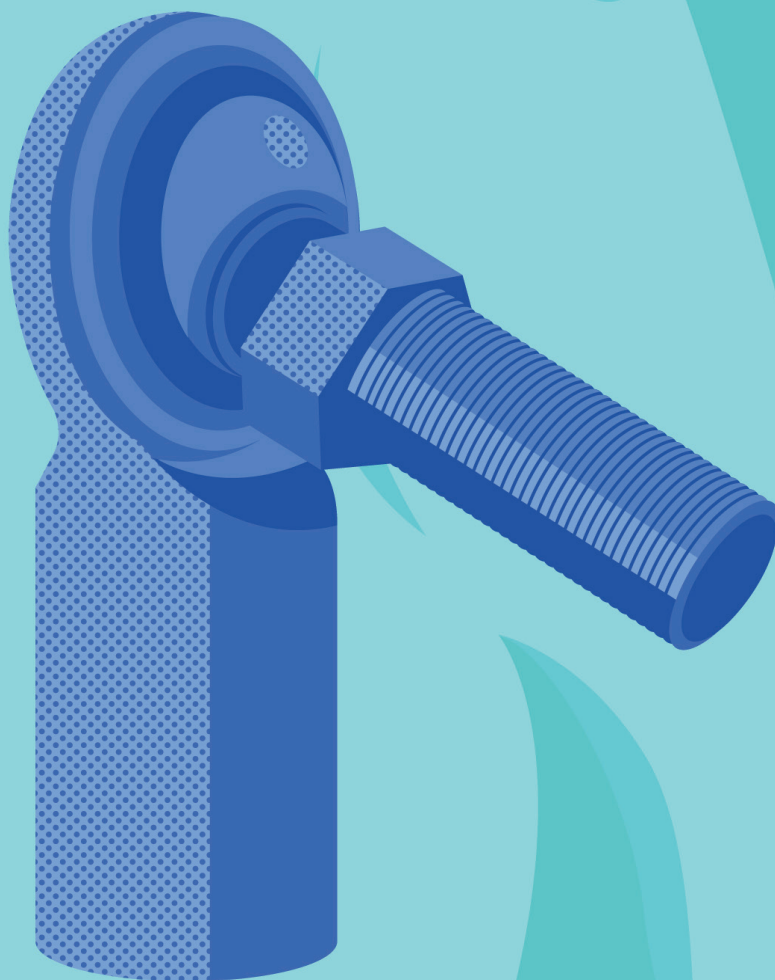




THE SCIENCE OF JOINT HEALTH

Feeling creaky or sounding squeaky? Think of this as an owner's guide to your joints.

by **JENNIFER KING LINDLEY**
illustrations by **PARTNERS IN CRIME**



Joints are the body's hardworking hinges. When healthy, they connect bone to bone and give you the range of motion you need to carry out daily activities. But women are particularly vulnerable to joint pain, stiffness and frustration, says Maura Daly Iversen, D.P.T., S.D., a professor of public health and physical therapy at Sacred Heart University in Fairfield, CT. Indeed, the Centers for Disease Control and Prevention predicts that by 2040, two-thirds of arthritis (joint inflammation) sufferers will be female.

Experts point to a number of explanations for the disparity between men and women in arthritis.

For starters, obesity is a major risk factor for osteoarthritis, and weight gain triggered by menopause can place stress on joints. Plus, hormones make our ligaments more lax, so they offer less support for joints at certain points in the menstrual cycle. Some research suggests that the angle of women's hips to their knees could make us more prone to anterior cruciate ligament (ACL) injuries, another factor in osteoarthritis. We are also much more likely to have autoimmune-

related joint conditions such as rheumatoid arthritis and lupus. "Women's immune systems seem to be more robust than men's," says Iris Navarro-Millan, M.D., an assistant professor of medicine at Weill Cornell Medicine and Hospital for Special Surgery and medical advisor to creakyjoints.org. But this disease-fighting superpower could put our immune systems into overdrive, leading them to misguidedly attack our joints.

Fortunately, there's much you can do to keep your hinges happy. Exercise and maintaining a healthy weight are key. "Regular activity keeps joints nourished and lubricated

and strengthens the muscles and tendons that keep them stable and protected," says Kathy Weber, M.D., an assistant professor of sports medicine at Rush University Medical Center. "And every extra 10 pounds you carry increases the load on your weight-bearing joints by 40 pounds." In addition to straining joints, obesity can cause metabolic changes that promote pain and inflammation. But you don't need to lose a lot to make a big difference: Dropping just 5% to 10% of your body weight can reduce knee pain and significantly improve function. Read on for more ways to ease pain.

WHAT'S CAUSING MY JOINT PAIN?

Over 30 conditions could be the culprit, and they fall into two categories: mechanical "wear and tear" injuries and inflammatory disorders. Here's more about two of the most common.

OSTEOARTHRITIS (OA)

WHAT IT IS: Injury, years of use, genetics or inflammation can spur the breakdown of bone-protecting cartilage. "Think of it as like potholes developing in a road," says Dr. Weber. In this setting, the lining of the joint, the synovium, can become inflamed as well. When nerve-rich bone is exposed — ouch!

SYMPTOMS: OA can affect numerous joints, but they may not all flare up with symptoms at the same time. Hips, knees, the spine, the base of the thumb and small hand joints tend to be common OA sites for women. Tenderness and stiffness in affected areas may develop gradually.

HOW IT IS DIAGNOSED: Your doctor will conduct a physical exam and take X-rays or other images. They may order blood work to rule out other conditions.

TREATMENT: Because damaged cartilage does not regrow on its own, surgery may be an option, but the goal of treatment is usually to reduce pain and restore function. Dr. Weber often starts by prescribing regular exercise or referring patients for physical therapy to strengthen muscles that support joints. A physical therapist can create an individualized exercise plan to help you feel and function better. Medications such as nonsteroidal anti-inflammatories (NSAIDs) can relieve symptoms too. Steroids and other substances may be injected to ease discomfort at the site of a flare. Joint replacement is usually a last resort. "It is important to try conservative measures first," says Dr. Weber.

RHEUMATOID ARTHRITIS (RA)

WHAT IT IS: The immune system attacks the joints, eventually causing permanent damage. "The joint lining becomes inflamed

and produces factors that destroy the cartilage and bone," explains Ellen Gravallese, M.D., president of the American College of Rheumatology. RA can run in families, but lifestyle factors can set it in motion. For instance, "if you have a genetic predisposition and you smoke, it can increase the chances of developing RA by as much as 40 times," says Kim Huffman, M.D., Ph.D., an associate professor in the department of medicine in the division of rheumatology at Duke University Medical Center.

SYMPTOMS: One hallmark of RA, says Dr. Gravallese, is that your joints feel stiffest first thing in the morning or after prolonged inactivity, and then "after about an hour of activity and movement, they begin to loosen and feel less painful." (In contrast, OA pain typically gets worse with strenuous activity.) RA often first appears in the small joints of the hands and feet. They may be swollen, warm and red and flare up on both sides of the body at the same time. RA symptoms can also include whole-body issues like fatigue.

HOW IT IS DIAGNOSED: Episodes can come and go and early symptoms can be subtle, which means RA sufferers may not know they have it for months or even years. If you experience unexplained joint issues, be proactive. "The earlier the treatment, the better the outcome," says Dr. Navarro-Millan. "Rheumatologists are specialists trained in joint disease, so ask for a referral." Doctors will start with a detailed history and a physical exam. Blood work can help detect markers of inflammation and disease.

TREATMENT: The goal is to halt inflammation to prevent further damage to joints. One option may be "biologics," a class of drugs that can help downshift the immune system.



Ouch! Coping With Sprains

A sprain is the stretching or tearing of ligaments. Ask yourself these questions to decide if yours requires a trip to the doctor or just some TLC.

Can you put weight on it?

A mild sprain should still allow you to get around, if gingerly. "If you can't, it should be evaluated," says Dr. Weber.

Is the joint red and hot?

"If the joint is warm to the touch, red and swollen, these can be signs of inflammation, an infection or other issues that should be evaluated by a physician," adds Dr. Weber. Fever, chills and fatigue are also red flags.

Is it getting better?

It should feel progressively better and resolve within about a week, depending on severity. If not, make an appointment.

"These days we have so many good treatments," says Dr. Huffman. "If you continue to have active disease, you and your doctor can try a different strategy."

IT COULD ALSO BE...

FIBROMYALGIA Though common, this condition is still poorly understood: Its sufferers, primarily female, may be wired to be especially sensitive to their bodies' pain signals. Symptoms include pain all over the body along with muscle aches and fatigue as well as brain fog. Fortunately, this chronic condition doesn't cause lasting damage to joints.

LYME DISEASE This infection is caused by bacteria transmitted through tick bites. If left untreated, Lyme disease can cause severe joint pain and swelling, particularly in the knees and other large joints.

LUPUS Signs of this autoimmune condition include joint pain and swelling, fatigue and sometimes a butterfly-shaped facial rash. Nine out of 10 sufferers are women.

A LOOK INSIDE

Joints come in different types — ball-and-socket ones allow motion in all directions, as in your hip and shoulder, while hinge joints, as in your knees and elbows, go back and forth. However, they share essential components:

BONE: The building blocks of our body, bones have rich networks of nerve fibers.

CARTILAGE: Fluid-filled and bouncy, this acts like a shock absorber. Healthy cartilage is as smooth as glass, allowing bones to glide across each other without any friction.

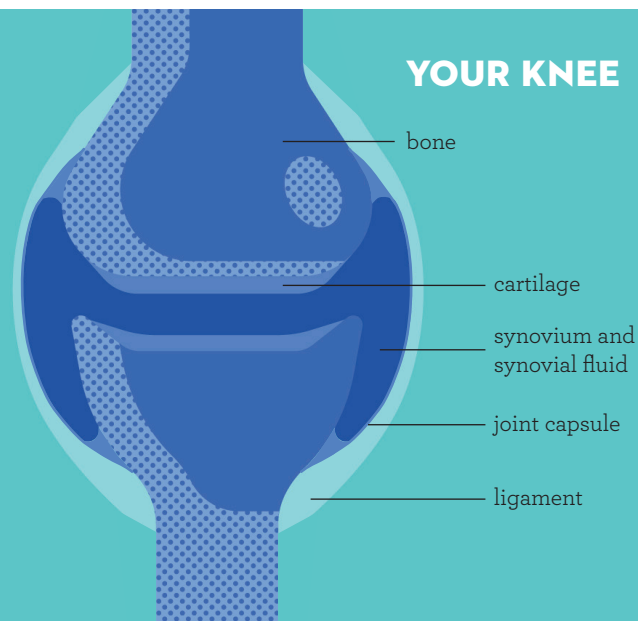
SYNOVIUM: The synovium lies underneath the **JOINT CAPSULE**, which encases the joint. The **SYNOVIAL FLUID** it produces lubricates the joint and nourishes cartilage.

LIGAMENTS: These tough yet flexible fibrous bands attach bone to bone, providing stability and support for the whole joint.

DO SUPPLEMENTS WORK?

Turmeric, cinnamon and glucosamine are just a few of the substances on the market touted as improving joint health and reducing pain. However, scientific evidence for their effectiveness is inconclusive. Talk to your doctor to see if they think one could help you.

YOUR KNEE



bone

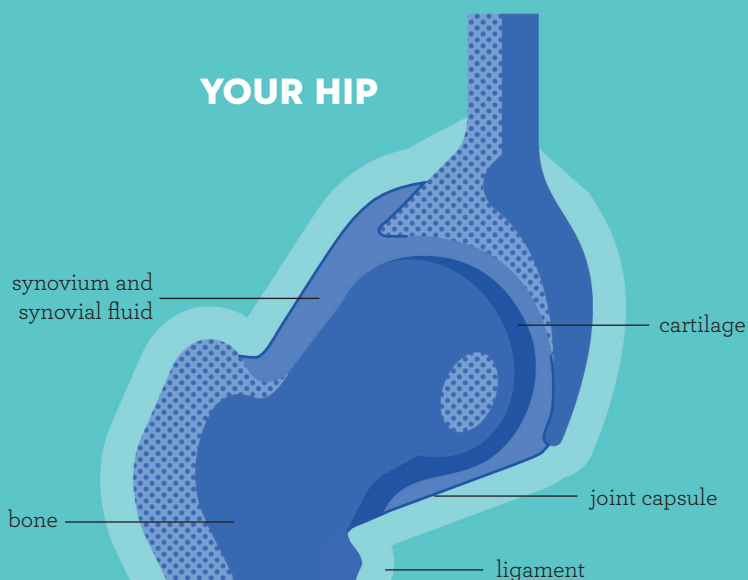
cartilage

synovium and synovial fluid

joint capsule

ligament

YOUR HIP



synovium and synovial fluid

cartilage

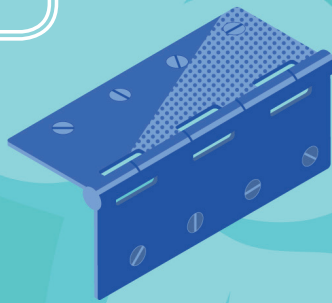
joint capsule

bone

ligament

IS YOUR KNEE TELLING YOU A THUNDERSTORM IS BREWING?

Perhaps! “Your joints have a lot of receptors in them. They may be sensitive to changes in barometric pressure, especially if they are already irritable,” says Dr. Pierce-Talsma.



EXERCISE FOR HAPPY JOINTS

It's said that when it comes to joints, “motion is lotion.” So what exercise is best? “Walking is always great, but anything you enjoy enough to stick with will do the trick,” says Karen Litzy, D.P.T., owner of Karen Litzy Physical Therapy in New York City. Even running, once thought to be a fast path to developing arthritis, has been redeemed. In fact, a recent study found that serious runners were at no greater risk for knee arthritis. But keep these tips in mind:

START SMART. “Warming up for a few minutes readies the joint and the muscles around it to reduce the chance of injury,” says Dr. Weber. Don't just stretch in place—warm up dynamically, she says. Walk for a few minutes before you pick it up to a jog. If you are just starting an exercise routine, build up slowly in intensity and duration. “I am seeing a lot of injuries in people who didn't work out during quarantine or changed their exercise while working from home and suddenly started pounding the pavement,” she says.

MIX IT UP. “A blend of activities is best,” adds Dr. Weber. Variety strengthens different muscle sets and reduces your chances of an overuse injury. An ideal joint-boosting routine combines 150 minutes a week of moderate aerobic exercise such as fast

walking or biking with a couple of sessions of strength training such as with free weights or resistance bands. “Yoga is fantastic because it increases your flexibility and can provide a mood boost,” says Stacey Pierce-Talsma, D.O., M.S., an associate dean at the University of New England College of Osteopathic Medicine.

IMPROVE YOUR BALANCE.

Proprioception is awareness of where your body is in space, which can help you prevent joint injuries. “It's that wobble you feel in your ankle as you stand on one leg,” says Dr. Pierce-Talsma. “Proprioception is information going from your joints to your brain and then to your muscles so they contract and you don't fall over.” To better your proprioception, try standing on one leg, then the other, for a minute each while you brush your teeth every day.

DON'T JUST SIT THERE. Long sessions hunched in front of a computer are a recipe for stiffness. Take regular breaks to keep joints lubricated. “Set a timer on your phone as a reminder,” suggests Iversen. “Every 30 minutes, walk around or march in place for a few minutes.”

ADJUST AS NECESSARY. If you do develop a joint condition, there's no reason to become a couch potato. Your doctor or physical therapist can suggest gentle exercises such as using an elliptical trainer, biking, tai chi or water aerobics.