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Knee Pain? Strength Training and Home Exercises Will Help

Analysis by Dr. Joseph Mercola | May 23, 2026

STORY AT-A-GLANCE

- Knee pain affects one in four U.S. adults and often stems from osteoarthritis, a degenerative joint condition that causes stiffness, swelling, and pain — especially when you're inactive or avoid movement
- Falling into inactivity worsens the problem, as muscle weakness adds stress to the knee joint, making everyday movements like walking or standing more painful over time
- A March 2024 NIH-backed study found strength training throughout life cuts knee arthritis risk, with up to 23% lower odds of knee pain or degeneration — even among light or occasional lifters
- The right combination of strengthening and stretching exercises is beneficial for your knees, as it eases pain by helping to improve the way the joint moves and functions
- The sooner you start smart strength training, the better, since it builds resilience, restores mobility, and reduces pain without requiring intense workouts, fancy equipment, or a gym membership

Roughly one in four adults in the U.S. is living with knee pain,[1] often caused by osteoarthritis — an increasingly common joint disorder that affects over 32 million Americans today.[2] The condition is characterized by cartilage breakdown in the knee, leading to stiffness, swelling, and a grinding or aching pain that tends to worsen with inactivity and disrupts your ability to move, sleep, and function.

Once knee pain sets in, many people fall into a spiral of inactivity that worsens muscle weakness, leading to more pressure on the joint and more damage. They start avoiding stairs, long walks, and even standing for too long. However, being sedentary makes the pain worse, not better. The key is to identify the best exercises that will help protect your knees without causing any pain.

Strength Training Helps You Dodge Knee Pain Later in Life

A March 2024 study published in Arthritis & Rheumatology examined whether long-term strength training reduces the risk of knee osteoarthritis and chronic knee pain.[3] The researchers pulled data from the Osteoarthritis Initiative, a well-established multi-center study funded by the National Institutes of Health (NIH). Their goal is to see if people who had consistently lifted weights or done resistance training over their lifetime experienced less knee trouble as they got older.

- **This analysis focused on 2,607 adults between ages 45 and 79 —** The researchers found that those who lifted weights even just occasionally across their adult life had a significantly lower risk of developing radiographic knee osteoarthritis (visible signs of joint degeneration), frequent knee pain, and symptomatic osteoarthritis (pain and joint damage together) compared to those who didn't exercise at all.

- **Participants who had done strength training for any period had 17% to 23% lower odds of knee problems —** The longer and more consistently someone trained, the better their outcomes were. For instance, participants who reported lifting weights during all four life stages — ages 12 to 18, 19 to 34, 35 to 49, and 50 and above — had the lowest overall odds of knee issues.

  Importantly, the benefit wasn't limited to those training intensely. Even light or moderate training appeared to offer protection.

- **Strength training builds the muscles around your knees, particularly your quadriceps and hamstrings —** These muscles act like shock absorbers, distributing the impact your knees would otherwise take alone. Without that support, your knees

take a beating with every step, jump, or bend.

Over time, that wears out cartilage, strains ligaments, and sets the stage for degeneration. But with strong, balanced muscles, the joint moves more smoothly and with far less internal friction.

The takeaway is that if you want your knees to keep working, you need to make them work now, but smartly. Strength training is not about how much weight you lift. It's about building the kind of resilience that carries you through decades of movement without pain.

Resistance Training Is Safe and Effective for Aging Knees

An earlier systematic review published in Sports Health reported similar findings.[4] The researchers set out to identify if there's a specific "dose" of resistance training — like number of sessions, sets, reps, or intensity — that leads to the best results. They combed through 12 high-quality randomized controlled trials (RCTs) involving over 1,400 participants.

- **Most participants were older women with painful knees —** The participants in these trials were mostly women (over 70%) with an average age ranging from about 52 to 71 years old. They all had symptomatic knee osteoarthritis (KOA), meaning their knees caused them real discomfort or limited their daily activities.
- **Resistance training led to real improvements in pain and function —** Across the board, resistance training consistently led to less pain and better physical function for these individuals. In fact, 11 of the 12 studies reviewed showed meaningful improvement with strength training compared to those who did nothing or did other non-strength approaches.
- **Participants saw meaningful changes in just eight to 12 weeks —** Those who stuck with a structured resistance training program three times a week began to experience noticeable improvements in pain and function within two to three

months — a short period with significant payoffs.

- **Doing 24 sessions led to the best results —** When participants completed about 24 total training sessions (for example, three times a week over eight weeks), they were much more likely to experience strong reductions in pain and better movement in their knees.

- **Resistance training matched or outperformed more complex therapies —** One study[5] found that strength training was just as effective as proprioceptive (balance and body awareness) training. This means using simple tools like weights or resistance bands gave people real, noticeable gains in movement and pain relief — no fancy equipment needed.

- **The most effective plans used moderate weights with progressive intensity —** Programs that saw the biggest results included two to three sets of eight to 12 reps at 50% to 60% of a person's maximum strength, gradually increasing intensity. This progressive method helped people build strength without overwhelming the joint.

If you're dealing with knee pain and are hesitant to start resistance training, remember that it doesn't require a gym, a trainer, or heavy weights. It just takes a plan, a little structure, and the willingness to progress at your own pace. For more useful pointers on doing resistance training, read "**It's Never Too Late to Begin Resistance Training**."

These Basic Exercises Also Benefit Your Knees

According to an article from Harvard Health Publishing,[6] the right combination of strengthening and stretching exercises is beneficial for your knees, as it eases pain by helping to improve the way the joint moves and functions. It also addresses one of the most common misconceptions about knee pain — that the knee itself is always the problem.

In fact, knee pain isn't just an issue with your joints. According to Dr. Lauren Elson, an instructor in physical medicine and rehabilitation at Harvard Medical School, it's also a side effect of weakness in muscles around the hip or tightness in the leg muscles. She adds that doing exercises that work a variety of muscles, including the hip abductors, hamstrings, and quadriceps, will help knee pain. Here are a few examples, which you can do at the gym or in the comfort of your home:[7,8,9]

- **Side-leg raises**

    1. Lie down on your right side, with your legs straight. Keep your right forearm bent upward, then place your head on your hand.

    2. Slowly lift your left leg upward, keeping it straight.

    3. Pause, and then slowly lower your leg. Repeat this on the left side.

    If you need to make this exercise easier, don't lift your leg too high. Try resting your back against a wall as well.

- **Single-leg lift**

    1. Lie on the floor on your back. Keep one leg extended, with the foot flexed slightly. Keep your hands at your sides.

    2. Tighten your thigh muscles then lift your leg slowly until your knees are aligned.

    3. Pause, then bring your leg back down. Finish all repetitions, then repeat with the other leg.

- **Hamstring stretch**

    1. Lie on the floor on your back with your hands at your sides. Hold your right leg behind the thigh, using both hands.

2. With your left leg extended, lift your right foot upward. Keep your right foot flexed and straighten your right leg as much as possible until you feel a stretch along the back of the right thigh.

3. Hold for 10 to 30 seconds, then lower your leg.

4. Do the same movement with the other leg. Do three to four repetitions.

- **Seated knee extension**

1. Sit down straight on a chair with your back straight and feet flat on the floor. Place your hands on your thighs.

2. Exhale and then slowly lift your right foot, keeping it at the level of your hip. However, don't lock your knee.

3. Pause and then lower your foot. Repeat with the other leg. Do 10 repetitions per leg.

- **Quadriceps stretch**

1. Stand with your feet apart, at least shoulder-width. Bend your right knee, bringing your heel backward toward your right buttock.

2. Reach back and hold your foot with your right hand.

3. Hold this stretch for 10 to 30 seconds, then slowly lower your foot to the floor and repeat with the other leg. Do three to four repetitions.

- **Foam rolling —** This technique involves using a cylindrical foam roller to apply pressure along the muscles and fascia (the connective tissue that wraps around them). Foam rolling helps break up knots and release tension that tugs on the knee joint from above and below. The result? Less pulling on the joint, more comfort, and greater ease moving through daily activities.

- **Low-impact cardio exercises —** Cycling, swimming, and water aerobics are great options because they allow you to move your joints smoothly while reducing stress. Even simply walking outdoors is a great low-impact cardio.

- **Resistance bands —** One basic exercise you can do is side-steps. Simply put the band around your legs, above the knees, then step side to side. This will strengthen your thigh muscles and hip.

Elson gives a clear rule — If you feel pain that wakes you at night, doesn't go away with movement, or worsens during a workout, it's time to stop and reassess. But if your muscles feel mildly sore or tired the day after exercising, that's a green light. It means you're making progress, and your body is adapting.

Dos and Don'ts When Exercising with Knee Pain

If you're going to exercise when you have knee pain, remember to consult your physician to make sure that the intensity and types of exercises are appropriate for you. The website US News provides a few additional dos and don'ts for you to keep in mind:[10]

Do:

- **Try water exercises —** The buoyancy of water supports your weight and makes it more comfortable for your knees. These low-impact exercises reduce stress on the joints while allowing you to get cardiovascular, joint, and overall health benefits.

- **Lighten the load —** Running, jumping, or deep squats will put heavy strain on your knees. Stick to gentler activities that don't cause further harm to your knees.

- **Walk outdoors —** Start with short walks and gradually increase your distance. It's important to wear supportive shoes to protect your knees and maintain a steady pace. Make sure that the walking surface is even — there shouldn't be too much uphill or downhill paths, to reduce your risk of tripping and falling.

- **Use the right equipment —** Elliptical machines and stationary bikes help you do knee-friendly exercises without putting too much load on your knees.

Don't:

- **Rest too much —** Staying sedentary for long periods of time weakens the muscles in the leg and worsens knee pain.
- **Run —** This high-impact exercise puts too much stress on every joint in your body, including the knees.
- **Bend your knees too much —** Lunges and squats strain your knee joints and worsen the pain.
- **Keep exercising if you feel pain —** Although muscle fatigue is normal during or after a workout, sudden sharp or shooting pain are a sign that you've exerted too much, and you need to stop doing the exercise immediately.

Fix the Real Cause of Knee Pain Through Strength and Constant Movement

If your knees hurt, the problem isn't just "your knees." The deeper cause usually starts with weak or imbalanced muscles, poor movement patterns, or years of avoiding the kind of movement that actually protects your joints. Most people are told to rest, ice, and wait — but that approach only dulls symptoms while the root issues keep getting worse.

Whether your pain is from arthritis, poor alignment, or just years of wear, there's one thing you need to understand — your knees need better support, not less movement. Here are five strategies for you to follow:

1. **Start building strength around your knees — even if it's just with bodyweight —** Muscle weakness is the single biggest driver of knee pain. You need to strengthen the quadriceps, glutes, and hamstrings to take pressure off the joint. If you're just

getting started, begin with bodyweight movements like sit-to-stands, glute bridges, or step-ups onto a low stair. If you've got resistance bands, even better.

2. **Work on your hips, not just your knees —** Having weak outer hip muscles (your gluteus medius, for example) throws off your alignment and forces your knees to cave inward when you move. For more hip exercises that help build flexibility, reduce pain and prevent injuries, read "**Want to Know How to Loosen Your Tight Hip Muscles?**"

3. **Use a rotation of joint-friendly cardio —** Low-impact options like stationary cycling, swimming, or using an elliptical increase circulation and flush inflammation without grinding your joints.

4. **Stretch daily to release tension that pulls on the joint —** Spend five to 10 minutes a day stretching key muscle groups, including hamstrings, calves, and hip flexors. Hold each stretch for 20 to 30 seconds and breathe through it.

5. **Track what works, as well as what causes flare-ups —** If you're unsure which exercises are helping, start a simple log. Write down what you did, how long it took, and how your knees felt after. Over time, you'll spot patterns. This builds confidence and gives you a clear roadmap. That feedback loop is what keeps you going.

No matter your age — whether you're 28 or 68 — it's not too late to rebuild the support your knees need. What matters most is that you start, and that you keep going. Even a few minutes a day, done consistently, is enough to start changing how your knees feel and function.

Frequently Asked Questions (FAQs) About Exercises for Knee Pain

Q: How common is knee pain, and what causes it?

A: Roughly one in four adults in the U.S. suffers from knee pain, with osteoarthritis being the leading cause. This condition breaks down the cartilage in your knees, leading to stiffness, swelling, and pain that worsens with inactivity.

Q: Does being inactive help or hurt knee pain?

A: Being inactive actually makes knee pain worse. Avoiding movement weakens the muscles that support your knees, increasing joint pressure and damage. Smart, consistent movement is key to breaking this cycle.

Q: Can strength training really prevent or reduce knee pain?

A: Yes. A 2024 study found that people who lifted weights — especially those who trained across all life stages — had 17% to 23% lower odds of developing knee osteoarthritis and chronic pain compared to those who never trained.

Q: What type of exercises are best for managing knee pain?

A: Resistance training that strengthens the quads, hamstrings, and hips is most effective. Even basic bodyweight moves, light weights, or using resistance bands will help improve stability, reduce friction, and protect your joints.

Q: How soon can I see improvements, and do I need a gym?

A: Many people see pain relief and better mobility within eight to 12 weeks of starting a structured resistance program — about 24 sessions total. You don't need to visit a gym; at-home exercises with proper form and consistency work just as well.

Sources and References

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