

James Crosby, MD
United Health Services,
Wilson Family Medicine
Residency, Johnson City, NY
James_Crosby@UHS.org

Osteoarthritis: Managing without surgery

To help patients who want to “try everything” before considering joint replacement, turn to the STEPs approach.

Osteoarthritis (OA) is a common, almost expected, part of getting old. Some patients require no treatment or have symptoms that are easily controlled with over-the-counter analgesics or nonsteroidal anti-inflammatory drugs (NSAIDs) and lifestyle modifications. Others are so debilitated that surgery is the only way to go.

Where does that leave elderly patients in between—those who don't make good surgical candidates or find little relief from basic interventions and want to “try everything” before surgery?

The best way to answer this question is to utilize the STEPS (Safety, Tolerability, Efficacy, Price, and Simplicity) format, a helpful mnemonic for an objective way

to evaluate drugs or medical therapies.¹ The recommendations, strength of recommendation (SOR) ratings, and summaries that follow are presented in this format, and draw upon recent reviews, focused studies, and scholarly analysis provided by the Osteoarthritis Research Society International (OARSI). The interventions are divided into 3 categories:

- over-the-counter remedies
- nonpharmacologic interventions
- injections/prescription drugs.

Strength of recommendation (SOR)

- A Good-quality patient-oriented evidence
- B Inconsistent or limited-quality patient-oriented evidence
- C Consensus, usual practice, opinion, disease-oriented evidence, case series

STEPS: Tolerability/Simplicity: low=less tolerable/more complex; high=more tolerable/less complex

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Over-the-counter remedies

Capsaicin ointment

Recommended (SOR: A).

Safety: High.

Tolerability: Medium. About 50% of patients experience a local (and possibly intense) burning sensation initially, but it generally wanes after several weeks. The number needed to harm (NNH) is about 10 for withdrawal due to adverse effects.²

Efficacy: Medium. Evidence regarding topical capsaicin comes mostly from

studies of patients with musculoskeletal conditions in general, not OA specifically. About 40% of patients treated with capsaicin report a 50% decrease in musculoskeletal pain, as do 25% of those using a placebo (number needed to treat [NNT]=8).²

Price: Low. About \$15 per month per joint.

Simplicity: Medium. Patients need to apply the ointment 3 or 4 times a day.

Tips: Advise patients to start with the lower strength ointment (it's available in strengths of 0.025% and 0.075%) and to apply very small amounts initially. Warn them that they may experience a burning sensation; if so, suggest they try cutting down on the recommended frequency.

Tell patients, too, to use topical capsaicin for a few weeks before evaluating its effectiveness or deciding whether to abandon it. Emphasize that it should be used for base pain rather than for acute pain relief. (For those who can't tolerate capsaicin, topical salicylate may offer similar benefits.)

Glucosamine

Recommended with or without chondroitin (SOR: B).

Safety: High.

Tolerability: High. Side effects are rare.

Efficacy: Low. There have been numerous trials of glucosamine alone (chondroitin alone is not recommended), mostly limited to knee pain. While many have found that glucosamine offers little or no clinical benefit, some have shown a benefit comparable to or slightly better than acetaminophen. Overall, evidence suggests that up to 40% of those who take glucosamine achieve a clinically significant response,³⁻⁵ although the placebo

response may be substantial.

One study found that glucosamine was effective only when it was combined with chondroitin, and only when pain was more than mild.⁶ Another showed no clinical benefit for hip OA.⁷ There is limited evidence for or against the use of glucosamine and chondroitin to slow disease progression; the 2 agents are not recommended for this purpose.

Price: Low to medium (\$5-\$35 per month).

Simplicity: Medium to high; patients should take glucosamine (or glucosamine and chondroitin) 3 times a day. Compliance is likely to be variable, depending on results.

Tips: Recommend a 4-month trial for most patients, particularly in view of the placebo effect; suggest that patients try a low-priced product and a daily dose of 1500 mg glucosamine, with or without 1200 mg chondroitin. Be sure to tell patients to purchase glucosamine sulfate, not glucosamine hydrochloride.

Evaluate after 4 months, and advise patients to discontinue if there is no significant improvement. Tell them, too, that while preparations vary by manufacturer and price, the difference between the various products is too small to justify the cost of the higher-priced brands.

Nonpharmacologic interventions

Acupuncture

Not recommended (SOR: A).

Safety: High.

Tolerability: Medium to high. Discomfort from the needles varies from slight to none.

Efficacy: Zero to low. Several studies have indicated some beneficial effect, but the degree of improvement has been small, with a sizable placebo effect.⁸ Studies typically include weekly sessions over

the course of several months, and have demonstrated up to a 20% improvement in pain and function; however, much of that improvement has been attributed to the placebo effect, as demonstrated by studies that compared acupuncture with a sham procedure.⁸ Most data on acupuncture involve the knee; there is insufficient information about the procedure's efficacy for other sites and for shorter treatment periods.

FAST TRACK

Chondroitin alone is not recommended for osteoarthritis, but 1 study found that glucosamine was effective only when combined with chondroitin.

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Price: Medium to high, approaching \$1000 for a series of weekly sessions over 3 to 4 months.

Simplicity: Medium. Frequent of-

vice visits are standard. Long-term compliance is likely to be low, given the small benefit and the inconvenience.

Tip: Advise patients that acupuncture has not been found to provide any substantial relief, but they should feel free to try it if they're interested in and can afford this treatment.

Knee braces

Recommended (SOR: C).

Safety: High.

Tolerability: Medium to high. Tolerance depends on the type of brace and its complexity.

Efficacy: Low to medium. Few studies of knee bracing have been done; however, 1 trial showed that 73% of those who used sophisticated taping for 3 weeks reported improvement, vs 10% of no-tape controls.⁹ Pain decreased by 2 points on a 0- to 10-point scale at 3 weeks, and the benefit persisted for an additional

3 weeks after the taping was discontinued. The taping used in the study is impractical for usual and long-term use, but 45% of those who used a sham taping/wrap reported improvement and about a 1-point decrease in pain at 3 and 6 weeks. This suggests that a less sophisticated wrap, such as an elastic patellar-stabilization sleeve, is likely to provide some benefit.

Price: Low (generally less than \$30).

Simplicity: High (for a basic sleeve or wrap).

Tips: Recommend an elastic sleeve or wrap with a self-adhesive strap and a patellar opening as a simple first step for OA of the knee. For patients with greater instability, consider recommending a more elaborate brace.

FAST TRACK

Basic knee support, such as an elastic patellar-stabilization sleeve, may be beneficial.

TENS

Recommended (SOR: B).

Safety/Tolerability: High. Withdrawals due to adverse effects of transcutaneous electrical nerve stimulation (TENS) range from 0% to 14%.¹⁰

Efficacy: Medium. The mean improvement with TENS is about 20 points more (on a 100-point scale) than the effect associated with placebo; the data are based on

knee OA pain that is moderate to severe. The effect may last 2 to 4 weeks; however, there have been few long-term studies of the benefits of TENS.

Price: Low to medium, depending on availability and insurance coverage.

Simplicity: Medium; TENS units can be used at home, but some patients may be uncomfortable using the apparatus.

Tip: Consider a TENS trial for patients with knee or hip pain that is moderate to severe.

Injections/prescription drugs

Corticosteroid injections

Recommended (SOR: A).

Safety: High for short-term use, but data on the degree and frequency of acute post-injection pain is limited. The possibility of harm from repeated injec-

tions is similarly uncertain, although 1 study of patients receiving 8 injections over a 2-year period found no progression in ill effects compared with patients receiving placebo.¹¹

Tolerability: Medium to high. Dis-

comfort from the needle is usually mild.

Efficacy: Low to medium. Critical analysis supports a modest benefit, with an NNT of 2 to 3 for short-term improvement (lasting 3-4 weeks).^{12,13} In 1 study, steroid injections produced an average of a 16-point reduction

in pain on a 100-point scale. After 1 month, the benefit from the injection is usually not clinically significant.

Price: Low (\$100-\$200 per injection).

Simplicity: High. The injection itself is a relatively simple procedure, but patient compliance with a scheduled course of repeat injections is uncertain.

Tips: Consider steroid injections for any OA patient with a tense effusion. Because aspiration is often performed just prior to giving the injection, such patients are the best candidates for this procedure. In fact, whenever you aspirate painful effusions, consider injecting a steroid before the needle is removed.

Hyaluronic acid (HA) injections

Recommended with caveats (SOR: A).

Safety: High.

Tolerability: A small number of patients experience a transitory local flare-up. In addition, some patients have an aversion to injections.

Efficacy: Low. Several recent meta-analyses and systematic reviews of HA injections for knee OA have found a small, often negligible, clinical effect, with placebo usually accounting for up to half of the reported benefit.¹⁴⁻¹⁸ In 1 study with no control group, however, patients experienced about a 60% decrease in composite pain score—and 75% were satisfied or very satisfied with the treatment.¹⁹ Studies of HA injection for hip OA are very limited, but a recent single-injection trial showed no benefit over placebo.²⁰

Any benefit from an HA injection generally lasts 3 to 4 months.

Price: Medium-high: A course of 3

injections costs \$700 to \$1000 per joint. There are claims of substantial savings due to delayed joint replacement, but these are speculative.

Simplicity: Medium. Compliance (completing all 3 injections) was high in clinical trials, but is uncertain otherwise. However, injections may frequently be useless because the joint space isn't entered. One study found that 29% of knee injections were extra-articular; placement was uncertain in another 5%. There was no correlation between successful placement and presumed expertise. This error is not surprising, considering that the articular space is usually narrowed and patients being treated for joint pain are often obese. Being able to aspirate fluid increases the chance of proper placement. (While placement errors may also occur with corticosteroid injections, that possibility is offset by a lower cost and somewhat greater likelihood of beneficial effect.)

Tips: Don't use HA injections as a long-term solution. In cases where these injections are appropriate, keep these caveats in mind:

- Consider this option only for patients with high-function goals and substantial pain or disability.
- Proceed cautiously with morbidly obese patients and patients without effusion.
- Opt for bacterial HA (Euflexxa), which has been found to be the most cost effective and have the highest efficacy and the fewest adverse effects; evidence suggests that hylan (Synvisc) should be avoided.^{15,16}

HA injections can be repeated every 6 to 12 months if they prove to be highly beneficial. Advise patients, however, that data on repeated courses of the injections are very limited.

FAST TRACK

Being able to aspirate fluid from a joint increases the chance of proper placement of an intra-articular injection.

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Nonsteroidal anti-inflammatory gel or patch

Not recommended (SOR: B).

Safety: High. Absorption is minimal, but there may be some systemic effects.

Tolerability: Medium to high, although some patients develop skin reactions to the patch and the gel.

Efficacy: Low. Pain reduction of up to 50% has been reported, but most of it is attributed to the placebo effect. The actual effect of the gel or patch averages

only about 10%.²¹⁻²⁴

Price: Medium. The gel sells for \$150 to \$180 per month for a quantity large enough to be used on 2 hands or 1 knee; the patch is similarly priced.

Simplicity: Low. Manufacturers recommend that the gel be applied 4 times a day, but this can prove difficult over the long term. The patch is applied only twice a day, but the painful area is usually too large or irregular for the patch to cover.

Tips: Reserve both the gel and the patch for acute flare-ups. Diclofenac gel is approved as a treatment for OA, while the patch has been approved only for acute injuries, but both may be suitable for patients with OA. Either product may be a welcome option for patients who are adamant about the use of NSAIDs but unable to take them orally.

Narcotics for refractory pain

Recommended (SOR: B).

Safety: Medium. The elderly are particularly vulnerable to narcotics' adverse effects, but the incidence of addiction and abuse in geriatric patients is very low. Recently released guidelines on the management of persistent pain from the American Geriatrics Society recommend that all older patients with moderate to severe pain or diminished quality of life be considered for narcotic therapy.²⁵

Tolerability: Medium. Noncompliance is associated with side effects, which are usually dose-dependent. These include constipation, somnolence, and mental status changes. Reported noncompliance rates vary, in some cases reaching as high as 30%.²⁶

Efficacy: Low to medium for weak narcotics (eg, codeine, tramadol), with about a 10% decrease in pain.^{26,27} However, studies generally suffer from small numbers of patients, short duration, inconsistency among clinical trials, and

limited evaluation of disability and quality of life. One good study of tramadol users showed about a 15% decrease in pain among "young elders"—the total decrease in pain was 30%, including the placebo effect. Sleep quality improved and tolerability was high, with no increase in withdrawal due to adverse effects.²⁸ For stronger narcotics (eg, morphine), direct evidence of efficacy for OA pain is lacking, but it seems reasonable to expect a medium benefit. Low-to-moderate daily doses of opioids for chronic noncancer pain—including arthritis—have been shown to improve the quality of life, compared with no narcotics or high doses.²⁹

Price: Low (less than \$20/month) for hydrocodone with acetaminophen; medium to high (more than \$150/month) for long-acting morphine and transdermal fentanyl.

Simplicity: Medium to high. Twice-a-day dosing is available for long-acting strong opioids, but some narcotics must be taken 4 times a day.

Tips: Start low and go slow, with a weak agent. Increase the dose, as tolerated, to a safe daily maximum, and continue only if relief is considerable. Exercise extra caution in frail elderly patients. Start laxatives as a preventive measure. Reserve strong agents (and possibly even weaker narcotics) for patients who have severe pain from OA but are poor surgical candidates.

FAST TRACK

When you prescribe narcotics for refractory OA pain, start laxatives as a preventive measure.

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PATIENT HANDOUT

Living with arthritis: Do's and Don'ts

Osteoarthritis is an inflammation of the joint that affects many people as they age, mainly in the knees, hips, and hands. After many years of use, the cartilage that lines the inside of the joint thins and eventually wears off, leaving bone rubbing on bone. At the edge of the joint, the bone may grow into small “spurs” and fluid may increase inside, causing inflammation and pain.

There is no cure for arthritis. But there are many things that you and your doctor can do to make arthritis easier to live with, and to slow its progression. These Do's and Don'ts may help:

Do get moving. Exercising your arthritic joints, except during acute flare-ups, will strengthen the muscles and help you stay active. Eventually you'll find that you're in less pain and can move about more easily.

Do consult a physical therapist to find out what type of exercise is best for you. Ask your doctor for a referral.

Don't do those exercises during painful flare-ups. This is the time to give your joints a rest.

Do take acetaminophen (Tylenol), as needed, especially during flare-ups. You can take up to 4000 mg a day, but be sure to tell your doctor if you're taking acetaminophen regularly.

Don't take acetaminophen without first consulting your doctor if you have liver or kidney disease—or you're taking a prescription pain medication.

Do ask your doctor about nonsteroidal anti-inflammatory drugs, sometimes called NSAIDs (pronounced *N-SEDS*). Some people benefit from ibuprofen (Advil, Motrin) or naproxen (Aleve), which are sold over-the-counter. Others take prescription NSAIDs such as Celebrex.

Don't take NSAIDs without consulting your doctor if you're over the age of 65. Both prescription and non-prescription NSAIDs can have serious side effects, and should be used with caution, if at all, by older people.

Do consider a trial of glucosamine (1500 mg daily), with or without chondroitin (1200 mg daily). Take it

every day for 3 or 4 months without making other changes in treatment before you decide whether it's working.

Don't buy an expensive brand of glucosamine. The extra cost probably isn't worth it.

Don't take chondroitin without glucosamine, as it is unlikely to help.

Do apply ointments and rubs for pain relief. Start with capsaicin, which is available without a prescription. Buy the lowest strength you can find, and start by applying a very small amount on a small area because it may cause a burning sensation in the beginning. If you can't tolerate capsaicin ointment, try a salicylate rub instead.

Do consider corticosteroid injections if you continue to have a lot of pain in your knee, especially if the doctor finds that you have fluid build-up. (If you don't want to be injected with a steroid, ask your doctor if you're a candidate for injections of hyaluronic acid, an artificial joint fluid that may help some patients.)

Do try TENS (transcutaneous electrical nerve stimulation) if you continue to have severe hip or knee pain. TENS therapy may be administered by a physical therapist, or with a device that you can use at home. A pad that emits a small tingle of electricity is placed over the painful joint to relieve the pain.

Do talk to your doctor about narcotic pain medication if your pain continues to be severe.

ADDITIONAL SELF-CARE TIPS:

Do try a wrap-around knee brace, which you can purchase at your local pharmacy. Ask your doctor about getting a cane or a walker if you need additional support.

Do alert your physician to certain conditions that can make your arthritis pain worse—insomnia, depression, or foot problems, for instance. And, if you have ill-fitting shoes or shoes that don't provide much support, it's time to replace them.



FAST TRACK

Stress the “bonus” benefits of exercise, such as mood elevation and a sense of well-being.

**■ What else can you do?
Encourage activity—again**

A clear conclusion from many studies is that nonaquatic exercise involving the affected joints, either specifically or as part of a general exercise routine, is clinically beneficial in decreasing pain and increasing function.³⁰ When it comes to aquatic exercises for OA, the data are very limited, but suggest a small short-term benefit.³¹ Overall, the optimal type and duration of exercise for OA patients, as well as the best location (home or at a gym), is not known.

If your patient has stopped or markedly cut down on the time spent exercising, explore the feasibility of another attempt, and discuss ways to improve compliance. Stress the value of maintenance and other “bonus” exercise benefits, such as mood elevation and an overall sense of well-being. If the patient is not undergoing physical therapy, consider a referral.

Use a chronic pain approach

Patients whose OA symptoms continue to be troublesome may benefit from a chronic pain syndrome approach. Nurse case management, phone contact, and extra attention from you may be helpful, along with educational material that the patient can consult between visits (**PATIENT HANDOUT**, page 359).³²

Treat insomnia. Studies are insufficient for hypnotics for OA symptoms, but good sleep is a goal of standard pain management. Cognitive-behavioral therapy has been found to be helpful in alleviating sleep problems in patients with OA.³³ At a minimum, take a good sleep history and provide basic sleep hygiene education.

Treat vitamin deficiency and depression. Many elderly patients are deficient in vitamin D, and evidence indicates that supplementation supports muscle strengthening and may aid in pain reduction. The effects are mostly preventive, however, and therefore not easily appreciated, so stress the importance of long-term health.

Depression, too, is common among the elderly, particularly for chronic pain patients. If you prescribe antidepressants or vitamin supplementation, emphasize that they are “for your arthritis.”

Inspect footwear. Despite several studies regarding the effects of shoes with inserts on knee OA, it is unclear whether they provide clinical benefit. OARSI supports insoles for selected patients, but acknowledges that evidence is weak. Advise patients to select shoes that are flexible yet supportive and that moderately priced shoes appear to be as good as more expensive footwear for most OA patients. A podiatry consult may be beneficial for patients who have deformities of the feet or complain of foot pain.

Consider assistive devices. Patients with OA who are unstable may benefit from the use of a cane, walker, or other assistive device. Use common sense and individualize treatment, in consultation with an occupational therapist, if necessary.

**■ Joint replacement:
When or whether?**

Patients who are considering joint replacement surgery or are interested in learning more about it need a realistic picture of what to expect. Explain that results are usually—but not always—very favorable. However, surgery often brings greater improvement in pain than in function, and recovery can be very strenuous and lengthy. Infection rates average 1%,^{34,35} and mortality rates are low. In a large study of veterans, the 30-day mortality rates after knee and hip arthroplasty were 0.6% and 0.7%, respectively,³⁶ but thromboembolic complications may occur despite prophylaxis. Overall, 5% of those undergoing joint replacement surgery develop significant complications.^{34,35}

Knowing what surgery entails and the difficult recovery required may help patients be more tolerant of their OA symptoms. Whatever treatment your

patients opt for, empathy on your part will help, as well. ■

Correspondence

James Crosby, MD, United Health Services, Wilson Family Medicine Residency, 40 Arch Street, Johnson City, NY 13790; James_Crosby@uhs.org

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FAST TRACK

Surgery often brings greater improvement in pain than in function.