

# MAYO CLINIC HEALTH LETTER

Reliable Information for a Healthier Life

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## Move with confidence

### Improve your balance

Lately, you just don't feel as confident on your feet as you used to. You feel a little less "solid" when walking from the house to the garage. And you've been avoiding that uneven bit of sidewalk in front of your favorite bakery. It bothers you, but you figure feeling a little off balance is a part of getting older.

#### Balance and aging

You're certainly not alone. According to the Centers for Disease Control and Prevention, about three-quarters of older Americans have problems with balance. Balance involves your ability to control your center of gravity over your base of support.

When standing, your base of support is your feet, whether it's one foot

on the ground or two, or maybe two feet and a cane.

As you age, some of the systems involved in maintaining your balance and stability go through changes. Your vision may decline — things become a little more blurry, depth perception is reduced, contrast between objects is lower, and you may have more difficulty seeing in the dark. Changes also occur in the way your muscles respond to nerve signals, and a decline in physical activity can result in loss of muscle strength. Reduced speed and muscle power can make it harder to adapt to situations that challenge your balance, such as treading on an uneven surface.

Conditions such as arthritis or Parkinson's disease can make you less secure on your feet. Poor posture and certain medications also may affect your balance, as can joint injury or surgery.

Balance exercises can benefit anyone, especially older adults. Strengthening and maintaining your balance can help you live more actively and confidently.



Exercises for balance might include standing on one foot, as depicted by the two images on the left, or lifting your leg forward and holding it for a second as you walk ahead in a straight line, as depicted by the two images on the right.

One of the biggest benefits of improving your balance is a decrease in your risk of falling. Falls are a leading cause of injuries in older adults. Some falls can be fatal, while others may result in considerably limited freedom and mobility. Good balance also makes it easier for you to move around and accomplish tasks.

### Staying fit

Fitness is a big part of successful aging and balance exercises are a key component of any older adult's fitness routine. When combined with strength training, balance exercises can help you build muscles around your joints, making them more stable and your balance more sure. People who do balance exercises also have greater mobility.

Almost any activity that keeps you on your feet and moving is helpful in maintaining good balance. Basic exercises that get your legs and arms moving at the same time can help you maintain your balance in addition to stimulating muscle and nerve communication that increases your coordination.

One of the best ways to build balance is by walking — really a two-for-one when you consider that you're also



**Brushing your teeth while standing on one foot helps build balance.**

getting your aerobic exercise. Walking keeps your leg muscles strong and reinforces balance. The more you walk, the better your balance will be and the more practice you'll get at catching yourself when tripping, changing direction quickly and stepping along uneven pathways. Sturdy, comfortable shoes are a must, and it's important to do your best to avoid hazards that are likely to make you fall.

### Balance exercises

A number of studies have shown that certain simple exercises can markedly improve your balance. You can do these anywhere as long as you have something steady to hold on to, such as a kitchen countertop or sturdy chair. Exercises might include shifting your weight from one foot to the other, standing on one foot, walking heel to toe, or purposely lifting your leg forward and holding it for a second as you walk ahead in a straight line.

As your balance improves, you can progressively increase the challenge to your balance. Instead of holding on with both hands, you might switch to one hand, then just a finger and eventually perform the exercise without holding on to anything. Other progressive challenges include standing on a pillow while doing the exercises, and then doing them with your eyes closed.

Strengthen your lower body by doing back and side leg raises while holding on to a chair. For an additional challenge, add a resistance band or some ankle weights.

If you have trouble keeping your balance while standing or you have other medical conditions, talk with your doctor before beginning any exercises. A physical or occupational therapist can help you learn them in a safe environment so that you can move on to doing them on your own.

### Tai chi

Practicing tai chi also has been shown to improve balance and reduce the risk of falling in older adults. Tai chi,

which originated in China as a martial art, consists of a series of graceful movements that help improve your stance and coordination. The movements flow into one another, and you practice them slowly, with great awareness, while breathing deeply. You'll learn how to move more fluidly and with greater intention. You may also gain more confidence in your movements.

Finding an experienced instructor with a gentle approach is your best bet for reaping all the benefits of tai chi. Many community centers and most private gyms offer tai chi classes especially tailored for older adults. You can also rent or purchase DVDs or read books on tai chi, although it may be more difficult to learn the movements that way.

Regardless of the format, look for instruction that's geared to your age group or activity level. Start slowly and work your way up.

## MAYO CLINIC HEALTH LETTER

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If you don't have the time or inclination to pursue structured balance training, don't fret. You can achieve better balance by incorporating many balance exercises into your daily activities. In fact, a study that compared people who engaged in balance-enhancing activities whenever the opportunity arose with people involved in a structured balance training program found that while both groups achieved greater balance and strength, the first group did slightly better. In addition, more people in the spontaneous group stuck with their exercises longer than did those in the structured group.

Following are some ways to incorporate balance training into your everyday life. Make sure you have something nearby to hold on to until you become more comfortable with these exercises:

- Talk on the phone while standing with one foot directly in front of the other, heel to toe.
- Carry a tray or drink while slowly walking heel to toe.
- Brush your teeth or wash dishes while standing on one foot.
- Squat down rather than bend over to open a drawer or pick up an item.

- Carry the groceries from the car to the porch while walking sideways.
- Stand up and sit down without using your hands.

Strengthening your balance in naturally occurring settings may also better prepare you for moving in the context of the real world. □



**Build balance by talking on the phone with one foot placed in front of the other.**

## New approaches

Keeping your balance while standing or walking is great, but what happens if you trip or bump into something? Researchers are experimenting with the idea that training people to quickly recover their equilibrium after a trip or bump can be just as important as maintaining upright stability in the first place. For example, if you're knocked off balance, you want to move in a way that allows you to quickly transfer your base of support back under your center of gravity, thus regaining your balance.

To train for this, a physical therapist might nudge you on your back or pull you from the side. In response you flex your ankles to bring your body back into alignment. As you progress, the push-pull forces become stronger so that you bend your hips in response, or finally, take a quick step to recover your balance. By learning how to react to outside forces, you can increase your stability even further.

Another approach is to have you perform other tasks while doing balance exercises. You'll do this naturally if you incorporate balance exercises into everyday life, such as standing on one leg while talking on the phone. This type of dual-tasking is more akin to real-life situations and theoretically might lead to greater stability and fewer falls.

## Health tips

### Taking sleeping pills wisely

Sleeping pills can at times be an effective component of sleep therapy. However, they need to be used cautiously, especially by older adults. (See page 7 for more information.) If you plan to take sleeping pills, follow these steps to do so safely:

- Work with your doctor or pharmacist so that you are prescribed the lowest effective dose of the drug, and for the shortest amount of time possible to achieve goals of improved sleep.
- Stay within the prescribed limit of your prescription. Don't take "extra" tablets without speaking with your doctor.
- Read the medication guide that comes with the pills so that you understand how to take them properly and know what side effects to be aware of.
- Only take a sleeping pill when you have about 15 minutes or less before you plan to fall asleep for the night. After taking the sleeping pill, don't perform activities that require close vigilance, such as driving or tending to financial matters.
- If you experience side effects such as dizziness or drowsiness during the day, talk to your doctor about prescription adjustments.
- Never mix alcohol and sleeping pills, as alcohol can raise your risk of troublesome side effects.
- Make a plan with your doctor for how to stop taking sleeping pills. Some drugs need to be stopped gradually, and some may lead to short-term rebound insomnia for a few days after stopping. □

## News and our views

### On the horizon: New therapies for celiac disease

For people with celiac disease, strict avoidance of gluten in the diet is the only form of therapy. But if recent developments in research continue to progress, a pill, vaccine or other form of therapy may someday allow those with celiac disease to better control their condition — or even to safely consume gluten.

Each of these therapies seeks to disrupt any one of the numerous steps of the disease cascade that leads to small intestine damage. Therapies include:

- Masking gluten as it passes through the digestive system — thereby hiding it from the immune system — using an enzyme that's taken orally
- Tightening gaps in the cellular mucosal barrier that can keep gluten proteins from penetrating and triggering an immune system reaction
- Modulating an aspect of the immune system reaction, whether it's blocking the activation of immune cells, or blocking or suppressing inflammation
- Using a vaccine to reprogram immune cells responsible for causing small intestine damage

Mayo Clinic experts say that research into new therapy options for celiac disease is promising — and very important due to the large number of people with the disease. But it will likely be at least five years before any of these therapy options become widely available to the public. □

### Can activity offset the effects of soda drinking?

Fructose is a type of sugar that's a common ingredient in sugary beverages and other processed foods. Consuming fructose, as well as many other types of sugars, may reduce insulin's ability to lower blood sugar levels and worsen blood fat levels, even when consumed at fairly moderate amounts over short periods of time.

However, new research indicates that physical activity may offset these undesirable effects. In the research, 22 young adults drank two 20-ounce sodas daily for two weeks. They were advised on other ways to cut calories from their diets to avoid weight gain. About half of this group was assigned to get 12,500 steps of activity daily — as measured by a movement device — while the other group was assigned a sedentary 4,500 steps daily.

After two weeks, those in the less active group saw a sharp reduction in the ability of insulin to do its job and a sharp increase in a particularly harmful form of blood fat called very-low-density lipoprotein (VLDL). Students in the more active group experienced almost none of these changes.

This research shows the ability of physical activity to offset extra sugar intake and maintain health, over a short period of time. However, it's not a license to eat or drink whatever you want, so long as you get some physical activity. For one thing, 12,500 steps are nearly equal to 6 miles a day of movement — an amount that may not be sustainable for some. In addition, the study doesn't reflect the fact that drinking soda or other high-sugar beverages adds a lot of extra calories to your diet. Large amounts of added sugar in the diet contribute no nutritional value, but they increase the risk of tooth decay, dementia, cancer and dying of cardiovascular disease. For best results, skip extra calories in the sodas and other sugar-sweetened beverages and tap into the power of physical activity and exercise. □

## Colonoscopy

### Cancer screening and more

Preparing for a colonoscopy — and having the procedure performed — isn't anyone's idea of a good time. However, the colonoscopy is a potentially lifesaving procedure that can be used to prevent, diagnose and treat diseases of the large intestine (colon).

Colonoscopy involves inserting a long, flexible tube (colonoscope) into the colon, typically while you're under sedation or light anesthesia. The scope inflates the colon with air and a tiny video camera at the tip of the colonoscope allows a doctor to view the inside of the entire colon. Small tools also can be inserted into the colonoscope to perform various procedures.

The best-known use of colonoscopy is as a screening tool for colon cancer. Colon cancer usually starts as precancerous clumps of cells (polyps) that form on the inner lining of the colon. Most polyps don't become cancerous, but some do. A colonoscopy allows your doctor to visualize and remove polyps before they have a chance to become cancerous, or at an early stage of cancer development when removal results in a five-year survival rate of more than 90 percent.

Colonoscopy is also used to explore possible causes of abdominal pain, rectal bleeding, chronic constipation or diarrhea, or other intestinal problems. Tools used during colonoscopy can take tissue samples, remove polyps, treat areas of bleeding or stretch narrowed areas.

### Bowel prep critical

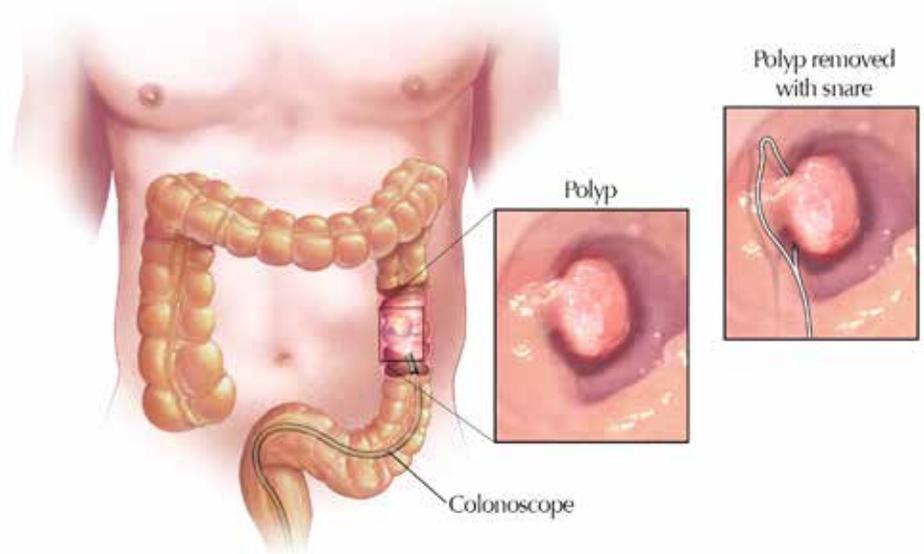
Bowel preparation is a critical factor in optimizing the benefit of colonoscopy — and minimizing the risk of needing to redo the procedure. The goal of bowel prep is to clean the colon so that little to no stool is present to obstruct the view of the colonoscope.

Bowel prep instructions vary, but they often include a clear liquid diet for one day before the procedure and a low-fiber diet for two days before that. You'll also need to avoid red- or purple-colored drinks and supplements containing iron, as they can discolor the colon. Talk to your doctor about medications you take. Diabetes medications and anti-clotting drugs such as warfarin (Coumadin) are among several drugs that may need to be adjusted before a colonoscopy.

Taking a laxative is the next phase of the bowel prep. Usually this involves a liquid laxative in two separate doses, or sometimes a tablet. In addition to oral laxatives, an enema may be used as a cleansing tool.

Taking a colon prep laxative may involve drinking a half-gallon to a gallon of a somewhat salty-tasting fluid. The two-dose regimen — half of which is taken the day before the procedure and the other half taken the day of the procedure — can help make this process less difficult. Keeping the solution chilled, using the flavor packets included in many kits and drinking the solution through a straw also can help.

A new, potentially more palatable laxative — sodium picosulfate (Prepopik) — involves drinking two 5-ounce doses, in addition to about half a gallon of a clear liquid of your choosing. You may have a certain amount of choice in the laxative you use, but your medical history — such as having heart failure or



**A colonoscopy allows your doctor to visualize and remove polyps before they have a chance to become cancerous, or at an early stage of cancer development.**

kidney disease — may restrict you from certain types of laxatives.

Following through with your colon prep plan helps increase the odds that you'll have an adequately clean colon, without the need for a redo. If you experience side effects from the laxatives such as nausea, vomiting or bloating, don't skimp on the colon prep process. Instead, call your doctor right away to discuss possible adjustments.

#### **Day of your procedure**

Just before your colonoscopy exam, you'll likely receive a sedative through a vein to help you relax. You may feel some cramping or pressure during the exam, which should end when the scope is removed. Colonoscopy done

for cancer screening takes about 20 minutes to an hour, and afterward, it takes about an hour to recover from the sedative. You'll need someone to drive you home afterward.

You may feel bloated and pass gas for a few hours after the exam. If a procedure — such as polyp removal — was performed, you may notice a small amount of blood with your first bowel movement. If this persists, talk to your doctor. Although complications of colonoscopy — such as persistent bleeding — are uncommon, they can occasionally occur. Another complication is the development of a hole or perforation in the bowel wall. This potentially dangerous outcome is extremely rare during colon cancer screening. □

## **Screening works**

Colon cancer is diagnosed in about 135,000 Americans each year, and about 52,000 Americans die of colon cancer each year. For nonsmokers, it's the top cause of cancer death.

An unfortunate fact behind this statistic is that about a third of American adults aren't up to date on screening tests for colon cancer, which may include colonoscopy or other screening tests at recommended intervals. If everyone were up to date, it's estimated that 60 percent of colon cancer deaths could be avoided.

However, the number of adults who are current on colon cancer screening is on the rise — and incidences of colon cancer and death due to colon cancer have been in decline. For adults at normal risk of colon cancer, an initial colon screening is recommended at age 50. If you have a family history of colon cancer or other risks, it's usually appropriate to have a first colonoscopy at a younger age. Depending on the results of your colonoscopy, your doctor can recommend an appropriate interval before your next colon cancer screening test.

# Feeling the blues?

## Exercise can help

When you're feeling down, exercising may not be at the top of your list of priorities. But perhaps it should be. As unwilling as you might be initially, one way to get rid of those low feelings may be to get moving. Increasing evidence suggests that exercise — through a variety of mechanisms — can ease symptoms of depression and anxiety, as well as build up your resilience to future stress and bouts of the blues.

### Biological effects

Scientists have found that depression and severe stress are associated with a number of changes in your brain. In particular, depression is linked to abnormally low levels of certain neurotransmitters — chemicals in the brain that allow nerves to communicate with one another. Having less norepinephrine, dopamine and serotonin in the brain results in lower nerve stimulation than usual, contributing to feelings of sadness or emptiness, loss of interest in normal activities, tiredness, anxiety, and trouble thinking. Depression is also associated with a loss of brain nerve cells, shrinking brain volume and reduced blood circulation in the brain.

One of the ways in which antidepressants work is by increasing the levels of brain chemicals and bringing them back to normal. But so does exercise. Working your heart and muscles releases neurotransmitters such as norepinephrine and serotonin into your bloodstream, which helps normalize these chemical levels in your brain.

Exercise activates a number of other chain reactions that help reverse some of the biological effects of depression. For example, working out — whether it's walking on a treadmill or raking the leaves in your yard — can reduce levels of the stress hormone cortisol. Early

evidence suggests that exercise may also help stimulate new nerve cell growth in certain areas of the brain. In addition, exercising your body increases a substance called brain-derived neurotrophic growth factor, which is known to keep brain cells healthy and functioning well. Other biological benefits include increased brain blood flow and strengthened communication between nerve cells.

Recently, scientists discovered that exercise protects against stress and depression not just at the brain level, but in the muscles, as well. A new study conducted in the lab found that exercise increases production of an enzyme called PGC-1alpha-1 within muscles. This enzyme signals certain genes to produce proteins that break down another substance called kynurenine, which is also produced in the muscles and increases in response to stress.

Metabolizing kynurenine into a slightly different product keeps it from crossing the blood brain barrier and causing inflammatory stress-related damage in the brain. In other words, the events set in motion by exercise and the production of PGC-1alpha-1 in the muscles works to protect the brain against the damaging effects of stress and enhances resilience to depression.

### Emotional and social benefits

In addition to biological effects, exercise has positive emotional and social effects that can help you deal with stress and depression. Regular exercise can help you:

- *Gain confidence* — When you're feeling stressed or depressed, you often feel powerless. Learning a new exercise, setting and meeting activity goals, and rising to new physical challenges can increase your sense of control and confidence. Engaging in regular exercise allows you to regain some of this sense of self-determination, which may give you the mental tools you need to cope with other areas of stress.

- *Take your mind off worries* — Exercise can be a distraction from re-

curing worries. Focusing your mind on meeting physical challenges can get you away from the cycle of negative thoughts that feed anxiety and depression.

- *Get more social interaction* — Exercise and physical activity may give you the chance to meet or socialize with others. Just exchanging a smile or greeting as you walk around your neighborhood can help your mood.

- *Cope in a healthy way* — Doing something positive to manage anxiety or depression is a healthy coping strategy. Trying to feel better by drinking alcohol, dwelling on how bad you feel, or hoping anxiety or depression will go away on its own can lead to worsening symptoms.

### How effective is exercise?

Reviews of studies examining the antidepressant effects of exercise in people with depression have found that it can be just as effective as medications or talk therapy. Even short or one-time bouts of exercise can temporarily elevate your mood.

Major depression is a complex disorder and any one treatment isn't likely to help every person. It's important to develop a comprehensive, tailored treatment plan with your doctor or therapist. Treatment may include talk therapy, medications or a combination of the two. Talk to your doctor about including exercise as part of your overall plan. □

## Getting started

Many of the studies on exercise and depression involved structured exercise programs including running, walking, stationary cycle and strength training.

Evidence suggests that more exercise is better than less and that mixed programs involving both aerobic and strength training may be better than just aerobic training for relieving symptoms of depression.

# Medications for sleep

## Safety for older adults

An inability to sleep can be exhausting and frustrating. It saps your energy and goes hand in hand with problems such as depression, chronic pain, susceptibility to illness, high blood pressure and increased risk of accidents.

Given this, it's understandably tempting to turn to sleeping pills as a seemingly simple, quick-acting solution to the problem.

Sleeping pills can at times be an effective component of sleep therapy. However, they need to be used cautiously, especially among older adults.

### Older adults, greater risk

When considering taking any sleeping pill, it's crucial for you and your doctor to weigh benefits against risks. Certainly, good sleep is important. However, taking a drug to assist with sleep can cause side effects such as dizziness or lightheadedness and a risk of dependence. Sleeping pills also suppress breathing — which can worsen breathing problems such as sleep apnea — and may increase infection risk.

Problems with thinking and body movement also can occur. You may remain drowsy after waking up or have daytime memory and physical performance problems. These side effects may be annoying, unsettling or even dangerous. Sleeping pill use may increase the risk of falling and fracturing bones or causing head injuries — particularly at night. Sometimes, sleepwalking — or even driving, shopping, eating or making phone calls while not fully awake — can occur.

### Ranked choice

When a sleeping pill is prescribed, short-acting, newer generation drugs are common first line choices. Side effects with these drugs are still relatively com-

mon, but they tend to occur less frequently and with less severity than with older generation benzodiazepines.

Shorter acting drugs designed to help you get to sleep include zaleplon (Sonata), zolpidem (Ambien, others) and ramelteon (Rozerem). A longer acting drug in the same class — eszopiclone (Lunesta) — also may be considered, but its effect on older adults can be much longer lasting.

Low doses of antidepressant drugs that cause sleepiness may be an option for those who also have depression, or as a second line option for those who don't. Options include amitriptyline, doxepin (Silenor), mirtazapine (Remeron) and trazodone.

Due to increased risk of side effects, many doctors recommend avoiding older generation benzodiazepines, and triazolam (Halcion) in particular. Benzodiazepines, especially the longer acting ones, are generally not recommended for older adults. In addition, a 2014 study found that risk of developing Alzheimer's disease increased by up to 51 percent in those who have used benzodiazepines, with highest risk among those who used them more frequently or who used the long-acting ones.

Benzodiazepines include short-acting triazolam, medium-acting estazolam, and temazepam (Restoril), and long-acting flurazepam and quazepam (Doral). Other benzodiazepines often prescribed for sleep — even though they aren't approved for that use — include alprazolam (Xanax), clonazepam (Klonopin), diazepam (Valium) and lorazepam (Ativan).

### Bottom line

The choice to use sleeping pills is a nuanced decision to be made in close cooperation with your doctor. In general, Mayo Clinic sleep experts recommend that older adults keep sleeping pill use to a minimum, as an occasional sleep aid or over the short term of a few weeks while other avenues to improved sleep are explored. Regular follow-up with your doctor is important. □

## Non-drug options

Often, the inability to get to sleep or stay asleep is a symptom of an underlying problem. That's why improvement in insomnia is usually best achieved with:

- *A medical evaluation* — Some with insomnia have an underlying disease or condition contributing to poor sleep. Examples include chronic pain, coughing, heart problems, difficulty breathing, digestive problems, acid reflux, thyroid problems and sleep disorders such as obstructive sleep apnea or leg movement disorders. Alcohol or medications such as certain antidepressants, caffeine, decongestants, asthma drugs or pain medications also can contribute to insomnia.

- *Sleep hygiene improvement or cognitive behavioral therapy (CBT)* — Whether you do it on your own or with the help of a CBT therapist, better sleep can often be achieved with improved sleep habits and rituals. These include developing a relaxing bedtime routine, removing stimulating electronics from the bedroom and using the bedroom only for sleeping and intimacy.

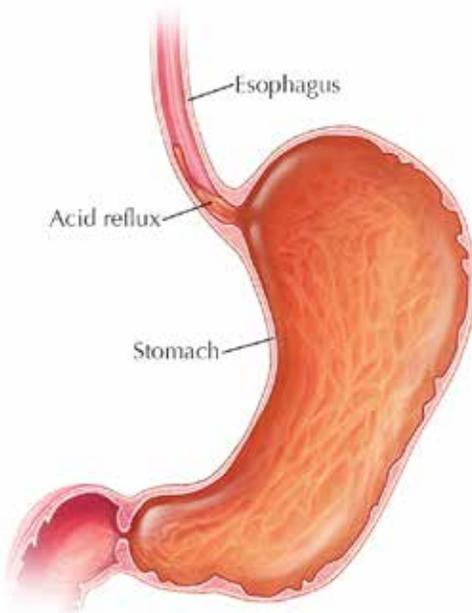
Certain behavioral changes can also help. These include reducing the total amount of time you spend in bed, getting up at the same time every day, not going to bed unless you feel sleepy and not staying in bed if you can't sleep. Internet-based CBT plans such as SHUTi and Sleepio also may help.

One study that compared CBT with a popular sleeping pill found that at six weeks, CBT reduced total awake time by 52 percent, while the total awake time in the sleeping pill group was reduced by only 4 percent.

# Second opinion

**Q** I regularly have heartburn and my doctor is recommending I try a proton pump inhibitor. Can you tell me more about this medication? Are there any risks to taking it?

**A** Proton pump inhibitors (PPIs) are the most effective medications for the treatment of chronic acid reflux (gastroesophageal reflux disease, or GERD) and peptic ulcer. They work by blocking the production of stomach acid — too much of which can cause a burning sensation in your chest or throat (heartburn) — and by giving damaged tissue in your esophagus time to heal.



**Heartburn can occur when stomach acid flows back into your esophagus. Proton pump inhibitors are medications that treat chronic heartburn by blocking the production of stomach acid.**

Proton pump inhibitors come in prescription and nonprescription strengths. Available proton pump inhibitors include dexlansoprazole (Dexilant), esomeprazole (Nexium), lansoprazole (Prevacid), omeprazole (Prilosec), pantoprazole (Protonix) and rabeprazole (Aciphex). These medications are most commonly taken as a pill once a day, usually about an hour before breakfast.

Proton pump inhibitors are generally safe when you use them as directed. But as with any medication, there are potential risks with taking them.

Long-term use of proton pump inhibitors has been associated with a greater risk of infections such as pneumonia and a form of antibiotic-associated diarrhea caused by the bacteria *Clostridium difficile* (*C. difficile*). However, whether proton pump inhibitors are directly responsible hasn't been proved.

A recent study by Mayo Clinic doctors found that over time, proton pump inhibitors can change the environment of your gut by reducing the diversity of friendly bacteria (microbiome) normally found within your bowels. These bacteria help you digest food, absorb vitamins and perform other healthy body functions.

Loss of bacterial diversity can make it easier for less friendly germs such as *C. difficile* to multiply and cause an infection. If you take antibiotics frequently and also require treatment of reflux symptoms, using of another type of antacid medication — such as a histamine (H-2) blocker — may reduce your risk of diarrhea. Knowing your

medical history will help your doctor make the best decision regarding the need to use a proton pump inhibitor and for how long.

Less stomach acid also can make it harder for your body to absorb nutrients, such as magnesium, iron, vitamin B-12 and calcium.

Evidence suggests an association between prolonged proton pump inhibitor use and a higher risk of bone fractures in older adults, but this is usually in those who are already at increased risk because of other conditions. In many cases, a supplement can help correct nutrient deficiencies. □

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## Have a question or comment?

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