

# Harvard Health Guides



Harvard Health Guide

*Simple moves that*

## Improve Your Balance



Harvard Health Guide

*Improve flexibility and*

## Stretch Away Pain



Harvard Health Guide

*Gentle Exercises that*

## Shore Up Your Core



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## Health Revelations You Need to Know Now



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## Should you check with your doctor first?

Almost anyone can safely and comfortably do the simple exercises these three workout reports. But you might find certain exercises especially challenging if you are very out of shape because of illness, a recent hospitalization, or just way too much couch-potato time. Similarly, if arthritis or inactivity has left your muscles and joints especially stiff, you may find it hard to do certain exercises or stretches. It is always safest, before beginning any workout routine to check with your doctor and see if you need to modify any exercises or avoid them altogether.

### Signs that indicate an emergency

If you experience any of these symptoms during or after exercise, call 911 or see a doctor immediately:

- chest pain, pressure, heaviness, or tightness
- faintness or loss of consciousness
- significant or persistent shortness of breath or dizziness.

Ask your doctor whether there are any other warning signs specific to your health history.

### Signs that should prompt a call to your doctor

Persistent or intense muscle pain that starts during a session or right afterward, or muscle soreness that persists more than one to two weeks, merits a call to your doctor for advice. (This is in contrast to the normal muscle soreness that starts 12 to 48 hours after an exercise session and gradually abates.) You should also call your doctor if a routine you've been doing for a while without discomfort starts to cause you pain.



## Special Report 1

### How balance works

It takes many parts of the body, working together flawlessly and with great precision, to achieve a good sense of balance. But beginning in your 50s, you may start noticing subtle changes. Perhaps you don't feel quite as secure perching on top of a ladder, or maybe you find that you're paying closer attention to your footing when going down stairs. These things are unlikely to slow you down much at this stage. But during your workouts, it may be useful to challenge yourself from time to time with balance exercises.

As time moves on, you may find that poor balance becomes a more serious problem. For older adults in particular, balance is essential to maintaining good health, since physical activity becomes difficult without it. Poor balance not only restricts your movements, but can also lead to falls and resulting injuries. And in the elderly, one fall can lead to fear of another fall, which further restricts activity.

Good balance, by contrast, helps prevent potentially disabling falls. It builds confidence and fosters independence. If you are still active, it can help improve your tennis, golf, running, dancing, skating, skiing, or any number of other sports or activities. Not an athlete? Just walking across the floor or down the block requires good balance. So does rising from a chair, going up and down stairs, totting packages, and even turning to look behind you.

Fortunately, there are many ways to help improve your balance. The next chapter addresses some of the medical and age-related issues that contribute to poor balance. Though some of them cannot be fixed, others have remedies you may be able to tackle with your doctor, such as keeping blood pressure from falling too low or making sure you have the right prescription in your glasses. The Special Section also includes checklists of action items for personal health and home safety that can help prevent falls.

Once you have dealt with any issues that may be causing balance problems or fall risks, the most important thing you can do is to start practicing balance exercises. The exercises in this report will help make you steadier, more confident, and less likely to fall. We've designed progressive challenges, starting with three safe, easy balance workouts that should be within reach for people of all ages. Because some of our readers are younger and looking to head off future trouble, we've also included three harder routines that provide greater challenges. Practicing any of these routines regularly will help keep your balance at its current level—and may improve it significantly. After completing any of the balance workouts, we suggest a stretching routine to bolster your flexibility. Flexibility can also help prevent falls by improving your agility and range of motion.♥

# Activities that enhance balance

**A**ctivities that challenge your balance while you hold steady (static balance) or move (dynamic balance) are forms of balance training. Standing with one foot in front of another, lifting a foot off the floor, and shifting weight in various directions are three examples offered by the American College of Sports Medicine (ACSM).

Experts at ACSM note that several factors can increase the challenge of balance exercises. One is reducing your base of support—instead of standing on two legs wide apart, stand with your feet together, and then stand on one leg. While keeping your narrow base of support, you can later add dynamic moves that shift your center of gravity, such as walking forward by putting one foot directly in front of the other, as you would on a balance beam. For an even greater challenge, you can move from a flat, stable surface like the floor to a soft, rounded, or otherwise less stable surface. The instability forces you to work harder at maintaining balance. Another advanced challenge is reducing sensory input by closing your eyes (keeping a sturdy chair nearby to steady yourself).

Most likely, you already engage in some activities that help hone balance, especially if you're an active person. Here are some possibilities:

- **Walking, biking, and climbing stairs** strengthen muscles in your lower body. (Using a recumbent bike or stair stepper is an option when balance is compromised.)
- **Resistance exercises** build muscle strength. Resistance can be supplied by body weight, free weights, elastic bands, or weight machines. Many of the strengthening exercises selected for our workouts focus on hip and leg muscles. Some core muscles are targeted, too, to help improve posture and balance.
- **Core exercises** (see “*Shore Up Your Core*,” page 43) build muscles that can help keep a momentary stagger from turning into a bad spill.
- **Stretches** loosen tight muscles, which affect posture and balance.
- **Yoga** strengthens and stretches tight muscles, while challenging static and dynamic balance. There are many styles of yoga and many ways to modify the poses to an individual's ability. Regular practice yields the most benefit. Our Yoga Balance Workout (page 12) offers a variety of classic poses.
- **Tai chi**, a practice of slow, graceful movements that flow smoothly from one pose to the next and mesh with meditative breathing, is very good for balance. During the choreographed moves, gradual shifts of weight from one foot to another combine with rotating the trunk and extending the limbs in a series of challenges to balance. It is an easy exercise regimen to adopt and can break the habit of sedentary behavior, while improving balance, coordination, flexibility, muscle strength, and stamina. In addition to reducing stress, tai chi can improve body awareness and reduce social isolation when it's practiced in a group setting. Correct posture and deep breathing are key elements of practice, and as with yoga, engaging in regular, ongoing sessions confers the most benefit.
- **Pilates** is an exercise program developed by Joseph Pilates in the 1920s that challenges static and dynamic balance, enhances posture, and develops muscle strength and flexibility. It targets the full range of core

## Three exercises to improve core strength

**H**aving strong abdominal, back, pelvic, and buttock muscles—what's known as your core—helps you to maintain good posture and, as a result, improves your balance. Pilates and yoga routines can strengthen your core, as can the Opposite Arm and Leg Raise, Bridge, and Plank exercises found in your *Shore Up Your Core* report.



muscles especially well via exercises that can be performed on a mat or on specialized equipment.

- **Sports like tennis, squash, soccer, and golf** build balance. They strengthen lower-body muscles, too (assuming you're walking from hole to hole in golf, rather than hopping into a golf cart).

One other intriguing possibility involves the use of computerized brain training programs, such as Lumosity ([www.lumosity.com](http://www.lumosity.com)), Cognifit ([www.cognifit.com](http://www.cognifit.com)), and

Fit Brains ([www.fitbrains.com](http://www.fitbrains.com)). Early research indicates that these may help improve balance in some people by sharpening brain function, though you will get the best results if you also do physical balance exercises.

What if you're not at all active? Take heart. Research shows that even people who have been sedentary can dramatically improve strength and balance through exercise regardless of age. Our balance workouts will show you how to make gains safely. ♥

## Using the workouts

In this section, you'll find a list of equipment that you'll need for our workouts, explanations of terms used in the workouts, and answers to common questions. Importantly, you will also find a list of both standing and seated warm-ups. Just as every workout should finish with stretches, each workout should begin with a warm-up.

### Choosing the right equipment

The introduction to each workout description says what equipment you'll need. (When equipment is listed as optional, that means it's for an easier or harder variation of certain exercises.)

**Chair.** Choose a sturdy chair that won't tip over easily. Unless otherwise noted in the workout description, a plain wooden dining chair without arms or heavy padding works well.

**Mat.** Choose a well-padded nonslip mat for floor exercises. Yoga mats are readily available. A thick carpet or towels will do in a pinch.

**Shoes.** Choose a comfortably fitted, rubber-soled shoe with little or no heel for balance exercises. One example is sneakers designed for walking. Walking shoes need to be replaced regularly because they lose support and cushioning over time. Some experts suggest buying

new ones every 350 to 550 miles because the structure inside the shoes breaks down before they look like they need to be replaced.

### Understanding the workout instructions

When you turn to the workout you've chosen—for instance, the Beginner Balance Workout (page 6) or the Standing Balance Workout (page 8)—you'll see that each exercise has certain information and instructions. The terms we use are defined below:

- **Repetitions (reps).** Each rep is a single complete exercise. It's fine if you can't do all the reps at first. Focus on quality rather than quantity. Good form should always come first. Gradually increase reps as you improve.
- **Sets.** One set is a specific number of repetitions. In our workouts, 10 reps usually add up to a single set. Typically, we suggest doing one to three sets. Resting briefly after a set gives your muscles a chance to recharge, which helps you maintain good form. However, no rest is needed after stretches or after sets of exercises in which you complete all reps on one side and then repeat the reps on the other side.
- **Intensity.** Intensity measures how hard you work dur-

ing an exercise. Pay attention to objective physiological cues like breathing, talking, and sweating, which are all part of your perceived exertion (see Table 1, page 6).

- **Tempo.** This is the count for key movements in an exercise. A 2–2–2 tempo requires you to count to two as you perform a move, hold for two beats, then count to two as you return to the starting position. To avoid hurrying, count while watching or listening to seconds tick by on a clock. When you can no longer maintain the recommended tempo, stop that particular exercise even if you haven't finished all of the reps.
- **Hold.** Hold tells you the number of seconds or breaths to pause while holding a pose during an exercise. Many stretches, for example, are held for 10 to 30 seconds, while many yoga poses are held for one to five breaths. While starting out at 10 seconds (or one breath) is fine, gradually extending that until you can comfortably hold the stretch for 30 seconds (or a yoga pose for five breaths) will give you better results. So, too, will practicing stretches every day rather than just a few times a week.
- **Starting position.** This describes how to position your body before starting the exercise.
- **Movement.** This explains how to perform one complete repetition correctly.
- **Tips and techniques.** We offer two or three pointers to help you maintain good form and make the greatest gains from the exercise.
- **Make it easier.** This gives you an option for making the exercise less challenging.
- **Make it harder.** This gives you an option for making the exercise more challenging.

“Neutral” is another term you’ll notice in the exercises. A neutral spine takes into account the slight natural curves of the spine—don’t flex your back or arch it to overemphasize the curve of the lower back. A neutral wrist is firm and straight, not bent upward or downward.

Table 1: How hard am I working?		
INTENSITY	IT FEELS ...	YOU ARE ...
Light	Easy	<ul style="list-style-type: none"><li>• Breathing easily</li><li>• Warming up, but not yet sweating</li><li>• Able to talk—or even sing an aria if you have the talent</li></ul>
Light to moderate	You’re working, but not too hard	<ul style="list-style-type: none"><li>• Breathing easily</li><li>• Sweating lightly</li><li>• Still finding it easy to talk or sing</li></ul>
Moderate	You’re working	<ul style="list-style-type: none"><li>• Breathing faster</li><li>• Starting to sweat more</li><li>• Able to talk, not able to sing</li></ul>
Moderate to high	You’re really working	<ul style="list-style-type: none"><li>• Huffing and puffing</li><li>• Sweating</li><li>• Able to talk in short sentences, but concentrating more on exercise than conversation</li></ul>
High	You’re working very hard, almost out of gas	<ul style="list-style-type: none"><li>• Breathing hard</li><li>• Sweating hard</li><li>• Finding talking difficult</li></ul>

## Answers to four common questions

The answers to these four frequently asked questions can help you get started on your workouts safely and efficiently.

### 1. How can I work out as safely as possible?

Before doing any balance exercises, be sure to check with your doctor to make sure it is safe to begin. Then, when reading the description of an exercise, pay close attention to the tips and techniques so you can do it properly. Start new exercises cautiously, choosing the easier variation if you need to at first to build confidence. (Each exercise has an easier option listed under the heading “Make it easier.”) Be prepared to catch yourself if you start to wobble: put your hand on a counter or the back of a sturdy chair, or position yourself in the corner of a room so that you can’t sway too far without support.

## 2. Which workout should I do?

Some workouts are much more challenging than others. If you're not completely steady on your feet, first master the Beginner Balance Workout (page 8). These are simple, gentle balance exercises that can be done by practically anyone. If you normally need a cane or walker to keep your balance, use it during the workout as well. You can then move on to the Standing Balance Workout (page 8) and the Yoga Balance Workout (page 10).

The more challenging workout is the Balance in Motion Workout. Before you try these, build your balancing skills and confidence by mastering easier workouts.

Pair the workout you choose with walking or other physical activities to give your body the cardio tune-up it needs. And don't forget to finish each workout with stretches (page 17).

## 3. What if I can't do all the reps or sets suggested?

Quality and safety are much more important than quantity. Do only as many repetitions as you can manage while following instructions, maintaining good form, and sticking to the specified tempo or holding a pose for the length of time suggested. First, work toward finishing a single set of each exercise. Later, you can gradually add sets up to the number specified as you progress.

## 4. How often should I do a balance workout?

We recommend doing a full balance workout two or three times a week. Stretching exercises can be done more often—even daily—to enhance flexibility. Doing a few simple balance exercises (single-leg stance, heel raises, side leg lifts, tandem standing, and stand up, sit down)

during the course of your day can help you improve your balance more quickly. Just be sure to attend to safety, and remember to keep your core muscles engaged to enhance balance (see “*Shore Up Your Core*,” page 41).

## Warm-ups

If you walk before a balance workout, your muscles are already warmed up. Otherwise, warm up for five to 10 minutes before doing exercises by choosing a few of the following standing—or, if necessary, seated—options. If that's too much, a warm shower also counts as a way to warm up muscles. Here are a few warm-up options to pick from:

### Standing warm-ups

- Walk or march in place.
- Lift your knees as you walk.
- Stand for toe taps.
- Stand for knee lifts.
- Dance to a few songs on the radio.

### Seated warm-ups

- Roll your shoulders up, back, and down.
- Do knee lifts.
- Rotate your ankles in circles.
- Tap your toes.
- Turn your head right, then left.
- Rotate your wrists in circles.
- Rotate your trunk right, then left.
- Reach up with your right arm, then your left arm. ♥

# EASY • Beginner Balance Workout

This workout is the perfect first step toward improving shaky balance. It can be done by people of many ages and abilities, including those who are older, frail, or recovering from illness or surgery. No equipment other than a sturdy chair or counter is necessary, making this workout excellent for home or travel. If you normally need assistance from a cane or walker to balance, you should use it during this workout.

Focus on good form, rather than worrying about how many repetitions (reps) you can complete. For instance, remember to engage (tighten) your core muscles before you start each exercise. If you find an exercise especially difficult, do fewer reps or try the easier variation. As you improve, try a harder variation. (If this workout is too easy for you, begin with the Standing Balance Workout, page 8)

**Equipment:** Sturdy chair or counter.



## 1 • Shoulder blade squeezes

**Reps:** 10

**Sets:** 1

**Intensity:** Light

**Tempo:** 2–4–2

**Starting position:** Sit up tall in a chair. Lift your chest, keeping your shoulders down and back. Brace (tighten) your abdominal muscles and bend your elbows, palms toward each other.

**Movement:** While exhaling, roll your shoulders farther down and back, away from your ears. Rotate your arms out so your palms face forward, squeezing your shoulder blades together. Hold. Slowly return to starting position.

### Tips and techniques:

- Think of squeezing a tennis ball between your shoulder blades.
- Keep your spine neutral and brace (tighten) your abdominal muscles throughout the movement.
- Don't let your shoulders come up toward your ears; keep them down.

**Make it easier:** Don't rotate your arms as much; hold for only one or two counts.

**Make it harder:** Hold the squeeze for eight counts; do two or three sets.

## 2 • Get up and go

**Reps:** 10

**Sets:** 1

**Intensity:** Moderate

**Tempo:** Go at your own pace

**Starting position:** Choosing a path free of obstacles, place a marker (such as a soup can or a small cone) on the floor about 10 feet from a chair. Sit in the chair with your hands on your thighs.

**Movement:** Stand up and walk forward to the marker. Walk around it and return to the chair. Slowly sit down in the chair.

### Tips and techniques:

- Keep your head and chest lifted as you stand up and sit down.



- After rising from the chair, steady yourself if necessary before walking toward the marker.
- Maintain control as you lower into the chair; don't just plop down.



**Make it easier:** Use a chair with armrests and use your hands to assist you as you stand up and sit down; do fewer reps.

**Make it harder:** Pick up your pace; do two or three sets.



### 3 • Stand up, sit down

**Reps:** 10

**Sets:** 1

**Intensity:** Moderate to high

**Tempo:** 4–2–4

**Starting position:** Sit in a chair with your hands crossed on your chest or held out in front of you at chest level. Your feet should be flat on the floor, hip-width apart, and directly beneath your knees.

**Movement:** Lean forward slightly and slowly stand up. Hold. Slowly sit down with control.

**Tips and techniques:**

- Press your heels into the floor and

tighten your buttocks as you stand up to help you balance.

- Steady yourself before you sit down.
- Exhale as you stand, inhale as you sit.

**Make it easier:** Place your hands on your thighs (or use a chair with armrests) to assist you as you stand up and sit down; do fewer reps.

**Make it harder:** Do two or three sets. Or modify the exercise by placing your right foot slightly in front of your left one, keeping both feet flat on the floor. Stand up and sit down. Finish all reps, then repeat with the left leg in front.



### 5 • Standing side leg lift

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Light to moderate

**Tempo:** 2–2–2

**Starting position:** Stand up straight behind a chair, holding the back of it with both hands. Put your feet together and evenly distribute your weight on both feet.

**Movement:** Slowly lift your right leg straight out to the side about six inches off the floor. Hold. Return to starting position. Finish all reps, then repeat with the left leg. This completes one set.

**Tips and techniques:**

- Keep your shoulders and hips aligned throughout the exercise; don't lean to the side.
- Lift directly out to the side, not forward or back on a diagonal.
- Point your foot as you lift.

**Make it easier:** Just touch your foot out to the side on the floor.

**Make it harder:** Hold your leg up for four to eight counts; close your eyes.

### 6 • Standing hamstring curls

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Light to moderate

**Tempo:** 2–2–2

**Starting position:** Stand up straight behind a chair, holding the back of it with both hands. Extend your right leg behind you with your toes touching the floor.

**Movement:** Bend your right knee and try to bring the heel toward your right buttock. Hold. Slowly lower your foot to the floor.

Finish all reps, then repeat with the left leg. This completes one set.

**Tips and techniques:**

- Maintain good posture throughout.
- Keep your hips even, tightening the buttock of the standing leg to help you balance.

**Make it easier:** Lift your leg less; do fewer reps.

**Make it harder:** Close your eyes.. ♥



# EASY • Standing Balance Workout

Another good entry point to balance training, this workout buffs up static balance—that is, the ability to stand in one spot without swaying. If necessary, you can do many of the exercises while holding on to the back of a chair or counter for support, or standing in the corner of a room so that you can touch a wall to steady yourself.

Focus on good form, rather than worrying about how

many reps you can complete. For instance, remember to engage (tighten) your core muscles before you start each exercise. If you find an exercise especially difficult, do fewer reps or try the easier variation. As you improve, try a harder variation.

**Equipment:** Sturdy chair (optional), counter (optional).

## 1 • Heel raises

**Reps:** 10

**Sets:** 1–3

**Intensity:** Moderate to high

**Tempo:** 2–2–2

**Starting position:** Stand up straight, feet hip-width apart and weight distributed evenly on both feet. Put your arms at your sides.

**Movement:** Lift your heels, shifting your weight to the balls of your feet. Try to balance evenly without allowing your ankles to roll inward or outward. Hold. Lower your heels to the floor, maintaining good posture as you do.

### Tips and techniques:

- In the starting position, think of each foot as a rectangle and stand evenly on all four corners. When lifting, try to balance evenly on the front two corners.
- Zip your abdominal muscles up and in as if you were wearing a tight pair of jeans and tighten your buttocks as you stand on the balls of your feet.
- Imagine you have a string at the top of your head pulling you up.

**Make it easier:** Hold on to the back of a chair or a counter.

**Make it harder:** Hold for four to eight counts; close your eyes.



## 2 • Tandem standing

**Reps:** 1

**Sets:** 1–3

**Intensity:** Light to moderate

**Hold:** 5–30 seconds

**Starting position:** Stand up straight, feet hip-width apart and weight distributed evenly on both feet. Put your arms at your sides and brace your abdominal muscles.

**Movement:** Place your left foot directly in front of your right foot, heel to toe, and squeeze your inner thighs together. Lift your arms out to your sides at shoulder level to help you balance. Hold.

Return to the starting position, then repeat with your right foot in front. This completes one rep.

### Tips and techniques:

- Pick a spot straight ahead of you to focus on.
- Tighten your abdominal muscles, buttocks, and inner thighs to assist with balance.
- Keep your shoulders down and back.

**Make it easier:** Hold on to the back of a chair or counter with one hand.

**Make it harder:** Hold the position for 60 seconds; close your eyes.



### 3 • Single-leg stance

**Reps:** 1

**Sets:** 1–3

**Intensity:** Moderate

**Hold:** 5–30 seconds

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Relax your arms at your sides.

**Movement:** Bend your right knee, lifting that foot several inches off the floor, and balance on your left leg. Hold. Lower your foot to the starting position, then repeat balancing on your right leg. This completes one rep.

#### Tips and techniques:

- Pick a spot straight ahead to focus on.
- Maintain good posture throughout by keeping your chest lifted, your shoulders down and back, and your abdominal muscles braced.
- Extend your arms out to the sides if you are wobbly.

**Make it easier:** Hold on to a chair or counter for support.

**Make it harder:** Hold for 60 seconds; close your eyes.



### 4 • Single-leg stance with side leg lift

**Reps:** 1

**Sets:** 1–3

**Intensity:** Moderate to high

**Hold:** 5–30 seconds

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Relax your arms at your sides.

**Movement:** Lift your right foot out to the side a few inches off the floor, shifting your weight over to your left leg. Lift your arms out to each side at shoulder level to help you balance. Hold. Return to the starting position, then repeat with your left foot. This completes one rep.

#### Tips and techniques:

- Maintain good posture throughout by keeping your chest lifted, your shoulders down and back, and your abdominal muscles braced.
- Tighten the buttock of the standing leg to help you balance.
- Keep your toes and knees pointing forward.

**Make it easier:** Hold on to the back of a chair or counter with one hand.

**Make it harder:** Hold for 60 seconds; close your eyes.

### 5 • Single-leg stance with back leg lift

**Reps:** 1

**Sets:** 1–3

**Intensity:** Moderate to high

**Hold:** 5–30 seconds

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Relax your arms at your sides.

**Movement:** Lift your right foot straight behind you a few inches off the floor, shifting your weight over to your supporting leg. Lift your arms out to your sides at shoulder level to help you balance. Hold. Return to the starting position, then repeat with your left foot. This completes one rep.

#### Tips and techniques:

- Pick a spot straight ahead to focus on.
- Maintain good posture throughout by keeping your chest lifted, your shoulders down and back, and your abdominal muscles braced.
- Don't lean forward as you lift your leg.

**Make it easier:** Hold on to the back of a chair or counter with one hand.

**Make it harder:** Hold for 60 seconds; close your eyes.



## 6 • Single-leg stance with ankle circles

**Reps:** 1

**Sets:** 1–3

**Intensity:** High

**Tempo:** Go at your own pace

**Starting position:** Stand up straight with your feet together, arms at your sides, and weight evenly distributed on both feet.

**Movement:** Bend your right knee, lifting that leg up in front of you. Put both hands beneath the right thigh as you shift your weight over to the supporting leg. Slowly perform ankle circles with the raised ankle 10 times in each direction. Return to the starting position, then repeat with your left leg. This completes one rep.

### Tips and techniques:

- Pick a spot straight ahead to focus on.
- Stand up straight; don't round your shoulders or hunch over.
- Tighten the buttock of the standing leg to help you balance.

**Make it easier:** Stand with your back against a wall, place one hand on a counter or wall for support, or sit in a chair to do the exercise.

**Make it harder:** Hold the single-leg stance for 60 seconds while doing ankle circles.



# EASY • Yoga Balance Workout

Yoga does an excellent job of strengthening and stretching muscles essential for balance. This seven-part routine offers moves that will improve your balance, build strength, and increase flexibility while offering modifications for all levels of ability. You may also want

to learn yoga in a live group setting, so the instructor can help you modify the poses so they are safe for you to perform. Before you start, be sure to check with your doctor to make sure it is safe for you to do these exercises.

**Equipment:** Sturdy chair.

## 1 • Mountain pose

**Reps:** 1

**Sets:** 1

**Intensity:** Light

**Hold:** 5–10 breaths

**Starting position:** Stand tall with your feet together and touching. Relax your arms at your sides with your shoulders back and down.

**Movement:** There is no actual movement in this pose, but your body is active. Imagine your feet are firmly planted on the ground, and draw your

fingertips down toward the ground. At the same time, draw your head toward the ceiling, elongating your body.

### Tips and techniques:

- Don't arch or round your back.
- Don't hold your breath.
- Tighten your abdominal muscles to support your back.





## 2 • Tree pose

**Reps:** 1

**Sets:** 1

**Intensity:** Light

**Hold:** 5–10 breaths

**Starting position:** Stand tall with your feet together and touching. Relax your arms at your sides with your shoulders back and down.

**Movement:** As you inhale, raise your left heel off the floor, so only your left toes are touching it, and turn your leg outward. Bring your palms together in front of your chest. Hold. Release on an exhale. Repeat on the opposite leg.

### Tips and techniques:

- Don't arch or round your back.
- Don't hold your breath.
- Keep your shoulders relaxed and down, away from your ears.
- Tighten your abdominal muscles to support your back.

**Make it harder:** Balance on one foot, placing your opposite foot on the calf of your standing leg. You can also increase the challenge by extending your arms overhead, keeping your hands together or opening them, whichever is more comfortable.



**Make it harder**



**Make it harder**

## 3 • Back bend

**Reps:** 3–5

**Sets:** 1

**Intensity:** Light

**Hold:** 3–5 breaths

**Starting position:** Stand up straight with your feet slightly apart. Place your hands on your lower back with your fingertips pointing down.

**Movement:** As you inhale, roll your shoulders back and gently lift your chest toward the ceiling, arching your back. You should be gazing up at the ceiling in front of you. Hold. Release on an exhalation.

### Tips and techniques:

- Keep your shoulders relaxed and down, away from your ears.
- Don't excessively arch your back.
- Don't hyperextend your neck by looking directly above you.
- Tighten your abdominal muscles to support your back.
- If you have back problems or recently had abdominal surgery, check with your doctor before doing this move.

**Make it harder:** Raise your arms overhead as you arch your back.

## 4 • Crescent lunge

**Reps:** 3–5

**Sets:** 1

**Intensity:** Light to moderate

**Hold:** 3–5 breaths

**Starting position:** Stand tall behind a chair with your feet apart slightly. Place your left hand on the back of the chair and relax your right arm at your side.

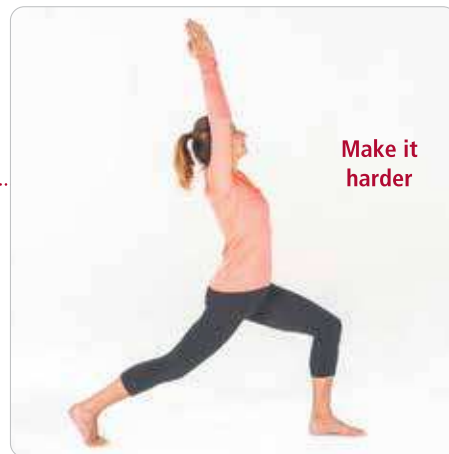
**Movement:** As you inhale, step back with your left foot, with your heel off the floor. Bend your right knee, lowering into a lunge and raising your right arm overhead. Hold. Inhale as you bring your feet together and exhale as you lower your

arm. Repeat on the opposite side. This completes one rep.

### Tips and techniques:

- Keep the movement slow and controlled.
- Keep your front knee over your ankle.
- Tighten your abdominal muscles to support your back.

**Make it harder:** As you become stronger and more flexible, you can try the crescent lunge without a chair, raising both arms overhead.



## 5 • Forward bend

**Reps:** 3–5

**Sets:** 1

**Intensity:** Light

**Hold:** 3–5 breaths

**Starting position:** Stand tall in front of a chair with your feet apart slightly. Relax your arms at your sides with your shoulders back and down.

**Movement:** As you inhale, raise your arms overhead. As you exhale, fold forward from your hips, bringing your hands to the seat of the chair. Keep your back straight. Hold. Inhale as you stand back up, bringing your arms overhead. Exhale as you lower your arms.

### Tips and techniques:

- Keep the movement slow and controlled.
- Keep your shoulders relaxed and down, away from your ears.
- Move within a comfortable range of motion. Do not strain or force any position.
- Tighten your abdominal muscles to support your back.
- If you have back problems or osteoporosis, check with your doctor before doing this move.

**Make it harder:** As you become more flexible, you'll be able to place your forearms on the seat of the chair. For a greater challenge, you can try the forward bend without a chair, placing your hands on your legs for support.

## 6 • Triangle pose

**Reps:** 3–5

**Sets:** 1

**Intensity:** Light to moderate

**Hold:** 3–5 breaths

**Starting position:** Stand tall with a chair to your right and spread your legs wide. Relax your arms down at your sides. Turn your right foot so it points out to the side (toward the chair), while keeping your left foot pointing forward. Your hips and shoulders should also be facing forward.

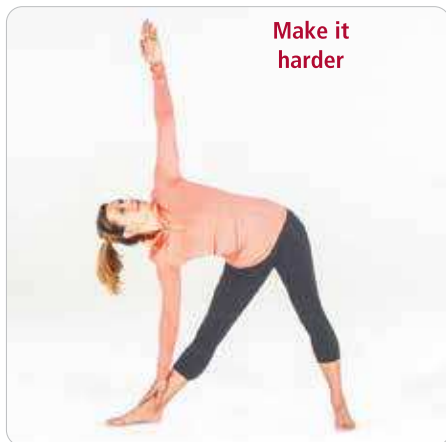
**Movement:** As you inhale, raise your arms to shoulder height. As you exhale, reach your right arm and torso to the right as far as possible, then bend to the right and place your right hand on the chair seat. Raise your left arm toward the ceiling and look up at it. Hold. Imagine that your fingertips are reaching toward the ceiling. Inhale as you come up, and exhale as you lower your arms. Repeat on the opposite side. This completes one rep.

ing and look up at it. Hold. Imagine that your fingertips are reaching toward the ceiling. Inhale as you come up, and exhale as you lower your arms. Repeat on the opposite side. This completes one rep.

### Tips and techniques:

- Don't let your top hip or shoulder roll forward.
- Tighten your abdominal muscles to support your back.
- Place your hand on your hip if holding your arm up becomes tiring.

**Make it harder:** As you become stronger, you can try triangle pose without a chair, placing your hand on your leg wherever comfortable.



## 7 • Warrior II

**Reps:** 3–5

**Sets:** 1

**Intensity:** Light to moderate

**Hold:** 3–5 breaths

**Starting position:** Stand tall in front of a chair and spread your legs wide. Relax your arms down at your sides. Turn your right foot so it points out to the side and angle your left foot inward. Keep your hips and shoulders facing front.

**Movement:** As you inhale, raise your arms to shoulder height. As you exhale, bend your right knee, lowering onto the chair in a lunge position. Hold. Inhale as

you straighten your legs, rising up, and exhale as you lower your arms. Repeat on the opposite side. This completes one rep.

### Tips and techniques:

- Keep your front knee over your ankle.
- Imagine that your fingertips are reaching to opposite walls.
- Tighten your abdominal muscles to support your back.
- Place your hands on your hips if holding your arms up becomes tiring.

**Make it harder:** As you become stronger, try Warrior II without a chair.



# HARD • Balance in Motion Workout

Everyday acts—strolling down the street, walking up or down stairs, turning to look behind you—demand dynamic balance, the ability to anticipate and react to changes as you move. This workout hones that ability considerably, which helps prevent falls.

If you've had a hip replacement, ask your doctor if you need to modify any of the movements, particularly in exercise 2, "Braiding." Otherwise, focus on

good form, rather than worrying about how many reps you can complete. For instance, remember to engage (tighten) your core muscles before you start each exercise. If you find an exercise especially difficult, do fewer reps or try the easier variation. As you improve, try a harder variation. Before you start, check with your doctor to make sure you're ready for this workout.

**Equipment:** Sturdy chair (optional).

## 1 • Soccer kick

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Moderate

**Tempo:** 2–1–2

**Starting position:** Stand up straight with your feet together and your hands on your hips.

**Movement:** Point your right foot out to the right side and lift your arms out to the sides at shoulder level. Lift up your right foot and slowly sweep it diagonally in front of you as if kicking a soccer ball with the inside of your foot. Hold. Slowly bring your foot back to the right side. Finish all reps, then repeat with the

left leg. This completes one set.

**Tips and techniques:**

- Keep your hips even and facing forward, and maintain neutral posture throughout.
- Tighten your abdominal muscles and the buttock of the standing leg.
- Don't rotate your upper body.

**Make it easier:** Hold on to the back of a chair with one hand for support.

**Make it harder:** Hold for four counts; don't touch your foot down in between reps.



## 2 • Braiding

**Reps:** 10 to each side

**Sets:** 1–3

**Intensity:** Light to moderate

**Tempo:** Slow and controlled

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Put your arms at your sides.

**Movement:** Step toward the right with your right foot. Cross in front with your left foot, step out again with the right foot, and cross behind with your left foot. Continue this braiding for 10 steps to the

right, then bring your feet together. Hold until steady. Now do 10 steps of braiding to the left side of the room. This completes one set.

**Tips and techniques:**

- Maintain neutral posture throughout.
- Look ahead of you instead of down at your feet.
- Don't turn your feet out.

**Make it easier:** Take smaller steps.

**Make it harder:** Pick up your pace while staying in control of the movement.





### 3 • Rock step

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Moderate to high

**Tempo:** 2–2–2–2

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Lift your arms out to each side.

**Movement:** Step forward with your left foot and lift up your right knee. Hold. Step back with your right foot and lift up your left knee. This completes one rep. Finish all reps with the left foot leading, then repeat by leading with the right foot. This

completes one set.

#### Tips and techniques:

- Tighten the buttock of the standing leg for stability.
- Maintain good posture throughout.
- Breathe comfortably.

**Make it easier:** Hold on to the back of a chair with one hand for support; lift your knee less.

**Make it harder:** Hold each knee up for a count of four.

### 4 • Side squat with knee lift and rotation

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** High

**Tempo:** 2–2

**Starting position:** Stand up straight with your feet together and your arms at your sides.

**Movement:** Step out to the right, hinge at your hips, and bend your knees to lower your buttocks into a squat as if sitting in a chair. Simultaneously, clasp your hands loosely in front of your chest. As you stand back up, raise your right knee while rotating your upper body to the right. Return to the squat. This is one rep. Finish all reps, then repeat the sequence stepping out to the left. This completes one set.

#### Tips and techniques:

- Keep your spine neutral and your shoulders down and back.
- Extend your knees no farther forward than your toes (if you look down you should be able to see your toes) and keep them pointing forward as you squat.
- Hinge your upper body slightly forward, keeping your chest lifted as you squat.

**Make it easier:** As you stand up, lift one knee up in front of you without twisting. If this is still too challenging, simply do squats without a knee lift or rotation.

**Make it harder:** Hold the squat, or knee lift, or both for two to four counts.



### 5 • Curtsies

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Moderate to high

**Tempo:** 2–2

**Starting position:** Stand up straight with your right leg out to your side, toe touching the floor. Extend your arms to each side at shoulder level.

**Movement:** Bring your right foot behind your left leg, place your weight on the ball of the rear foot, and bend your knees as if curtsying. Touch your right hand to your left knee. Press with your front foot to stand up and return to the starting position. Finish all reps, then repeat with your left leg. This completes one set.

#### Tips and techniques:

- Keep your spine neutral and your shoulders down and back.
- Keep your upper body facing forward the entire time.
- When returning to the starting position, tighten the buttock of your front leg as you lift up to help you balance.

**Make it easier:** Do fewer reps; don't lower as much.

**Make it harder:** As you rise up from the curtsy, lift your leg out to the side in the air, then return to the curtsy without touching the floor in between.





## 6 • Reverse lunge

**Reps:** 10 on each side

**Sets:** 1–3

**Intensity:** Moderate to high

**Tempo:** 2–2

**Starting position:** Stand up straight, feet together and weight evenly distributed on both feet. Relax your arms at your sides.

**Movement:** Step back with your right foot, landing on the ball of your right foot. Keeping your torso erect, bend both knees and lower until your left thigh is parallel to the floor. Your left knee should align with your left ankle and your right knee point to the floor. Simultaneously, bring your hands up in front of your chest, elbows bent. Press with both feet to stand up and return to the starting position. Finish all reps, then repeat stepping back with your left foot. This completes one set.

### Tips and techniques:

- Keep your front knee directly over your ankle.
- In the lunge position, your shoulder, hip, and rear knee should be aligned vertically.
- Keep your spine neutral, and don't lean forward or back.

**Make it easier:** Stand with one foot in front of the other and do stationary lunges, moving up and down without stepping back and forth; don't lower as much when you lunge back; do fewer reps.

**Make it harder:** Hold the lunge for four counts before returning to the starting position.

## Finish with stretches

Stretching is useful at any age and continues to be important into your 50s and beyond, even if you're less active than you once were. Your joints become less flexible over time. Stiff ankle and calf muscles may turn a trip into a tumble. Tight arm and side muscles may interfere with any task or sport involving reaching. Tight neck muscles may make it hard to look behind you, such as when you

need to turn your head while backing up the car. Loss of flexibility undermines your balance, too, which can cause life-altering falls. Our stretches can help with all of these problems.

Perform stretches after your balance workout, when your muscles have been warmed up, to prevent injury. Focus on good form rather than more repetitions. ♥



## Special Report 2

# Stretching: The basics

### Why should you stretch?

Stretching is useful at any age to increase your range of motion, keep muscles limber, improve posture and balance, and help prevent falls. For example, overly tight hamstrings (the three large muscles at the back of your thighs) and hip flexors (the muscles at the top front of your thighs) can hamper basic movements like walking and running. When these muscles are tight—a common result of too much sitting—you're not able to fully extend your leg and straighten your knee, so your stride may be shortened and less powerful. Inflexible hamstrings have also been implicated in chronic low back pain, because they change the tilt of the pelvis, placing more pressure on the joints in the lower back. And for anyone who plays sports or works out, tight muscles may contribute to muscle strains, knee pain, and diminished performance because the muscles aren't able to fully extend.

As you work your way up and down the body, many more examples come to mind. Tight ankle and calf muscles may turn a trip into a tumble. Tight arm and side muscles may interfere with any task or sport involving reaching. Tight neck muscles make it hard to look behind you. Being inflexible can even affect your posture. For example, tight chest muscles can pull your shoulders forward, giving you a hunched silhouette instead of a longer, slimmer looking one.

As you age, stretching becomes even more important. Your joints become less flexible over time. Inflexibility puts a crimp in daily activities, making it harder to

walk, raise your arms overhead, or turn your head while backing up the car. It undermines balance, too, which can cause life-altering falls. Our stretches can help with all these problems.

### Six tips for safe stretches

Everyone—with medical conditions or not—should use these tips to help protect muscles and joints while ensuring flexibility gains.

**1. Warm up first.** Much like taffy, muscles stretch more easily when warm. Our dynamic stretches can act as a warm-up for static stretches, or you can do static stretches after sports, exercise, or even marching in place with arms swinging for five minutes or dancing to a few songs. Moist heat packs or a warm shower are effective first steps, too.

**2. Feel no pain.** Stretch only to the point of mild tension, never to the point of pain. If a stretch hurts, stop immediately! Reset your position carefully after checking the instructions, then try again. With time and practice, your flexibility will improve.

**3. Pay attention to posture and good form.** Posture counts whether you're sitting, standing, or moving. Good form translates to better gains in flexibility and less likelihood of injury when stretching tight muscles. Photos of stretches tell only part of the story, so read instructions carefully to get form right.

**4. Focus on the muscle being stretched.** You'll

notice that one side of your body often is tighter than the other. Work on balancing this over time.

**5. Breathe.** Breathe comfortably while stretching. Whatever you do, don't hold your breath while you are holding a stretch.

**6. Practice often.** You'll make the best gains if you stretch frequently—daily, or on as many days of the week as possible. At the very least, aim to do stretches two or three times a week. ♥

## Stretching to ease pain

**A**rthritis, stiff backs, and sore knees are three common problems that can sap joy from life. But stretching can help, when tight muscles are to blame.

Even if you don't have a medical condition, you may be suffering from tight muscles that keep you from feeling your best. They can pull your body off-kilter, and long hours spent at a desk—or staring down at tablet screens—may cause pain, too. This section touches on posture tips and ergonomics, as well.

### Arthritis

When movement is painful, it's natural to limit it. Yet if you keep an arthritic joint bent rather than moving it through its range of motion, you allow muscles to stiffen in that position. Over time, the muscles actually shorten, curtailing range of motion and prompting other problems.

For example, arthritis pain and decreasing flexibility make walking harder and may throw off your gait and balance, leading to falls. If you walk less, you burn off fewer calories, too, and weight may creep up, placing ever-greater stress on hip and knee joints. This can actually worsen arthritis and its consequent pain. And of course, you sacrifice the health benefits of regular walking, including improved cardiovascular, bone, and mental health.

Nipping a cycle like this in the bud is one potential benefit of a stretching program for people who have osteoarthritis, a degenerative joint disease that affects almost 27 million Americans. Osteoarthritis of the hip or knee, for example, responds well to activities performed in a



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Poor posture may strain or aggravate muscles, nerves, tendons, ligaments, and spinal discs. Over time, poor posture chips away at the range of motion in your joints and can lead to pain. Stretching helps.

heated pool, such as stretching and aerobics. (Check with the Arthritis Foundation to see if exercise classes in heated pools and geared to people with arthritis are available in your area.)

Stretches can also help improve the range of motion in damaged joints in people with rheumatoid arthritis, a chronic inflammatory disease.

If you have arthritis, get advice from your doctor about the right combination of activities, weight loss, medication, and assistive devices, such as canes or walkers designed to take weight off affected joints. Stretching to ease stiffness—along with resistance exercises to build



or maintain strength in muscles that support key joints—are likely to be high on the list. (See “Stretches for over-all flexibility,” page 23, and “Stretches for desk jockeys, techies, and hobbyists,” page 24, for examples of stretches that may be helpful.)

These tips can help make your stretching routine easier:

**Warm up thoroughly.** You may need extra warm-up time. Try a slow, gentle version of our dynamic stretches (see page 21). Most of these exercises can be done in a chair, if necessary. A hot shower or bath, a heated pool, or even warm compresses or a heating pad can also warm up stiff joints before you stretch.

**Stretch during your least painful time of day.** While morning is a popular time to exercise, it may not work for you if you experience a lot of pain or stiffness at that time of day. Choosing a window of time after you’ve been moving or after pain relievers take effect can help make stretching easier.

**Adapt stretches.** Use pillows or rolled towels to help you work within a comfortable range of motion. For example, placing small pillows next to your shoulders for the “Floor chest stretch” (page 28) supports your arms if you are not able to bring them all the way to the floor. A strap can also help you to modify stretches (see “Floor stretches using a strap,” page 33). Choose seated stretches, if necessary.

**Expect some discomfort.** While we encourage everyone to stretch only to the point of mild tension, not pain, some discomfort is to be expected with arthritis. Try the two-hour rule: if discomfort following stretches or other activities lasts longer than two hours, or is more severe than your usual pain, step your routine down. Try doing fewer reps and holding stretches for less time. As stretching becomes easier, gradually step it up again.

## Back pain

A lack of flexibility in key muscles is one source of back pain. Two well-known culprits are tight hip flexors (a muscle group at the front and top of the thigh that helps you raise your knee and bend at the hip) and tight ham-

strings (three strong muscles at the back of the thigh that help you bend your knee and extend your leg behind you). For example, the psoas (a hip flexor that attaches to the spine) is sometimes at fault in low back pain.

Much more rarely, an overly tight piriformis (a deep muscle in the buttocks) and a neighboring muscle called the quadratus lumborum, sometimes in conjunction with other gluteal muscles, compress or irritate the sciatic nerve, which threads between them. Known as piriformis syndrome, this prompts sciatica, a constellation of symptoms like pain, numbness, weakness, or tingling that may be felt from the lower back down to the back of the leg or foot.

Whether stretches will ease your low back pain depends on the cause of the pain. While muscle or bone conditions—for example, muscle tightness or spasms, or osteoarthritis—are most often the tinder that feeds flare-ups, back pain sometimes stems from injuries of the spinal discs or an illness, such as a urinary tract infection or appendicitis. Thus, proper treatment varies widely. If you find yourself afflicted by back pain, start by calling your doctor for advice on whether stretches are likely to help or hurt the underlying problem triggering your pain.

Stretching combined with strength exercises may also help prevent low back pain. Researchers divided 563 healthy office workers into two groups, one that performed stretches and strength exercises, while the other did no exercise. More than twice as many people in the no-exercise group reported suffering from low back pain during the yearlong study compared with the stretching group. See “Stretches to relieve sore backs,” page 23, for stretches targeting tight muscles that often contribute to back pain.

## Knee pain

Sore knees can make climbing stairs difficult and knock sports entirely off your list of enjoyable activities. Even an evening stroll in the nicest weather may not seem like fun. Although arthritis may be one contributing factor, tight muscles and tendons frequently play into knee pain. Often, the problem is a muscle imbalance prompted

by insufficient strength or flexibility in one or more of these muscle groups: the quadriceps (the quartet of large muscles at the front of the thigh), the hamstrings (the trio of large muscles at the back of the thigh), and the calf muscles (a duo known as the gastrocnemius and soleus). The iliotibial (IT) band is another potential troublemaker. This thick cord of connective tissue extends from your hip bone down the outside of the thigh to the shin bone. When you bend a knee, the IT band slides over the outside knob of the thighbone. If it becomes inflamed, the outside of your knee hurts. In older people, IT band syndrome usually occurs when a bad back or joint problem has thrown off gait. Runners who suddenly boost mileage and soccer players, cyclists, or skiers who overdo it are vulnerable, too. Failure to warm up properly, a tight IT band, or unequal leg lengths are other factors that may play a role.

Front-and-center knee pain that crops up during and after physical activities, or even after prolonged bouts of sitting, may be a sign of patellofemoral pain syndrome. Sports that require you to repeatedly put weight on a bent knee (such as running or basketball) can spark this problem. One underlying factor is muscle tightness and imbalance: tight hamstrings, calves, and hip muscles

increase pressure between the kneecap and thighbone, while three muscles of the quadriceps pull the kneecap to the outside. If the innermost quadriceps muscle is relatively weak, or if the three outer ones are relatively tight, the kneecap may track improperly, rubbing every time the knee is bent.

If you do have knee pain, get advice from your doctor about the right combination of activities and treatments, which will depend on the problem diagnosed. Often, a well-rounded stretching routine will help relieve sore, stiff knees (see “Stretches to relieve sore knees,” page 24, and the tips under “Arthritis,” page 18). Backing off from aggravating activities for a while may be advisable. Your doctor or a physical therapist may also recommend doing exercises to strengthen the muscles that support the knee, and may also suggest losing weight if you are overweight. Well-padded shoes with arch supports or orthotic inserts might be helpful, as may medication to ease pain and limit inflammation (especially if you have arthritis). In some cases, if conservative treatment has not restored comfortable movement, you could need bracing or injections. If that doesn’t work, knee replacement may be a possibility. ♥

# Dynamic stretch warm-up

Unlike many neuromuscular training programs for athletes, our dynamic stretch routine is designed for the widest possible audience. It moves your body in three ways: forward and backward, side to side, and through rotations. Our aim is to loosen up joints to increase your range of motion and warm up tissues throughout the body, which helps cells to get the oxygen and energy demanded by any athletic endeavor.

Common sense, as well as research, suggests a long, overly tiring warm-up routine saps strength you'll need for athletic performance. That's why our routine is short and simple.

Here's what to do:

- Perform each of the first six dynamic stretches 10 to 20 times, followed by four arm sweeps. During each dynamic stretch, go from smaller movements to larger movements, to gradually increase range of motion.

- Repeat this sequence of dynamic stretches for about five to eight minutes, rolling each stretch into the next one. Start over again as needed to fill the time you've allotted.
- If desired, you can add a sports-specific move to the routine: for example, a golf or tennis swing, or a series of shallow to deeper jump squats to ready the body for basketball. If you do this, go slowly and deliberately through the first few reps, then pick up your pace, always focusing on correct form.
- If you have trouble with balance, you can put one hand on the back of a chair or a counter. It's even possible to do most of these movements while seated.

This routine will help you limber up for any sport and can serve as a warm-up. To see the complete sequence, go to [www.health.harvard.edu/dynamic-stretches](http://www.health.harvard.edu/dynamic-stretches).

Once you're warmed up, it's time to play sports.



## 1. Shoulder rolls

Stand up straight with your feet hip-width apart and arms at your sides. Roll your shoulders up, back, and down. Your thumbs point forward as you start the move. Palms point forward, elbows slightly bent, as you finish each shoulder roll.



## 2. Overhead reach

Stand up straight with your feet hip-width apart. Reach toward the ceiling with your right arm, while shifting your weight from your right foot to your left foot and tapping the toes of the right foot. Repeat on the left.



### 3. Torso rotation with a reach

Stand up straight with your feet hip-width apart. Reach toward the left wall with your right arm and then the right wall with your left arm, while shifting your weight with each change of direction. Tap your toes with each shift.



### 4. Hamstring curls

Stand up straight with your feet hip-width apart. Alternately bend your right knee and then your left, bringing your right foot and then your left foot toward your buttocks. Press your arms backward as you do so.

### 5. Shallow side lunges

Stand up straight with your feet in a wide stance, toes pointing forward. Alternate shallow side lunges to the right and the left, hinging forward at the hip and bringing both hands to your upper thigh on the lunge.



### 6. Knee lifts

Stand up straight with your feet together. Lift your right knee and then your left knee, touching both hands to the knee being lifted. For a more challenging dynamic stretch, lift your knee high enough to grasp the top of your shin with your hands and pull your leg gently in toward your body, then release it.



### 7. Arm sweeps

Stand up straight with your feet together. As you inhale, sweep your arms out to the sides and up toward the ceiling. As you exhale, sweep your arms down to your sides.

# Static stretches

In the following pages, you'll find 35 static stretches, arranged according to whether you do them on the floor, in a chair, or standing. You may wish to follow each routine individually, in that order, or you may want to mix and match.

On this page and the next, you'll find four routines that are adapted to specific needs. The first one is a good, all-purpose routine for everyone. The next three are specially designed for people with low back pain, sore knees, or stiffness from too much sitting or computer work.

## 1 Stretches for overall flexibility

This is a great combination of stretches designed to ease tight muscles throughout your body and help you gradually work toward a full range of motion in your joints. If you have arthritis, you may need to modify these stretches (see our tips under "Arthritis" on page 18). Do these stretches daily, if possible—or at least two or three times a week. Over time, you'll notice real gains in flexibility and how easily you move around.

1. Single knee pull (page 25)
2. Floor pretzel (page 26)
3. Double knee torso rotation (page 27)
4. Child's pose three ways (page 29)
5. Cat-cow (page 30)
6. Downward dog (page 30)
7. Kneeling hip flexor stretch (page 31)
8. Full-body stretch with strap (page 34)
9. Side stretch with strap (page 34)
10. Seated chest stretch (page 36)

## Four stretching routines

In these four routines, we've tried to target the stretches that are best for certain situations. However, you may need to tailor them further to suit your needs. If so, here are some tips:

- Some stretches will be easier or harder for you, so you may want to increase or decrease the challenge. To increase it, try substituting a harder option (do a standing hamstring stretch, for example, instead of a seated one). To make the stretch easier, add a pillow or rolled towel or use a strap.

## Stretches to relieve sore backs

Aimed at loosening up tight muscles that often play a role in back pain, these stretches should be helpful for anyone who experiences occasional stiffness or backaches. Please read the section on back pain (see page 19) to decide if you should talk to your doctor before starting. If you have acute pain, check with your doctor before doing any exercise. Aim to do these stretches daily, if possible, or at least two to three times a week. For variety, you may substitute the "Stretches for overall flexibility" (at left) on one or two of those days.

1. Floor chest stretch (page 28)
2. Knees to chest (page 25)
3. Floor pretzel (page 26)
4. Double knee torso rotation (page 27)
5. Kneeling hip flexor stretch (page 31)
6. Hamstring stretch with strap (page 33)
7. Full-body stretch with strap (page 34)
8. Side stretch with strap (page 34)
9. Cobra (page 28)\*
10. Cat-cow (page 30)\*

*\* These stretches are good for occasional stiffness. If you have back pain, check with your doctor before doing these.*



- If doing the routine in a single session takes too much time or energy, break it into two sessions (morning and evening, say, or alternating half-sessions two days in a row).
- If you just want to switch things up for the sake of variety, substitute an equivalent floor, seated, or

standing stretch. For example, if the routine suggests the “Floor pretzel” (page 28), you can substitute the “Seated pretzel” (page 40). If it suggests the “Hamstring stretch with strap” (page 35), you could choose instead the “Seated hamstring stretch” (page 39) or “Standing hamstring stretch” (page 42). ♥

### Stretches to relieve sore knees

When tight muscles are causing sore knees, these stretches can help you feel less like the Tin Woodman after a rusting rain. Please read the section on knee pain (see page 19) to decide if you should talk to your doctor before starting. Aim to do this routine daily, if possible, or at least two to three times a week. For variety, you may substitute the “Stretches for overall flexibility” (see page 23) on one or two of those days.

1. Single knee pull (page 25)
2. Floor pretzel (page 26)
3. Single knee rotation (page 26)
4. Side-lying quadriceps stretch (page 31)
5. Kneeling hip flexor stretch (page 31)
6. Hamstring stretch with strap (page 33)
7. Inner thigh stretch with strap (page 33)
8. Outer thigh stretch with strap (page 34)

### Stretches for desk jockeys, techies, and hobbyists

This routine is perfect anytime you want to relieve discomfort that stems from too many hours in one position. It provides an excellent way to move toward better posture, too, especially if you’re spending a bit too much time hunched over a computer keyboard, a craft table, or a workbench.

1. Seated overhead stretch (page 36)
2. Seated chest stretch (page 36)
3. Seated wrist stretch (page 36)
4. Seated ear-to-shoulder stretch (page 37)
5. Seated pretzel (page 38)
6. Seated rotation (page 38)
7. Standing quadriceps stretch (page 40)
8. Standing hamstring stretch (page 40)
9. Kneeling hip flexor stretch (page 31)

# Floor stretches

These 14 floor stretches are best performed on a cushioned mat, although a thick carpet or towels will do. If you find it difficult to lie on the floor, many of these stretches can be done while sitting on a chair. As you do the stretches, remember these points:

- Stretch to the point of mild tension, not pain.
- When holding the stretch, remain as still as possible, without bouncing.
- Breathe comfortably unless otherwise noted.



## 1 | Knees to chest

*Primarily stretches the low back*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your legs extended on the floor. Relax your shoulders against the floor.

**Movement:** Slowly bend your knees. Grasp the backs of your thighs, and gently pull your knees in toward your chest. Feel the stretch in your back. Hold. Return to the starting position.

### Tips and techniques:

- Keep your head on the floor and your neck relaxed.
- You can bring your knees in one at a time to get into position if raising both at the same time is too difficult.
- For a more challenging stretch, raise your head off of the floor, bring your chin toward your chest, and hold.



## 2 | Single knee pull

*Primarily stretches the low back, buttocks, and front of the hip*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your legs extended on the floor. Relax your shoulders against the floor.

**Movement:** Bend your right knee. Grasp the back of your thigh and pull your knee in toward your chest. Flex your left foot and press the thigh and calf of that leg down toward the floor to feel a stretch in the front of your left hip and top of your left thigh. Hold. Return to the starting position and repeat with the other leg. This is one rep.

### Tips and techniques:

- Keep your head on the floor and your neck relaxed.
- Keep the foot of your bent leg relaxed.
- For a more challenging stretch, raise your head off of the floor, bring your chin toward your chest, and hold.

Special thanks to Pilar Caso from the Baptiste Power Yoga Institute for demonstrating the yoga stretches. Master trainer Josie Gardiner modeled the floor stretches and standing stretches, while Dr. Lauren Elson demonstrated the seated stretches.



### 3 | Floor pretzel

*Primarily stretches the buttocks, hip, and outer thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your right knee bent and foot on the floor. Rest your left ankle on your right thigh, just above your right knee. Your left knee should point out to the side, toward the wall. Grasp the back of your right thigh with both hands.

**Movement:** Slowly lift your right foot off the floor until you feel the stretch in your left hip and buttock. Hold. Return to the starting position. Repeat with your left knee bent and your right ankle resting on your left thigh, just above your left knee. This is one rep.

**Tips and techniques:**

- Keep your shoulders down and back, relaxing them against the floor.
- Keep your head on the floor and your neck relaxed.
- If it's too hard to grasp your thigh with both hands, put a strap or small towel around the back of the thigh and hold both ends.



### 4 | Single knee rotation

*Primarily stretches the back, hip, and outer thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your legs extended on the floor. Relax your shoulders against the floor and extend your arms out to the sides at shoulder level, palms up.

**Movement:** Bend your left knee and place your left foot on your right thigh just above the knee. Place your right hand on your left knee. Tighten your abdominal muscles, and slowly lower your left knee across your body toward the right wall. Feel the stretch in your low back and hip. Hold. Return to the starting position and repeat on the other side. This is one rep.

**Tips and techniques:**

- The hip of your bent leg will come off of the floor as you rotate your lower body.
- Keep both shoulders flat on the floor. If one lifts up, don't rotate so far.
- To increase the stretch, look in the direction opposite to your knee rotation.



## 5 | Double knee torso rotation

*Primarily stretches the back, chest, hips, and outer thighs*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your knees bent and feet together, flat on the floor. Put your arms out comfortably to each side at shoulder level, palms up.

**Movement:** Tighten your abdominal muscles and lift both knees toward your chest, then lower them together to the left side on the floor. Keeping your shoulders relaxed and pressed into the floor, look in the opposite direction. Feel the stretch across your chest and torso and in your lower back and hip. Hold. Bring both knees back to center and return your right foot, then your left foot, to the floor. Repeat in the opposite direction. This is one rep.

### Tips and techniques:

- Try to bring both knees up into the fetal position. Ideally, keep them together throughout the stretch.
- Keep both shoulders flat on the floor. If one lifts up, don't rotate so far.
- If necessary, put a rolled towel between your knees to make this stretch easier.



## 6 | Butterfly

*Primarily stretches the inner thighs*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit on the floor with the soles of your feet together. Place your hands on your ankles. Let your knees fall apart toward the floor.

**Movement:** Hinge forward from your hips until you feel the stretch in your inner thighs. Hold. Return to the starting position.

### Tips and techniques:

- Keep shoulders down and back throughout the stretch.
- One side is likely to be noticeably tighter. Focus on balancing the stretch.
- You can place pillows under your legs for support if the stretch is too challenging.
- For a greater stretch, press down on your legs with your elbows.



## 7 | Floor chest stretch

*Primarily stretches the shoulders and chest*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your knees bent and feet flat on the floor. Keeping your shoulders down and back, press them against the floor. Place both hands gently behind your head, elbows pointing toward the ceiling.

**Movement:** Slowly lower your elbows toward the floor to the point of tightness. Feel the stretch across your chest and into your shoulders and arms. Hold. Return to the starting position.

### Tips and techniques:

- Don't arch your back.
- If necessary, limit the stretch by placing a small pillow on either side of your shoulders and gently pressing into the pillows.
- You can do this stretch while seated, too.



## 8 | Cobra

*Primarily stretches the abdomen and chest*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie facedown with your forehead on the mat and legs comfortably extended with toes pointed. Place your hands just below your shoulders, palms facing down, and fingers together and parallel to your body.

**Movement:** Press your palms against the floor to slowly lift your head, shoulders, and chest. Keep your elbows back and soft, and your head and neck in neutral alignment. Feel the stretch down the front of your torso and across your chest. Hold. Return slowly to the starting position.

### Tips and techniques:

- Keep your shoulders down and back, away from your ears, and your chest open. While holding, take full breaths by inhaling gently through your nose and lengthening the breath as you exhale through your nose.
- As you become stronger and more flexible, you may be able to fully extend your arms. Be careful not to lock your elbows in the fully extended position.



## 9 | Child's pose three ways

*Primarily stretches the back, shoulders, arms, and sides*

**Reps:** 2–4

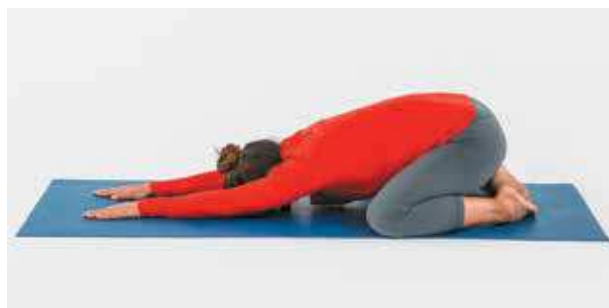
**Hold:** 10–30 seconds in each stretching position

**Starting position:** Position yourself on all fours, knees hip-width apart, big toes touching, and head and neck in neutral alignment.

**Movement:** This is a three-part stretch. Slowly drop your buttocks back toward your heels as you extend your hands in front of you and rest your forehead on the mat. Feel the stretch down your arms, shoulders, and back. Hold. Then walk your hands diagonally out to the right and place your left hand on top of your right hand. Feel the stretch down the left side of your body and your back. Hold. Then walk your hands diagonally out to the left and place your right hand on top of your left hand. Feel the stretch down the right side of your body and your back. Hold. Return to the starting position. That's one rep.

### Tips and techniques:

- Rest your forehead on the mat when holding this stretch.
- Lower your buttocks only as far as feels comfortable. If necessary, place a pillow or towel between your thighs and calves to limit the stretch.
- While holding, take full breaths by inhaling gently through your nose and lengthening the breath as you exhale through your nose.





## 10 | Cat-cow

*Primarily stretches the back, chest, and abdomen*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Position yourself on all fours, knees hip-width apart. Align your shoulders over your wrists, and your hips over your knees. Keep your head and spine in neutral alignment.

**Movement:** Slowly arch your back upward like a scared cat as you exhale. Pull your belly button in toward your spine and tuck your chin. Feel the stretch along your back. Hold. Slowly drop your belly, pull your shoulders back, and lift your head up to look forward as you inhale. Feel the stretch across your chest and down the front of your torso. Hold. Slowly return to the starting position.

### Tips and techniques:

- The slow movements of this stretch are like a wave of your spine.
- Don't strain your neck by looking up too high.
- While holding, take full breaths by inhaling gently through your nose and lengthening the breath as you exhale through your nose.



## 11 | Downward dog

*Primarily stretches the back, hips, hamstrings, calves, shoulders, and chest*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Position yourself on all fours, hands shoulder-width apart, knees hip-width apart, and fingers extended. Align your shoulders over your wrists, and your hips over your knees. Keep your head and spine in neutral alignment.

**Movement:** Exhale as you lift your knees off the floor, straightening your legs without locking your knees. While maintaining a neutral neck and spine, align your ears with your biceps (upper arms). Try to keep your weight evenly distributed between your hands and feet. Press your heels down toward the floor, if possible, while keeping your shoulders down and rolled back. Feel the stretch down the backs of your legs, throughout your back, and into your shoulders and arms. Hold. Return to the starting position.

### Tips and techniques:

- Soften your elbows and keep your shoulders down and rolled back as you lengthen your spine. Brace your abdominal muscles throughout.
- If necessary, bend your knees slightly and let your heels come up off the floor.
- While holding, take full breaths by inhaling gently through your nose and lengthening the breath as you exhale through your nose.



## 12 | Side-lying quadriceps stretch

*Primarily stretches the front of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your left side with your legs stacked and extended on the floor. Rest your left arm under your head.

**Movement:** Bend your right knee and bring your heel toward your right buttock, reaching back with your right hand to grasp your foot. Feel the stretch in the front of your thigh and hip. Hold. Slowly return to the starting position. Turn onto your other side and repeat. This is one rep.

### **Tips and techniques:**

- Keep your hips stacked; don't roll forward or back.
- Don't arch your back.
- If you have trouble reaching your foot, place a strap around your ankle and gently pull the strap toward your buttocks.



## 13 | Kneeling hip flexor stretch

*Primarily stretches the front of the hip and thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Kneel with your hands at your sides.

**Movement:** Put your right leg in front of you with the knee bent at a 90-degree angle and foot flat on the floor. Place your hands on your right thigh for support. Lean forward, pressing into the hip of your left leg while keeping your right foot on the floor. Feel the stretch in the front of your left thigh and hip. Hold. Return to the starting position, then repeat with your left leg forward. This is one rep.

### **Tips and techniques:**

- Keep your front knee over your ankle, not jutting out past your toes.
- Keep your head and spine neutral, your shoulders down and back, and your abdominal muscles tightened.
- Keep your pelvis tilted forward (tailbone tucked under), rather than letting it tip back (tailbone lifted).



## 14 | Torso rotation on all fours

*Primarily stretches the back, torso, chest, arms, and sides*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Position yourself on all fours, aligning your hands and knees directly under your shoulders and hips.

**Movement:** Gently place your right hand behind your head. Slowly bring your right elbow down toward your left hand. Feel the stretch in your upper back and arm. Hold. Then rotate your elbow up toward the ceiling. Feel the stretch across the front and side of your torso. Hold. Return to the starting position. Repeat on the other side. This is one rep.

### Tips and techniques:

- Keep your head and spine neutral, shoulders down and back, and abdominal muscles tightened.
- Follow your elbow with your eyes as you rotate toward the ceiling.
- Keep your hips squared. Don't let them jut out to the sides as you twist. ♥

# Floor stretches using a strap

The strap used in these five stretches helps you position yourself correctly even if your muscles are tight. It allows you to limit a stretch by keeping the strap long or gently deepen a stretch as your body becomes more flexible by moving your grip up on the strap. As with all floor stretches, using a cushioned mat, or a thick carpet or towels, will help keep you comfortable.



## 1 | Hamstring stretch with strap

*Primarily stretches the back of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your right leg extended on the floor. Bend your left knee to place the strap securely around your left foot. Hold the strap with both hands.

**Movement:** Flex the foot of your left leg and lift that heel toward the ceiling, straightening the leg as much as possible without locking the knee. As you do so, flex the foot of your extended right leg, pressing the thigh and calf down toward the floor. Gently pull on the strap to the point of muscle tightness. Feel the stretch in the back of your left thigh. Hold. Return to the starting position. Repeat on the other side. This is one rep.

### Tips and techniques:

- Stretch the leg that is raised toward the ceiling to the point of mild tension. You should not feel any pressure behind the knee.
- Place the strap in the middle of your foot to secure it safely.
- Keep your leg pointing straight up to the ceiling. Don't let it roll out to the side or across your body.



## 2 | Inner thigh stretch with strap

*Primarily stretches the inner thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your right knee bent and foot on the floor. Bend your left knee to place the strap securely around your left foot. As you extend your foot toward the ceiling, straighten your leg as much as possible without locking the knee. Keeping your shoulders down and pressing into the floor, hold both ends of the strap in your left hand. Place your right arm out to your side on the floor, just below shoulder level.

**Movement:** Tighten your abdominal muscles and slowly lower your left foot out to the left to the point of tightness while keeping your hips pressed to the floor. Feel the stretch in your inner thigh. Hold. Return to the starting position. Repeat on the other side. This is one rep.

### Tips and techniques:

- Stretch to the point of mild tension, not pain. You should not feel any pressure behind the knee.
- Focus on keeping both shoulders and hips evenly on the floor, and your shoulders down and back.
- Don't arch your back.



### 3 | Outer thigh stretch with strap

*Primarily stretches the buttocks, outer thigh, and back of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with your right knee bent and foot on the floor. Bend your left knee to place the strap securely around your left foot. Hold both ends of the strap in your right hand and place your left arm on the floor just below shoulder level.

**Movement:** Slightly bend your left knee and slowly lower your left leg across your body toward the right wall. Feel the stretch in your left hip, buttocks, and outer thigh. Hold. Return to the starting position. Repeat on the other side. This is one rep.

**Tips and techniques:**

- Keep your shoulders down and pressing into the floor.
- Don't let your bent leg drop toward the floor as you stretch the opposite leg.
- To increase the stretch, pull the leg across your body and then up toward the wall behind you.



### 4 | Full-body stretch with strap

*Primarily stretches the upper body, abdominal muscles, and lower body*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Lie on your back with both legs extended. Hold the strap shoulder-distance apart with both hands by your hips.

**Movement:** Slowly lift the strap up toward the ceiling, then over your head and down toward the floor behind you. Imagine you are trying to reach your hands to the wall behind you and your feet to the wall in front of you. Feel the stretch throughout your body. Hold. Return to the starting position.

**Tips and techniques:**

- Keep your feet together and point your toes.
- Keep your shoulders down as you reach overhead. Don't let them scrunch up toward your ears.
- If you cannot comfortably bring your arms down to the floor when reaching overhead, try placing a pillow above your head and pressing the backs of your arms into it.

### 5 | Side stretch with strap

*Primarily stretches the sides, arms, and shoulders*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight on the floor with chest lifted, shoulders down and back, knees bent, and ankles crossed. Hold the strap in both hands with your arms extended in a V shape in front of you.

**Movement:** Slowly lift the strap up toward the ceiling. Then lower your right hand to the floor near your right hip while continuing to hold the strap with your arms extended. Feel the stretch down the left side of your body. Hold. Return to the starting position, then repeat on the other side. This is one rep.

**Tips and techniques:**

- If you can't reach the floor, slide your hand down the strap until you are able. Or hold the stretch without touching the floor if that is comfortable.
- As you reach to one side during this stretch, press the opposite hip into the floor.
- Keep your chest open as you stretch. Don't let your top arm and shoulder roll forward. ♥



# Seated stretches

**P**ractically everyone can do these 11 seated stretches. They can be done virtually anywhere—at work, in a hotel, or at home—and are especially helpful if you have trouble balancing while standing or find our floor stretches too challenging. Many of these stretches are perfect for relaxing muscles that tense up during desk work.

## 1 | Seated shoulder stretch

*Primarily stretches the shoulder*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight on a chair. Put your left hand on your right shoulder. Cup your left elbow with your right hand.

**Movement:** Roll your shoulders down and back, then gently pull your left elbow across your chest as you extend your left arm. Feel the stretch in your left shoulder. Hold. Return to the starting position, then repeat on the opposite side. This is one rep.

### Tips and techniques:

- Keep your shoulders down and back away from your ear during the stretch.
- Keep your head up straight; don't turn or bend it as you stretch.
- Don't twist your torso as you stretch. Keep your shoulders facing forward.



## 2 | Seated triceps stretch

*Primarily stretches the back of the upper arm and the shoulder*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight. Place your right hand on your right shoulder. Clasp your right elbow with your left hand.

**Movement:** Keeping your shoulders down and back, lift your right elbow up toward the ceiling to the point of tightness. Feel the stretch in the back of your upper right arm and shoulder. Hold. Return to the starting position. Repeat on the other side. This is one rep.

### Tips and techniques:

- Keep your head and spine neutral, shoulders down and back, and abdominal muscles tightened.
- Keep your elbow by your ear.
- For a deeper stretch, shift your supporting arm overhead and gently pull your elbow back.



### 3 | Seated overhead stretch

*Primarily stretches the arms, shoulders, fingers, and wrists*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight with your arms at your sides.

**Movement:** Interlace your fingers and rotate your palms so they face down. Keep your shoulders down and back as you lift your arms up toward the ceiling. Your palms should now be facing up. Hold. Slowly return to the starting position.

**Tips and techniques:**

- Keep your shoulders down and back, away from your ears, during the stretch.
- Aim to bring your arms up in line with your ears. If that's too difficult, raise your arms only as high as is comfortable for you.
- The straighter your arms are, the deeper the stretch will be.



### 4 | Seated chest stretch

*Primarily stretches the chest and shoulders*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight facing sideways in a chair without arms.

**Movement:** Roll your shoulders down and back. Clasp your hands behind you, intertwining your fingers so your palms face you. Gently lift your hands toward the ceiling to the point of tightness. Feel the stretch in the front of your shoulders and across your chest. Hold. Slowly return to the starting position.

**Tips and techniques:**

- Look straight ahead, keeping your chin level with the floor.
- Keep your shoulders down and back, away from your ears, during the stretch.
- Don't lean forward as you lift.



### 5 | Seated wrist stretch

*Primarily stretches the wrist and forearm*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight in a chair. Put your left arm out in front of you, palm down.

**Movement:** This is a two-step stretch. Point the fingers of your left hand toward the ceiling. Place the palm of your right hand across your left fingers on the palm side. Using your right hand, gently pull your fingers toward you to increase the stretch, stopping if you feel any pain. Feel the stretch in the bottom of your wrist and forearm. Hold. Return to the starting position. Now bend your left hand at the wrist, pointing your fingers downward. Cup your right hand across the back of your left hand, then gently press to increase the stretch, stopping if you feel any pain. Feel the stretch in the top of your wrist and hand. Hold. Finish all reps, then switch arms and repeat both steps on the other side.

**Tips and techniques:**

- Keep your shoulders down and back, away from your ears.



- Don't arch your back as you stretch. Keep a neutral spine with your abdominal muscles tight.
- If this stretch is too difficult for you, perform circular motions with your wrists in both directions to help loosen the joint.

## 6 | Seated hamstring stretch



*Primarily stretches the back of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight near the front of a chair with your feet flat on the floor.

**Movement:** Extend your right leg straight in front of you with

your heel grounded on the floor and your toes pointing toward the ceiling. Hinge forward from the hip, placing your hands on your left thigh for support. Keep your spine neutral. Hold. Return to the starting position. Repeat with your left leg. This is one rep.

### Tips and techniques:

- Stretch to the point of mild tension, not pain. You should not feel any pressure behind the knee or at your back.
- Keep your shoulders down and back, away from your ears, as you stretch.
- As you hinge forward, keep your chest lifted and imagine your chin reaching toward your foot.

## 7 | Seated ear-to-shoulder stretch

*Primarily stretches the neck*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight near the front of a chair (or on a bench) with your hands at your sides.

**Movement:** Roll your shoulders down and back. Bring your arms behind your back and grasp your left wrist with your right hand at waist level. Gently pull your left hand toward your right hip and drop your right ear toward your right shoulder. Feel the stretch down the left side of your neck. Hold. Slowly return to the starting position. Repeat on the other side. This is one rep.

### Tips and techniques:

- Keep your shoulders down and back, away from your ears, as you stretch.
- Don't bend at your waist as you stretch. Bend only your neck.
- For additional stretches, you can straighten your arm or drop your chin slightly toward your chest, or both. Feel how the area that's being stretched changes.



## 8 | Seated neck rotation

*Primarily stretches the neck*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight in a chair with your chest lifted, shoulders down and back, and chin parallel to the floor. Rest your hands on your thighs.

**Movement:** Slowly rotate your head to the right. Feel the stretch in the left side of your neck. Hold. Repeat on the other side. This is one rep.

### Tips and techniques:

- Keep your shoulders down and back, away from your ears, as you stretch.
- Keep your chin parallel to the floor. Don't look up or down.
- Each time you rotate your head, choose a spot to focus on while holding. This spot should move noticeably as your range of motion improves.



## 9 | Seated pretzel

*Primarily stretches the buttocks, hip, and outer thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight in a chair and rest your left ankle on your right thigh above your knee. Place your hands on your thighs.

**Movement:** Keeping your spine neutral, slowly hinge forward from your hips until you feel a stretch in your left hip and buttock. Hold. Slowly return to the starting position. Repeat with your right ankle on your left knee. This is one rep.

**Tips and techniques:**

- Keep your spine neutral, not rounded, and your chest lifted as you lean forward.
- Keep your shoulders down and back, away from your ears, as you stretch.
- For a deeper stretch, gently press down with the hand on your bent leg.



## 10 | Seated inner thigh stretch

*Primarily stretches the inner thighs*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight near the front of a chair. Open your legs as far apart as possible, knees and toes pointed outward. Place your hands on your thighs near your knees.

**Movement:** Keeping your spine neutral, hinge forward from the hips until you feel a mild stretch along your inner thighs. Hold. Return to the starting position.

**Tips and techniques:**

- Keep your spine neutral, not rounded, and your chest lifted as you lean forward.
- Keep your shoulders down and back, away from your ears, as you stretch.
- For a deeper stretch, push your hands into your legs as you lean forward.



## 11 | Seated rotation

*Primarily stretches the back and neck*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Sit up straight on a chair with your feet flat on the floor, hip-width apart, and your arms at your sides.

**Movement:** Slowly rotate your head and torso to the right side, placing your left hand on the outside of your right knee and your right hand next to your right hip. Feel the stretch in your back.

Hold. Slowly return to the starting position. Repeat to the opposite side. This is one rep.

**Tips and techniques:**

- As you rotate, keep your hips squared and facing forward.
- Each time you rotate, choose a spot to focus on while holding. This spot should move noticeably as your range of motion improves.
- To deepen the stretch, use your hands to gently twist a little farther. ♥





# Standing stretches

These five classic stretches enhance flexibility in key leg muscles and parts of the upper body. These stretches can help you walk, run, and reach more easily, which makes a difference in sports and daily tasks.



## 1 | Calf stretch

*Primarily stretches the calf, Achilles tendon, and ankle*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Stand up straight. Hold the back of a chair or press your hands against a wall, arms extended at shoulder height.

**Movement:** Extend your right leg straight back and press the heel into the floor. Allow your left knee to bend as you do so, while keeping that heel grounded on the floor. Feel the stretch up the back of your lower right leg. Hold. Return to the starting position, then repeat with your left leg. This is one rep.

### Tips and techniques:

- Hold a full-body lean from the ankle as you stretch.
- Keep your body in a straight line. Step closer to the chair or wall if you find yourself bending at the waist.
- Keep your front knee over your ankle, not jutting out past your toes.



## 2 | Soleus stretch

*Primarily stretches the soleus (deeper calf muscle) and Achilles tendon*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Hold the back of a chair or press your hands against a wall, arms extended at shoulder height.

**Movement:** Extend your right leg slightly behind you and press the heel into the floor. Allow your left knee to bend as you do so, while keeping the heel grounded on the floor. Now bend your right knee as much as possible, pressing into your heel until you feel a stretch low in your calf. Hold. Return to the starting position. Repeat with the opposite leg. This is one rep.

### Tips and techniques:

- Keep your shoulders directly over your hips. Don't bend at your waist.
- Keep your front knee directly over your ankle, not jutting out past your toes.
- Step closer to the chair or wall if you are having trouble balancing or maintaining good form—that is, keeping your heel down and your torso erect.

### 3 | Standing chest and shoulder stretch

*Primarily stretches the chest, shoulder, and biceps*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:**

Stand at arm's length away from a wall or a doorway, facing away from it. Extend your left arm and put your left hand on the wall, or the edge of the door frame, slightly below shoulder level, palm facing forward and touching the door frame.



**Movement:** Slowly turn your body to the right, away from the wall or door frame, until you feel the stretch in your chest and shoulder. Hold. Return to the starting position. Repeat on the other side. This is one rep.

**Tips and techniques:**

- Keep your shoulders down and back, away from your ears.
- If you feel unstable, stand with your feet apart.
- If the stretch is too difficult, lower your arm on the wall or door frame.

### 4 | Standing quadriceps stretch

*Primarily stretches the front of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:**

Stand up straight, feet together, holding the back of a chair with both hands.

**Movement:** Bend your right knee and reach back with your right hand to grasp your foot, lifting it toward your right buttock. Feel the stretch in the front of your thigh. Hold. Slowly lower your foot to the floor. Switch position to repeat with your left leg. This is one rep.



**Tips and techniques:**

- Try to keep both knees together, with the bent knee pointing toward the floor.
- Keep your pelvis neutral (neither tilted forward nor back); don't arch your back.
- If you have trouble grasping your foot, place a strap around it to assist with the stretch.

### 5 | Standing hamstring stretch

*Primarily stretches the back of the thigh*

**Reps:** 2–4

**Hold:** 10–30 seconds

**Starting position:** Stand up straight with your arms at your sides.

**Movement:** Extend your right leg straight in front of you, heel grounded on the floor and toes pointing to the ceiling. Place your hands on your upper thighs for support and hinge forward from the hip, keeping your spine neutral (no rounding or arching). Bend your left knee and sit back until you feel a stretch up

the back of your right thigh. Hold. Return to the starting position. Repeat with the other leg. This is one rep.

**Tips and techniques:**

- Stretch to the point of mild tension, not pain. You should not feel any pressure behind the knee or at your back.
- Keep your shoulders down and back, away from your ears, as you stretch.
- As you hinge forward, keep your chest lifted and imagine your chin reaching toward your foot. ♥





## Special Report 3

# The importance of your core

### How a strong core benefits you

Think of your core muscles as the sturdy central link connecting your upper and lower body. The forces that propel your movement either originate in your core or transfer through it on the way from one part of the body to another.

When you toss a ball to a dog, for example, the complete arc of the movement—known as the kinetic chain—should ideally run from the ground through your legs, hips, trunk and back, shoulder, elbow, and wrist in an even transfer of force. If a kink—such as a weak hip muscle—is in the chain, it undercuts the strength of the movement and may start a chain of misalignments in joints and limbs that can lay the groundwork for injuries over time.

No matter where a motion starts, it ripples upward and downward to adjoining links of the chain. Thus, weak, tight, or inflexible core muscles can impair how well your arms and legs function—and can sap power from many of the moves you make. Conversely, properly building up your core cranks up the power as you move and enables you to go longer before fatiguing. Strong abs alone won't suffice. In fact, overtraining abdominal muscles while ignoring muscles of the back and hips can set you up for injuries and a sore back.

A strong core also enhances balance and stability. Thus, it can help prevent falls that may lead to bruises and fractures. In fact, a strong, flexible, and well-balanced core underpins almost everything you do, from rising out of a chair to strolling down the block or engaging

in sports or any number of other activities. Following are some of the ways that a stronger core can help you throughout your day.

**Everyday acts.** Bending to put on shoes or scoop up a package, turning to look behind you, climbing stairs, sitting in a chair, or simply standing still—these are just a few of many mundane actions that rely on your core and that you might not notice until they become difficult or painful. Even basic activities of daily living—bathing or dressing, for example—call on your core.

**On-the-job tasks.** Jobs that involve lifting, twisting, and standing all rely on core muscles. But less strenuous tasks—like sitting at your desk for hours—engage your core as well. Phone calls, typing, computer use, and similar work can make back muscles surprisingly stiff and sore, particularly if you're not strong enough to practice good posture and aren't taking enough breaks.

**A healthy back.** Low back pain—a debilitating, sometimes excruciating problem affecting four out of five Americans at some point in their lives—may be prevented in many cases by exercises that promote well-balanced, resilient core muscles (see “Got back pain?” page 42).

**Sports and other pleasurable activities.** Golfing, tennis, badminton, biking, playing Frisbee, walking, swimming, and many other athletic activities are powered by a strong core. Even getting up and down from the floor when playing with your kids or grandkids engages your core muscles. Less often mentioned are sexual activities, which call for core power and flexibility, too.

**Housework, fix-it work, and gardening.** Bending,

## Got back pain? Try our core exercises.

When done regularly, our gentle core stretches and exercises may help you avoid low back pain entirely. If you have chronic low back pain, they might also help you ease it—and put a stop to future recurrences. Because no one muscle is dedicated to supporting the lower back, a program addressing a variety of core muscles is best.

Merely making muscles strong isn't enough. One goal of our exercises is enhancing core stability—that is, your control over the position and movement of the center of your body. When

researchers crunched data from four randomized controlled trials of people who had chronic lower back pain, they found that five to eight weeks of core work eased pain more effectively than general exercise.

Flexibility matters, also. Tight muscles contribute to sore backs. They limit your range of motion, shortening your stride or reach, for example, and making it hard to sit or stand with good posture. Poor posture can cause backaches, too. Stretching regularly helps counter these problems, so don't neglect the stretches

in this report.

Other ways to help ease your pain include yoga, tai chi, and Pilates. Pilates, in particular, can help strengthen your core. You can amp up the benefits even more by adding walking to your routine. One trial compared a program of muscle strengthening for the back with the same program combined with walking and found that the combined program was more effective for reducing pain levels than strength training alone.

lifting, twisting, carrying, hammering, reaching overhead—even vacuuming, mopping, and dusting—are acts that spring from, or pass through, the core.

**Balance and stability.** Your core stabilizes your body, enabling you to move in any direction, even on the bumpiest terrain, or stand in one spot without losing your balance. As a result, core exercises can lessen your risk of falling.

**Good posture.** Weak core muscles contribute to slouching. Good posture trims your silhouette and projects confidence. More importantly, it lessens wear and tear on your spine, allows you to breathe deeply, and prevents the progression of spinal problems such as kyphosis (hunching of the back) and scoliosis (curvature of the spine). Good posture helps you gain full benefits from the effort you put into exercising, too.

## 11 tips for doing gentle core work safely and effectively

To get the best results from our exercises and stretches, follow these 11 tips:

- 1. Warm up.** Before a full core workout, march in place for several minutes while swinging your arms, or dance to a few songs. It's safe to skip this if you've already warmed up through other activities.
- 2. Form first.** Good form means aligning your body as

described in the exercise instructions and moving smoothly through an exercise. Read the “Tips and techniques” section of each exercise carefully for helpful cues on correct form. Also see “Posture and alignment,” page 44.

- 3. Reps second.** More isn't necessarily better. Do only as many repetitions (reps) as you can manage with excellent form. Likewise, hold a position only for as long as you can manage with proper form. Work up to the full number of reps or seconds gradually.
- 4. Feel no pain.** Core work shouldn't hurt. Stop if you feel any sharp or intense pain, especially in your lower back or joints. Check your form and try again. If pain persists, check with a doctor or physical therapist before repeating that exercise. Discomfort from muscle fatigue is normal when exercising, however.
- 5. Realize that photos tell only part of the story.** Photos can make core work look easier than it actually is. Carefully read the instructions and the “Tips and techniques” section of each exercise.
- 6. Brace yourself.** Tighten your core muscles before starting the “Movement” in each exercise. Here's how: while sitting, standing, or lying on your back, gently but firmly tighten your abdominal muscles. Once you're braced, a gentle push from any direction should not cause you to lose your balance. Some trainers suggest imagining that you're pulling in your muscles to

zip up a tight pair of jeans and fasten a tight jacket. Either way, practice makes perfect. Try bracing or zipping up for 10 seconds at a time while breathing normally.

7. **If it's too easy, step it up.** As it feels easier to do exercises with good form, first add reps to complete a full set, or add seconds if the exercise calls for you to hold a position. Next, you can add another set (up to two total, if called for in the instructions). Then move on to Level 2 exercises, if that's an option. As you move up to more challenging exercises, leave the simpler ones behind to make the most efficient use of your exercise time.
8. **Be balanced.** When possible, do a pair of exercises with opposing movements, such as the standing hamstring curl (page 46) and the standing knee lift (page 45), or the ball squeeze (page 54) and the standing side leg lift (page 45). This helps create balance in muscle groups. It aids in injury prevention and is often used in rehabilitation. As you'll find, the exercises in the Office Workout and Home Workout strengthen the front, back, inner, and outer leg muscles, as well as working hip, buttock, abdominal, and back muscles. Looking for single exercises that work several muscle groups at once? Try front planks (page 56) and the opposite arm and leg raise (page 49).
9. **Be flexible.** Core flexibility is as important as core strength. In fact, too much strength without flexibility can make your back throb and interfere with movements like swinging a golf club. So don't skimp on stretches when you're shoehorning core work into your day. Do a full Office Stretch or Home Stretch at least twice a week.
10. **Move before stretching.** Muscles are a bit like taffy—you'll get a better stretch if your body is warmed up. You'll be less likely to injure yourself, too. If you stretch after doing core exercises or another activity like walking for at least five minutes, you're all set.
11. **Practice often.** You'll notice real gains if you practice core exercises three or more times a week. One helpful strategy is to sprinkle core work throughout the day—for example, a set each of side-lying inner-

## A cure for “sitting disease”?

“Sitting disease” is a not-quite-medical phrase that refers to the problems associated with sedentary habits. If exercise is linked to an ever-lengthening list of benefits, prolonged sitting—an apt description of work and home lives for many people—represents the flip side of the equation. A sedentary lifestyle is now associated with 34 chronic diseases or conditions—everything from heart disease, stroke, and type 2 diabetes to overweight and cognitive decline. It may even increase your risk of premature death.

Why does prolonged sitting have such negative health consequences? The human body is designed for activity. When muscles are inactive, they don't take up glucose from the bloodstream as efficiently. Blood pressure rises. Sleep suffers. There are even changes on the cellular level. A key gene (which encodes for an enzyme called lipid phosphate phosphatase-1, or LPP1) helps prevent blood clotting and chronic, low-grade inflammation. This gene functions optimally when you engage in regular exercise.

Given the research, breaking up long blocks of sitting to flex your muscles seems like a wise move for all of us. Take your phone calls standing up. Use a standing desk. Hold walking meetings. Sit on a stability ball to work or watch TV. Cut back on TV in favor of more brisk strolls or bike rides. Find excuses to run up and down the stairs more. And, yes, do core exercises.

thigh leg raises (page 53) and clams (page 54) before dressing, a set of chair stands (page 48) after lunch, an Office Workout or Office Stretch during a short break, or a calming Home Stretch before bed. ♥



# Posture and alignment

Posture counts a lot when you're exercising. Aligning your body properly is the key to good form, which nets you greater gains and fewer injuries. In fact, good posture and body alignment help anytime you're moving. If one foot is always turned slightly inward, for example, it impedes power whether you're walking, going up stairs, jogging, or playing sports. Worse, poor alignment paves the way for injuries to the ankle, knee, hip, and beyond, since the effects of this physical quirk can zigzag their way up your body. Similarly, hours of computer and desk work tend to make your shoulders hunch and your head and neck jut forward uncomfortably. Sitting up straight and comfortably aligned in a chair can make desk work feel less tiresome.

Committing to core work will do much to improve your posture whether you're sitting, standing, or moving. A well-rounded set of core exercises, such as those in our workouts, is best. If you pour your efforts into strengthening only the most obvious set of core muscles—your abs—your back muscles will end up weaker by comparison. Then, instead of standing up straight, you will tend to hunch your back. Likewise, your posture is thrown off kilter when muscles lose flexibility. As muscles become less flexible, they tighten and eventually shorten so that your range of motion becomes increasingly limited. Among other problems, this can cause lower back pain. That's why core stretches are so important.

Our exercises build strength and flexibility in all your major core muscles. Doing our gentle workouts, or sprinkling several core exercises and stretches throughout your day, can help you avoid such problems.

## Posture checks

Quick posture checks before and during exercise help you avoid injury and squeeze the most benefit from your workout. If possible, look in a mirror when exercising

until you get the hang of it. Try to take a few moments each day to practice better posture, too.

When exercise instructions in our workouts ask you to *stand up straight*, that means

- chin parallel to the floor
- shoulders even (roll them up, back, and down to help achieve this)
- arms at your sides, elbows relaxed and even
- abdominal muscles engaged
- hips even
- knees even and pointing straight ahead
- feet pointing straight ahead
- body weight evenly distributed on both feet.

## Alignment: Stay neutral

Most of the exercises here call for neutral alignment, which places the least amount of stress on the body. A *neutral wrist* is firm and straight, not bent upward or downward. A *neutral spine* is straight, except for the gentle, natural curves of the spine—it's not flexed or arched to overemphasize the curves of the upper or lower back. *Neutral alignment of the body* means keeping your entire body in a straight line from head to toe, except for the natural curves of the spine.

One way to find the neutral position for your spine is to tip your pelvis forward as far as is comfortable to arch your back, then tuck your tailbone under to flatten your back. The spot approximately in the middle should be neutral. If you're not used to standing or sitting up straight, it may take a while for this to feel natural. (When you do this, the upper back usually comes into alignment, too. But to be sure, check that your ribs are lined up with your hips and that your shoulders are even.) Maintaining a neutral spine is important because it minimizes stress on the internal organs and allows the lungs to expand fully, so your body functions better. ♥

# Office Workout

Here are six exercises you can do at your desk while dressed to impress, or at home in a T-shirt and shorts. Consider this sextet your first line of defense against “sitting disease” (see “A cure for ‘sitting disease?’” on page 43). This workout is perfect for long phone calls—unless

you’re on Zoom! Breathe comfortably as you perform each move. If an exercise is too easy, use the “make it harder” variation.

**Equipment needed:** Desk (a table or countertop is fine), sturdy chair that won’t tilt or roll away.

## 1 Standing knee lift



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Stand up straight with your feet together. Hold the back of a chair with your left hand for support. Tighten your abdominal muscles.

**Movement:** Exhale as you lift your right knee to hip height. Hold, then lower the foot to the floor. This is one rep. Finish all reps, then repeat with the left leg. This completes one set.

### Tips and techniques:

- Keep your chest lifted and your shoulders down and back.
- Don’t lean forward.
- Tighten the buttock of your standing leg for stability.

**Make it harder:** Hold the knee lift for two to four counts. Or try the move without holding on to the chair; you can extend your arms out to your sides for balance.

## 2 Standing side leg lift



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Stand up straight next to a chair, holding the back of it with your left hand. Put your feet together and evenly distribute your weight on both feet.

**Movement:** Slowly lift your right leg straight out to the side until your foot is about six inches off the floor. Hold. Return to the starting position. This is one rep. Finish all reps, then repeat with the left leg. This completes one set.

### Tips and techniques:

- Keep your shoulders, hips, and knees aligned throughout the movement.
- Keep the toes and knee of your lifting leg facing forward.
- Tighten the buttock of your standing leg for stability throughout the leg lift.

**Make it harder:** Hold the leg lift for two to four counts.

### 3 Standing hamstring curl



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Stand up straight behind a chair, holding the back of it with both hands. Extend your right leg behind you with your knee bent and toes touching the floor.

**Movement:** Without moving your thigh, bend your right knee, bringing your heel toward your right buttock. Hold. Slowly lower your foot to the floor. This is one rep. Finish all reps, then repeat with the left leg. This completes one set.

**Tips and techniques:**

- Maintain good posture throughout.
- Keep your hips even, tightening the buttock of the standing leg to help you balance.
- Keep your thigh stationary and knees aligned.

**Make it harder:** Hold the leg lift for two to four counts.

### 4 Soccer kick



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Stand up straight with your feet together and your left hand holding the top of a chair.

**Movement:** Tighten your abdominal muscles. Slowly lift your right leg out to the side. Keeping the foot flexed, slowly sweep it diagonally in front of you as if kicking a soccer ball with the inside of your foot. Hold. Slowly bring your foot back to the right side. This is one rep. Finish all reps, then repeat with the left leg. This completes one set.

**Tips and techniques:**

- Keep your hips even and maintain neutral alignment throughout.
- Tighten your abdominal muscles and the buttock of the standing leg.
- Don't twist your body as you lift your leg.

**Make it harder:** Hold the leg lifts for two to four counts.

Thanks to Michele Stanten, the fitness consultant on this report, for serving as the model for these exercises.

# Office Stretch

**T**ry slipping this seated torso rotation into your work day, or do it at home. This office stretch can help ease back pain and counter the stiffness that creeps up as you sit for long periods, particularly in front of a computer or television. What's more, it can help you build a more balanced and flexible core. You'll be amazed at how good

stretching regularly can make your body feel.

Remember to breathe comfortably rather than holding your breath on all of these stretches, and stretch only to the point of mild tension, not pain.

**Equipment needed:** Sturdy chair.

1

## Seated torso rotation



**Reps:** 2

**Sets:** 1

**Hold:** 10–30 seconds

**Starting position:** Sit up straight in a chair with your feet flat on the floor and your arms at your sides.

**Movement:** Slowly rotate your head and torso to the right side, placing your left hand on the outside of your right knee and your right hand next to your right hip. Hold. Slowly return to the starting position. Repeat to the left side, this time with your right hand on the outside of your left knee and your left hand next to your left hip. This is one rep.

**Where you'll feel it:** Back and sides of torso

**Tips and techniques:**

- Sit up straight with chest lifted and abdominal muscles braced.
- Keep your shoulders down and back.
- Keep your knees pointing straight ahead.

# Home Workout

**A**t home (or the gym), you have more leeway than in an office. Here's a routine to work all your core muscle groups in the abs, back, sides, pelvis, and buttocks. We've paired an easier Level 1 exercise with a more challenging Level 2 exercise that works the same muscles. Start with Level 1 exercises, focusing on the quality

of your repetitions, rather than the quantity. When you master a Level 1 exercise and can do the recommended number of reps and sets fairly easily, you can move on to the Level 2 variation.

**Equipment needed:** Exercise mat, sturdy chair that won't tilt or roll away, 12-inch ball.

1

## Level 1: Chair stand



**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 4–4

**Rest:** 30–90 seconds between sets

**Starting position:** Sit in a chair with your feet hip-width apart. Place your hands on your thighs.

**Movement:** Tighten your abdominal muscles. Exhale as you slowly stand up. Slowly sit down with control. This is one rep.

### Tips and techniques:

- Press your heels against the floor and tighten your buttocks as you stand to help you balance.
- Steady yourself before you sit down.
- Exhale as you stand, inhale as you sit.

## Level 2: Staggered chair stand



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 4–4

**Rest:** 30–90 seconds between sets

**Starting position:** Sit in a chair with your feet a few inches apart and staggered so that your left heel is next to the toes of your right foot. Place your hands on your thighs.

**Movement:** Tighten your abdominal muscles. Exhale as you slowly stand up. Slowly sit down with control. This is one rep. Finish all reps, then repeat with your right heel next to the toes of your left foot. This completes one set.

### Tips and techniques:

- To help you balance, press your heels against the floor and tighten your buttocks as you stand.
- Steady yourself before you sit down.
- Exhale as you stand, inhale as you sit.



## 2 Level 1: Abdominal contraction



**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–4–2

**Rest:** 30–90 seconds between sets

**Starting position:** Kneel on all fours with your hands and knees directly aligned under your shoulders and hips. Keep your head and spine neutral.

**Movement:** Exhale as you tighten your abdominal muscles by pulling them up toward your spine. Keep your spine neutral (no arching your back!). Hold. Release your abdominal muscles and return to the starting position. This is one rep.

### Tips and techniques:

- This is a very subtle movement and your spine should stay still throughout the exercise.
- Breathe comfortably, exhaling as you pull your abdominal muscles in and up like a zipper.

## Level 2: Opposite arm and leg raise



**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Kneel on all fours with your hands and knees directly aligned under your shoulders and hips. Keep your head and spine neutral.

**Movement:** Extend your left leg off the floor behind you while reaching out in front of you with your right arm. Keeping your hips and shoulders squared, try to bring the extended leg and arm parallel to the floor. Hold. Return to the starting position, then repeat with your right leg and left arm. This is one rep.

### Tips and techniques:

- Keep your shoulders and hips squared to maintain alignment throughout.
- Keep your head and spine neutral.
- Think of pulling your hand and leg in opposite directions, lengthening your torso.

### 3 Level 1: Pelvic tilt

**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your knees bent, feet flat on the floor and hip-width apart. Place your arms on the floor by your sides.

**Movement:** Exhale as you gently tighten your abdominal muscles as if pulling your navel toward your spine, and slightly tilt your pelvis, flattening your lower back on the floor. Hold. Return to the starting position. This is one rep.

**Tips and techniques:**

- This is a subtle movement. Try it once with your hands on your pelvis so you feel the pelvic tilt as you do it.
- Keep your shoulders down and back, relaxing them against the floor.
- Breathe comfortably.



### Level 2: Alternating knee lift lying down

**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–2–2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your knees bent, feet flat on the floor. Place your arms on the floor by your sides.

**Movement:** Tighten your abdominal muscles. Lift your right knee up toward your chest, lift your left knee up toward your chest, then lower your right foot to the floor, and lower your left foot to the floor to return to the starting position. This is one rep. Start with your left leg for the next rep. Alternate the starting leg each rep.

**Tips and techniques:**

- Keep your spine neutral throughout the four-part movement.
- Tighten your core muscles to help keep your pelvis steady as you move your legs.
- Breathe comfortably, exhaling as you lift your legs and inhaling as you lower them.



4

## Level 1: Crunch with one leg extended

**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your left knee bent and foot flat on the floor. Extend your right leg. Place both hands under your head on the floor.

**Movement:** Exhale as you tighten your abdominal muscles and lift your head and shoulders slightly off the floor. Hold. Return to the starting position. This is one rep. Finish all reps before repeating with leg positions reversed. This completes one set.

### Tips and techniques:

- Breathe comfortably, exhaling as you lift your head and shoulders off the floor.
- Focus your eyes on the ceiling.
- Lift only to your comfortable range of motion.



## Level 2: Alternating toe taps

**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back, then raise your knees so that they are aligned over your hips with your legs forming a 90° angle at the knees. This is called a tabletop position. Your calves should be parallel to the floor. Rest your hands at your sides.

**Movement:** Tighten your abdominal muscles. Keeping your knees bent and your spine neutral, lower your right foot until your toes tap the floor and then bring it back up to the starting position. Repeat with your left foot. This is one rep.

### Tips and techniques:

- Don't arch your back.
- Tighten your core muscles to help keep your abdomen and ribcage steady.
- Breathe comfortably, exhaling as you lower each foot toward the floor.



5

## Level 1: Bridge

**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–4–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your knees bent and feet flat on the floor, hip-width apart. Place your arms at your sides. Relax your shoulders against the floor.

**Movement:** Tighten your abdominal muscles and your buttocks, then lift your hips up off the floor as high as is comfortable. Keep your hips even and spine neutral. Hold. Return to the starting position.

**Tips and techniques:**

- Tighten your buttocks before lifting.
- Keep your shoulders, hips, knees, and feet evenly aligned.
- Keep your shoulders down and back, relaxing them against the floor.



## Level 2: Bridge with knee to chest

**Reps:** 8–10

**Sets:** 1

**Tempo:** 2–2–2–2–2

**Starting position:** Lie on your back with your knees bent and feet flat on the floor, hip-width apart. Place your arms at your sides. Relax your shoulders against the floor.

**Movement:** Tighten your abdominal muscles and your buttocks, then lift your hips up off the floor as high as is comfortable. Keeping your hips even and spine neutral, pull in your right knee toward your chest as far as is comfortable. Return your right foot to the floor. Pull in your left knee toward your chest as far as is comfortable. Return your left foot to the floor. Lower your hips to the starting position. This is one rep.

**Tips and techniques:**

- Tighten your buttocks before lifting your hips.
- Keep your hips even and spine neutral as you pull each knee toward your chest.
- Breathe comfortably.



6

## Level 1: Ball squeeze



**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 1–2–1

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your knees bent and feet flat on the floor. Put a small ball (roughly 12 inches, or the size of a child's playground ball) between your knees. Place your arms at your sides.

**Movement:** Tighten your abdominal muscles. Squeeze your knees together against the ball. Hold, then release. This is one rep.

**Tips and techniques:**

- Exhale as you squeeze, inhale as you release.
- Keep your spine neutral.
- Don't tilt your pelvis or lift your hips off the floor as you squeeze the ball.

## Level 2: Side-lying inner-thigh leg raise



**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your right side with your right leg extended and your head resting on your right arm. Bend your left leg at the knee and put your left foot on the floor in front of your right thigh. Place your left hand on the floor in front of you.

**Movement:** Tighten your abdominal muscles. Exhale as you lift your right leg up toward the ceiling. Slowly lower your leg to the starting position. This is one rep. Finish all reps, then repeat on the left side. This completes one set.

**Tips and techniques:**

- Don't roll back onto your buttocks; stay on your hip.
- Contract your inner thigh as you lift your leg.
- Exhale as you lift, inhale as you lower.



## 7

## Level 1: Side-lying leg lift

**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your right side with both legs extended and your head resting on your right arm. Place your left hand on the floor in front of you. Align your shoulders and hips evenly, and keep your spine neutral.

**Movement:** Tighten your abdominal muscles. Raise your left leg toward the ceiling keeping your hips stacked and facing forward. Hold. Return to the starting position. This is one rep. Finish all reps before repeating on the opposite side. This completes one set.

**Tips and techniques:**

- Don't roll back onto your buttocks; stay on your hip.
- Don't rotate the leg, so the knee points up, but keep it pointed forward.
- Keep your shoulders and hips stacked.
- Tighten your buttocks as you lift your leg.



## Level 2: Clam

**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your right side, knees bent and heels in line with your buttocks. Rest your head on your right arm and place your left hand on the floor in front of you.

**Movement:** Keep your heels together as you lift your left knee up toward the ceiling as high as is comfortable while keeping your pelvis stable. Hold, then return to the starting position. This is one rep. Finish all reps before repeating on the opposite side. This completes one set.

**Tips and techniques:**

- Keep your hips stacked and still during the movement.
- Lift the top knee up as high as possible without letting the top hip move backward.
- Keep your feet together.



## 8 Level 1: Seated knee extension

**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Sit straight up in a chair with your hands resting on your legs and your feet flat on the floor.

**Movement:** Exhale as you slowly lift your left foot up toward the ceiling as high as is comfortable. Hold, then return to the starting position. This is one rep. Finish all reps before repeating on the opposite side. This completes one set.

**Tips and techniques:**

- Keep your spine neutral and your shoulders down and back.
- Contract your thigh muscles before you lift your foot off the ground.
- Keep your abs tight.



## Level 2: Single-leg raise

**Reps:** 8–10 per side

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Lie on your back with your knees bent and feet flat on the floor. Place your hands at your sides.

**Movement:** Tighten your abdominal muscles. Keeping your feet flexed and knees even, lift your left foot up toward the ceiling until your left leg is straight. Hold. Return to the starting position. This is one rep. Finish all reps before repeating on the opposite side. This completes one set.

**Tips and techniques:**

- Flex your foot and tighten the quadriceps muscle on the front of your thigh before you extend your leg.
- Keep your spine neutral; don't arch as you lower your leg.
- Breathe comfortably, exhaling as you lift.



9

## Level 1: Front plank on knees

**Reps:** 1-6**Sets:** 1**Hold:** 10–60 seconds**Rest:** 30–90 seconds between reps

**Starting position:** Kneel on all fours with your hands and knees directly aligned under your shoulders and hips.

**Movement:** Tighten your abdominal muscles, and walk your hands forward. Lower your upper body onto your forearms and drop your hips so your body is in line from your head to your knees, like a plank. Clasp your hands and align your shoulders directly over your elbows. Hold. This is one rep. Aim to hold for a total of 60 seconds, doing as many reps as needed to reach that total. For example, if you can hold a plank for 15 seconds, you would do four reps.

**Tips and techniques:**

- Keep your neck and spine neutral during the plank.
- Keep your shoulders down and back.
- Don't bend at your hips.

## Level 2: Front plank

**Reps:** 1–6**Sets:** 1**Hold:** 10–60 seconds**Rest:** 30–60 seconds between reps

**Starting position:** Kneel on all fours with your hands and knees directly aligned under your shoulders and hips.

**Movement:** Tighten your abdominal muscles and lower your upper body onto your forearms, clasping your hands together and aligning your shoulders directly over your elbows. Extend both legs with your feet flexed and toes touching the floor so that you balance your body in a line like a plank. Hold. This is one rep. Aim to hold for a total of 60 seconds, doing as many reps as needed to reach that total. For example, if you can hold a plank for 15 seconds, you would do four reps.

**Tips and techniques:**

- Keep your neck and spine neutral during the plank.
- Keep your shoulders down and back.
- Don't bend at your hips.

## Catch your balance: Heel raise

Strictly speaking, the heel raise exercise can't be considered a core exercise because it focuses on strengthening muscles in your calves and ankles. But in order to balance on your toes (especially without holding the chair), you also need to tighten your core muscles. Core exercises in general strengthen several groups of muscles that stabilize your body, allowing you to remain balanced whether standing stock-still or moving swiftly. The better you can balance, the less likely you are to take a spill if you're walking on uneven ground or unexpectedly stumble. That can add up to fewer bruises and fractures, particularly as you grow older and your bones become more brittle.

Try to do heel raises several times a week. They're easy to fit in while waiting in line (or if that's too embarrassing, try it while talking on the phone). Tai chi and yoga are excellent activities for improving balance, too.

**Reps:** 8–10

**Sets:** 1–2

**Tempo:** 2–1–2

**Rest:** 30–90 seconds between sets

**Starting position:** Stand up straight behind a chair, holding the back of it lightly with both hands. Position your feet hip-width apart and evenly distribute your weight on both feet.

**Movement:** Tighten your abdominal muscles. Lift up on your toes, letting your heels rise off the floor until you're standing on the balls of your feet. Try to balance evenly without allowing your ankles to roll inward or outward. Lower your heels to the floor, maintaining good posture as you do. This is one rep.

### Tips and techniques:

- Tighten your core muscles.
- Contract your buttocks, squeeze your inner thighs, and balance on the balls of your feet.
- Imagine you have a string at the top of your head pulling you up. ♥





## Special Report 4

# Health Revelations You Need to Know Now

When it comes to your health, one of the best things you can do is arm yourself with knowledge. The world of medicine is more advanced than ever before, but with that comes an array of sometimes

confusing options. In these pages, you'll find some of the biggest health advances made in the last few years, updates on medical tests, and important research that will help you safeguard your overall health.

## Drug-Free Pain Relief Remedies that Work!

Here is a look at some common drug-free remedies and the kinds of pain they target. Some can be self-administered; others must be performed by a certified professional. Remember that these treatments work for some people and not others, and their overall effectiveness can vary. Also, remember that lingering pain or pain that worsens over time is your body saying something is wrong and should be checked out.

**Massage therapy.** A substantial body of evidence supports massage therapy for treating pain. A review of research published in *The Journal of Alternative and Complementary Medicine* cited several high-quality studies that endorse its use for low back, neck, shoulder, and muscular pain. What's not clear is whether a particular style of massage therapy or number of sessions is best. Many therapists focus their work on clients recovering from injuries or surgeries. These professionals may also have specialized training in massage for conditions like back and neck pain.

**Yoga.** A review of existing research published in *NCCIH Clinical Digest* found strong evidence that yoga can help relieve low back pain and has some success in

lessening discomfort associated with knee osteoarthritis, rheumatoid arthritis, and neck problems. Many yoga studios and community centers offer specialized classes for addressing specific types of pain.

**Acupuncture.** An acupuncturist inserts hair-thin needles into a patient's skin at various points thought to fall on pathways in the body called meridians. The needles are meant to stimulate nerves and release blocked energy called "qi" (pronounced "chee") that may contribute to pain. Some studies have found acupuncture helps relieve low back and knee pain, migraine, and fibromyalgia, while other research has shown no benefit. For most people, it takes several treatments to feel results. A form of the therapy called electroacupuncture sends low electrical currents through the needles. This approach was found equally effective as traditional acupuncture for treating low back pain, according to a study in the *Journal of Acupuncture and Meridian Studies*.

**Biofeedback.** Often used in conjunction with cognitive behavioral therapy (CBT) biofeedback involves learning to control physiological processes—such as muscle tension, blood pressure, or heart rate—that occur in response to pain. During a typical session,



electrodes attached to the skin monitor your reaction to different stimuli. The therapist helps you implement mental routines and relaxation exercises to counter negative responses. Through a trial-and-error approach, you learn to change your reaction when faced with pain or discomfort.

## New blood test could spot Alzheimer's disease before symptoms appear

Scientists are working to find ways to predict who is likely to develop Alzheimer's disease, as these people may benefit from therapy long before the disease is evident. A new blood test may help achieve this.

Researchers recruited 912 people who were diagnosed with subjective cognitive decline, mild cognitive impairment, or dementia. They took blood samples to check for six biomarkers. They then conducted positron emission tomography (PET) brain imaging on the participants to look for amyloid-beta and tau protein buildup, the hallmark signs of Alzheimer's disease.

When the researchers compared the blood test results with the PET images, they found that one biomarker, called plasma phosphorylated tau 217 (p-tau217), was most strongly associated with the presence of amyloid-beta. In addition, higher blood levels of p-tau217 correlated with greater amounts of brain cell-damaging tau protein.

Although the results need verification, the findings are a potentially exciting advance in the fight against Alzheimer's. A simple blood test may eventually help identify which people should go on to have expensive PET imaging or an invasive spinal tap, required to determine whether a person might benefit from anti-amyloid drugs or other future therapies.

## Controlling blood pressure may reduce the risk of falls

Stroke survivors who take their blood pressure drugs as prescribed may be less likely to have a serious fall than those who don't follow their medication schedules, accord-

ing to a study in the January 2023 issue of *Hypertension*.

Researchers followed 4,067 people who received blood pressure drugs after a stroke. For the first six months, nearly half didn't take the drugs as prescribed, likely due to a variety of factors, such as healthcare access problems, forgetfulness, and a fear of falling resulting from medication side effects.

After a year, researchers found that people who took their blood pressure drugs as prescribed were less likely to have been hospitalized for a fall, to have developed serious cardiovascular problems, or to have died in that period, compared with people who didn't consistently take their medication. However, it's important to note that people who take medications faithfully may have other healthy habits that contribute to their better health, says the authors.

## This B vitamin supplement can lead to heart attack missed diagnosis.

Taking supplements that contain high levels of biotin (vitamin B7) can lead to falsely low results on a blood test used to detect heart attacks, according to a recent FDA warning. These inaccurate results can lead to potentially serious consequences. Many multivitamins contain far more biotin than the standard recommended dose (RDA). And some supplements marketed to improve hair, nails, and skin contain 20 mg, or nearly 650 times the RDA. The recommended dietary allowance for biotin is easily obtained through a healthy, varied diet.

## A heart-healthy diet doesn't need to be low in fat

But the source of the fats you choose — and the rest of what you typically eat — make a big difference.

For the last half of the 20th century, most major health organizations, including the American Heart Association, recommended a low-fat diet.

Now, the American Heart Association and other nutrition authorities have shifted away from advising people to limit the total amount of fat in their diets. "Instead,

the focus is on an overall healthy dietary pattern. That means an eating style that emphasizes vegetables, fruits, whole grains, and beans, along with only modest or small amounts of meat, dairy, eggs, and sweets,” says Dr. Eric Rimm, professor of epidemiology and nutrition at the Harvard T.H. Chan School of Public Health.

Eating more whole or minimally processed, plant-based foods will naturally lower your intake of fat, especially saturated fat. Found mainly in meat and dairy products, saturated fat can boost levels of harmful LDL cholesterol, a key contributor to heart disease. However, simply cutting back on all types of fat does not necessarily translate into a diet that lowers cardiovascular risk.

**Low-fat diet fails.** Starting in the 1980s, when food manufacturers and consumers cut the fat from their products and diets, they replaced it with refined carbohydrates. Eating lots of these highly processed carbohydrates floods your bloodstream with sugar, triggering a release of insulin to clear the sugar from your blood. But that can push your blood sugar too low, leaving you hungry again after just a few hours, which encourages overeating and weight gain. What’s more, a steady diet of these unhealthy carbs can eventually impair your body’s ability to respond to insulin, which can lead to diabetes. Both obesity and diabetes are closely linked to a heightened risk of heart disease.

Eating too many refined carbs wasn’t the only problem. Avoiding unsaturated fats—those found in nuts, seeds, olives, avocados, and fish—isn’t necessary. Not only do these foods make your meals more satisfying, but unsaturated fat also promotes cardiovascular health.

**What about ultra-low-fat diets?** Some physicians advocate an ultra-low-fat diet, which includes just 10% of calories from fat. This diet excludes all animal-based products (such as meat, poultry, dairy, and fish), as well as refined carbohydrates (including white flour, white sugar, and even fruit juice). But it also shuns some healthier unsaturated fats, including added oils and high-fat, plant-based foods such as avocados and nuts. Small studies have shown that this eating pattern may reverse the buildup of cholesterol-clogged plaque in the arteries.

At least some of that benefit may stem from the

abundant fiber and other nutrients in the diet’s copious amounts of vegetables, beans, and whole grains, all of which are fairly scarce in the typical American diet. This type of diet can be difficult to stick with, so you may want to try a Mediterranean-style diet. This will give you a plant-centric diet that’s not overly restrictive.

## Taking statins later in life still offers heart benefits.

A statin study published in JAMA found that people who started taking the cholesterol-lowering medication in their mid-70s or later had fewer heart-related problems and lived longer than non-users.

## Foods fortified with sterols and stanols.

Sterols and stanols extracted from plants gum up the body’s ability to absorb cholesterol from food. Companies are adding them to foods ranging from margarine and granola bars to orange juice and chocolate. They’re also available as supplements. Getting 2 grams of plant sterols or stanols a day can lower LDL cholesterol by about 10%.

## New approaches to colorectal cancer screening

It could be time for a collective sigh of relief, or at least a fingers-crossed kind of hope because the process of screening for colorectal cancer (CRC) might soon get easier. A simple blood test offers promise as a CRC screening tool. That’s significant since many people shy away from current screening methods — such as a colonoscopy or a stool test.

Skipping the screenings can have deadly consequences: CRC is one of the most common causes of cancer death in the United States.

Here’s what the new blood test might mean for CRC screening, and where we stand on other methods.

**Blood test in the offing?** The blood test is called Shield, made by Guardant Health. The test looks for DNA fragments shed by CRC tumors. Shield is already

commercially available (though not widely) with a doctor's order, but it's not FDA-approved, and it's not covered by insurance. That could be changing. An industry-funded study published March 14, 2024, in *The New England Journal of Medicine*, evaluated Shield's accuracy on more than 7,800 adults who were also undergoing colonoscopies. All of the participants were at average risk for CRC. Overall, Shield accurately identified 83% of CRC cases.

However, the test wasn't great at finding precancerous growths called polyps (Shield found only 13% of advanced polyps). And about 10% of the time, the test gave a falsely positive result in people who did not have CRC or polyps.

Still, if Shield receives FDA approval, the test might help people who can't or don't want to have other types of screenings.

**Stool tests** Stool tests don't require blood collection at a laboratory or doctor's office. Your doctor prescribes the kit, which you complete in the privacy of your home and then send to a lab. There, it's analyzed for signs of colorectal cancer, such as tumor DNA or tiny amounts of blood from tumors or polyps.

There are various types of stool tests, but the most effective to date is a multitarget stool DNA (mt-sDNA) test (Cologuard), also known as a FIT-DNA test. This test identifies DNA from cancer cells in the stool and has a fecal immunochemical test (FIT) component to look for blood. If the person test is positive, colonoscopy must be performed. Recommended interval Cologuard testing is once every three years.

This test identifies 92% of CRC cases and 42% of advanced polyps. Its false-positive rate is about 13%.

## The gold standard screening

The most comprehensive CRC screening is a colonoscopy, which allows your doctor to peer inside your colon and rectum. This type of screening finds 95% of CRC cases. "It's not a perfect test, but it's more accurate than a blood or stool test. The doctor can find and remove potentially precancerous polyps on the spot, and prevent future cancer," says Dr. Lawrence S. Friedman, a gastroenterologist and

the Anton R. Fried, M.D., Chair of the Department of Medicine at Harvard-affiliated Newton-Wellesley Hospital.

## New medication for urinary tract infections

For the first time in 20 years, doctors will have a new antibiotic to treat urinary tract infections (UTIs) in women. The FDA approved pivmecillinam (Pivya) in April 2024 — an encouraging development, since germs that cause UTIs have become more resistant to existing medications, making the drugs less effective.

What is it? Pivmecillinam is an orally administered penicillin. Over the past 40 years, it has been prescribed more than 30 million times in European countries as a first-line treatment for "uncomplicated" urinary tract infections (those limited to the bladder).

## Treating high blood pressure may lower dementia risk

Older adults who take medications to lower their blood pressure may reduce their risk of dementia, according to a study published Sept. 5, 2023, in *JAMA Network Open*.

The report pooled findings from 17 separate observational studies that included a total of more than 34,000 adults ages 60 to 110. Their average age was 72, and they were followed for four years, on average. People with untreated high blood pressure were 42% more likely to develop dementia compared with healthy older adults. When researchers compared people with treated high blood pressure to healthy older adults without high blood pressure, they found no meaningful difference in dementia risk between the two groups. The findings reinforce the connection between heart and brain health and suggest that treating high blood pressure in later life benefits both organs.

## More evidence that aging might be reversible

It seems that every living thing ages — that aging is inevitable. Yet studies in animals have suggested that aging may,

at least, be slowed. Scientists have been able to track this using genetic biomarker tests known as DNA methylation clocks, which indicate how rapidly body cells are aging. In a study published May 2, 2023, in *Cell Metabolism*, researchers found that when the blood supply of an old mouse was connected to the blood supply of a young mouse for three months, the organs of the young mouse aged dramatically. When the joined blood supplies were disconnected, the organs of the young mouse became biologically younger: in other words, the aging process could be accelerated and then reversed. The scientists then found that in people going through severe COVID-19, surgery for a hip fracture, or pregnancy, the clocks showed a sudden acceleration of aging followed by a reversal. This study did not identify the factors that cause or reverse aging, and we are still a long way from being able to slow human aging more powerfully than we can through living a healthy lifestyle. But this kind of research offers hope that someday, we will understand the aging process well enough to slow it.

## Gout linked with risk for heart attack and stroke

Gout flare-ups are trouble enough, but according to a study published Aug. 2, 2022, in *JAMA*, an episode may signal an increased risk for a heart attack or stroke over the following two months.

Gout strikes when too much uric acid builds up in the body and gets deposited in one or more joints, causing severe joint pain, swelling, and redness.

Researchers looked at more than 62,000 people diagnosed with gout, 70% of whom were men (average age 77). They found that about 10,000 patients had experienced strokes or heart attacks within four months after a flare-up. The risk was greatest during the first 60 days and then gradually declined.

The results only showed an association, but other research has linked high uric acid levels with increased incidence of hypertension and diabetes, two leading contributors to heart attacks and strokes. While reducing high uric acid levels does not directly lower risk for a heart attack or stroke, an attack of gout does offer the

opportunity to take steps to prevent these events as well as future gout flare-ups. This means making any necessary dietary and medicine changes to control gout and to ensure your blood pressure, cholesterol and blood sugar levels are at healthy levels.

## What is chronic inflammation?

Inflammation is both an old and a new idea in medicine. Roman physicians 2,000 years ago noted that wounds that were healing and joints that suffered from arthritis became red, warm, swollen, and painful. It was like they were on fire: inflammare was the verb for setting on fire. But why did a wound become red, warm, swollen, and painful? They had no idea. Many centuries later, the invention of the microscope helped doctors better understand acute inflammation, such as what happens when the skin suffers a wound. The body's immune system exists to heal injury and to fight foreign invaders (germs, toxins) that threaten injury. Following injury or infection, the affected tissue sends out chemical alarm signals. Immune system cells respond to the alarm like firefighters, traveling in the blood to the site of the injury. The immune system cells and the chemicals they produce help heal the injury: they get rid of the damaged tissue and encourage new tissue to form. And when that job is done, the immune system quiets itself down. In other words, the immune system is like a well-run army: it recognizes an attack, it mobilizes for and engages in battle, and when the battle has been won, the troops stand down.

That's acute inflammation: it has an obvious cause, and it elicits a temporary and well-orchestrated response. Some diseases like rheumatoid arthritis and diabetes, involve chronic inflammation. The immune cells and the chemicals they produce during inflammation are present in high levels, particularly in the diseased tissue—constantly, not just temporarily. Why does chronic inflammation develop, and persist? Why are all those immune system cells and chemicals in the joints? They are what is making the joints red, warm, swollen, and painful. And why don't they go away? It is a mystery. Perhaps there was a germ or a toxin that got into the joint, leading to inflammation—but the

inflammation lost the ability to turn itself off. And how is chronic inflammation connected to diabetes? That, too, is largely a mystery. Most people with type 2 diabetes also suffer from obesity, and the abundant fat cells in obese people can make many of the chemicals that cause inflammation. The growing understanding of inflammation has provided powerful new treatments for rheumatoid arthritis. Hopefully, that will happen for diabetes.

## Drinking coffee is linked to healthier hearts and longer lives

In an observational study published by the *European Journal of Preventive Cardiology*, researchers found that people who drank two to three cups of coffee each day had a lower risk of cardiovascular disease and early death than those who avoided the beverage. The study included almost 450,000 people (average age 58) who did not have an irregular heartbeat (such as atrial fibrillation) or cardiovascular disease (such as heart disease, heart failure, or stroke) at the start. Participants reported how many cups of coffee they drank each day and their preferred coffee choice. The researchers categorized them based on their daily consumption. After 12 years, the incidences of irregular heartbeat, cardiovascular disease, heart-related deaths, and deaths from any cause were lower among coffee drinkers compared with those who didn't drink coffee. What's the connection between coffee and a healthy heart? One plausible (unproven) explanation may be that coffee contains high amounts of polyphenols, which help reduce oxidative stress and inflammation.

## The latest on lipoprotein(a), an inherited cause of early heart disease

With promising new therapies on the horizon, cardiologists are testing more people for this biomarker, known as Lp(a). About one in five people has high blood levels of fatty particles called lipoprotein(a), which doctors refer to as “L-P-little a” or Lp(a). Think of it as the evil twin of the familiar low-density lipoprotein (LDL) cholesterol, often referred to as “bad” cholesterol.

“Lp(a) particles are similar to LDL particles but with an apolipoprotein(a) molecule wrapped around each one,” says cardiologist Dr. Christopher Cannon, professor of medicine at Harvard Medical School. Lp(a) accelerates the buildup of fatty plaque inside arteries and inflammation even more than LDL does. A high Lp(a) level may double or even triple a person's risk of a heart attack. It also raises the risk of stroke and is linked to a narrowing of the aortic valve (aortic stenosis).

### So why have most people never even heard of Lp(a)?

For starters, Lp(a) isn't picked up by a standard cholesterol test. You can get a separate Lp(a) blood test, but doctors have yet to routinely recommend it because, currently, there aren't any FDA-approved drugs to lower elevated Lp(a). And because Lp(a) levels are largely genetically determined, eating and exercise habits are believed to have virtually no effect on the level in your bloodstream.

**Novel RNA-based drugs lower Lp(a)** The burgeoning field of RNA therapeutics uses a small piece of genetic material to interfere with and silence unwanted genes. Currently, three RNA-based drugs that shut off the gene that makes Lp(a) in liver cells are in clinical trials. The drugs, called pelacarsen, olpasiran, and SLN30, are given by injection just once every one to six months. So far, studies suggest they can lower Lp(a) levels dramatically — between 70% and 100%. The side effects appear to be limited to mild, short-lived pain at the injection site. For now, it's too soon to know whether lowering Lp(a) will prevent heart attacks and related problems, but that evidence should be available within several years.

## The bladder workout: Tame incontinence without surgery

If you have an overactive bladder, you likely experience a sudden urge to urinate, even when your bladder isn't full. Also known as urge incontinence, this feeling can be a nuisance. But when the urge can't be controlled and it results in incontinence, quality of life is significantly impacted.

Fortunately, bladder training is a treatment strategy



that can go a long way toward helping with urinary incontinence. Bladder training involves learning to urinate on a schedule (called timed voiding) and doing pelvic muscle exercises. Here's a step-by-step bladder-training technique:

**Keep a diary.** For a day or two, keep track of the times you urinate or leak urine during the day.

**Calculate.** On average, how many hours do you wait between visits to the bathroom during the day?

**Choose an interval.** Based on your typical interval between needing to urinate, set your starting interval for training so that it's 15 minutes longer. So, if you usually make it for one hour before you need to use the bathroom, make your starting interval one hour and 15 minutes.

**Hold back.** On the day you start your training, empty your bladder first thing in the morning and don't go again until you reach your target time interval. If the time arrives before you feel the urge, go anyway. If the urge hits first, remind yourself that your bladder isn't really full, and use whatever techniques you can to delay going. Try pelvic floor exercises (also called Kegels), or simply try to wait another five minutes before walking slowly to the bathroom.

**Increase your interval.** Once you are successful with your initial interval, increase it by another 15 minutes. Over several weeks or months, you may find you are able to wait much longer and that you feel the urge less often. After four to eight weeks, if you think you have found some improvement to your incontinence, do another diary. Compare your initial diary to your second diary to note the improvements in your intervals and the amount of urine you void. The act of reviewing and comparing helps reinforce the bladder training process.

## Lower your risk of heart disease in just 19 minutes a week.

Got two minutes to exercise? Then you have enough time to lower your risk of heart disease, cancer, and even early death, according to a study published by the *European Heart Journal*. Researchers looked at almost 72,000 adults, average age 62, who were free of cardiovascular disease or

cancer. Participants wore a wrist activity tracker for a week. The device measured their overall activity, vigorous activity, and frequency of vigorous activity lasting at least two minutes. (Vigorous activity usually means activity during which you can't talk in a full sentence.) At the seven-year follow-up, investigators calculated that exercising vigorously for a total of 15 minutes a week was associated with an 18% lower risk of dying during the study period. Doing at least 19 minutes per week was linked to a 40% lower risk of developing heart disease in that time, and doing 16 minutes weekly was associated with a 16% drop in cancer risk. The risk for all three categories dropped even more, as the weekly amount increased. But how people did their vigorous activity also stood out. The findings showed that accumulating several short bouts (about two minutes each) of vigorous activity at different times throughout the day might be especially beneficial. The message here is to engage in vigorous activities when possible. For example, pick times to dial up the intensity for a few minutes, like during your daily walk or while doing yard work.

## Vegetarian diet linked to 33% more hip fractures in women

Women who eat a vegetarian diet have significantly higher risks of suffering a hip fracture compared with peers who eat meat (including poultry) even occasionally, a study in *BMC Medicine* suggests. Researchers tracked more than 26,000 women ages 35 to 69 in the United Kingdom over two decades. Their diets were monitored using a 217-item food frequency questionnaire. Women were categorized as regular meat eaters if they had five or more servings per week, while "occasional" meat eaters ate fewer than five servings weekly. Fish eaters, also known as pescatarians, ate fish but not meat, and vegetarians abstained from both fish and meat. About 820 of the women suffered a broken hip over the study period. Vegetarians were 33% more likely to experience a hip fracture than those who regularly ate meat, but fish eaters and those who ate meat only occasionally showed no such increase in risk. The findings highlight why strict vegetarians need to be sure that they are getting

adequate amounts of dietary protein, calcium, vitamin D, and other micronutrients to maintain bone health.

## Truth about beta-sitosterol for prostate health:

Beta-sitosterol: it can't shrink an enlarged prostate, but you may get relief from annoying symptoms. Beta-sitosterol. A type of chemical called a plant sterol, beta-sitosterol is found in fruits, vegetables, nuts, and seeds. While it may lower cholesterol levels, it's also thought to improve BPH symptoms. However, it does not shrink an enlarged prostate. A double-blind study published in *BMC Urology* found that men who took saw palmetto oil enriched with beta-sitosterol daily for 12 weeks had improved BPH symptoms, including urine flow.

## Can treatment of rheumatoid arthritis lower dementia risk?

Recent studies suggest that the answer may be yes. Perhaps this shouldn't be surprising. The role of inflammation in Alzheimer's disease and other types of dementia has been a focus of research for decades, and treatments for rheumatoid arthritis reduce inflammation.

Considering that there are currently no effective preventive treatments for Alzheimer's disease or other forms of dementia, the observation that RA treatments might prevent dementia could be groundbreaking. Here are a few of the latest and most compelling observational studies.

- A study published a few years ago reported that people with RA treated with standard medications had less than half the risk of developing dementia over a five-year period compared with people without RA.
- Another study found dementia rates declined among people with RA and increased among the overall population in recent decades. During that time, treatments for RA had been improving.
- A 2022 study looking at people taking different types of RA treatment provides some of the most convincing findings. It found that people with RA taking the new-

est, most effective treatments developed dementia 19% less often over the three years of the study compared with those treated with older medicines. When people taking a range of newer medicines were compared, there was no significant difference in the dementia rate.

Together, these studies suggest that certain treatments that help rheumatoid arthritis might do more than protect the joints; they might also protect the brain. This isn't the first time a medicine was found to cause an unexpectedly positive side effect. But it could be an important one.

## Bothered by statin side effects? Ask your doctor about this medication you take just twice a year

In this situation, your doctor would then try a lower dosage (as little as half a pill three times a week) or switch to a different statin. If neither of these strategies works, other new cholesterol-lowering drugs are available. For example, ezetimibe (Zetia), colesevelam (Welchol), or bempedoic acid (Nexletol) can be used along with lifestyle changes like diet, weight loss, and exercise. Other options are a PCSK9 inhibitor like alirocumab (Praluent) or evolocumab (Repatha), which are given via injections every two weeks, or inclisiran (Leqvio), given twice a year. "However, these drugs are usually for people with heart disease who can't get their LDL level below 70 mg/dL with statins and other medications," says Dr. Cannon.

## WARNING: Popular supplement can interfere with your heart medication

Taking high-dose calcium supplements with thiazide diuretics (one category of blood pressure drugs) can cause a dangerously high blood calcium level. And taking calcium supplements with calcium-channel blockers (a different class of blood-pressure drugs) can diminish the effect of the drug. Check with your pharmacist or physician if you take thiazide diuretics and calcium supplements on a regular basis. If you've been taking a calcium-channel blocker for your blood pressure and start taking calcium, check your blood pressure for a few days to see if it rises. ♥

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