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Managing osteoarthritis: What's best for your patient?

New guidelines rate the evidence for hip and knee OA treatments. Handy chart provides at-a-glance summary

Practice recommendations

- Teach patients that self-care is key to successful management of osteoarthritis (Osteoarthritis Research Society International [OARSI] Evidence **1a**).
- Encourage patients to regularly engage in aerobic, muscle-strengthening, and range-of-motion exercise (**Ia: knee; IV: hip**).
- Recommend that patients try acetaminophen (≤ 4 g/d) before considering other analgesics for mild to moderate joint pain (**Ia: knee; IV: hip**).
- Prescribe the lowest effective dose of nonsteroidal anti-inflammatory drugs (NSAIDs) and avoid using them for long-term therapy (**Ia**).

OARSI level of evidence:

- Ia:** Meta-analysis of randomized controlled trials (RCTs)
- Ib:** RCT
- IIa:** Controlled study without randomization
- IIb:** Quasi-experimental study
- III:** Nonexperimental, descriptive studies
- IV:** Expert committee reports/opinion/experience

Osteoarthritis (OA) and other rheumatic conditions account for as many office visits as cardiovascular disease or essential hypertension, according to national data, and most involve primary care physicians.¹ As the population ages, the prevalence of

OA—estimated at 46.4 million in 2005 in the United States alone—will continue to rise.^{2,3} So, too, will the number of patients needing treatment for pain and functional limitations related to OA of the hips and knees.

Physicians who treat these patients have a new tool at their disposal: the Osteoarthritis Research Society International (OARSI)'s evidence-based, expert consensus guidelines for the management of hip and knee OA. These recommendations, published in February 2008, are the first “internationally agreed and universally applicable guidelines for the management of these global disorders.”⁴

In caring for patients with OA of the hips or knees, family physicians should keep in mind 2 guiding principles at the heart of the OARSI recommendations:

- the importance of lifestyle modification, including regular exercise, in coping with this degenerative, potentially debilitating disease; and
- the need to incorporate both non-pharmacologic interventions and drug therapy to achieve optimal care.⁴

International team sifts through the evidence

To develop the guidelines, OARSI convened a committee of 16 physicians from

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Handy chart shows how the Tx options rate

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Is your patient at risk?

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AP and tunnel images are key to OA diagnosis



A diagnosis of knee or hip osteoarthritis (OA) requires a medical history; physical examination; radiologic assessment, with standing X-rays of the lower extremities, including anterior-posterior and tunnel views for knee OA; and the exclusion of other conditions.³⁰ The tunnel view shown here reveals bone-on-bone articulation in the medial compartment of the left knee, and demonstrates the importance of standing X-rays.

Differential diagnosis includes gout, pseudogout, rheumatoid arthritis, patella-femoral pain, pes anserine (knee) bursitis, iliotibial band pathology, meniscal tear, cruciate tears, and tumors. No blood tests are indicated unless an inflammatory process is suspected. Synovial fluid in an osteoarthritic knee has a white cell count of $<2000/uL$.³¹

6 countries and 2 continents, with expertise in 4 disciplines: rheumatology, orthopedics, evidence-based medicine, and primary care. The team reviewed national and regional guidelines and studied systematic reviews; meta-analyses; randomized controlled trials (RCTs); controlled and uncontrolled trials; cohort, case-control, and cross-sectional studies; and economic evaluations from 1945 through 2001. The team also conducted a systematic review of evidence from January 2002 through January 2006.^{4,5} To ensure the quality of evidence hierarchy, the team used internationally accepted research tools.

The team used several criteria to rate the recommended strategies, including level of evidence, effect size for pain relief, level of consensus, and strength of recommendation (SOR). All of these criteria are included (and defined) in an at-a-glance summary of the OARSI recommendations (TABLE).

In particular, the SOR, which is used throughout this article, is an overall rating that reflects the opinions of the team members after consideration of the research evidence for efficacy, safety, and cost-effectiveness. It is based on a visual analog scale of 0 to 100 mm and is expressed as a percentage.

■ OARSI emphasizes patient education

Patient education about self-care and lifestyle modifications, such as weight loss, exercise, and pacing of activities to reduce the load on the affected joints, is OARSI's strongest nonpharmacologic recommendation (SOR: 97%). The guidelines also call for the following interventions:

- correcting mechanical abnormalities of the skeleton;
- helping patients lose weight;
- assisting patients with smoking cessation efforts;⁶

FAST TRACK

Recommend acetaminophen (≤ 4 g/d) before other analgesics for mild to moderate joint pain

- directing the use of nonprescription medications;
- prescribing assistive devices; and
- prescribing appropriate prescription drugs.

**■ Nondrug options:
 Exercise that achy joint**

To many patients, being told to exercise a joint in which movement is associated with stiffness and bone-on-bone pain seems counterintuitive. Referring to the findings of the OARSI panel may be helpful in explaining the importance of regular aerobic, muscle-strengthening, and range-of-motion exercises, all of which are strongly recommended (**SOR: 96%**). Exercise can be as simple as “regular aerobic walking” and home-based strengthening of the quadriceps.⁴ For patients with arthritic hips, water-based exercises are recommended.

Obesity can increase the risk of developing OA of the hips and knees, and excess weight puts extra stress on joints that are already arthritic. Thus, weight loss is both a risk modification factor (see “**Is your patient at risk of OA? Take steps now**” on page 648) and a key OA management strategy (**SOR: 96%**). In a meta-regression analysis conducted by the committee, a reduction of >5% of body weight or a loss at a rate of >0.24% per week was associated with significant improvement in disability. One RCT had a number needed to treat (NNT) of 3 (95% confidence interval [CI], 2-9) to achieve improved pain and function scores after a 2-month low-energy diet.⁷

**■ Don't underestimate
 the power of a phone call**

Other nonpharmacologic recommendations include referral to a physical therapist for evaluation and exercise instruction (**SOR: 89%**); instruction in the use of walking aids, such as a cane or crutch in the contralateral hand, to

improve biomechanics (**SOR: 90%**); and the use of braces to support unstable knees, an unproven intervention that may increase proprioception and stability (**SOR: 76%**). Physicians should also recommend footwear with insoles or lateral wedges to decrease lateral thrust of the knee and medial compartment forces (**SOR: 77%**).

Regular telephone contact, possibly on a monthly basis, is a suggested strategy for promoting self-care, tested in patients with OA of the knee but recommended for those with arthritic hips solely on the basis of expert opinion. A number of other modalities, including thermal therapy (heat treatments with warm water or wax, or cold therapy with a 20-minute ice massage), transcutaneous electrical nerve stimulation (TENS), and acupuncture, are recommended for symptom relief.

**■ Drug therapy:
 Start with acetaminophen**

The OARSI guidelines cite acetaminophen as an “effective initial oral analgesic” for mild to moderate pain in patients with OA of the hips or knees (**SOR: 92%**).⁴ In analyses conducted by the committee, the NNT to achieve an improvement in pain ranged from 1 to 2 in an earlier systematic review⁸ to 4 to 16 in a subsequent meta-analysis.⁹

Prescribe NSAIDs for short-term relief. While acetaminophen is considered the preferred long-term oral treatment, the strongest pharmacologic recommendation for alleviating the pain and stiffness associated with OA of the hip or knee is for nonsteroidal anti-inflammatory drugs (NSAIDs) (**SOR: 93%**). The caveat, however, is that NSAIDs should be used in the lowest effective dose and are not considered a long-term option. Patients with increased gastrointestinal (GI) risk should use either a cyclooxygenase-2 (COX-2) agent or an NSAID with a proton pump inhibitor or misoprostol for GI protection.

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Recreational, mild-intensity running has little effect on OA risk; high-intensity running increases the risk

CONTINUED

TABLE

OARSI guidelines rate the evidence for osteoarthritis treatment options

RECOMMENDATION	SOR, % (95% CI)*/ LEVEL OF CONSENSUS, %†	LEVEL OF EVIDENCE‡	ES (95% CI)§
Nonpharmacologic			
Education, self-help, patient-driven treatment	97 (95 to 99)/NA	Ia: education	NA
Aerobic, muscle-strengthening, and range-of-motion exercises	96 (93 to 99)/85	Ia: knee IV: hip Ib: hip, water-based	0.52 (0.34 to 0.70): aerobic 0.32 (0.23 to 0.42): strength 0.25 (0.02 to 0.47): water-based
Weight loss	96 (92 to 100)/100	Ia	0.13 (-0.12 to 0.38)
Walking aids	90 (84 to 96)/100	IV	NA
Physical therapy	89 (82 to 96)/100	IV	NA
Appropriate footwear/insoles	77 (66 to 88)/92	IV: footwear Ia: insoles	NA
Knee braces	76 (69 to 83)/92	Ia	NA
Telephone contact	66 (57 to 75)/77	Ia: knee; IV: hip	0.12 (0 to 0.24)
Thermal modalities	64 (60 to 68)/77	Ia	0.69 (-0.07 to 1.45)
Acupuncture	59 (47 to 71)/69	Ia	0.51 (0.23 to 0.79)
TENS	58 (45 to 72)/69	Ia	NA
Pharmacologic			
Oral NSAIDs	93 (88 to 99)/100	Ia	0.32 (0.24 to 0.39)
Acetaminophen ≤4 g/d	92 (88 to 99)/77	Ia: knee; IV: hip	0.21 (0.02 to 0.41)
Topical NSAIDs/capsaicin	85 (75 to 95)/100	Ia	0.41 (0.22 to 0.59)
Weak opioids/narcotics	82 (74 to 90)/92	Ia	NA
IA corticosteroid injections	78 (61 to 95)/69	Ia: knee; Ib: hip	0.72 (0.42 to 1.02)
IA hyaluronate injections	64 (43 to 85)/85	Ia	0.32 (0.17 to 0.47)
Glucosamine and/or chondroitin	63 (44 to 82)/92	Ia: glucosamine	0.45 (0.04 to 0.86)
Surgical treatments			
Joint replacement	96 (94 to 98)/92	III	NA
Unicompartmental knee replacement	76 (64 to 88)/100	Ib	NA
Osteotomy/joint preservation	75 (64 to 86)/100	Ib	NA
Joint fusion	69 (57 to 82)/100	IV	NA
Joint lavage/arthroscopic debridement	60 (47 to 82)/100	Ib	0.09 (-0.27 to 0.44): lavage -0.01 (-0.37 to 0.35): debridement

CI, confidence interval; ES, effect size for pain relief; IA, intraarticular; NA, not available; NSAIDs, nonsteroidal anti-inflammatory drugs; OARSI, Osteoarthritis Research Society International; SOR, strength of recommendation; TENS, transcutaneous electrical nerve stimulation

* SOR (strength of recommendation) is an overall rating that reflects the opinions of OARSI team members after consideration of the research evidence for efficacy, safety, and cost-effectiveness. SOR is based on a visual analog scale of 0 to 100 mm and is expressed as a percentage.

† Level of consensus is the estimated extent of agreement among committee members, expressed as a percentage.

‡ Level of evidence is broken into 6 categories: Ia: meta-analysis of randomized controlled trials (RCTs); Ib: RCT; IIa: controlled study without randomization; IIb: quasi-experimental study; III: nonexperimental, descriptive studies; and IV: expert committee reports/opinion/experience.

§ ES (effect size for pain relief) is a measure of the standard mean difference between interventions (eg, treatment vs placebo): 0.2 (small); 0.5 (moderate); and >0.8 (large). The ES refers to the knee and hip unless otherwise specified.

Adapted from: Zhang et al.⁴

Is your patient at risk of OA? Take steps now

Risk factors for osteoarthritis (OA) include:¹⁴⁻¹⁹

- mechanical abnormalities, such as varus (bowlegged) and valgus (knock-kneed) angulations;
- flat feet, and heel pronation and supination;
- a history of joint surgery or acute injuries, particularly to the anterior cruciate ligament (ACL) or meniscus;
- obesity;
- manual labor (any job that involves heavy lifting, together with kneeling and squatting);
- participation in competitive or high-intensity sports; and
- a family history of OA (based on mounting evidence of a genetic link).²⁰⁻²²

Lack of neuromuscular control (proprioception) of the knee is another risk factor, since it can expose the internal joint to forces that would otherwise be absorbed by muscle. Exposure of the joint to excess forces can occur if the impact is rapid, leaving the muscle without adequate time to contract to absorb the force, or the muscle is fatigued and weak from prolonged exercise.^{23,24}

Work with patients to modify risk. In discussing risk modification with patients, emphasize that high-intensity running, especially when practiced for years, increases the risk of OA

of the knees.²⁵ Indeed, high-impact activity of any kind subjects knee cartilage to significant single and repetitive impact loads and torsional loads.^{17,26} Point out, however, that some physical activity is needed to maintain normal metabolic activity of cartilage in a healthy joint and that recreational, mild-intensity running or jogging does not appear to increase the risk for OA.²⁷

Be aggressive with knee injuries. As noted earlier, a history of acute ACL or meniscus injury is a risk factor for OA. Knee trauma with effusions that develop rapidly (within 2-12 hours) is associated with high risk of significant intraarticular damage to the ACL, meniscus, and articular cartilage.²⁸ A study of pediatric and adolescent patients who underwent magnetic resonance imaging for possible internal knee injury found cartilage injuries to be the most common.²⁹

To avoid additional damage, manage knee trauma with effusions as a significant injury. Treatment includes bracing, physical therapy, low-impact exercise, and possibly even cross-training or job modification. Advise patients to continue physical therapy until strength and proprioception are fully recovered and no pain or effusion remains, which generally takes about 6 to 8 weeks, and not to return to normal activity prematurely.

For those with cardiovascular risks, both nonselective NSAIDs and COX-2 agents require caution; here, too, the lowest dose for the shortest possible duration is recommended.

The guidelines also call for the use of topical agents, such as topical NSAIDs and capsaicin, for relief of symptoms (SOR: 85%). The NNT for topical NSAIDs was 3 (95% CI, 2-4);⁴ capsaicin had an NNT of 4 (95% CI, 3-5) after 4 weeks of therapy.⁴ The recommendations also note that glucosamine and/or chondroitin sulfate may alleviate some symptoms of osteoarthritis of the knee, but should be discontinued if no benefit is observed after 6 months.

When something stronger is needed.

For moderate to severe pain that has not responded to oral agents, intraarticular (IA) injections with corticosteroids are recommended, as are IA hyaluronate injections (SOR: 78% and 64%, respectively). Weak opioids/low-dose narcotics round out the recommendations for treating moderate pain, with stronger opioids reserved for patients whose pain is severe.

■ When to consider surgery

Joint replacement surgery is recommended for patients who do not achieve adequate pain relief and functional improvement from nonpharmacologic and pharmacologic modalities (SOR: 96%).

A meta-analysis of 74 studies assessing quality of life 1 to 7 years after total hip and total knee replacement (THR and TKR) found substantial improvement in pain and function, but variable effects on mental health and social functioning. Risk factors for poor outcomes include older age; more (or more severe) pre-operative pain; medical comorbidities; musculoskeletal comorbidities such as low back pain, with functional limitations; low mental health scores; and OA in the hip that was not replaced.^{10,11}

Unicompartmental knee replacement (UKR) had an SOR of 76%. Reviews that compared TKR to UKR found similar 5-year outcomes in knee pain and function. Those who underwent UKR had better range of motion, but prosthesis survival at 10 years was better in those with TKR (>90% vs 85% to 90%).¹²

In young adults, **osteotomy and joint-preserving procedures** are recommended for hip OA, especially when dysplasia is present. In young, active patients with unicompartment OA, high tibial osteotomies may delay TKR by as long as 10 years.¹³

Joint lavage and arthroscopic debridement in knee OA remain controversial, although they may provide short-term symptom relief (**SOR: 60%**). **Joint fusion** as a salvage procedure after failed TKR had an SOR of 69%.

Work as a team to improve outcomes

The inevitable increase in the number of patients with OA of the hips and knees underscores the importance of having a range of treatment strategies, often best delivered by a multidisciplinary team with the family physician at the helm. The OARSi guidelines, which are backed by both a thorough review of research findings and expert consensus, can help you convince patients to take an active role in managing this potentially debilitating condition. Patients' commitment to lifestyle modifications and self-management, bolstered by your guidance and support,

is the most effective way to keep patients with OA on the move. ■

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Disclosure

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For young, active patients with unicompartment OA, osteotomies can delay total knee replacement for up to 10 years

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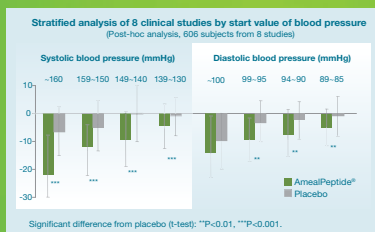


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