

MAYO CLINIC HEALTH LETTER

Reliable Information for a Healthier Life

VOLUME 32 NUMBER 7 JULY 2014

Inside this issue

HEALTH TIPS.....3

Flossing how-tos.

NEWS AND OUR VIEWS4

Confusion over electronic cigarettes continues. Intermittent statin use may help with side effects.

PERIODONTAL DISEASE4

More than just gums.

LONELINESS 6

A surprising health risk.

MAGNETIC BRAIN

STIMULATION 7

Role in treating depression.

SECOND OPINION8

Coming in August

SKIN CANCER

Sun protection is key.

ACTIVITY-TRACKING DEVICES

Info you can run with.

THYROID TESTING

Catching a subtle problem.

HOT AND COLD THERAPIES

Know which to use for common ailments.



Elbow pain

Strengthening can help

The outside of your elbow has been sore for some time, and there's an especially sharp pain when you carry something in that arm. That's why you've been avoiding carrying things and have generally avoided activities that involve use of the arm, such as gardening. Despite the rest, it hasn't improved much. Is there anything you can do to make it better?

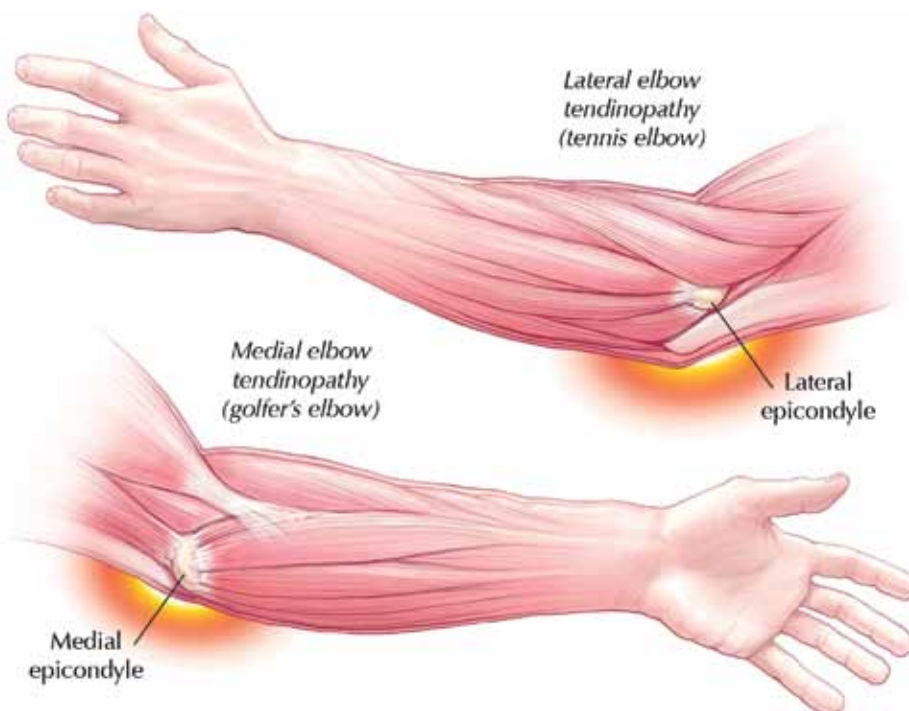
Most elbow pain is related to overuse that results in irritation and tissue degeneration near areas where tendons connect to bones of the elbow joint.

You may have heard the terms *tennis elbow* or *golfer's elbow* to describe the most common forms of elbow injury.

In the absence of bone fracture, elbow injuries usually aren't serious. But the nagging pain can stop or limit your ability to work around the house or enjoy activities such as tennis and golf. Self-care tips are often a good initial step. However, receiving a diagnosis from your doctor can help discover or rule out other causes of elbow pain — and can get you going on a specific treatment plan tailored to your injury.

Hinge with a twist

Your elbow is a hinge joint with a bonus element of allowing your lower



Bony prominences of the elbow (epicondyles) are the areas where tendons of the forearm muscles attach to the elbow joint. Pain and tenderness may develop in one of these two areas when the muscles and tendons of the forearm are overused.

arm to twist. The biceps and triceps muscles in the upper arm are mostly responsible for powering the movement of the elbow joint.

However, it's the tendons that connect to the muscles of the forearm — which power wrist and hand movement — that cause most of the trouble.

Another part of the elbow that somewhat commonly causes pain is the olecranon bursa — a fluid-filled sac at the tip of the elbow joint that helps cushion and lubricate the joint.

Too much wrist

If you feel both sides of your elbow joint, you'll notice two bony knobs that bulge out a little from the rest of the joint. The prominences are called epicondyles (ep-ih-KON-duh-lees). The epicondyles are the areas where tendons of the forearm muscles attach to the elbow joint.

Pain and tenderness develops in these two areas when the muscles and tendons of the forearm are overused. Often, the pain develops gradually with continued overuse, but pain can also develop fairly suddenly with a forceful instance of overuse.

Contrary to common belief, inflammation doesn't play much of a role in these injuries. Rather, the pain is caused mostly by damage, degeneration and disorganization of tendon tissues, with the development over time of tiny, new blood vessels in the area.

When pain occurs on the epicondyle on the outside of your elbow, it's called lateral elbow tendinopathy — or tennis elbow. When pain occurs on the inside of your elbow it's called medial elbow tendinopathy — or golfer's elbow.

Both conditions share many symptoms. At rest, there's usually a dull aching or burning feeling in the area. The pain becomes sharp when you do an activity that aggravates the area. Grip strength may weaken due to the discomfort. Use of the forearm is the primary causer of pain. Gripping or forearm-twisting motions such as lifting objects with the palm down, shaking hands or tuning a doorknob can cause

pain. Full extension of the elbow joint also may cause pain.

With lateral elbow tendinopathy, motions that involve lifting the forearm — such as swinging a hammer or painting, operating a chainsaw, or pulling weeds from your garden — cause pain. So does swinging the forearm across and away from the body as would occur with a backhand stroke in tennis.

With medial elbow tendinopathy, motions that involve moving the forearm toward your body cause pain. This might occur during activities such as a golf swing, a tennis forearm stroke or when throwing a baseball.

Take action

Take a clue from your body — if something you're doing causes pain in the elbow area, stop the activity. Minimizing aggravation may help reduce the length of recovery from the injury.

Once pain has developed, self-care steps include:

- *Avoiding or modifying activities* — Keeping your wrist in a locked, neutral position when you lift objects is a modification that allows the bigger muscles of the upper arm to do most of the work. Additionally, if your injury is due to tennis or golf, instruction in proper technique is essential to make sure that the force generated in your swing comes from large muscles in the body and not the wrist and forearm. Your doctor or your physical or occupational therapist can evaluate other aggravating activities to determine if an activity modification may be of benefit.

- *Ice and pain control* — Icing the area for 15 minutes three to four times a day may help with pain relief. An ordinary nonprescription pain medication may reduce pain but doesn't aid in healing.

- *A counterforce strap* — You wear this around your forearm to reduce the burden of everyday movement on injured tendons. Straps should be applied snugly but without causing an increase in pain. They're used mostly for comfort.

- *Gentle stretching* — Moving the elbow and wrist through their full range

of motion and gentle stretching of the wrist in an up or down position can help keep the elbow limber during healing.

If you catch the injury early, rest and self-care may lead to healing over time. However, it's generally true that the sooner you see a doctor or physical or occupational therapist to develop a physical therapy plan, the sooner you're likely to be on the path to recovery.

One key reason is that developing a specific plan for stretching and strengthening the arm is one of the mainstays of effective treatment. This includes learning how to perform a special type of strengthening called eccentric strengthening that may help reverse the degeneration of the injured tendon area. Other steps that may provide comfort and facilitate healing include applying either therapeutic ultrasound energy to the painful area or a mild, therapeutic electrical current.

MAYO CLINIC HEALTH LETTER

Managing Editor
Aleta Capelle

Associate Editors
Carol Gunderson
Joey Keillor

Medical Illustration
Michael King

Operations Manager
Christie Herman

Administrative Assistant
Beverly Steele

Medical Editor
Robert Sheeler, M.D.

Associate Medical Editor
Aminra Arora, M.B.,
B.Chir.

Editorial Research
Deirdre Herman

Copy Editing
Miranda Attlessey
Donna Hanson
Julie Maas

EDITORIAL BOARD

Shreyasee Amin, M.D., *Rheumatology*; Aminra Arora, M.B., B.Chir., *Gastroenterology and Hepatology*; Brent Bauer, M.D., *Internal Medicine*; Julie Bjoraker, M.D., *Internal Medicine*; Lisa Buss Preszler, Pharm.D., *Pharmacy*; Bart Clarke, M.D., *Endocrinology and Metabolism*; William Cliby, M.D., *Gynecologic Surgery*; Clayton Cowl, M.D., *Pulmonary and Critical Care*; Mark Davis, M.D., *Dermatology*; Michael Halasy, P.A.-C., *Emergency Medicine*; Timothy Moynihan, M.D., *Oncology*; Daniel Roberts, M.D., *Hospital Internal Medicine*; Robert Sheeler, M.D., *Family Medicine*; Phillip Sheridan, D.D.S., *Periodontics*; Peter Southorn, M.D., *Anesthesiology*; Farris Timimi, M.D., *Cardiology*; Matthew Tollefson, M.D., *Urology*; Debra Zillmer, M.D., *Orthopedics*; Aleta Capelle, *Health Information*. Ex officio: Carol Gunderson, Joey Keillor.

Mayo Clinic Health Letter (ISSN 0741-6245) is published monthly by Mayo Foundation for Medical Education and Research, a subsidiary of Mayo Foundation, 200 First St. SW, Rochester, MN 55905. Subscription price is \$31.52 a year, which includes a cumulative index published in January. Periodicals postage paid at Rochester, Minn., and at additional mailing offices. POSTMASTER: Send address changes to *Mayo Clinic Health Letter*, Subscription Services, P.O. Box 9302, Big Sandy, TX 75755-9302.

If your condition isn't improving with self-care and therapy, a variety of additional therapies and even surgical procedures may be considered. These may include injections of corticosteroids, blood products or other substances — or simply insertion of a dry needle to break up tissues — or the application of acoustic waves (extracorporeal shock wave therapy). A procedure developed at Mayo Clinic that's showing early promise is called fasciotomy and surgical tenotomy (FAST). This involves use of an ultrasound probe to break up and suction away scar tissue within the damaged tendons. Open or laparoscopic surgery to remove scar tissue also is an option.

Elbow bumps

Development of a swollen lump at the tip of the elbow is usually related to aggravation of the olecranon bursa. An inflamed bursa (bursitis) can be caused by a sharp blow to the elbow such as falling on a hard surface, repeated bumping of the elbow or even from leaning repeatedly on the elbow. Occasionally, bursitis caused by a sharp blow associated with an abrasion can become infected. Older adults may develop olecranon bursitis even without an injury as a manifestation of gout or rheumatoid arthritis.

In addition to developing a lump on the elbow, you may feel a dull ache or stiffness in the elbow, although the elbow joint can usually be fully extended. You may feel pain with elbow movement or elbow pressure, and there may be warmth or skin redness.

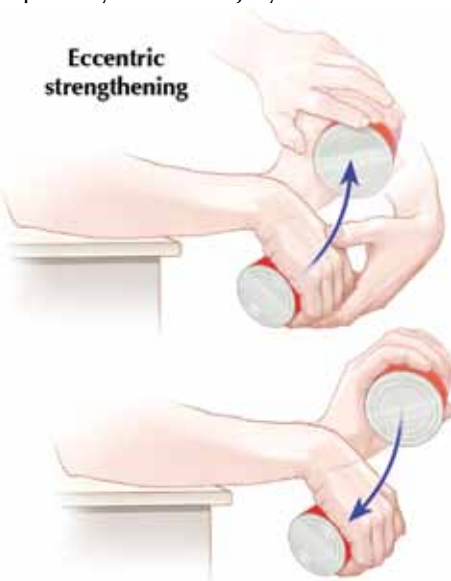
The primary treatment for all forms of olecranon bursitis is careful protection of the area from any sort of irritation. This may involve wearing an elbow pad to guard against bumps and limiting arm motion to minimize movement friction. Icing the area for 15 minutes one or more times a day and nonprescription pain medication may be helpful for pain. If infection or another underlying disease is suspected, additional treatment measures may be taken.

Can't straighten elbow

With lateral and medial elbow tendinopathy and olecranon bursitis, the elbow joint can usually still be fully extended, even if it causes some pain. If your elbow movement is limited, it may be a sign of a far less common elbow problem such as rheumatoid arthritis or other autoimmune forms of joint arthritis, a joint infection, or an injury from a previous fracture. Elbow fractures also can occur, for example by falling directly onto the elbow or by falling on an outstretched hand.

Immediate medical care for elbow pain is warranted especially if:

- The elbow is hot, red or inflamed and fever is present
- You can't bend the elbow
- The joint looks misshapen or you suspect a broken bone
- You experience extreme pain, especially after an injury □



While lightly gripping a light object such as a soup can, place the affected forearm on a flat surface so that your wrist and hand hang over the edge. With your free hand, lift the hand holding the weight to an upright position. At the upright position, remove the helping hand. Slowly (to the count of 10) lower the hand holding the weight to a limp position. A suggested starting point is to perform five repetitions of this exercise, twice daily, with no pain. Gradually work up to 10 repetitions twice daily, after which you may be able to increase the weight of the object held.

Health tips

Flossing how-tos

Are you flossing enough? And when you do floss, are you covering all the bases?

Flossing helps remove debris and plaque that collects between teeth. By cleaning these hard-to-reach surfaces, you'll reduce the likelihood of both gum disease and tooth decay.

Regular flossing is important — the American Dental Association recommends doing so at least once a day. The time of day doesn't matter, nor does it matter if you brush or floss first. What does matter is doing a thorough job. Here's a look at the proper technique:

- Use about 18 inches of floss. Wind each end around your middle fingers.
- Hold the floss tightly between your thumbs and index fingers and insert it between your teeth using a gentle rubbing motion.
- When the floss reaches the gumline, curve it into a C shape against the side of one tooth. Slide it into the space between the gum and the tooth.
- Holding the floss tightly against the tooth, gently rub the side of the tooth, moving the floss away from the gum with up and down motions. Then reverse the curve and switch your attention to the tooth surface on the other side.
- Floss between all teeth, including behind your back teeth.

If you have difficulty with regular floss, ask your dentist or dental hygienist for recommendations on the proper use of another kind of interdental cleaner, such as a dental pick or pre-threaded flosser. □

News and our views



Confusion over electronic cigarettes continues

Despite unknown health effects of electronic cigarettes — also called e-cigarettes — their popularity is increasing. Not only are more adults using e-cigarettes, but more young people are using the devices. The Centers for Disease Control and Prevention reported that e-cigarette use by children in grades 6 to 12 doubled from 2011 to 2012 — from 3.3 to 6.8 percent.

E-cigarettes are battery-operated devices that can be made to look like regular cigarettes or other devices, such as pipes. They contain nicotine, except the nicotine is part of a liquid in a tiny cartridge. When heated, the liquid turns into a vapor for inhaling — called vaping. When the user exhales, it creates a vapor cloud that has the look of cigarette smoke.

Claims by manufacturers that e-cigarettes are a safe alternative to tobacco cigarettes have yet to be substantiated. The Food and Drug Administration (FDA) questions their safety. In analyzing two popular e-cigarette brands, the FDA found varying amounts of nicotine along with traces of toxic chemicals, including substances known to cause cancer. Although the FDA has issued a warning about potential health risks associated with e-cigarettes, regulation of e-cigarette use is outside of the FDA's reach. The FDA is working to extend its tobacco product authorities to e-cigarettes.

Mayo Clinic doctors don't recommend e-cigarettes as an alternative to smoking or as a method to stop smoking. No scientific studies have shown that e-cigarettes are safe to use or effective in helping smokers stop smoking. □

Intermittent statin use may help with side effects

The side effects caused by popular cholesterol-lowering statin medications can prove challenging for some. But could taking these drugs less often be an effective solution? Mayo Clinic experts say yes.

Statins are commonly prescribed to lower your body's production of cholesterol and reduce your risk of cardiovascular disease. Statins are well-tolerated by most people. But for some, the side effects — including muscle pain and liver enzyme abnormalities — may necessitate discontinuing the drugs.

However, new studies show people who can't tolerate a daily statin can probably tolerate these medications less frequently at a lower dose. Mayo Clinic doctors recently issued an updated stance on cholesterol-lowering guidelines, including a clear recommendation on intermittent statins.

With the new recommendations, a statin is discontinued if the user develops troublesome symptoms. Unless those symptoms are severe or life-threatening, it's recommended that a different daily statin then be tried in the hope that it won't cause similar side effects. If that's not successful, intermittent use can be tried. With this regimen, doses may be given every other day, twice a week or even once a week. This can then be combined with another medication for cholesterol reduction, such as niacin or the cholesterol absorption inhibitor drug ezetimibe (Zetia).

Mayo Clinic doctors recognize there's limited evidence that low-dose, intermittent statin use provides the cholesterol-lowering effects of daily use or that it reduces cardiovascular disease. Despite these limitations, studies show a survival advantage for at-risk people taking statins — either daily or intermittently — as compared with those who stop using these drugs. □

Periodontal disease

More than just gums

It's time for a dental checkup. As the hygienist records the depth measurements that represent the amount of bone support for each tooth, it's apparent that the numbers have crept higher in recent visits. You're at risk of developing serious gum (periodontal) disease.

Gingivitis: The first sign

Periodontal disease is caused by a number of bacteria found in a sticky film called plaque. Plaque forms on your teeth when starches and sugars in food interact with bacteria normally found in your mouth. Although brushing and flossing removes plaque, it reforms within 24 hours.

Plaque that's on your teeth for longer than two to three days can harden to form tartar (calculus). This attaches to your teeth at and below your gumline and is rough and irritating to gum tissue. Plaque and tartar that remain on your teeth for several days can cause gum (gingival) inflammation. This represents a common and mild form of periodontal disease called gingivitis. With gingivitis, you may have red, swollen gums that bleed easily. The longer plaque and tartar remain on your teeth, the more inflammation they can cause.

Fortunately, gingivitis is often reversible with dental care and improved brushing and flossing. But if left untreated, it can lead to more serious gum disease, resulting in loss of supporting bone.

Ongoing inflammation and the loss of supporting bone eventually causes pockets to develop between your gums and teeth that fill with plaque, tartar and bacteria. Bacteria deposit endotoxin that's responsible for much of the inflammation around teeth. This stage is known as chronic periodontitis.

In time, these pockets can become deeper as more tissue and bone is

destroyed. As the bone destruction progresses, you may lose teeth.

Many adults have or will have some form of periodontal disease. That's because it's increasingly common with age. In fact, it's estimated that over 70 percent of Americans 65 and older have some stage of periodontal disease.

Several drugs can affect your gum health. For this reason, it's important to keep your dentist up to date on any medications you're taking, as well as your general health status.

Other important risk factors include smoking or tobacco use, increased stress, and poor nutrition. Sometimes, it's simply a result of genetics.

Healthy gums are firm and pale pink. If your gums are puffy, dusky red and bleed easily, see your dentist. As the disease progresses, you may notice more-advanced signs and symptoms such as gums that have pulled away from your teeth or sensitive or loose teeth.

Various treatments

If your periodontal disease isn't advanced, treatment may involve less invasive procedures, including:

- **Scaling** — Instruments or an ultrasonic device may be used to remove tartar and bacteria from the surfaces of your teeth and beneath the gums.

- **Root planing** — This procedure smooths the root surfaces, removing tartar, bacterial endotoxin and the infected covering of the root surface.

- **Antibiotics** — Occasionally, your dentist or periodontal disease specialist (periodontist) may recommend antibiotics to control bacterial infection.

However, if you have advanced periodontitis, further intervention may be needed. There are a number of surgical treatments, such as:

- **Flap surgery** — In this procedure, your periodontist makes tiny incisions in your gum tissue, providing access by exposing the roots for more-effective scaling and root planing. Because periodontitis alters the structure of bone, the underlying bone may be recontoured before the gum tissue is reattached.

- **Soft tissue grafts** — When you lose gum tissue to periodontal disease, your gumline recedes. You may need to have some of the damaged soft tissue reinforced. This is usually done by removing a small amount of tissue from the roof of your mouth or another source and grafting it to the affected site. This can help reduce further gum recession.

- **Bone grafting and other regenerative procedures** — These procedures are done to restore or regrow lost bone. The graft may be composed of small fragments of your own bone, or the bone may be synthetic or human bone from a tissue bank. The grafted bone serves as a platform for regrowth of bone.

Oral care equals prevention

The best way to prevent periodontal disease is by brushing your teeth at least twice a day and flossing at least once a day. Your dentist also may recommend a mouthwash to reduce plaque.

In addition, see your dentist or periodontist regularly for cleanings, usually every six to 12 months. If you have risk factors that increase your chance of developing periodontal disease, you may need professional cleaning more often.

At times, periodontal disease may precede, follow or coexist with other diseases or conditions, including:

- **Diabetes** — Periodontal disease may make it more difficult for people who

have diabetes to control their blood sugar. People with poorly controlled type 2 diabetes have three times the risk of periodontitis and 11 times the risk of progressive bone loss than do those with better control of their diabetes.

- **Cardiovascular disease** — Periodontal disease may increase the risk of heart disease. It's believed that inflammation might be responsible for the association. Studies also have pointed to a weak relationship between periodontal disease and stroke.

- **Respiratory disease** — Bacteria that grow in the mouth can be aspirated into the lungs to cause respiratory diseases such as pneumonia. This is especially true in people with periodontal disease.

- **Cancer** — People with periodontal disease are more likely to develop certain types of cancers, including kidney, pancreatic and blood cancers. Also, people who are immunosuppressed — a common occurrence with cancer and a side effect of chemotherapy — are more susceptible to periodontal disease.

- **Other diseases** — Diseases that interfere with the body's inflammatory system may worsen gums. Rheumatoid arthritis is an example.

It's believed that inflammation may be the common link between periodontal disease and these systemic ailments. For that reason, treating inflammation may help manage both. □



Healthy teeth and gums can progress to a mild form of periodontal disease called gingivitis. Ongoing inflammation eventually causes pockets to develop between your gums and teeth, leading to bone destruction and possible tooth loss.

Loneliness

A surprising health risk

Mother Teresa, who devoted her life to service to the poor, referred to loneliness as “the most terrible poverty.”



The loss of a close friend or loved one, a move to a new area, retirement — these are just a few situations that can trigger intense feelings of loneliness. While the emotion is a common struggle, especially during certain points in life, much has been uncovered in recent years about its profound health effects.

A lack of connection

Are you lonely? Odds are you might experience a feeling of isolation or disconnectedness from time to time. In a 2010 AARP survey, 35 percent of respondents reported feeling lonely. And close to half of the lonely group indicated that their loneliness had persisted for six years or longer.

Experts suggest that we may experience loneliness now more than ever. Despite advances in technology that allow us to be ever increasingly connected — think cellphones, email and social media — these conveniences may take the place of face-to-face time and may inhibit the development of truly deep connections.

A greater risk than obesity?

An occasional bout of loneliness is normal, especially in the face of life-changing situations. But when it persists, it can have profound effects on your body. In fact, research has suggested that the effects of loneliness may be worse for you than carrying around extra pounds — increasing your chances of premature death by 14 percent.

It may not be surprising that loneliness affects your mental health, often going hand in hand with depression.

But the effects don't stop there. One recent study associates feelings of loneliness with an increased risk of developing dementia in later life. Another shows that lonely people are subjected to fragmented sleep — a factor that's significant due to the profound impact of quality sleep on your health.

Feelings of isolation also may trigger changes that increase inflammation in your body. This, in turn, may exacerbate inflammatory conditions such as arthritis and heart disease.

Loneliness lifters

Are you simply destined to be lonely? Of course not. But if it's something you genuinely want to change, it may require you to step out of your comfort zone. That applies whether you're building up existing relationships or creating new ones.

Friendships do require effort. But the enjoyment and comfort friendship can provide makes the investment worthwhile. To nurture your friendships:

- *Reach out* — An unexpected phone call or email, even just to say hello, is a meaningful gesture.

- *Be positive* — Think of friendship as an emotional bank account. Make deposits of kindness and approval, keeping in mind that criticism and negativity draw down the account. Nonstop complaining also puts a strain on a friendship.

- *Listen up* — Ask what's going on in your friends' lives. Let people know you're paying close attention through eye contact, body language and reaffirming comments. When friends share details of hard times they are experiencing, be empathetic.

- *Extend and accept invitations* — Invite a friend to join you for coffee or lunch. When you're invited to a social gathering, say yes. Contact someone who recently invited you to an activity and return the favor.

- *Respect boundaries* — Don't overtax the friendship with your own needs. Remember that friendships require both give and take.

At the same time, it's never too late to pick up a new friend or even a group of them. Here are a few friend-finding suggestions:

- *Attend community events* — Get together with a group of people working toward a goal that you believe in, such as an election or the cleanup of a natural area. Find a group with similar interests in an activity, such as reading, sports, crafting or gardening.

- *Volunteer* — Offer your time or talents at a hospital, place of worship, museum, community center, charitable group or other organization. You can form strong connections when you work with people who have mutual interests.

- *Take up a new interest* — Take a college or community education course to meet people who have similar interests. Join a class at a local gym, senior center or community fitness facility.

- *Join a faith community* — Take advantage of special activities and get-to-know-you events for new members.

- *Take a walk* — Put on some good shoes and keep your eyes open. Chat with neighbors who also are out and about, or head to a popular park and strike up conversations there.

- *Think beyond two legs* — Whether it has four legs or even wings, a pet can provide many of the same companion benefits as human friendships can.

Loneliness vs. being alone

It's important to not confuse loneliness with being alone. You can feel lonely in a crowd, just as you can feel perfectly content by yourself. If you know you have a solid support system waiting in the wings, you're more likely to be able to navigate the alone times with ease or even pleasure.

While the health benefits of friendships are considerable, time spent alone can be a valuable asset. Use this time to be productive or to invest in yourself — recharge, pursue a solitary hobby, meditate, indulge in a daydream or even plan how to pursue that dream in the future. □

Magnetic brain stimulation

Role in treating depression

For years, the mainstays of depression treatment have been antidepressant medications in combination with counseling. As a backup for hard-to-treat depression, a course of electroconvulsive therapy — in which a small amount of electricity is used to cause a seizure in a person under general anesthesia — has been an effective treatment.

Over the last several years, these important treatment options have had to make room for another kind of therapy called transcranial magnetic stimulation (TMS). This involves using brief but powerful electromagnetic pulses to alter electrical pathways in the brain.

It differs from electroconvulsive therapy in that it stimulates the brain with a magnetic field, rather than with electricity, and isn't meant to cause a seizure. It doesn't involve surgery or anesthesia. You remain awake and alert as the magnet does its work. Although therapy sessions do require a significant time commitment over about a four- to six-week period, it doesn't otherwise disrupt your life. For example, this therapy doesn't limit your ability to work or drive. It also doesn't affect memory like electroconvulsive therapy does.

TMS doesn't work for everyone, but accumulating research has established it as a credible option for those with depression who don't respond well to other therapy.

Place in therapy

Depression is often successfully treated with antidepressant medications in combination with counseling. But for around 20 percent of those with depression, drugs may not be well-tolerated or may not have enough of an effect to cause remission of the disease.

The Food and Drug Administration has approved TMS for use in those who

have completed an adequate but unsuccessful trial of antidepressant medications and counseling.

TMS offers an important step between initial treatment efforts and electroconvulsive therapy. However, past treatment with electroconvulsive therapy doesn't exclude people from a possible TMS trial. One fairly small study found that among people who had previously been treated with electroconvulsive therapy — but with limited success — about 50 percent had some response to TMS, and 20 percent had remission of depression symptoms.

The body of research on TMS is growing and getting stronger — enough so that reasonably firm conclusions can be made in regard to its effectiveness. When performed on appropriate candidates according to up-to-date protocols, TMS has at least some symptom-reducing effect in about 50 to 60 percent of people — and it leads to remission of depression symptoms in about 30 to 40 percent of people.

Following successful TMS therapy, some type of maintenance therapy is usually performed. Most often, this is standard depression therapy with an antidepressant medication and counseling. One study that looked at durability of TMS treatment that led to remission found that over six months, about 52 percent of study participants maintained the improvement with maintenance therapy of a single antidepressant medication. About 38 percent had symptoms worsen, but most of them regained remission with additional TMS sessions. About 10 percent of study participants had a relapse of depression symptoms.

Restrictions apply

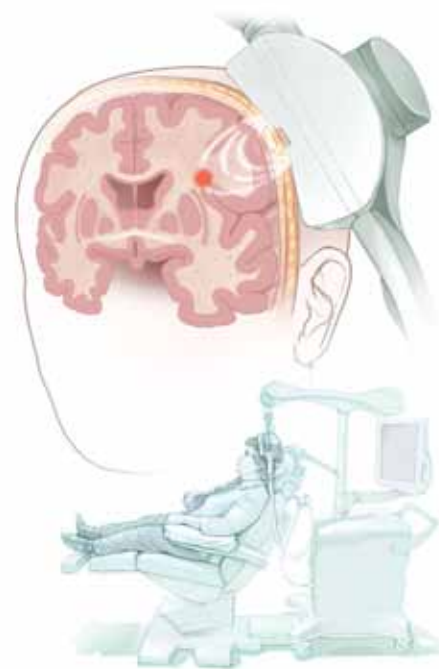
A typical TMS therapy appointment lasts about an hour and is performed five days a week for four to six weeks. Sticking to the treatment schedule is critical, since the benefits of TMS therapy may not fully emerge until late in the course of therapy. This time commitment may be a barrier to some

people. In addition, TMS therapy may not be covered by health insurance.

TMS therapy is usually safe and produces minimal side effects. The development or worsening of headaches is the most frequent side effect, and people with frequent or severe headaches may not be ideal candidates for TMS. Seizures during therapy can occur, but they're very rare. Still, people at risk of seizures are generally excluded from receiving TMS therapy. Others that may be excluded from TMS therapy include people who have had a previous stroke or those with a metal implant or medical device in the head or chest — such as a stent, aneurysm clip or coil, pacemaker, or implanted medication pump.

Refining therapy

Research is continuing to determine changes to TMS delivery that may enhance outcomes. Studies are being done to improve targeting of TMS therapy using real-time brain imaging, to determine optimal dosing, to examine effects of varying depth and breadth of magnetic pulses, and to see if lower powered devices may be effectively used at home. □



Transcranial magnetic stimulation involves using powerful electromagnetic pulses to alter electrical pathways in the brain.

Second opinion

Q What's the difference between probiotics and prebiotics?

A Probiotics are foods or dietary supplements that contain either good bacteria or certain types of yeasts that provide health benefits. The live microorganisms in probiotics are often similar to those naturally found in different parts of your body, such as your intestines. In functional foods — such as yogurt and kefir — and dietary supplements, the most commonly used probiotic bacteria are strains belonging to *bifidobacterium* and *lactobacillus*. These two groups of bacteria are among the legions of microorganisms that reside in your gastrointestinal tract and are known collectively as gut microbiota.

Prebiotics are nondigestible substances that act as food for the gut microbiota. Essentially, prebiotics stimulate growth or activity of certain healthy bacteria that live in your body. Prebiotics are found in whole grains, bananas, onions, garlic, honey and artichokes.

When probiotics and prebiotics are combined, they form synbiotics. Live culture yogurt that hasn't been pasteurized is a synbiotic product. Fermented dairy products, such as yogurt and kefir, are considered synbiotics because they contain live bacteria and the fuel they need to thrive and proliferate.

The influence of probiotics and prebiotics on gut microbiota is under research. Scientists want to know if probiotics reduce harmful organisms in the colon or if they produce substances that destroy or interfere with the growth of microorganisms and influence the immune response. Evidence supports

the use of probiotics for certain bowel disorders, including irritable bowel syndrome, antibiotic-associated diarrhea and pouchitis. □

Q Recently, I had this feeling that my heart was beating faster than normal when I wasn't active. I took my pulse and it was 110 beats a minute. That seems high to me, but I feel fine. Is it a cause for concern?

A It's worth talking to your doctor. Certain serious heart conditions, such as atrial fibrillation, can cause a fast resting heartbeat.

However, there's often no underlying heart problem with a mildly fast resting heart rate. If that's the case, you may be diagnosed with sinus tachycardia. The sinus node is the heart's natural pacemaker. The term *tachycardia* means fast heartbeat.

A normal resting heart rate in adults is in the range of 60 to 100 beats a minute. In healthy people, the sinus node signals the heart to speed up during physical activity or in situations that are stressful, frightening or exciting. Likewise, the sinus node signals the heart to slow down during rest.

With sinus tachycardia, your heart rate stays elevated — typically above 120 beats a minute — even at rest. Sinus tachycardia often doesn't cause symptoms, but it can make you feel uncomfortable and can be associated with fatigue, headache, chest discomfort, shortness of breath and lightheadedness.

Most of the time, there's a medical cause of sinus tachycardia. Possible causes include anemia, underlying

infection, elevated thyroid hormone, reaction to a medication, recovery from an illness, or too much caffeine or nicotine. Addressing an underlying issue usually leads to a return to a more normal resting heart rate.

Occasionally, sinus tachycardia occurs for no discoverable reason. This is called inappropriate sinus tachycardia. Alone, it isn't harmful and doesn't require treatment. However, if you feel uncomfortable symptoms, drugs such as beta blockers can slow the heart rate. Improving fitness can also help. Rarely, a medical procedure called catheter ablation — which involves placing a catheter in the heart to scar part of the sinus node — may be recommended. □

Correction

There was an error on page 7 of the May 2014 issue. On the CHA2DS2-VASc risk factors chart, the score for A2, age 75 or older, should have been 2.

Have a question or comment?

We appreciate every letter sent to Second Opinion but cannot publish an answer to each question or respond to requests for consultation on individual medical conditions. Editorial comments can be directed to:

Managing Editor, *Mayo Clinic Health Letter*,
200 First St. SW, Rochester, MN 55905, or
send email to HealthLetter@Mayo.edu

For information about Mayo Clinic services, you may telephone any of our three facilities: Rochester, Minnesota, 507-284-2511; Jacksonville, Florida, 904-953-2000; Scottsdale, Arizona, 480-301-8000 or visit www.MayoClinic.org



Copyright

© 2014 Mayo Foundation for Medical Education and Research. All rights reserved. MAYO, MAYO CLINIC, the triple-shield Mayo logo, and RELIABLE INFORMATION FOR A HEALTHIER LIFE are marks of Mayo Foundation for Medical Education and Research.

Mailing lists

We make our *Mayo Clinic Health Letter* mailing list available to carefully selected companies and organizations. If you do not wish to receive such mailings, please write us at the address shown at right and enclose your mailing label.

Customer Services

Print subscriptions are available within the U.S. at \$31.52 and Canada at \$44.55. Call Customer Services at 800-333-9037. The Online Edition is free to print subscribers and available for purchase worldwide. Visit www.HealthLetter.MayoClinic.com for more information. Single copies are available within U.S. and Canada for \$4 plus shipping, handling and taxes.

Purpose

To help our subscribers achieve healthier lives by providing useful, reliable, easy-to-understand health information that's timely and of broad interest. *Mayo Clinic Health Letter* supplements the advice of your personal physician, whom you should consult for personal health problems.

Correspondence

Send subscription inquiries to: *Mayo Clinic Health Letter* Subscription Services P.O. Box 9302 Big Sandy, TX 75755-9302

MC2019-0714
100714

Printed in the USA