

## **Recommendations for Treating Knee Osteoarthritis**

Arthritis is a general term for inflammation within a joint. Osteoarthritis (OA), also referred to as Degenerative Joint Disease (DJD), is a disorder where the lubricating cartilage layer responsible for cushioning the joint starts to break down. Once this cartilage layer starts to break down the underlying bone is exposed to unusually high forces just from everyday activities. This often leads to joint pain, tenderness, stiffness, locking, and inflammation. Some factors that may contribute to OA include aging, family history, obesity, injury, developmental factors, and muscle weaknesses.

Knee OA may occur in any or all of the three compartments; under the knee cap or patellofemoral compartment, the inside or medial compartment, and the outside or lateral compartment.

The following recommendations are based on the most recent evidence-based Clinical Practice Guideline from the American Academy of Orthopedic Surgery (2009).

**Treatment Objectives for Knee OA:** Pain relief and improvement or maintenance of functional abilities.

### **Personal Care and Non-Invasive Strategies**

**Self-Management through Education.** This includes recognizing how changes in activity, exercise and lifestyle will affect the symptoms you experience. In order to effectively do this the patient must pay attention to what triggers pain and disability and actively explore alternatives like changing footwear, making recreation, or workplace modifications, etc.

**Weight-Loss.** In order for patients to help manage their Knee OA patients with a Body Mass Index (BMI) of 25 or greater should try to maintain a lower BMI by losing 5% of their body weight. There is strong evidence that suggests weight loss will improve knee function while decreasing pain. Evidence also suggests that diet is the most important factor in obtaining and maintaining an appropriate BMI due to the fact that patients with Knee OA are unable to vigorously exercise.

**Low Impact Aerobic Fitness.** Many patients with OA are able to tolerate walking, cycling, swimming, water aerobics, tai chi, gentle yoga, and other low impact activities while receiving substantial benefits including pain relief and improved functional ability.

**Range of Motion/Flexibility Exercises.** Independent or physical therapy-directed flexibility exercises may benefit patients with muscle or joint stiffness or limited joint motion. Often time pain is associated with stiffness and relief may be achieved with stretching.

**Taping/Bracing.** Short-term pain relief can be achieved with medial patella taping or compression sleeves. Compression sleeves are widely available and may provide some

symptomatic relief and warmth. “Unloader” braces for medial or lateral compartment arthritis are designed to transfer stresses from the arthritic side of the knee to the non-arthritic side of the knee but would most likely be ineffective for patellofemoral knee OA. Currently there is very little evidence to strongly recommend “unloader” braces to all patients with medial or lateral OA but some patients have benefited from the brace. “Unloader” braces are fairly expensive and require a prescription.

## Medications

**Glucosamine and Chondroitin Sulfate.** Most studies show no clinically important effect or benefit compared with placebos. Despite the studies showing no real benefit the risks are extremely low, and some patients report relief.

**Acetaminophen (Tylenol).** There is strong evidence for a rather significant effect on pain relief. Often times patients are started on a daily dose of 2000 mg. This dose can be adjusted based on what works best for the patient. A patient should never take more than 3000mg in 24 hours and no more than 1000mg per dose. Patients should always use the lowest effective dose. There is a low risk of liver and kidney toxicity when using recommended dosing. The risk of harming the liver is thought to increase if acetaminophen is ingested while alcohol is in your system. Patients should not drink more than three ounces of alcohol a day while taking acetaminophen.

**Nonsteroidal Anti-inflammatory Drugs (NSAIDs).** When acetaminophen alone does not adequately control the patient’s symptoms it is recommended an NSAID is added. NSAIDs can also be added for symptom control on bad days or on days the patient plans to be more active than usual. Common NSAIDs include Advil, Aleve, Ibuprofen, and Motrin. Finding one that works well for you may require trial and error. Patients should always use the lowest effective dose. The most common problems associated with frequent NSAID use occurs in the GI track and can range from stomach upset to bleeding ulcers. Prolonged use carries a risk of liver and kidney toxicity. Regular NSAID users should have periodic blood counts and labs to monitor liver and kidney function. The patient’s primary care provider (PCP) is best equipped to do these tests. NSAIDs are also known to aggravate high blood pressure and can increase your risk of serious and potentially fatal cardiovascular events such as heart attacks and strokes.

**Corticosteroid Injections.** There is no conclusive evidence for short term pain relief and/or improved function, and long term relief is unpredictable. Some studies have suggested a therapeutic effect up to 4-6months while other show nothing past 2 weeks. Patient experiences suggest a highly variable response. Risks are very low and can include steroid flare, infection, bleeding, pain, and blood sugar elevation. Repeated exposure to steroids can be detrimental to the joint.

**Hyaluronic Acid Injections (Viscosupplementation).** These injections are typically made from rooster comb extracts. Brand names include: Synvisc, Supartz, Orthovisc, and Euflexxa. People with allergies to bird products should probably not use these products. There is inconclusive evidence for the effectiveness of these injections in the treatment of

OA. Numerous studies show “positive results”, but the best quality studies show small effects. These treatments include a series of three to five shots. Whether or not relief will be obtained is unpredictable, and it is unknown whether results will last from 0 to 6 months or longer. Cost may be prohibitive. Potential complications include infection and allergic reaction.

## Surgery

**Arthroscopy for Debridement or Lavage (Washout).** These guidelines recommend against the use of arthroscopy for Knee OA because of a very weak effect on pain and function.

**Arthroscopy for Meniscectomy or Loose Body Removal.** This is an option for patients whose primary signs and symptoms are related to a torn meniscus or loose body. This can be difficult to determine since almost all Knee OA patients have a “degenerative tear” of their meniscus, most of which are not causing their symptoms. It is common for people over 50 to have meniscal tears without any symptoms. Meniscus cartilage seems to “wear out” with age similar to vertebral discs in our spine. To some extent meniscus tears are a normal part of aging.

**Osteotomy (Realignment of the Limb).** This is an option for some patients with an angular deformity of the lower limb, commonly referred to as knock-kneed or bow-legged) which is causing arthritis in the “compressed” compartment. An Osteotomy changes the knee from one angular deformity to another transferring stresses to the “good” side of the knee. Potential complications can include infection, nonunion, unsightly deformity, and the eventual need to convert to a total knee replacement.

**Partial Knee Replacement.** “Unicompartmental” replacements (UNIs) are an option for those patients with near normal alignment that have OA isolated to one compartment of the knee. Potential complications include persistent pain, infection, prosthetic failure, progression of arthritis in other compartments, and possible need to convert to a total knee.

**Total Knee Replacement (Total Knee Arthroplasty or TKA).** Total joint replacement is a reliable choice for patients with end stage OA to receive pain relief and functional improvement. There is good evidence that shows the patients quality of life improves substantially. In the active patient a knee replacement may preclude involvement in certain high impact recreational activities such as aggressive alpine skiing, singles tennis, or running. Low impact activities are encouraged with total knee replacements. Potential complications include persistent pain, infection, and prosthetic failure or loosening with the possibility of a revision.

The information contained in this handout is intended to inform and educate, it is in no way meant to replace medical evaluations, advice, diagnosis or treatment by a healthcare professional.