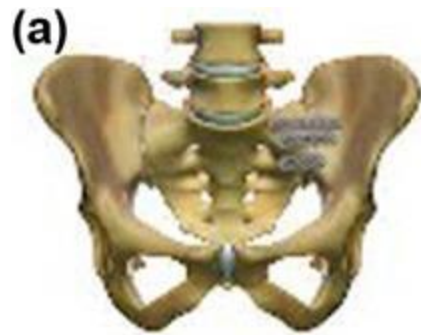
- Percutaneous SI Joint Fusion
 - Lateral approach
 - iFuse Systems from SI-Bone: Triangular titanium implants
 - Silex: SI fusion screws coming in laterally
 - LinQ System: Allograft triangular wedge for posterior approach under the PSIS
 - Inferior intraarticular allogenic bone “dowels” from SI-Bone iFuse Intra-X



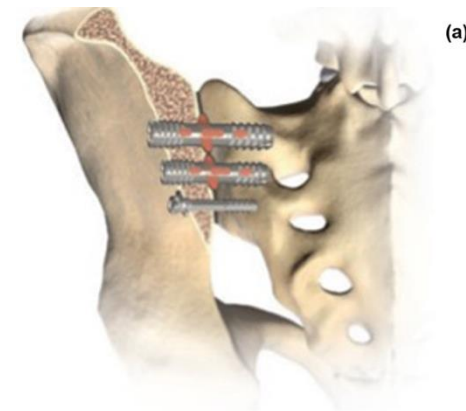


Percutaneous Joint Fusion Procedures

- Percutaneous SI Joint Fusion
 - Lateral approach



iFuse



Silex





Percutaneous Joint Fusion Procedures

- Posterior approach under the PSIS
 - LinQ
 - Aurora Silo

(a)



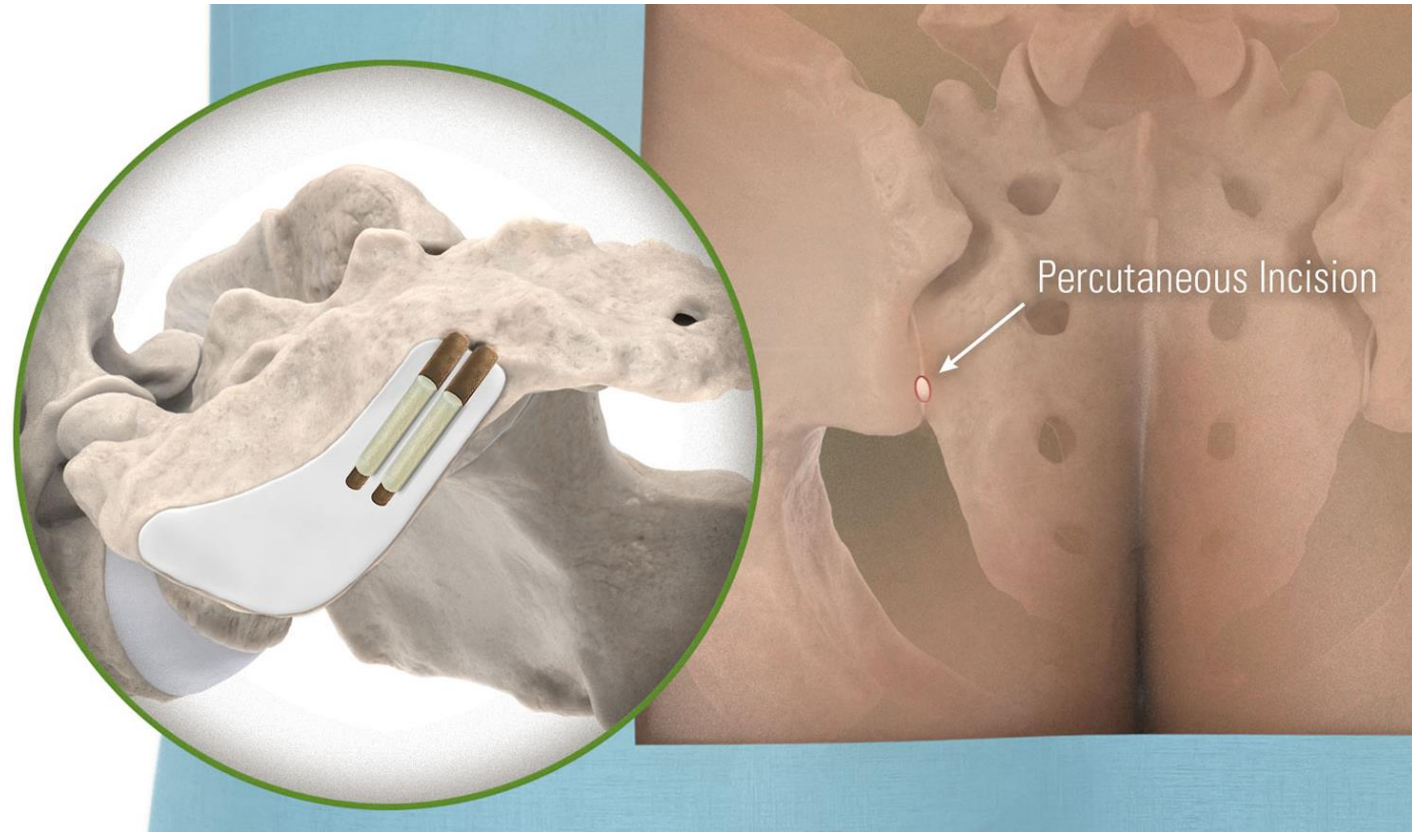
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Percutaneous Joint Fusion Procedures

- Inferior approach intraarticular fusion
 - Intra X





Percutaneous Joint Fusion Procedures

- Percutaneous Facet Joint Fusion
 - Aero Facet Fusion by Aurora
 - Just received FDA 501k clearance a few months ago
 - I couldn't find much but likely similar to the intraarticular dowel approach





Intradiscal procedures

Allogenic fibrin for annular tears

Discseel

- Mechanism: Uses FDA-approved fibrin sealant to seal annular disc tears identified via proprietary Annulogram™ (contrast fluoroscopy in the annulus instead of nucleus not sure why it is trademarked but whatever);
- Procedure: Outpatient, minimally invasive injection under local anesthesia;
- Discitis risk as with all intradiscal procedures
- Targets discogenic low back/neck pain





Intradiscal procedures

- Key Evidence Largest trial (n=827, Pain Physician Journal): 70%+ achieve >50% pain relief (VAS) and functional gains (ODI) at 3 years; no severe adverse events
- Success Rates: 70-80% long-term improvement; superior to fusion in preserving motion and avoiding adjacent segment disease
- Benefits: Non-surgical alternative to fusion/discectomy; quick recovery (1-7 days light activity); adopted by DoD/VA for military spine care
- Best for confirmed disc tears post-failed conservative care





Regenerative procedures

Autologous spine regenerative procedures

- Intradiscal leukocyte-rich PRP of at least 10x concentration is emerging as the standard of care in the regenerative treatment paradigms for infection avoidance and outcomes.
- Often providers will treat the entire functional unit of the affected spine levels with epidural, facet joint, ligament, and multifidi injections.



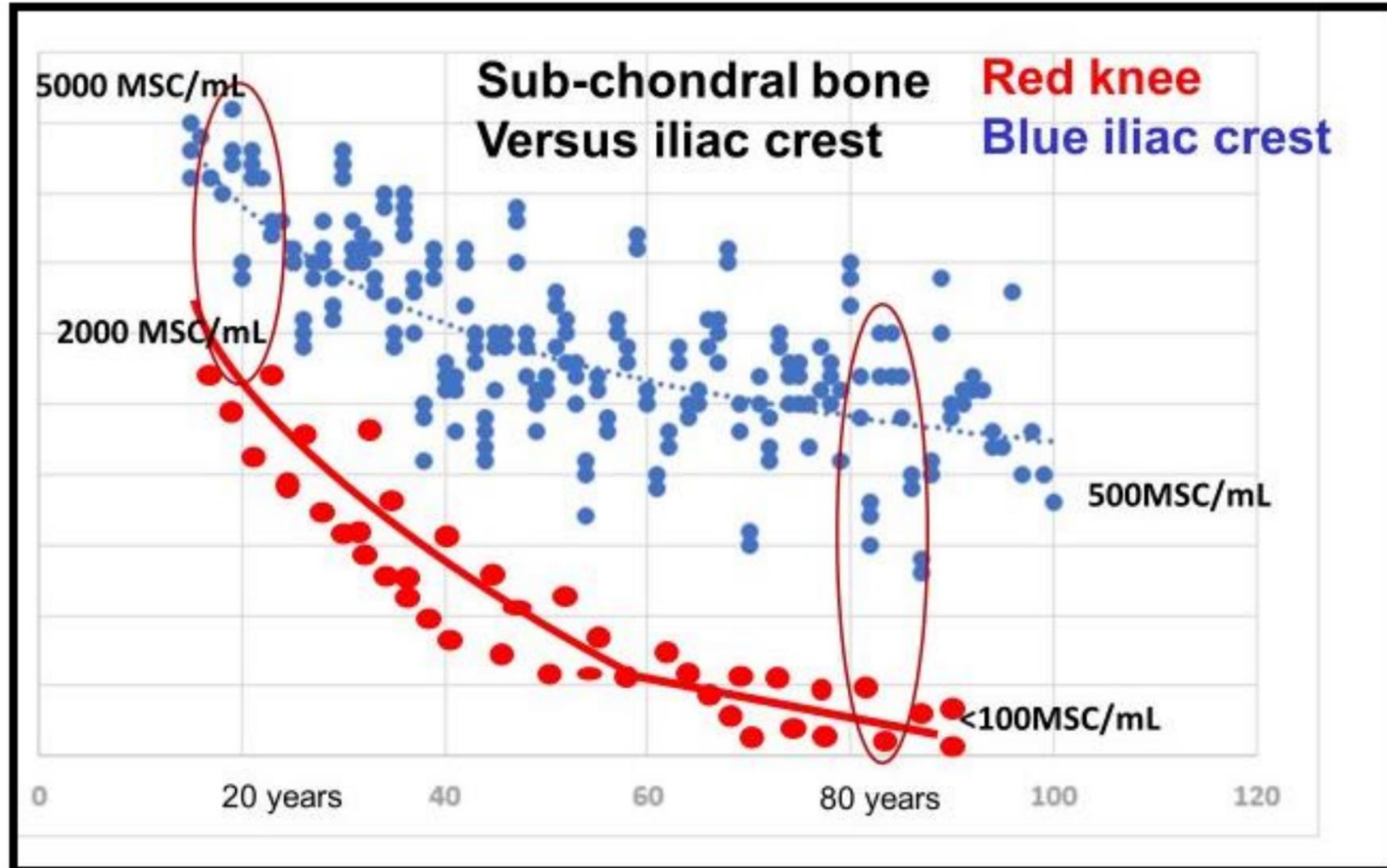
Regenerative procedures

Joint regenerative procedures latest advances

- Intraosseous bone marrow aspiration concentrate in areas of bone marrow edema or overlying areas of cartilage loss along with intraarticular to “sandwich” the affected cartilage with MSCs
- Based on a 15 year follow up data by Dr. Hernigou in France who presented in the US last year



Regenerative procedures





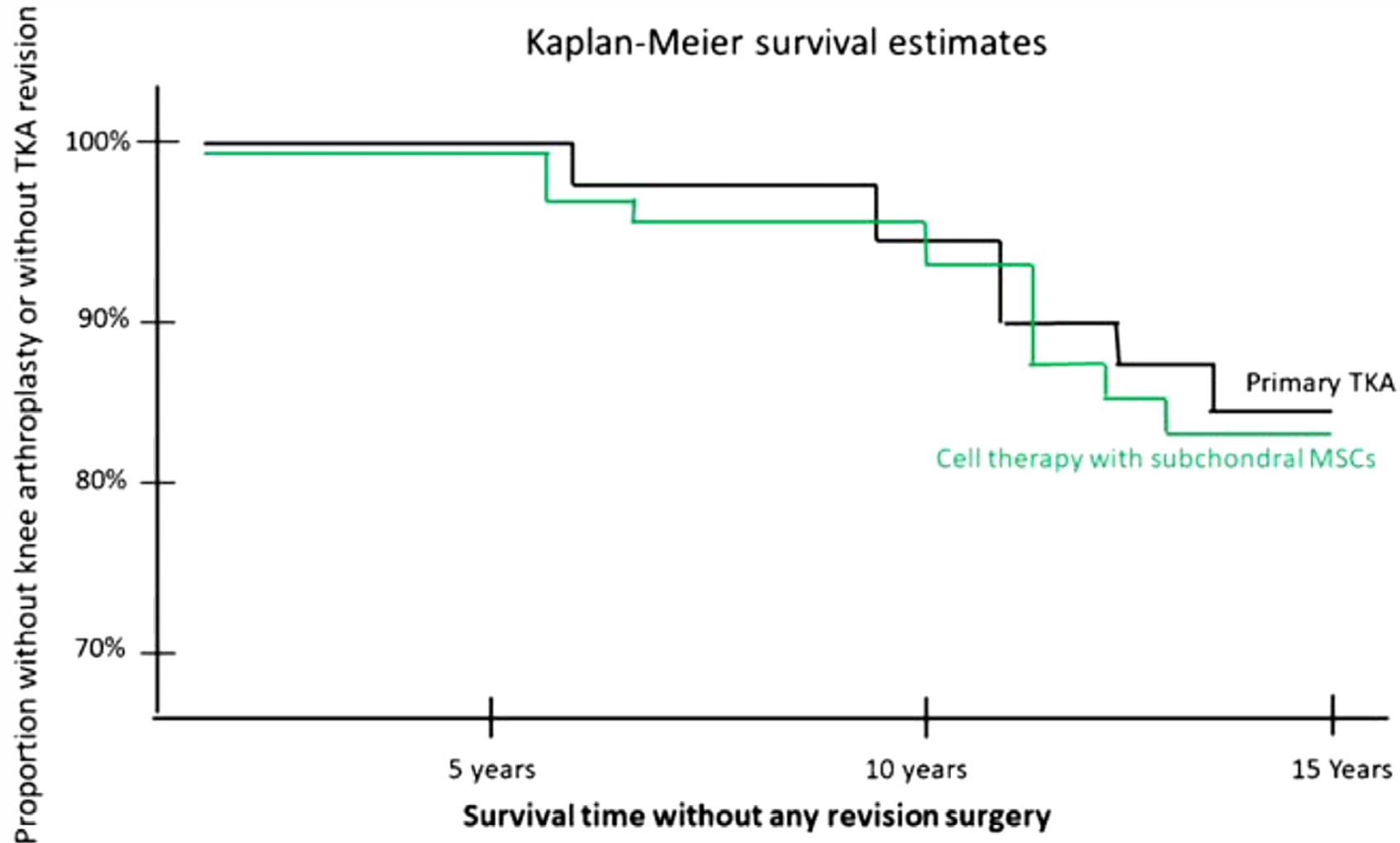
Regenerative procedures

Joint regenerative procedures latest advances

- 60 patients (120 knees)
- Bilaterally equal knee OA
- Planned staged TKAs
- Randomized TKA side and at same time did intraosseous BMAC tibia and femur
- 46 of the 60 preferred the BMAC knee @ 10 years
- Revision vs first TKA rates were roughly equal over 15 years



Regenerative procedures





Innovative Adjuncts

- Extracorporeal shock wave
 - Growing body of research outside of just calcific tendonitis
 - Low back pain, osteoarthritis, non-calcific tendinopathies RCTs and metaanalyses show 1-2 months of benefit relative to standard of care.





Innovative Adjuncts

High-intensity laser therapy is the use of light to modulate inflammation, promote healing, and reduce pain

- Growing body of RCTs and metaanalyses with sham laser suggests high-intensity laser superior to PT alone and low-intensity laser but studies continue to be small





Innovative Adjuncts

- RelieVRx: VR-based cognitive behavioral therapy for chronic low back
- At-home sessions retrain pain perception
- FDA Approved and documented benefit over a 2 year study





Thank you for your time.

Questions?

