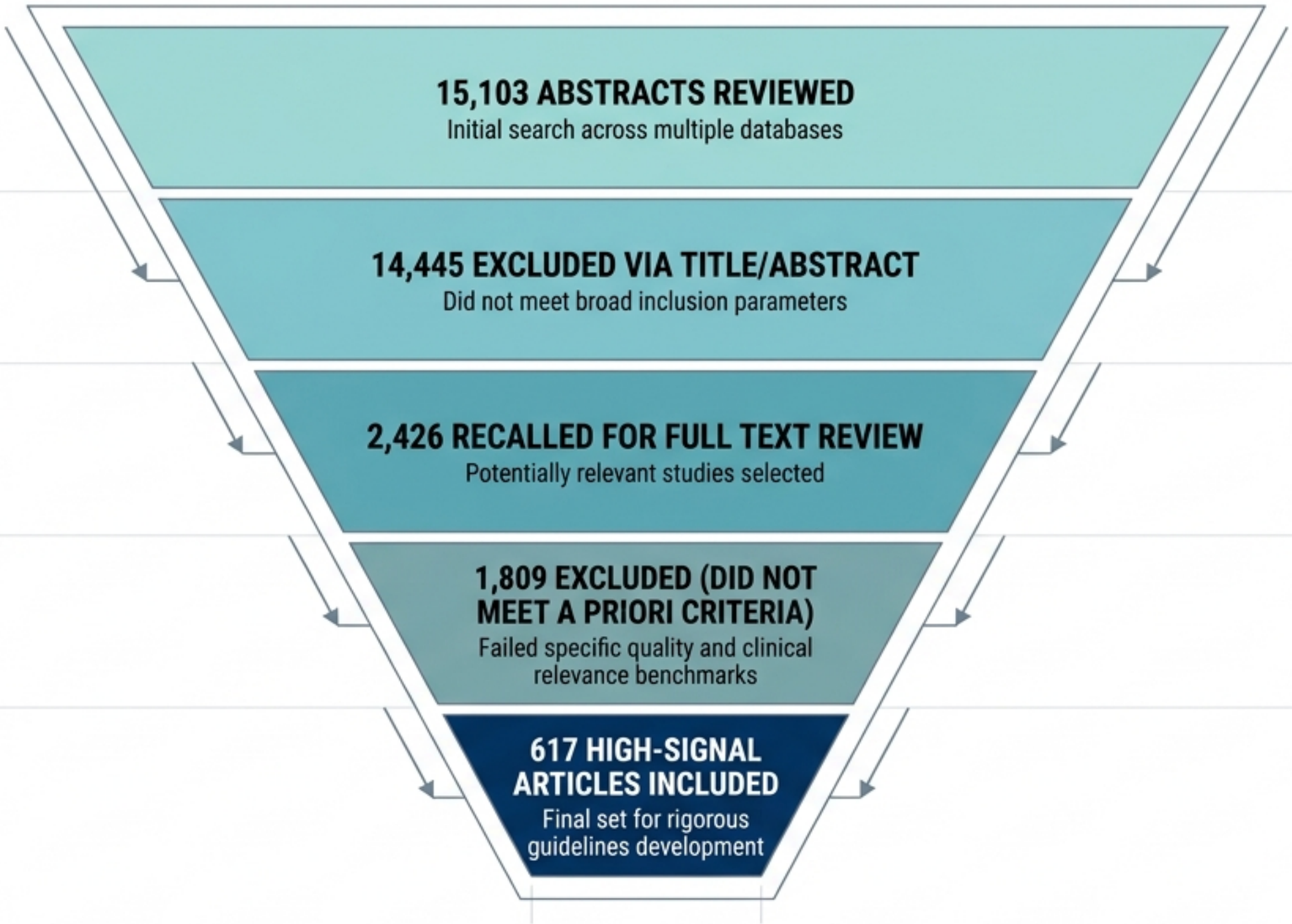
NON-ARTHROPLASTY MANAGEMENT OF KNEE OSTEOARTHRITIS

THE 2021 AAOS EVIDENCE-BASED CLINICAL DASHBOARD

AAOS
American Academy of Orthopaedic Surgeons

OrthoGuidelines

CLINICAL DASHBOARD



THE GUIDELINES ISOLATE ONLY THE HIGHEST-QUALITY EMPIRICAL EVIDENCE, ELIMINATING BIOMECHANICAL THEORIES AND OBSERVATIONAL BIASES THAT FAIL CLINICAL TESTING.

THE EVIDENCE DECODER

Translating AAOS methodology into clinical mandates.

STRONG

≥2 High-quality studies with consistent findings.

The clinical mandate: Must do (or definitively stop). Not likely to change with future research.

MODERATE

≥2 Moderate-quality studies or 1 High-quality study.

The clinical mandate: Should do.

LIMITED

≥1 Low-quality study or 1 Moderate-quality study.

The clinical mandate: May do. Evidence is inconsistent; future research anticipated.

CONSENSUS

Lacking reliable evidence. Based solely on work group clinical opinion.

THE MASTER SCORECARD: POSITIVE INTERVENTIONS

	STRONG ★★★★	MODERATE ★★★	LIMITED ★★
LIFESTYLE & PHYSICAL	✓ Supervised Exercise ✓ Self-Management Programs ✓ Patient Education	✓ Canes ✓ Braces ✓ Neuromuscular Training ✓ Weight Loss	✓ Manual Therapy ✓ Massage ✓ Laser & Acupuncture ✓ TENS, PENS/PEMF ✓ Extracorporeal Shockwave
PHARMACOLOGICAL	✓ Topical NSAIDs ✓ Oral NSAIDs ✓ Oral Acetaminophen	—	✓ Supplements (Turmeric, Ginger, Glucosamine, Chondroitin, Vit D)
PROCEDURAL	—	✓ Partial Meniscectomy (concomitant mild/mod OA only)	✓ PRP ✓ Denervation Therapy ✓ Tibial Osteotomy

THE ‘DO NOT USE’ MATRIX

STRONG AGAINST ★★★★

LATERAL WEDGE INSOLES

Do not recommend. Evidence shows no reliable improvement in pain/function over neutral insoles.

ORAL NARCOTICS (E.G., TRAMADOL)

Do not use. Significant increase in adverse events; not effective for pain/function.

MODERATE / CONSENSUS AGAINST

HYALURONIC ACID ★★☆

Do not use routinely. Downgraded due to lack of consistent clinical benefit.

ARTHROSCOPIC LAVAGE/DEBRIDEMENT ★★☆

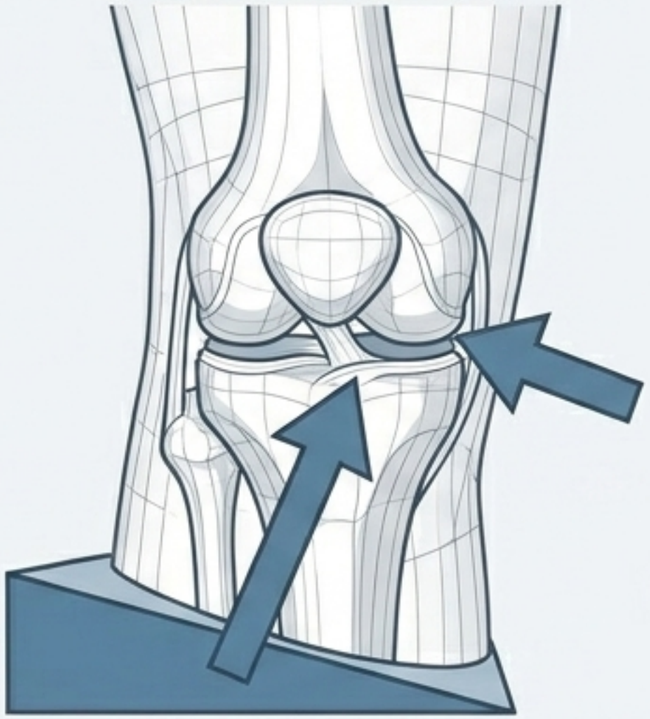
Not recommended for primary diagnosis of knee OA.

FREE-FLOATING INTERPOSITIONAL DEVICES ★

Do not use. Consensus opinion against use in medial compartment OA.

LATERAL WEDGE INSOLES: MECHANISM VS. REALITY

THE BIOMECHANICAL PROMISE



The Biomechanical Promise: Alter the angle, relieve the pressure, stop the pain.

THE CLINICAL REALITY

NO BIOLOGICAL CHANGE

MRI data shows zero significant difference in arthritic bone marrow lesion (BML) volume change.

SECONDARY PAIN

20% dropout rates in studies due to newly introduced foot, ankle, and calf pain.

ZERO SUPERIORITY

Failed to outperform completely neutral, flat soft insoles in multi-year randomized clinical trials.

THE EVIDENCE BOARD: LATERAL WEDGES

The definitive high-quality studies that dismantled the biomechanical theory.

BAKER (2007)

N=90 | High-quality RCT

Finding: No important differences in pain between wedge and neutral insole.

BENNELL (2011)

N=179 (89 wedge, 90 control) | 12-month duration

Finding: Pain relief at 12 months showed no significant difference between groups.

HINMAN (2016)

N=164 | 6-month duration

Finding: 20% of wedge users reported new ankle/foot pain (vs 9% control). No significant difference in primary knee pain or function.

FELSON (2019)

N=83 | Biomechanical pre-screening

Finding: 25% of patients were 'biomechanical non-responders' (wedge failed to correct adduction). Clinical effect was negligible.

THE MODALITY DEEP DIVE: CANES

High Efficacy vs. Behavioral Barriers.

Rating: ★★★☆

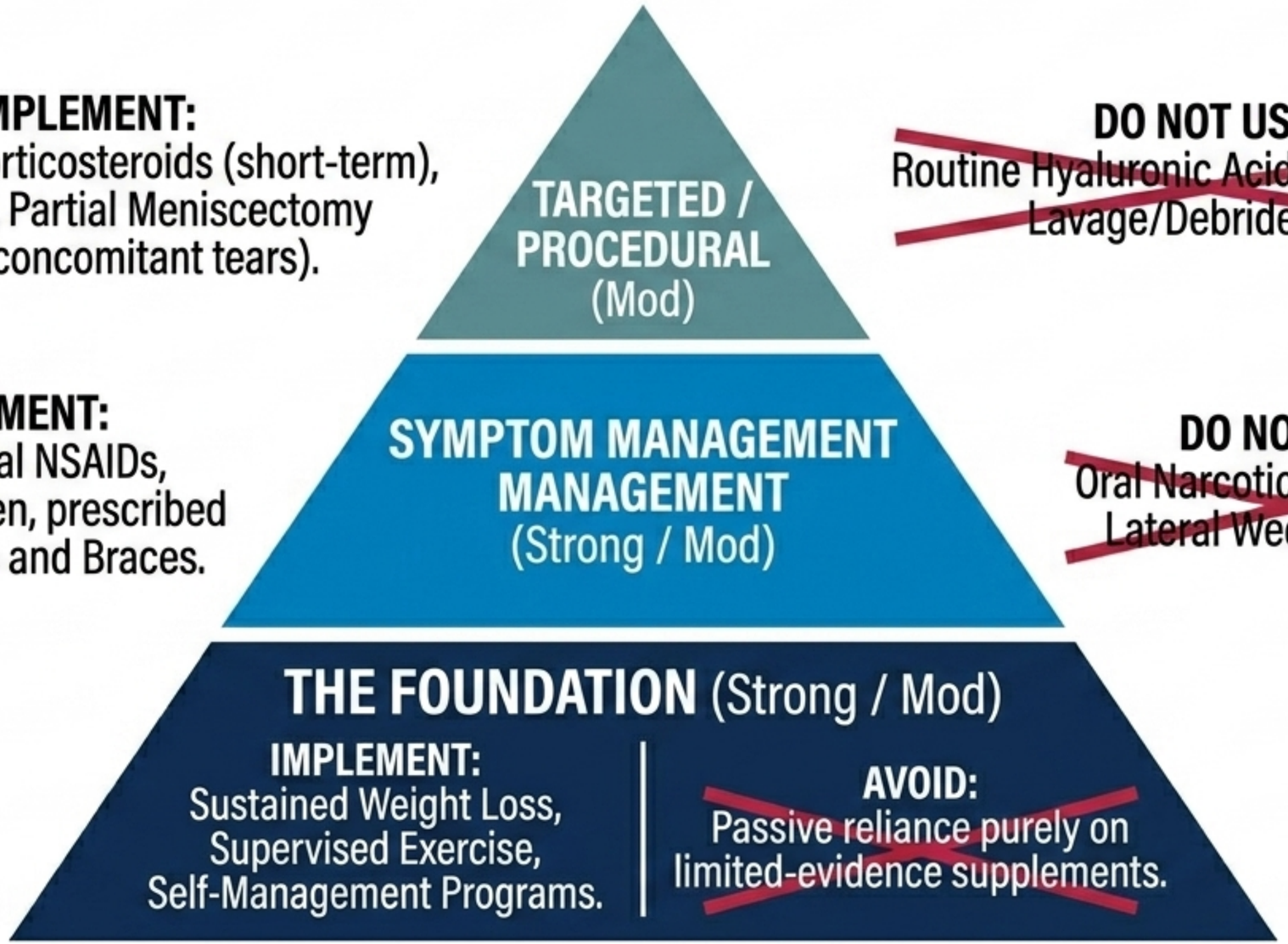
The Efficacy: Reliably improves pain and purposefully enhances mobility and function.

The Physiology: Patients readily adapt to the minor increased oxygen consumption demands of cane usage.

The Barrier: "Patient Vanity" (Van Ginckel). Non-compliance is driven by aesthetics and stigma, not lack of clinical efficacy.

Clinical Takeaway: Physicians must actively "prescribe" and destigmatize the cane, framing it as a highly effective mechanical tool rather than a symbol of decline.

THE OPTIMAL EVIDENCE-BASED PATHWAY



IMPLEMENT:
Intra-articular Corticosteroids (short-term), (short-term), Partial Meniscectomy (specific concomitant tears).

IMPLEMENT:
Oral/Topical NSAIDs, Acetaminophen, prescribed use of Canes and Braces.

DO NOT USE:
~~Routine Hyaluronic Acid, Arthroscopic Lavage/Debridement.~~

DO NOT USE:
~~Oral Narcotics (Tramadol), Lateral Wedge Insoles.~~