

Common Knee Problems and How to Address Them

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STORY AT-A-GLANCE

- › Your knee joint is particularly vulnerable to injury due to its complex structure and the significant stress it endures
- › Signs your knee joint is injured include pain, stiffness, weakness and popping or crunching sounds when you move
- › Common knee problems include torn ligaments, cartilage injuries and osteoarthritis
- › Maintaining a healthy weight is important, as excess weight may lead to quicker degeneration of cartilage and an increased risk of knee injuries
- › Depending on the knee condition, weight loss, physical therapy, knee braces, exercise, tai chi and acupuncture can help, as can nutritional interventions for joint health, like bone broth

Properly functioning, pain-free knees are vital for maintaining an active and independent lifestyle. Your knees play a critical role in providing mobility, stability and support for numerous daily activities, from walking and climbing stairs to squatting and playing sports.

The knee joint is the largest and one of the most intricate joints in the human body, made up of bones, cartilage, ligaments and tendons that work together to support movement and bear weight. However, it is particularly vulnerable to injury due to its complex structure and the significant stress it endures.

Common knee problems include damaged ligaments, torn cartilage, tendonitis and arthritis, each of which can cause pain and mobility issues that hamper your quality of life. Fortunately, there are a wide variety of nonsurgical interventions to address knee problems and the pain they cause.

5 Common Knee Problems to Avoid

If your knee joint is injured, you'll likely experience pain, which can range from dull to sharp and severe. Pain may occur during or after physical activity, or even while you're at rest. Stiffness, which may make it difficult to use your joint's full range of motion, may also occur, along with weakness or instability, such as a feeling that your knee may give out.

Other signs of knee problems include popping or crunching noises when you move your knee or an inability to straighten it. Your knee may also get locked into place and, in serious cases, be unable to bear weight. Five of the most common knee problems include:¹

- **Torn ligaments** – This involves the tearing of one or more of the ligaments that support and stabilize the knee joint, typically due to an accident or sports-related injury. Among sports injuries, 41% involve the knee and one-fifth of those involve the anterior cruciate ligament (ACL).²

The ACL is located in the center of the knee and controls the forward movement and rotation of the tibia (shin bone) relative to the femur (thigh bone). An ACL tear is often caused by sudden stops, jumps, or changes in direction, common in sports like soccer, basketball and skiing.

- **Cartilage injuries** – The meniscus is a piece of cartilage that acts as a cushion between your femur and tibia. Tears can occur due to twisting motions or direct impact and can lead to pain, swelling and difficulty moving your knee. "If your knee joint is locking," physiotherapist Patricia Collins told The Guardian, "and you're having to physically move it with your hands, that could imply a torn meniscus."³

- **Osteoarthritis** – Osteoarthritis occurs when the protective cartilage that cushions the ends of your bones wears down over time. Although osteoarthritis can damage any joint, the knee joint is most frequently affected.⁴
- **Runner's knee** – Also known as patellofemoral pain syndrome, runner's knee involves pain around the kneecap, often due to overuse, muscle imbalances or improper alignment of the kneecap. It's common in athletes and active individuals.

Iliotibial (IT) band friction syndrome, also known as IT band syndrome, is another condition that often affects runners and other athletes. It occurs when the iliotibial band, a thick band of fibrous tissue running from the hip to the shin along the outside of the thigh, becomes tight or inflamed and rubs against the outer part of the knee.
- **Tendinitis** – This is an inflammation or irritation of the tendons around the knee joint. The most common form is patellar tendinitis, also known as "jumper's knee," which affects the patellar tendon connecting the kneecap to the shinbone.

Knee Surgery Is Often Ineffective, No Better Than Placebo

While certain knee problems, like ACL or meniscus tears, may require surgical reconstruction, less invasive interventions often lead to better results. For instance, the standard orthopedic surgeon's intervention for meniscal tears is performing an arthroscopic partial meniscectomy.

In fact, arthroscopic surgery on the meniscus is the most common orthopedic procedure in the U.S.,⁵ but one study conducted in Finland found that arthroscopic knee surgery for degenerative meniscal tears had no more benefit than "sham surgery."⁶

A landmark study conducted in 2002, published in the New England Journal of Medicine, also looked at arthroscopic surgery for knee osteoarthritis, and found the real **surgery had no benefits over the sham procedure.**⁷ According to the authors:⁸

“In this controlled trial involving patients with osteoarthritis of the knee, the outcomes after arthroscopic lavage or arthroscopic débridement were no better than those after a placebo procedure.”

In addition, it's been found that arthroscopic knee surgery with meniscectomy increases the risk of future knee replacement surgery by three-fold.⁹ Total knee replacement, which is sometimes recommended for osteoarthritis in the knee, also carries risks. Researchers explained in the Journal of Arthritis:¹⁰

“Total knee replacement (TKR) is often the end-point of many causes of knee pain and is used with increasingly frequency. However, there are a wide variety of problems associated with TKR including ongoing pain, patient dissatisfaction and the need for revision surgery ... TKR should be avoided unless absolutely necessary ...”

Obesity Is a Leading Cause of Knee Problems

Your knee joint bears a significant portion of your body's weight, and excess weight can exacerbate wear and tear, leading to various knee issues. Excess weight may lead to quicker degeneration of cartilage and an increased risk of knee injuries.

For instance, research has found significant changes in the curvature of your knee joint within the first three months after injury with an increased body mass. The results found those who underwent surgery experienced greater flattening of the knee joint than those who used rehabilitation without surgical intervention when their body mass index was higher.¹¹

Obesity is also a leading cause of knee replacements. One Australian study of 56,217 patients showed that, of the patients who received a knee replacement due to osteoarthritis, 31.9% were overweight and 57.7% were obese.¹² What's more, those in the most severe obese category (class 3) were also more likely to have knee replacement surgery at a younger age – 7.2 years earlier than normal weight women.

While the mean age that women of normal weight have knee replacement is 71.3 years, those with class 3 obesity had the surgery at a mean age of 64.1 years. Men with class 3 obesity were also 5.8 times more likely to undergo knee replacement than normal weight men, and also had the surgery 7.3 years earlier.¹³

Overall, the researchers noted that close to 90% of people who undergo primary knee replacement in Australia are overweight or obese. As for why obesity increases the risk of knee osteoarthritis (OA), they explained:¹⁴

“The contribution of obesity to the development of knee OA is multifactorial. Not only does obesity cause excessive loading of joint surfaces, but dyslipidemia and adipose tissue inflammation increase cytokine production, which also contributes to the etiology of OA.”

Further, excess weight can also alter gait and movement patterns, leading to improper alignment and increased stress on the knee joint. This can cause or worsen conditions like patellofemoral pain syndrome and meniscus tears.

Nonsurgical Interventions Are Often Effective

Resolving knee problems without surgery starts with identifying their underlying cause. Depending on the condition, weight loss, physical therapy, knee braces,¹⁵ exercise, tai chi¹⁶ and acupuncture¹⁷ can help.

Platelet rich plasma (PRP) therapy, which releases growth factors that can help heal and strengthen areas of the human body, including knee joints, is another option.¹⁸ PRP therapy works by utilizing the high concentration of growth factors and proteins in platelets to stimulate and enhance your body’s natural healing processes.

When injected into damaged tissue, PRP releases these growth factors, which promote tissue repair, reduce inflammation and enhance cellular growth. Research published in the American Journal of Sports Medicine investigated the effects of PRP when applied to patients with OA in both knees.¹⁹

At six weeks and three months, patients whose knees were treated with one or two PRP injections had a reduction in pain and stiffness, and experienced improved function. At the six-month mark, positive results from PRP diminished, but knee pain and function were still better than before treatment. Consuming specific **anti-inflammatory and healing foods** is another strategy to support overall knee health and knee osteoarthritis prevention.

Cruciferous vegetables like broccoli, Brussels sprouts, cauliflower and cabbage, for instance, contain a compound called sulforaphane. also help reduce the risk of osteoarthritis,²⁰ in part by blocking enzymes that are linked to joint destruction. Optimizing your **vitamin D levels** is another strategy, as insufficient levels of vitamin D are associated with foot pain linked to knee osteoarthritis.

In one study, 23.7% had disabling foot pain due to OA. Participants were randomly assigned to receive either a monthly dose of vitamin D3 or a placebo for two years. The data showed greater improvement in people receiving vitamin D and in those who maintained a sufficient level of vitamin D. Researchers concluded that "supplementation and maintenance of sufficient vitamin D levels may improve foot pain in those with knee OA."²¹

Red and Near-Infrared Light, Glucosamine Also Useful for Knee Problems

Over the past few decades, more than 5,000 studies have been published about **red and near-infrared light therapy**, also known as photobiomodulation (PBM), for a wide range of ailments, including knee pain and knee osteoarthritis.²² As about 40% of sunlight is in the **near-infrared spectrum**, it strongly supports the idea that this is an important frequency to be exposed to.

For knee problems, low-level laser therapy (LLLT), which uses near-infrared light, is one promising option.²³ "The 'optical window' for biological tissue is approximately 650-1200 nm [nanometers]. The tissue penetration is maximum at these wavelengths, and thus

red or near-infrared light (600–950 nm) is utilized in LLLT,” researchers wrote in the *Journal of Cutaneous and Aesthetic Surgery*.²⁴

Essentially, what you're doing with near-infrared-based LLLT or photobiomodulation is stimulating your mitochondria to release nitric oxide (NO) and boosting adenosine triphosphate (ATP) production, which is the energy currency of the cell. Together, your mitochondria, NO and ATP work in concert to promote healing effects, such as DNA repair and cellular regeneration.

In a study involving patients with chronic knee pain caused by an osteoarthritis-induced degenerative meniscal tear, LLLT helped relieve chronic pain.²⁵ Other research published in *Frontiers in Bioengineering and Biotechnology* stated:

“At the length of 785–904 nm, LLLT can be used as non-pharmaceutical and non-surgical treatment modality for KOA [knee osteoarthritis] patients by combining it with exercises that result in improvement in ... pain, range of motion, and functional status in KOA patients via photobiomodulation.

Through this critical opinion, the authors argue that there is sufficient evidence of LLLT to be further used and commercialized as a therapeutic option for KOA patients.”

Supplementing with glucosamine, a compound found in human cartilage, is also worth considering if you have knee problems. Glucosamine has anti-inflammatory properties and may help relieve arthritis-related pain by slowing the degradation of collagen and cartilage and improving the function of your joints. One systematic review and meta-analysis revealed glucosamine is superior to placebo in alleviating knee osteoarthritis symptoms.²⁶

Consume Collagen and Bone Broth for Joint Health

Collagen is a major component of cartilage, the tissue that's degraded in OA and injured in cases of a torn meniscus. Collagen accounts for about 30% of the total protein in your body.

One of its primary functions is to provide structural support and strength to your tissues, such as skin, bones, tendons, ligaments and cartilage,^{27,28,29} allowing them to stretch while still maintaining tissue integrity. As such, collagen is crucial for repairing soft tissue, muscle and connective tissue, all of which tend to get weaker and less elastic with age.

For knee problems, a high-quality organic and/or grass fed **collagen supplement** at a dose of 50 grams a day can be very beneficial. Collagen supplements can be either unhydrolyzed (undenatured) or hydrolyzed (denatured). The processing that most collagen supplements undergo to become hydrolyzed can result in questionable byproducts that are best avoided.

Bone broth contains several nutrients that are beneficial for joint health, including collagen, gelatin, glucosamine and chondroitin. Bone broth also contains amino acids such as glycine and proline, which have anti-inflammatory properties that may help reduce joint pain and inflammation.

Further, bone broth may help reduce joint pain and stiffness,³⁰ including knee osteoarthritis pain.³¹ It helps reduce joint pain and inflammation, in part, courtesy of chondroitin sulphates, glucosamine and other compounds extracted from the boiled down cartilage.

To make homemade bone broth, simply place bones in an Instant Pot, fill the pot with pure, filtered water – just enough to cover the bones – add salt and other spices to taste, then set it to cook on high for two hours if the bones are from a concentrated animal feeding operation (CAFO) or four hours if organic and grass fed.

Using bones from CAFO beef can be problematic due to potential heavy metal contamination. So, when cooking these bones in the Instant Pot, it's best to limit the time to two hours to avoid introducing heavy metals into your broth.

If you're using beef bones from grass fed organic sources, you can safely cook them for four hours. Using bones from an organic source is even more important if you're using

chicken, as CAFO chickens tend to produce stock that doesn't gel,³² which raises questions about the quality of the collagen.

Exercises to Strengthen Your Knees

Knee strengthening exercises are crucial for maintaining healthy knees and preventing knee problems, as they help to build the muscles that support and stabilize your knee joint. Strong muscles around your knee can reduce stress on the joint, improve alignment and enhance overall function.

Isometric strength exercises, which involve static contraction of muscle as you hold your body in one position, may help strengthen joints better than dynamic strength training.³³ They're useful for reducing pain while increasing range of motion and functional ability in people with knee osteoarthritis, for instance.³⁴ Wall sits are one example.

To perform wall sits, stand with your back against a wall and slide down into a seated position, as if you're sitting in an invisible chair. Hold this position for 20 to 30 seconds and gradually increase the duration as you get stronger.

Exercise, along with rehabilitation, in middle-aged patients with knee damage has also been found to be as effective as a meniscal surgical repair.³⁵ Other examples of knee-strengthening exercises include:³⁶

- **Straight leg raises** — Lie on your back with one leg bent and the other straight. Lift the straight leg to the height of the bent knee, hold for a few seconds, and then lower it. Repeat 10 to 15 times for each leg.
- **Squats** — Stand with your feet shoulder-width apart and lower your body as if sitting back into a chair, keeping your chest up and knees over your toes. Return to the starting position and repeat 10 to 15 times.
- **Sit to stand** — Sit in a stable chair, then stand up without using your hands for support. Stand up and sit down 15 times. Repeat the process two to three times.

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