

Update on Osteoarthritis: Addressing Common Questions About Managing OA

Tuhina Neogi, MD, PhD

 @Tuhina_Neogi

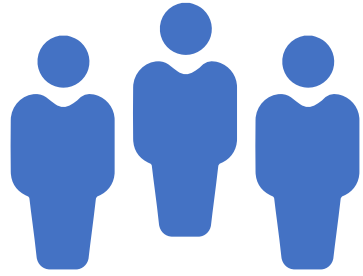
Chief of Rheumatology
Professor of Medicine and of Epidemiology
Boston University Schools of Medicine and of Public Health
Boston Medical Center

 @BU_BMC_Rheum

Disclosures

- Consultant: EMD Merck-Serono, Flexion, Novartis, Pfizer/Lilly, Regeneron
- Core Team for 2019 American College of Rheumatology – Arthritis Foundation OA Treatment Guideline
- NIH grants focused on OA, pain

Osteoarthritis Epidemiology



528 Million



30%



#1



#2



#3

Clinical Knee Osteoarthritis

**Pain is
Primary Clinical
Symptom**



**People Are
Living Longer
with Knee OA**



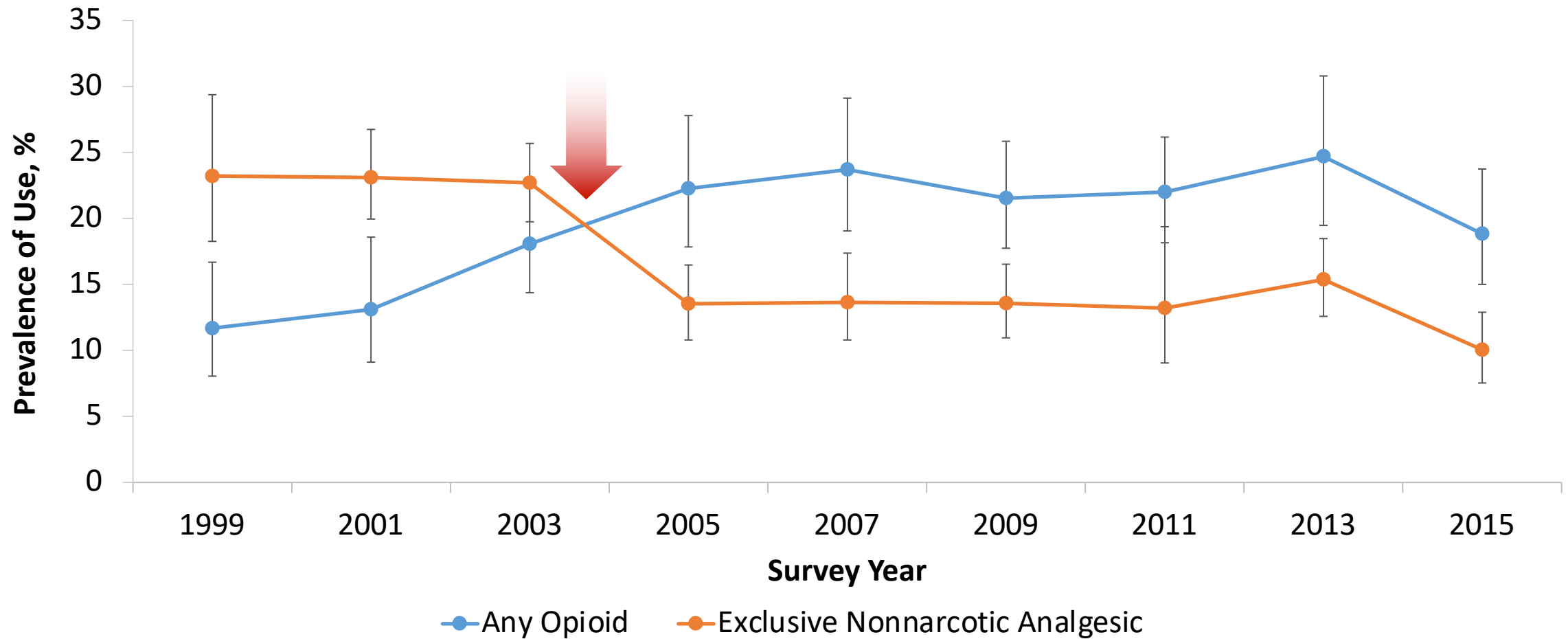
**Limited
Management
Options**



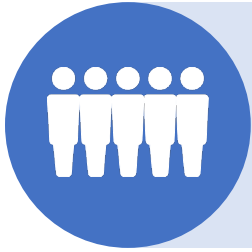
**Joint Replacement:
“Definitive
Treatment”**



Unintended Consequences



Scope of the OA Problem



Prevalence Burden

- **>500** million adults globally
- **15%** adult population



Cost Burden

- **>\$100s** billion annually
- **>900,000** hospitalizations

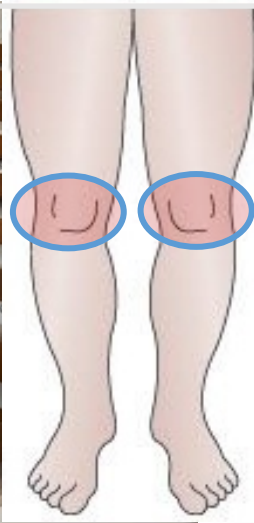
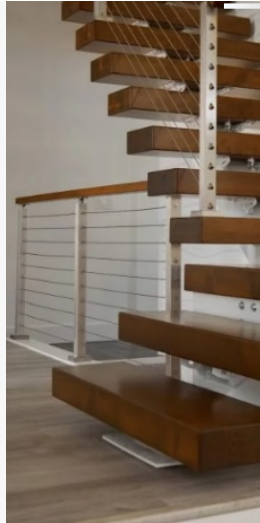


Lack of (use of) Effective Therapies

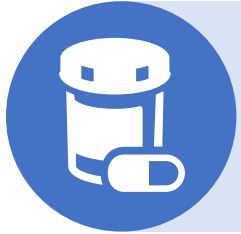
- Disability
- Quality of Life
- Opioid Epidemic

Case 1

54 Year-old Woman



Questions for you



Has Used Acetaminophen

Asking About



Running



Injections





'Natural' Remedies

Osteoarthritis Guidelines

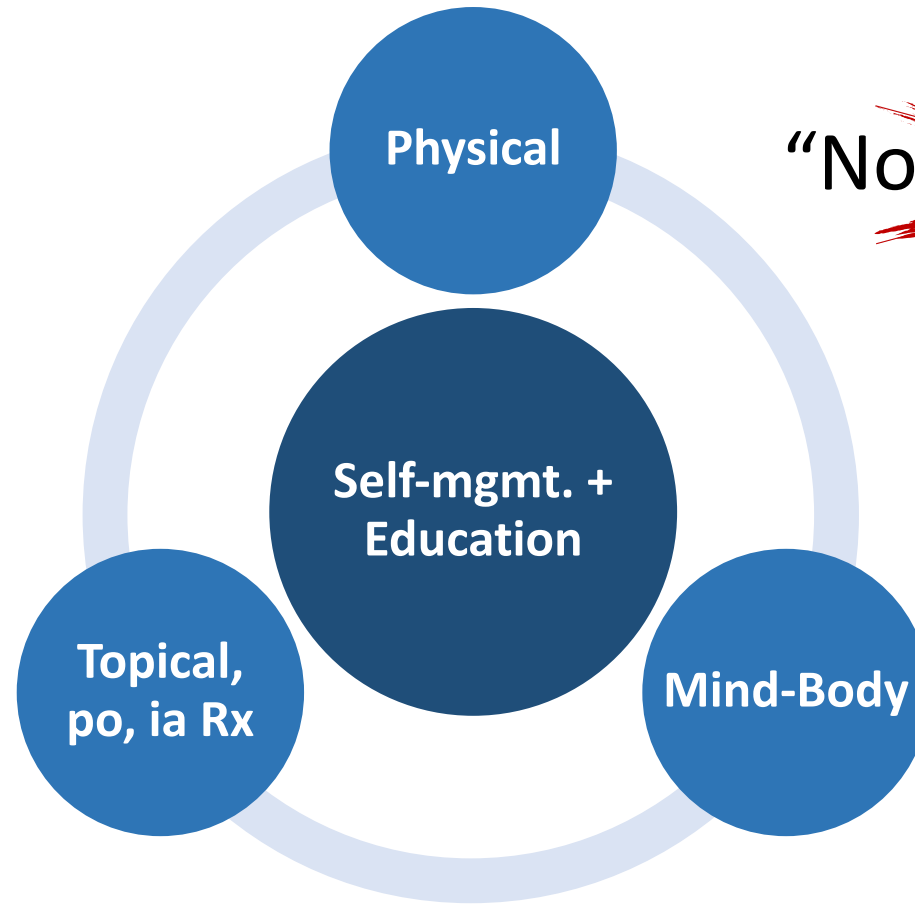
AMERICAN COLLEGE
of RHEUMATOLOGY
Empowering Rheumatology Professionals

Arthritis & Rheumatology
Vol. 72, No. 2, February 2020, pp 220–233
DOI 10.1002/art.41142
© 2020, American College of Rheumatology

2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee

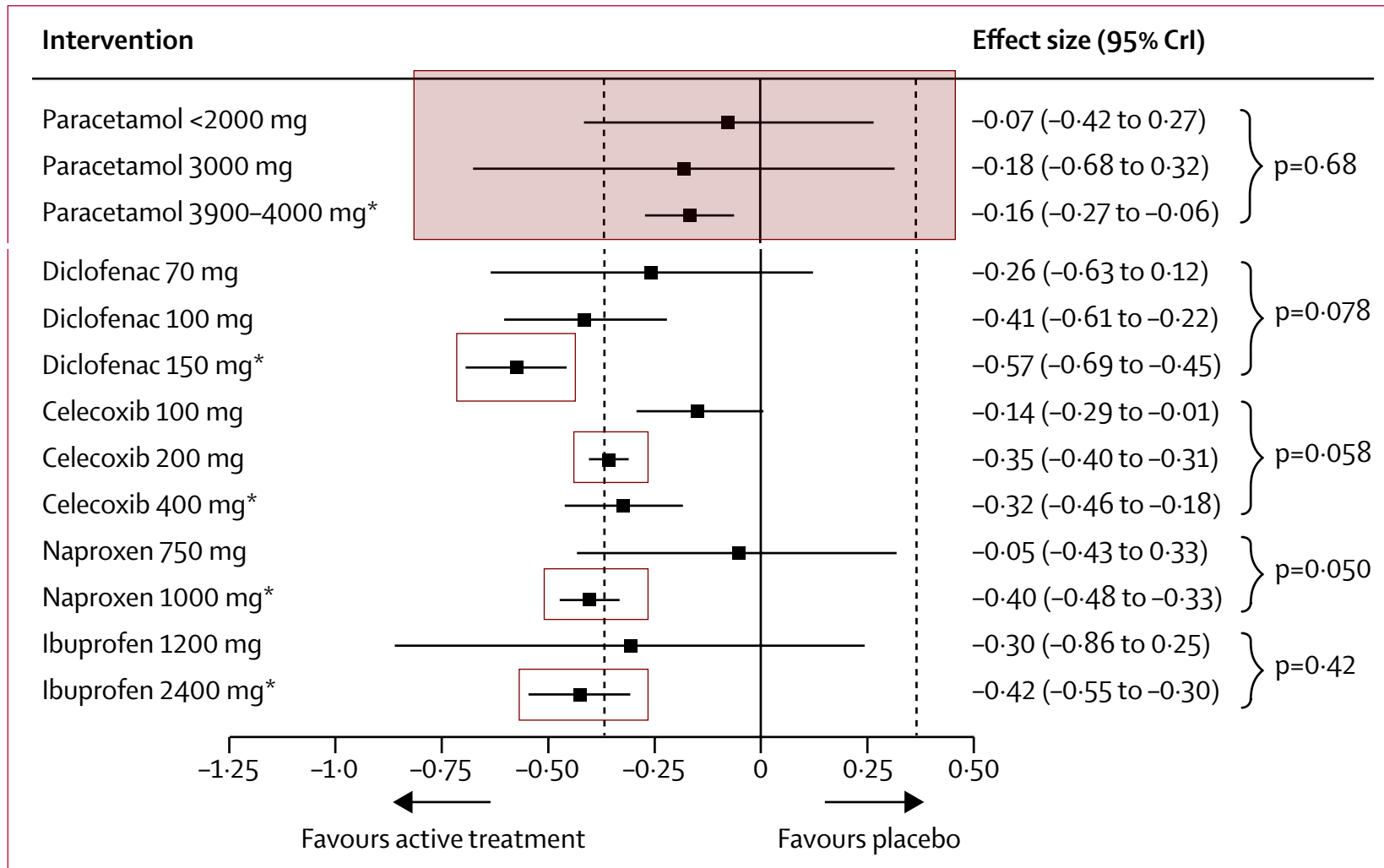
Sharon L. Kolasinski,¹ Tuhina Neogi,² Marc C. Hochberg,³ Carol Oatis,⁴ Gordon Guyatt,⁵ Joel Block,⁶ Leigh Callahan,⁷ Cindy Copenhaver,⁸ Carole Dodge,⁹ David Felson,² Kathleen Gellar,¹⁰ William F. Harvey,¹¹ Gillian Hawker,¹² Edward Herzig,¹³ C. Kent Kwok,¹⁴ Amanda E. Nelson,⁷  Jonathan Samuels,¹⁵ Carla Scanzello,¹ Daniel White,¹⁶ Barton Wise,¹⁷ Roy D. Altman,¹⁸ Dana DiRenzo,¹⁹  Joann Fontanarosa,²⁰ Gina Giradi,²⁰ Mariko Ishimori,²¹ Devyani Misra,² Amit Aakash Shah,²² Anna K. Shmagel,²³ Louise M. Thoma,⁷ Marat Turgunbaev,²² Amy S. Turner,²² and James Reston²⁰

General Approach to OA Management



~~“Nonpharmacologic”~~

Single agent acetaminophen not effective



Topical NSAIDs



SMD -0.3 (-0.4 to -0.2) vs. placebo

Minimal systemic absorption

Fewer AEs

Back to the patient

Asking About



Running



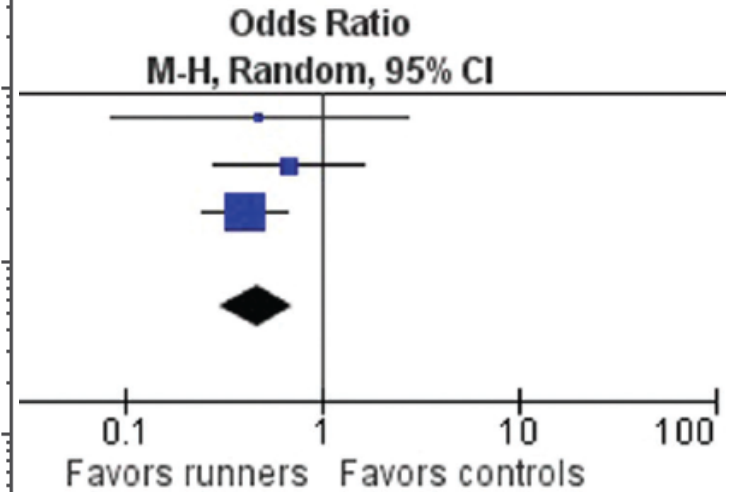
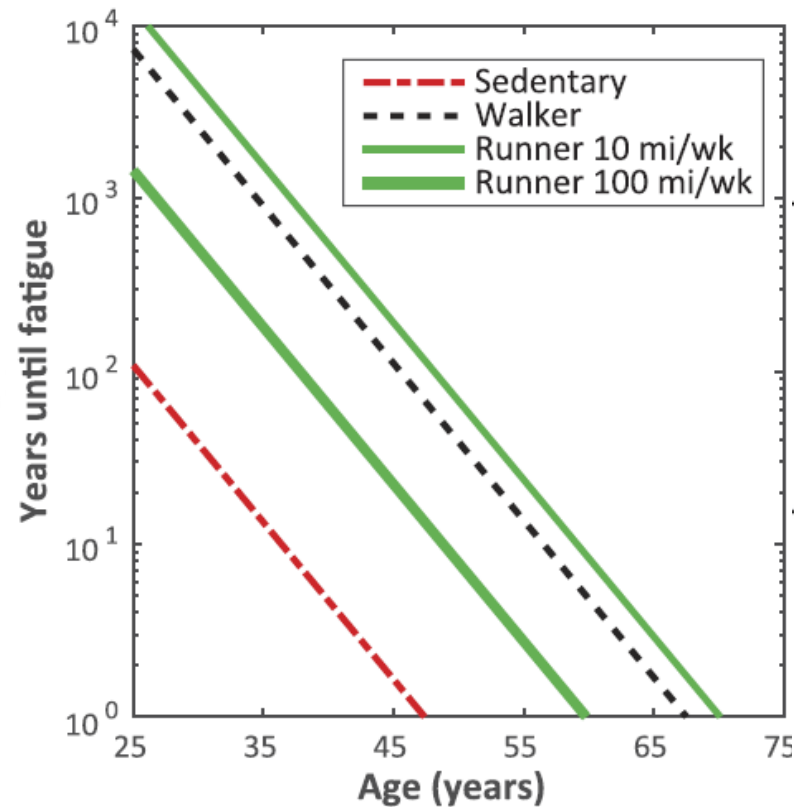
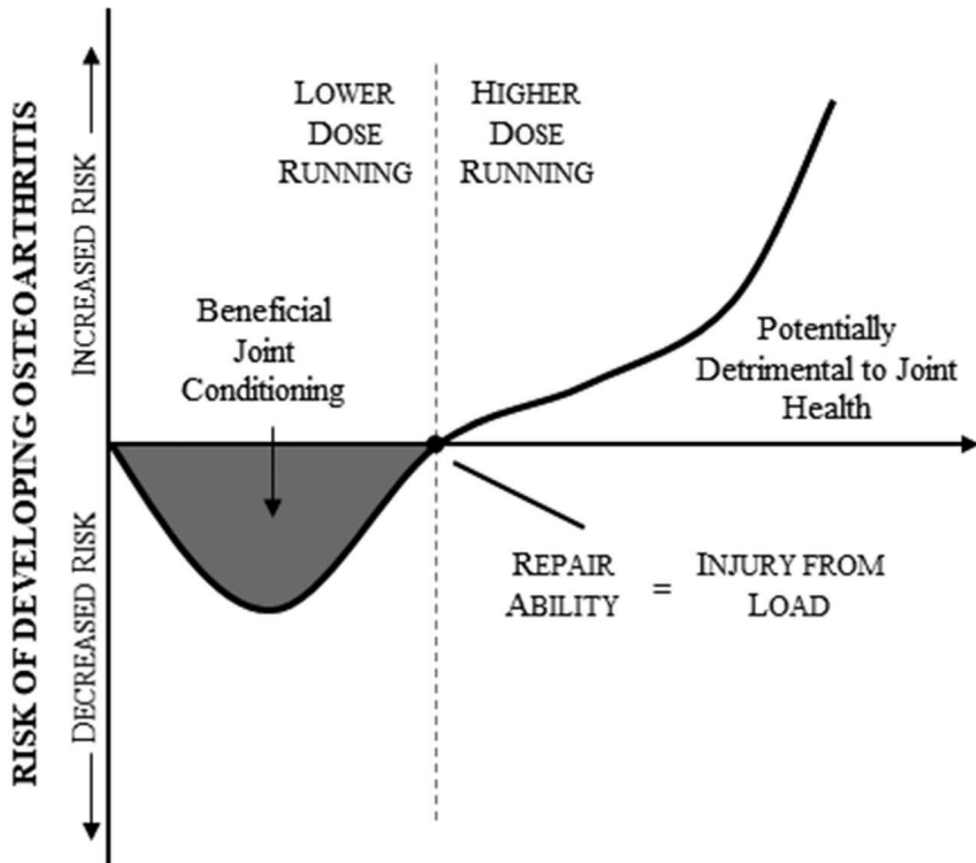
Injections



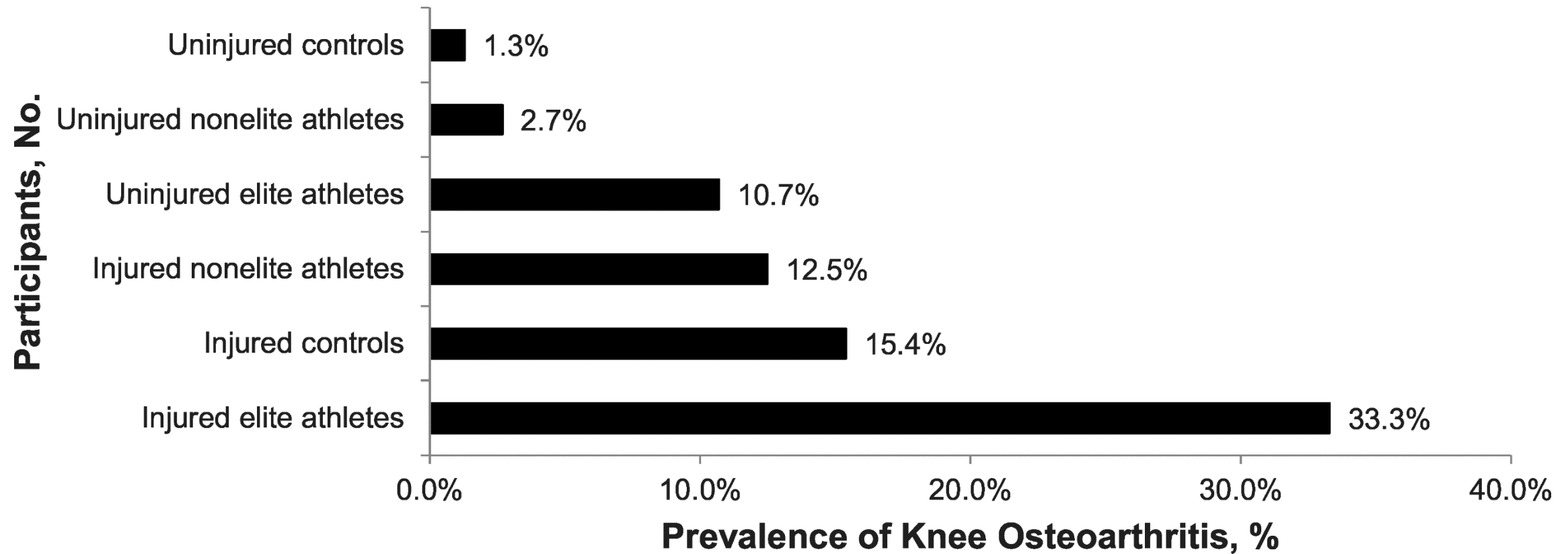
'Natural' Remedies

Is Running Bad for Knee OA?

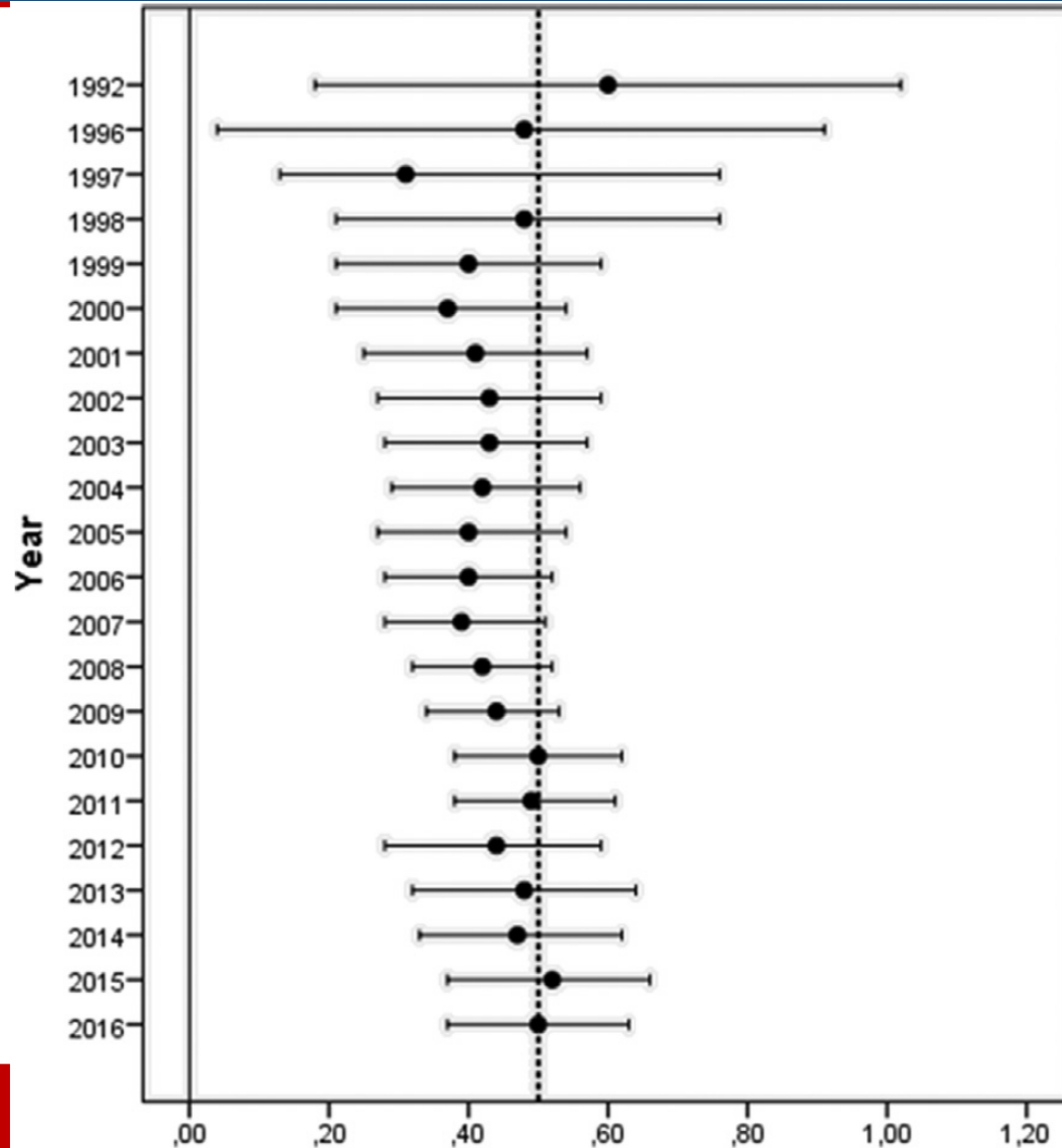
- No increased risk for recreational running



Key: Avoid Knee Injury



Exercise is Effective for Knee OA Pain

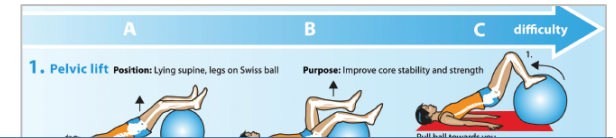
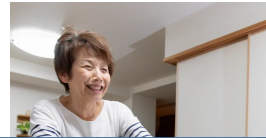


SMD = 0.5

Many Forms of Exercise



Strong Recommendation For:



Exercise

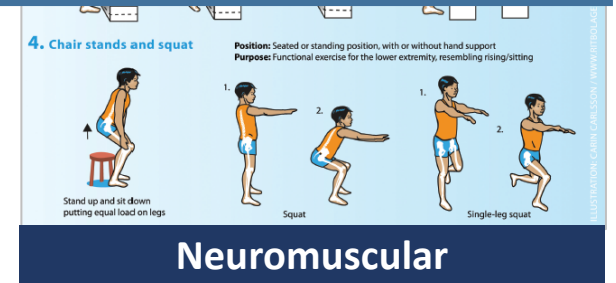
6000 Steps/day
reduces incident functional limitations



Strengthening



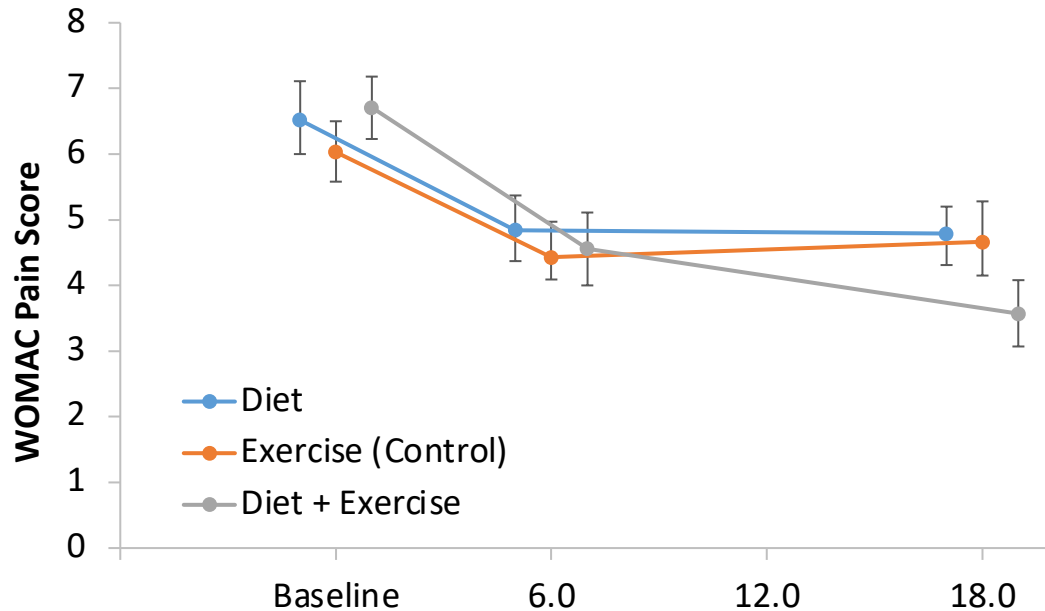
Aquatic



Neuromuscular

Weight Loss

IDEA RCT



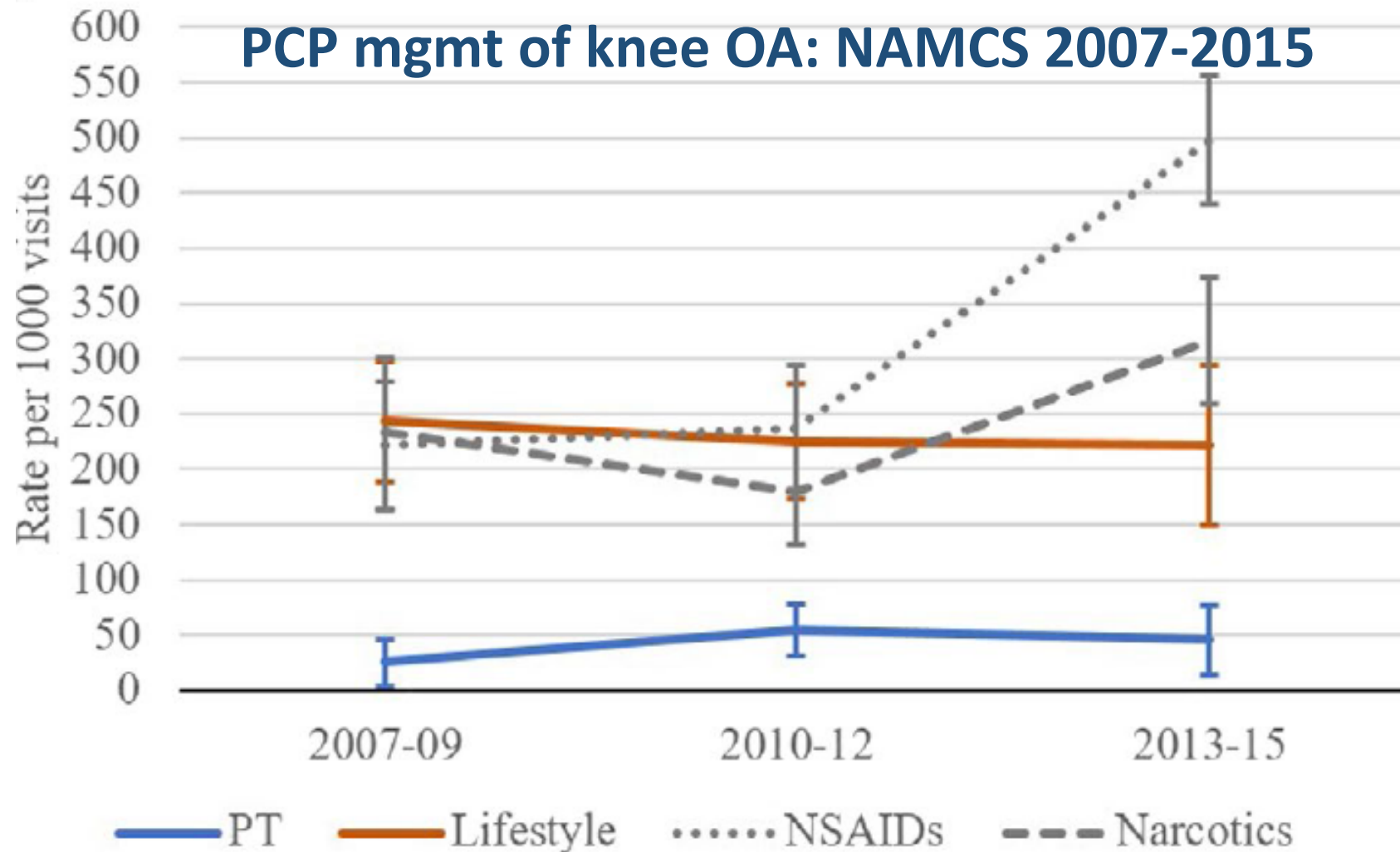
No. of Patients

Diet	152	115	124
Exercise	149	119	127
Diet + Exercise	152	130	120



- D and D+E lost more weight than E alone
- Weight loss:
 - Less pain, improved function, faster walking speed, decreased knee loading

PT Referral & Lifestyle Counselling by PCPs is Underutilized



Back to the patient

Asking About



Running



Injections

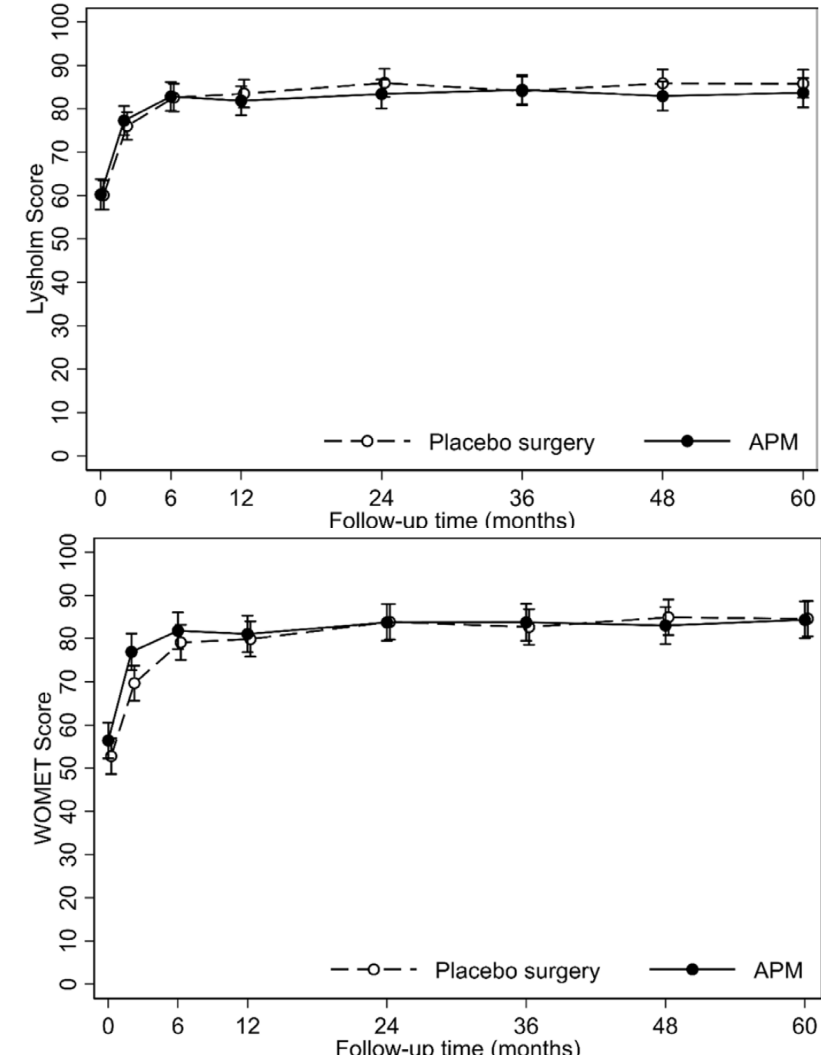
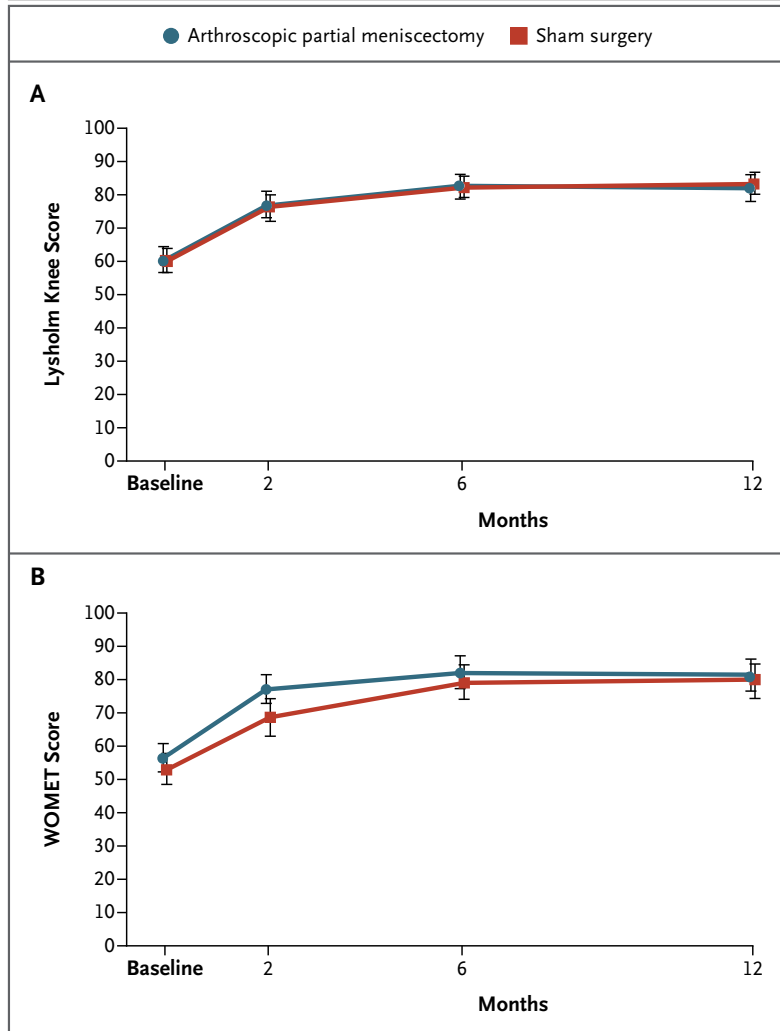


'Natural' Remedies

Does she need a knee MRI?

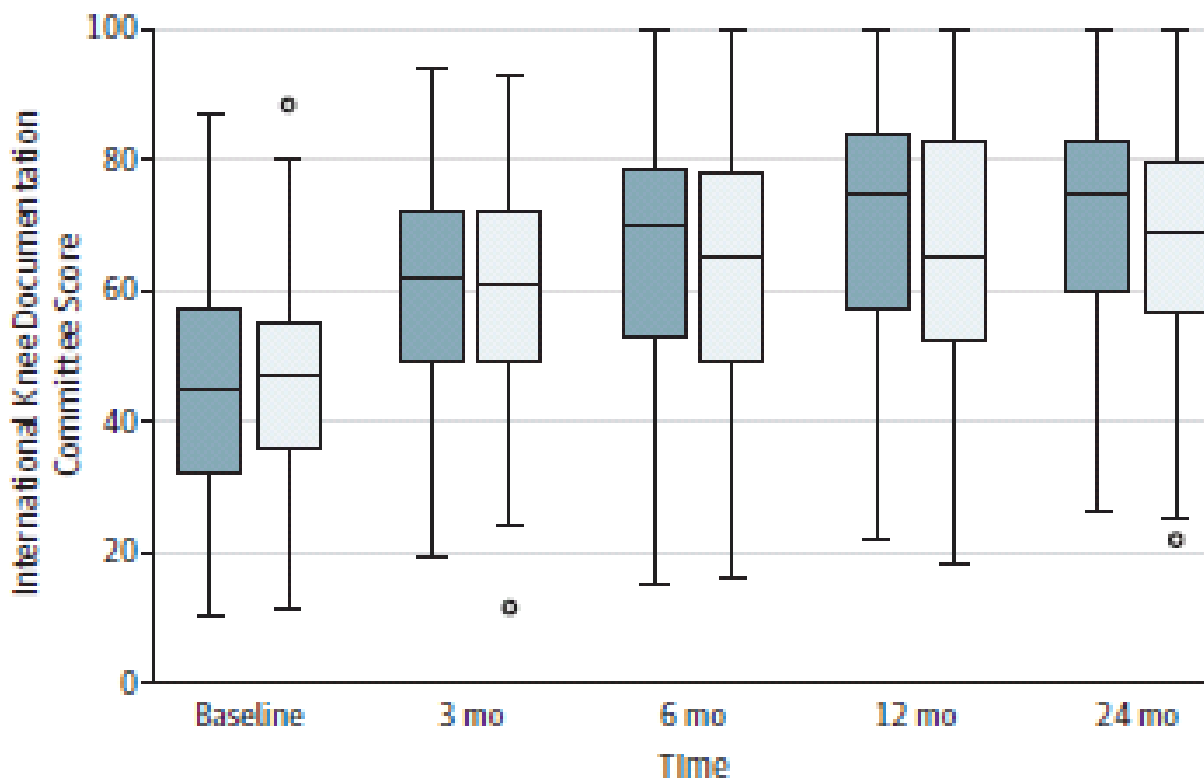
- Meniscal lesion?
- >700,000 arthroscopic partial meniscectomies annually

APM vs. Sham Surgery



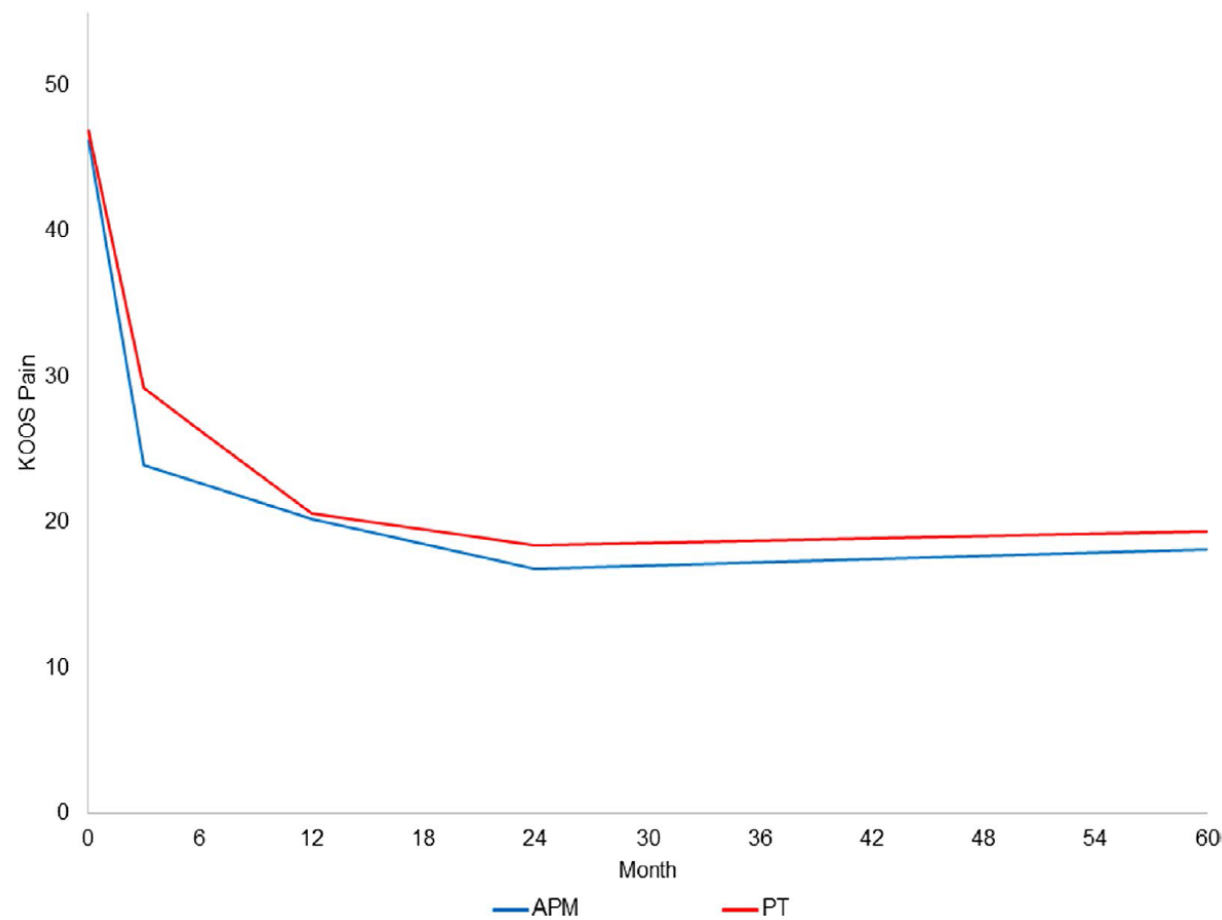
APM vs. PT

Arthroscopic partial meniscectomy
 Physical therapy



No. of patients

Baseline	158	161
3 mo	155	158
6 mo	151	146
12 mo	143	136
24 mo	141	148



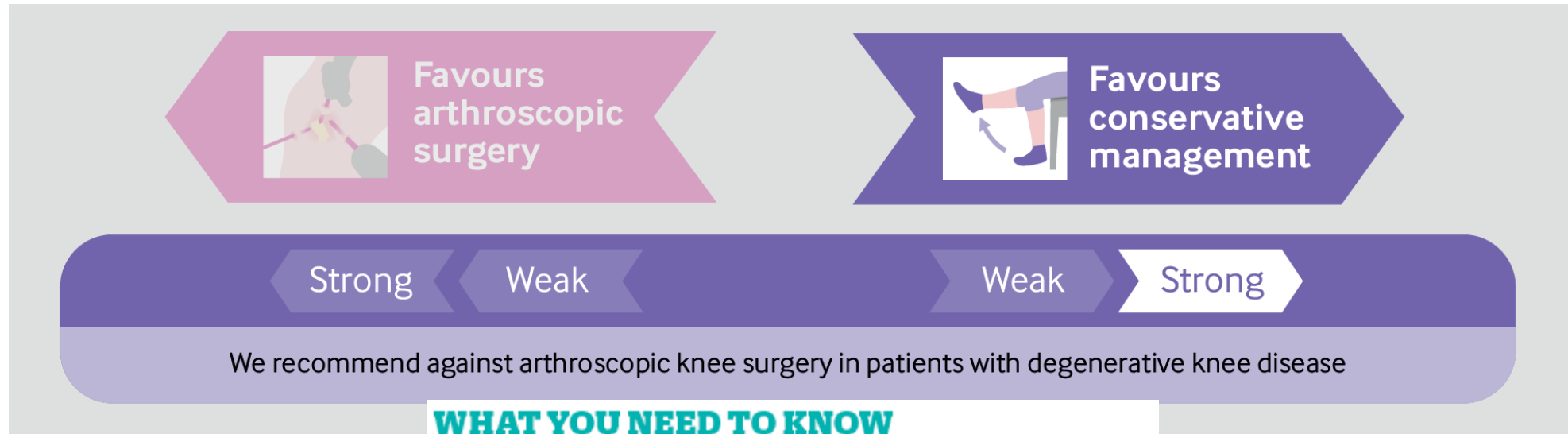
Risks of APM?



2- to 5-fold higher knee replacement risk in APM vs. PT

Increased risk of knee OA in APM vs. sham

Strong Recommendation Against APM



WHAT YOU NEED TO KNOW

- We make a strong recommendation against the use of arthroscopy in nearly all patients with degenerative knee disease, based on linked systematic reviews; further research is unlikely to alter this recommendation
- This recommendation applies to patients with or without imaging evidence of osteoarthritis, mechanical symptoms, or sudden symptom onset

Back to the patient

Asking About



Running

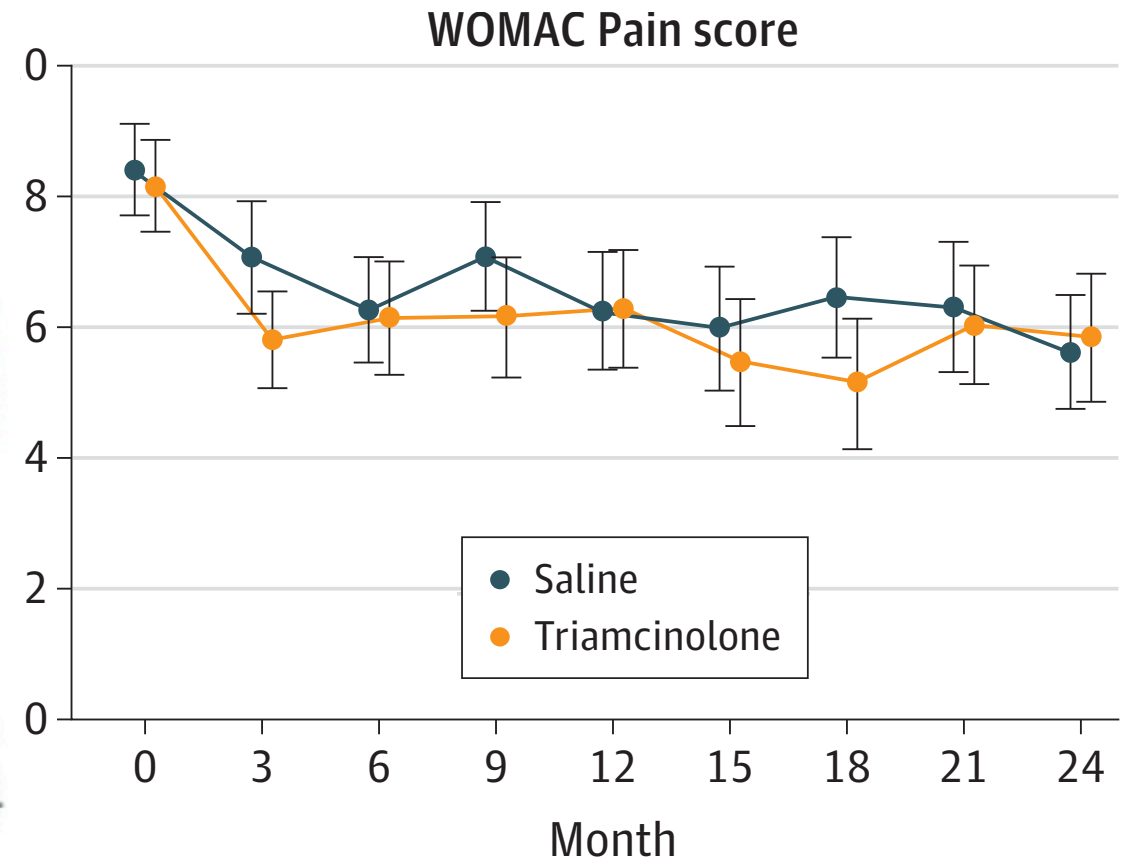
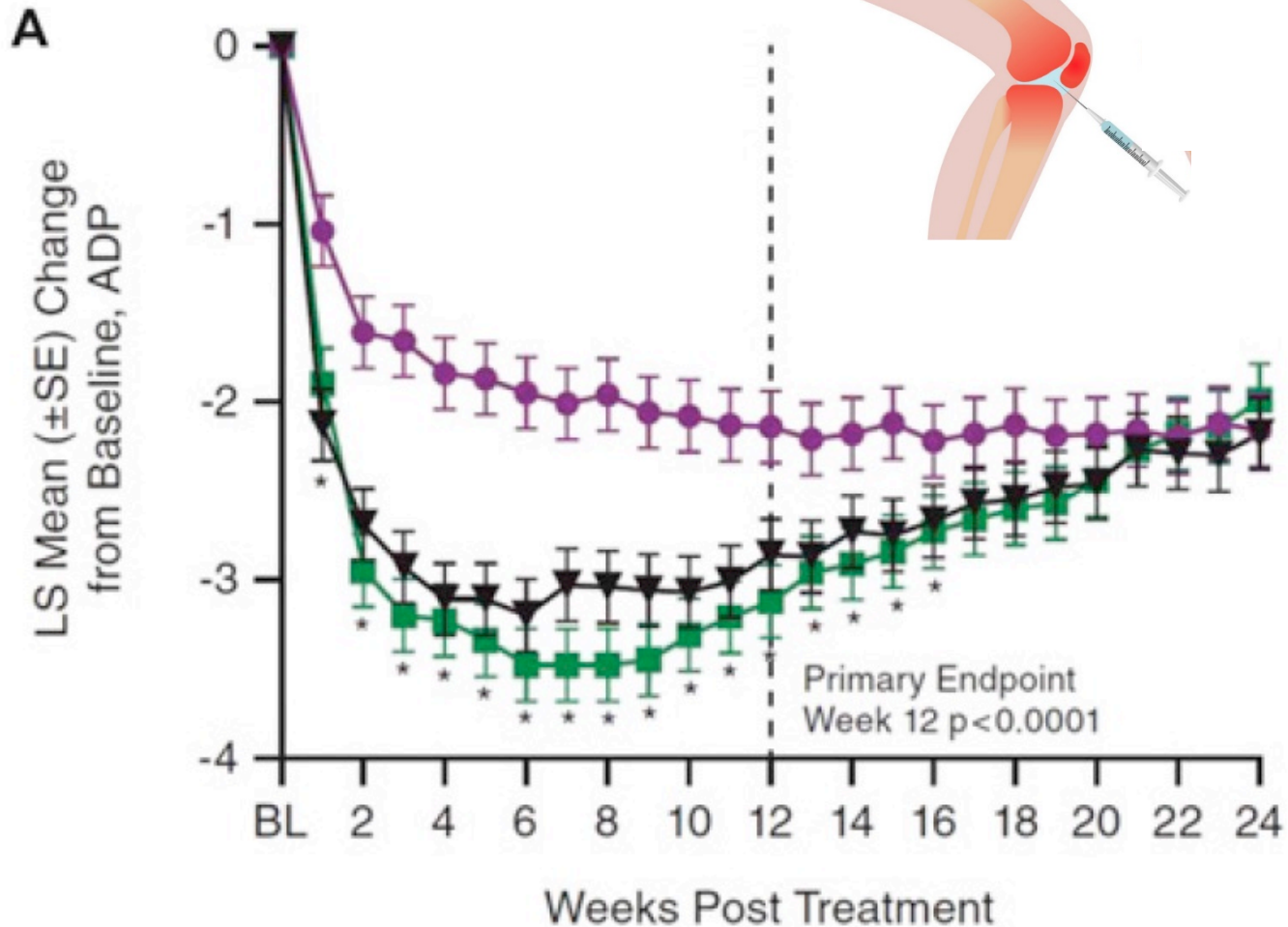


Injections

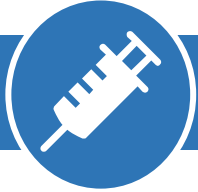


'Natural' Remedies

Intra-articular corticosteroid injection



What about Adverse Effects?



Intra-articular Corticosteroid Injections

Short-term efficacy

No long-term efficacy



Unclear clinical implications for potential MRI cartilage finding

- Less than one voxel on MRI
- 0.1mm over 2 years: ~1mm over 20 years
- Not associated with pain, function

I.A. Corticosteroids

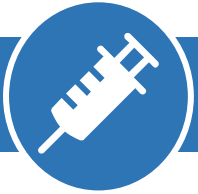


Strong Recommendations For:

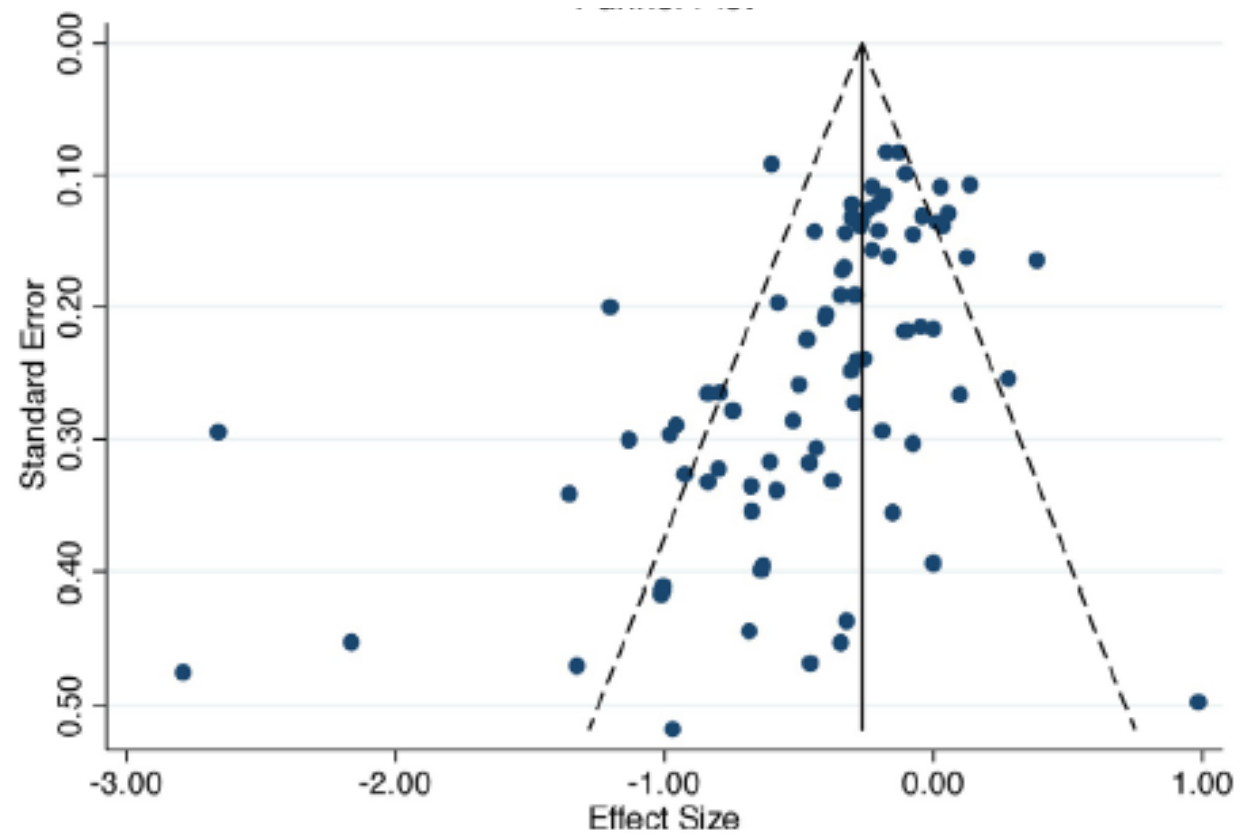
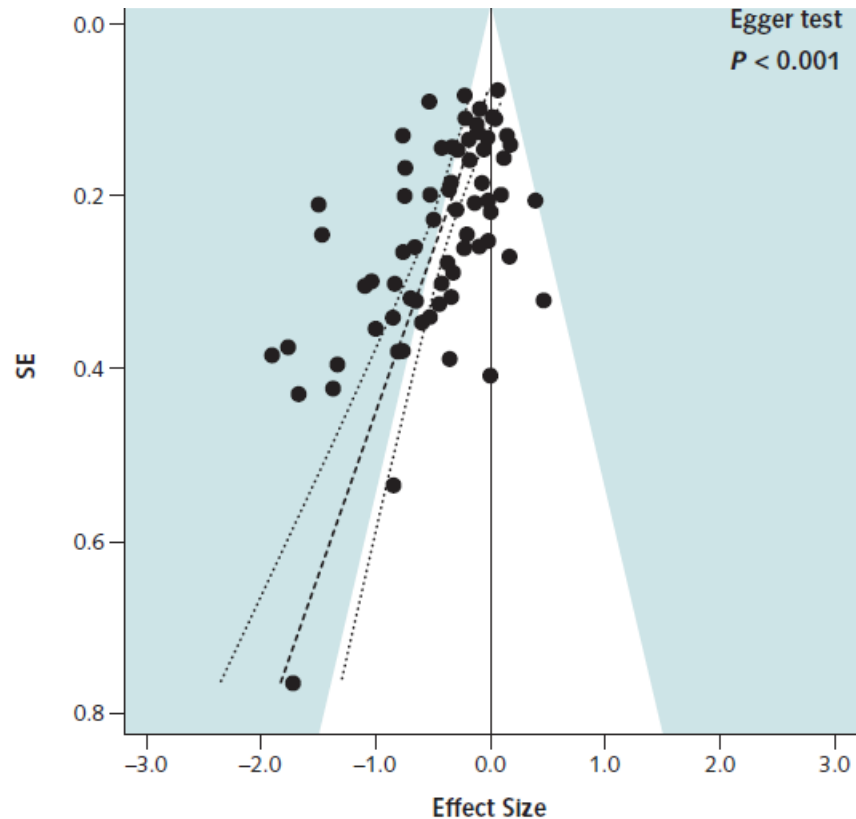
- Intra-articular steroid injections (knee, hip)
- Imaging guidance for steroid injections (hip)



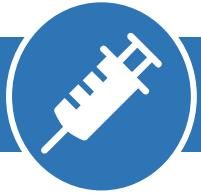
Controversy about I.A. Hyaluronic Acid



Intra-articular Hyaluronic Acid



I.A. Hyaluronic Acid Not Recommended



Intra-articular Hyaluronic Acid

Overall risk of bias, blinding, trial size

Effect size when limited to large trials with blinded assessments:
-0.11 (95% CI -0.18 to -0.04)

Effect size of low risk-of-bias trials: **0.00 (-0.13 to 0.12)**

Safety signal: flares, SAEs, local AEs

Rutjes, et al. *Ann Int Med* 2012
Johansen, et al. *Sem Arth Rheum* 2016

Other injectables?

- No evidence for PRP, stem cell, etc.

Back to the patient

Asking About



Running



Injections

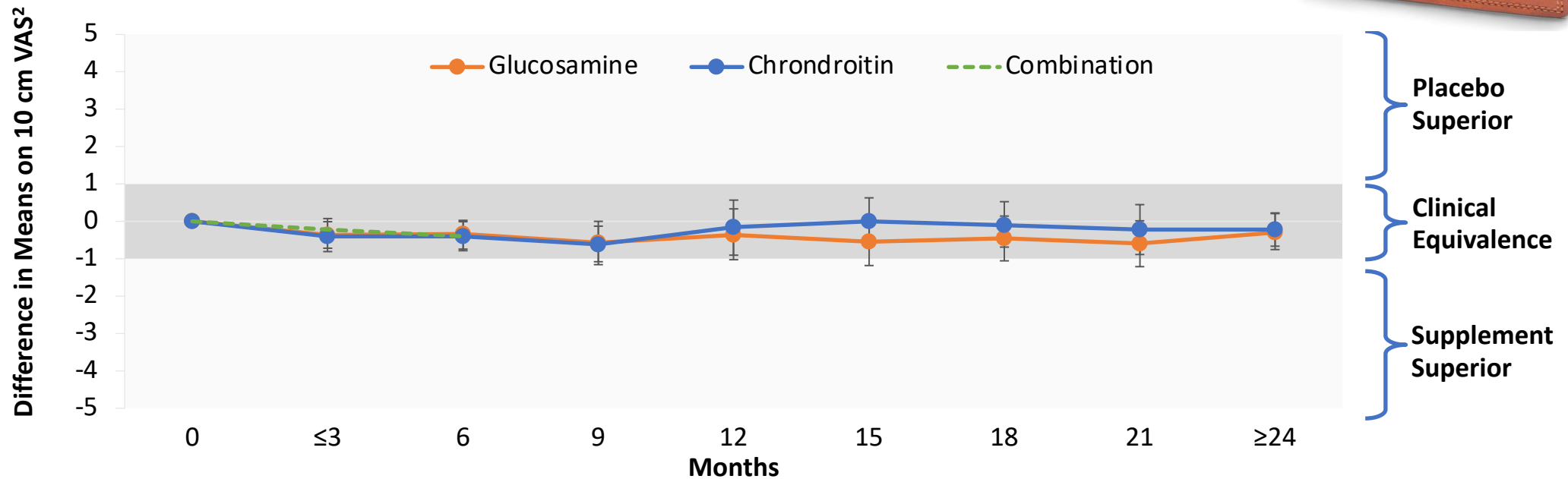


'Natural' Remedies

Glucosamine/Chondroitin



Predominance of negative studies



	0	≤3	6	9	12	15	18	21	≥24
No. of Trials	10	7	6	4	3	3	3	3	5
No. of Patients	3786	2009	2828	1353	1046	1046	1046	1046	1558

Other Adjunctive Approaches?

Devices/Orthoses

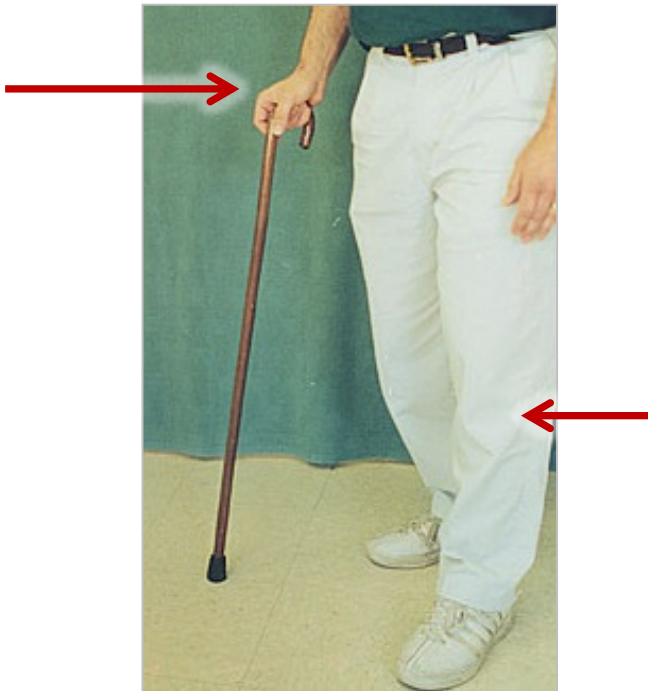


Strong Recommendations For:

Cane Use
(Hip, Knee)

Tibio-femoral
Knee Brace

1st CMC
Orthoses



Behavioral, Psychosocial, Mind-Body, Physical Approaches



Conditional Recommendations For:

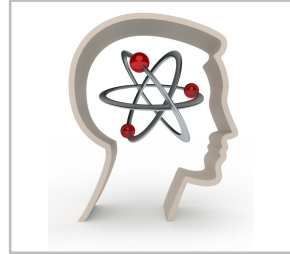
Balance Training
(Hip, Knee)



Yoga (Knee)



Cognitive
Behavioral Therapy



Kinesiotape
(1st CMC, Knee)



Other Hand
Orthoses



Patello-femoral
Knee Brace



Acupuncture



Thermal Interventions



Radiofrequency
Ablation (Knee)



First-line Approaches

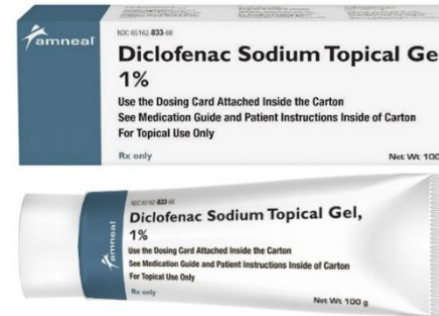
General Best Practices: Assess Sleep, Mood, Coping Skills, Physical Activity

✓ Strong Recommendations For:



Weight loss, PT, physical activity

Current OA Management Landscape



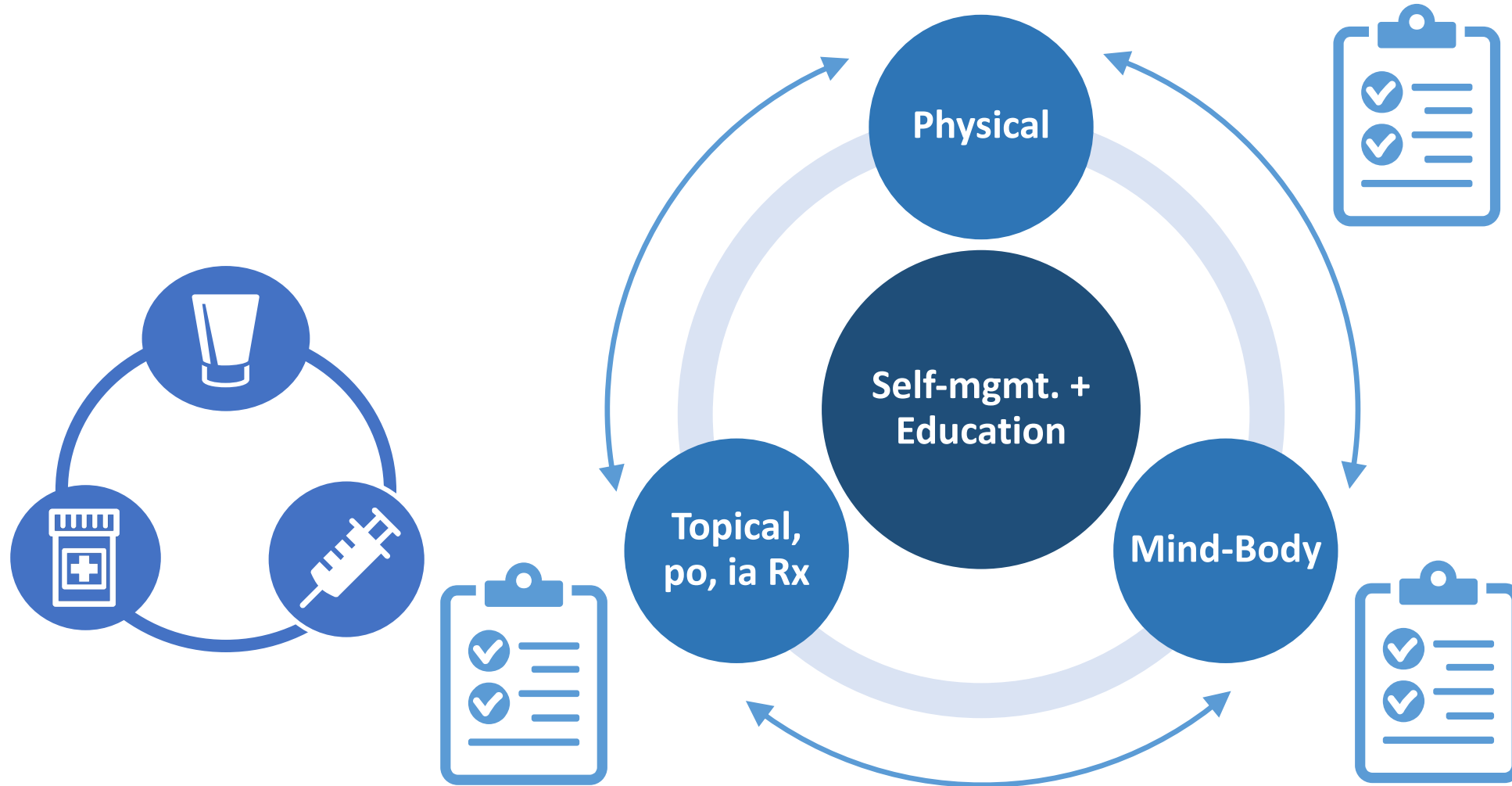
Physical & Mind-Body Approaches

Intervention	Hand	Knee	Hip
Self-efficacy/Self-management			
Exercise			
Weight Loss			
Tai Chi			
Cane			
Tibiofemoral Knee Braces		TF	
Hand Orthosis	1 st CMC		
Balance Training			
Yoga			
CBT			
Patellofemoral Braces		PF	
Kinesiotaping	1 st CMC		
Hand Orthosis	Other		
Acupuncture			
Thermal Interventions			
Paraffin			
Radiofrequency Ablation			
TENS			
Modified Shoes			
Lateral and Medial Wedged Insoles			
Massage Therapy			
Manual Therapy +/- Exercise			
Iontophoresis	1 st CMC		
Pulsed Vibration Therapy			

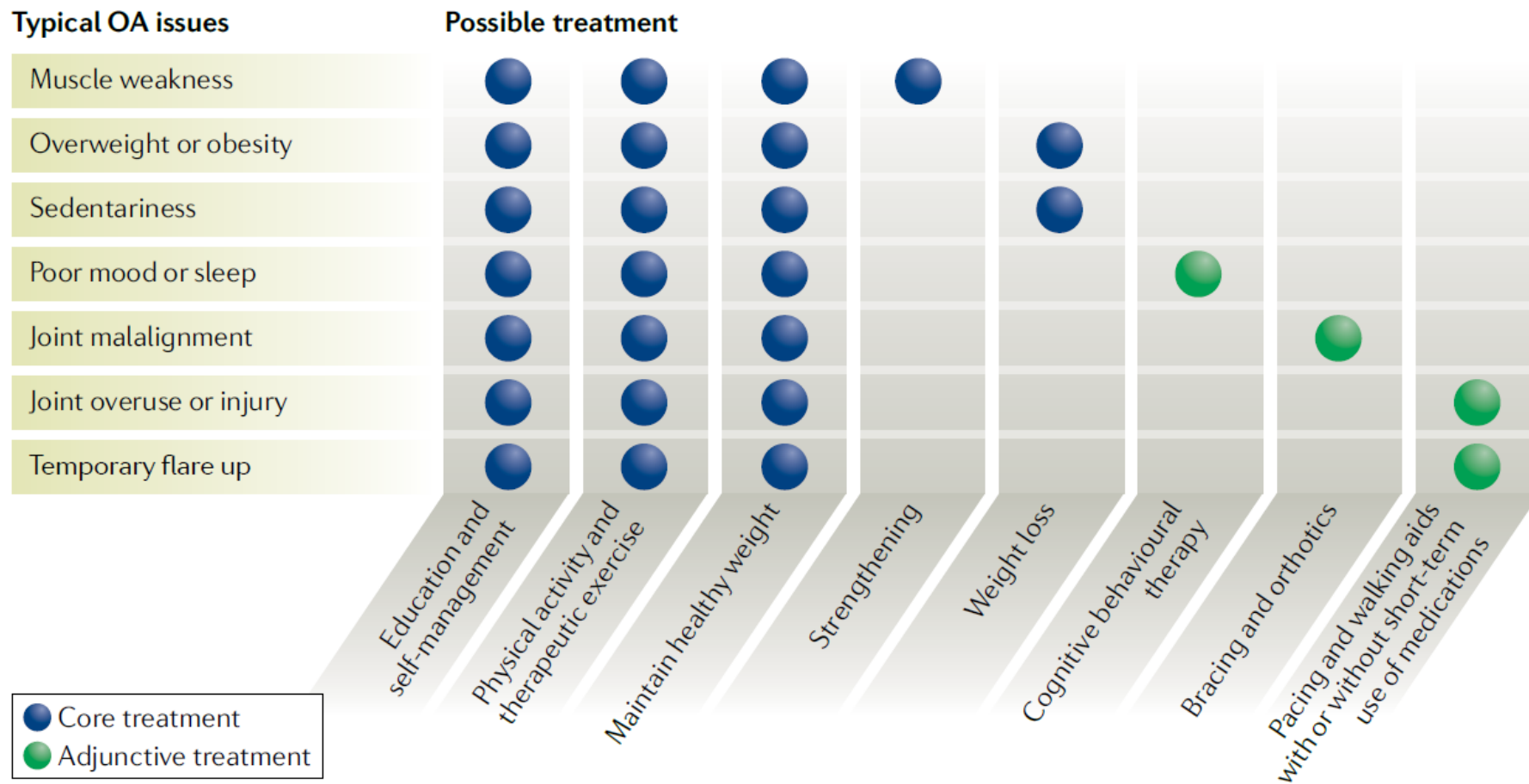
Pharmacologic Approaches

Intervention	Hand	Knee	Hip
Topical NSAIDs			
Oral NSAIDs			
Intra-Articular Corticosteroid Injection			
Ultrasound Guidance for IACS			
Acetaminophen			
Duloxetine			
Tramadol			
Topical Capsaicin			
Chondroitin Sulfate			
Glucosamine			
Hydroxychloroquine			
Methotrexate			
Biologics (TNF inhibitors, IL-1 RAs)			
Intra-Articular Hyaluronic Acid Injection	1 st CMC		
PRP, Stem Cell			
Non-Tramadol Opioids			
Colchicine			
Fish Oil, Vitamin D, Bisphosphonates			
i.a. Botulinum Toxin, Prolotherapy			

General Approach



Individualized Multimodal Approach



OA Management Summary



- Physical modalities
- Multimodal therapy
- Consider & manage other contributors to pain
- Realistic goals about symptoms, function
- Urgent need for DMOADs and pain management options
- Mechanism-based approach to management

Acknowledgements

- R01 AG066010, R01 AG066914, K24 AR070892, P30 AR072571,
- U01 AG18820, R01 AR062506, P60 AR047785



Questions?

tneogi@bu.edu

 @Tuhina_Neogi
↑

