Carotid artery disease

Blood flow to the brain matters

An uninterrupted blood supply to key areas of the brain is critical for brain function. But atherosclerosis — which causes blood vessels to narrow due to buildup of fatty deposits (plaques) — may create a significant risk of stroke if blood flow is impaired in the carotid arteries that lead to your brain.

More than half the strokes in the United States are attributed to carotid artery disease. Typically, carotid artery disease develops slowly, often going unnoticed. A stroke or transient ischemic attack (TIA) — which can be an early warning sign of a future stroke — may be the first outward sign that there’s a problem. Once identified, the disease may be treated with a combination of changes in lifestyle, medications, and sometimes surgery or the placement of a small wire mesh coil (stent) that props open the artery to improve blood flow.

Flow matters

If you’ve ever felt your pulse on the side of your neck, you know where your carotid arteries are locat-
ed. These vital arteries run up both sides of your neck delivering much of the blood supply to your brain. Each carotid artery has two main branches — one branch supplies oxygen- and nutrient-rich blood to the brain, and the other supplies blood to the face, scalp, and neck.

As you age, your arteries become less elastic and more prone to damage. Additional factors that increase risk of carotid artery damage include smoking, high cholesterol, high triglycerides, high blood pressure, diabetes, and a family history of atherosclerosis. In addition, an inactive lifestyle and being overweight also increase risk.

Damage that occurs on the inner layers of the carotid arteries allows plaques to build up in a process called atherosclerosis. These changes result in narrowing of the artery and restricted blood flow to your brain. Most often, a blood clot may form in the same area if the buildup of plaques cracks open. This clot may close the artery or may travel to the brain and block a smaller artery.

If blood flow to the brain is interrupted, you may develop signs and symptoms such as:

- Sudden weakness, numbness or paralysis on one side of the body that affects the face, arm or leg
- Sudden blindness in one eye
- Slurred or garbled speech or difficulty understanding others
- Loss of balance, dizziness

Any of these signs and symptoms indicates a possible stroke and warrants immediate medical help. Even if the symptoms last only a short while, seek emergency care, as a temporary shortage of blood to the brain due to a TIA indicates you’re at high risk of having a full-blown stroke. Many people with carotid artery disease have one or more TIAs prior to stroke.

Your doctor may evaluate the health of your carotid arteries in several ways, including:

- **Listening to blood flow through the carotids** — In particular, your doctor will listen for a characteristic “swooshing” sound (bruit) that may occur if the artery is narrowed.

- **Conducting an ultrasound test** — This noninvasive test assesses blood flow and pressure in the carotid arteries.

- **Conducting detailed imaging tests** — If more information is needed, less invasive tests such as computerized tomography angiography (CTA) or magnetic resonance angiography (MRA) may be done to obtain detailed images of the arteries in your neck and brain. Both tests involve injecting contrast material into your bloodstream to clearly image the carotid arteries. In certain circumstances, a more invasive procedure may be used, in which the contrast dye is injected directly into the vessel being studied.

**Determining proper treatment**

Management of carotid artery disease depends on how narrow the arteries are as well as the presence of signs or symptoms such as TIA or stroke. Generally, if the blockage is mild to moderate — meaning less than 60 percent blockage and no symptoms or less than 50 percent blockage with some symptoms — then lifestyle changes and medications may be the best route to prevent a stroke, including:

- **Reducing stress on your arteries** — The goal is to slow progress of atherosclerosis, so think heart health. What’s good for your coronary arteries is good for your carotid arteries. That means exercising, stopping smoking, losing excess weight, cutting back on cholesterol and fat intake, eating a variety of fruits and vegetables, and limiting the sodium content of the foods you eat.

- **Managing chronic conditions** — Work closely with your doctor to manage any chronic conditions you may already have, such as high blood pressure (hypertension), diabetes or high cholesterol (hyperlipidemia).

- **Preventing clot formation** — In addition to medications you may take for chronic conditions, your doctor may want you to take a daily aspirin or another blood thinner to help prevent formation of a clot.

However, if TIA or stroke has already occurred — and especially if the carotid artery narrowing is more severe — then surgery or a stent placement may be needed to help treat the disease.

Carotid endarterectomy is the most common surgery for severe carotid artery disease. The procedure may be done under general or local anesthesia. It involves making an incision in the neck and then opening the affected carotid artery to remove the buildup of plaques. The artery is then stitched back together with a patch of synthetic material to prevent future blockage.
Carotid endarterectomy involves making an incision in the neck and then opening the affected carotid artery to remove the buildup of plaques. The artery is then stitched back together, either directly or by using a “patch” from a vein.

together, either directly or by using a “patch” from a vein to enlarge the repaired carotid artery.

Typically, you’ll stay in the hospital for one to two days after this procedure. In the hands of an experienced surgeon, risks associated with the procedure generally are low even for adults over 80 who are in otherwise good health.

But surgical removal of plaques from the carotids may not be the best option for everyone. Sometimes, it may be difficult to reach the blockage surgically due to its location. For some, certain conditions make surgery too risky — such as previous neck surgery or neck radiation, severe heart or lung disease, or kidney failure.

For those who can’t undergo surgery, a balloon procedure called carotid angioplasty and stent placement may be recommended. The procedure is done using local anesthesia. It involves threading a long, hollow tube (catheter) through the groin artery up into the narrowed carotid artery.

The area may be visualized using X-rays after a dye is injected into the carotid artery (cerebral angiogram). A tiny balloon is then inflated in the blocked artery to open the blockage (carotid angioplasty). A stent is then inserted to keep the artery open.

Sometimes, small portions of plaques (emboli) may break loose during the procedure. In order to prevent them from traveling to the brain vessels, a filter is placed above the blocked segment of the carotid. That filter is removed at the end of the procedure. Typically, you’re able to return home within 24 hours and resume normal activities.

At this stage, carotid endarterectomy is considered the procedure of choice in people who need immediate treatment to address carotid narrowing (stenosis) or blockage. Carotid angioplasty and stent placement is used for people who need immediate treatment but are considered to be at higher risk with the more conventional surgery.

There are large studies under way investigating whether stent placement might be safe to treat a larger percentage of people with carotid stenosis.

Health tips

Applying sunscreen

Anytime you head outdoors, protect yourself from the sun by wearing sunglasses or a broad-brimmed hat. Limit the time you spend in the sun between 10 a.m. and 4 p.m., and seek shade when possible.

If your skin is going to be exposed to the sun, correctly applying sunscreen is another way to help protect yourself. At a minimum, select a sunscreen that provides protection against both ultraviolet A (UVA) and ultraviolet B (UVB) light, with a sun protection factor (SPF) of at least 15. Getting maximum protection requires proper application, including:

■ Applying 30 minutes before heading outside — This gives the sunscreen a chance to be absorbed by the skin.

■ Using the right amount — One ounce of sunscreen, or about 2 tablespoons, is recommended for one complete covering of the legs, arms, neck and face.

■ Covering sun-exposed skin — Areas commonly overlooked include the backs of the legs, the feet and toes, and the ears, lips, neck and skin along your hairline. If you can’t find someone to put sunscreen on your back, wear a shirt.

■ Reapplying regularly — Sunscreen effectiveness fades after approximately two hours. Reapply even more frequently in high humidity or after sweating, rubbing your skin with a towel, swimming or showering, even if you’re using a water-resistant sunscreen.
Pelvic floor weakness

New options for support

For many women, pelvic floor problems begin with a feeling that something “down there” has fallen out of place. And that’s exactly what may be occurring.

The pelvic floor is a complex network of muscles and ligaments that create a supportive hammock of tissue that holds in place your uterus, bladder, rectum and vagina.

With aging, parts of the pelvic floor can stretch or weaken and one or more of the pelvic organs may sag (prolapse) from their normal position. Prolapse is like a hernia of the pelvic floor.

Once identified, milder pelvic floor weakness can sometimes be managed with exercises. However, surgery may be required to secure organs back in place.

What gives?

Pelvic floor prolapse may affect one or more pelvic organs. When the uterus sags part way or all the way down the vaginal canal, the condition is called uterine prolapse. Prolapse may also occur with the bladder (cystocele), rectum (rectocele) and small intestine (enterocele). These organs may bulge into the vaginal canal or even down farther and extend out beyond the vaginal opening.

Pelvic floor problems include:

- Discomfort, pressure or pulling in the pelvic area, groin or lower back when standing or when you lift or strain
- Incontinence of urine or stool with coughing or sneezing
- Difficulty emptying your bladder or moving your bowels
- Bulge of tissue at the vaginal opening

Selenium supplementation loses favor

A couple of years ago, it was thought that taking selenium supplements might offer some protection against prostate cancer. But late last year, an early halt to a carefully designed clinical trial finally took the shine off selenium.

The Selenium and Vitamin E Cancer Prevention Trial (SELECT) was stopped when it appeared selenium might be connected to a slight increase in diabetes, and vitamin E might be linked to a slight increase in prostate cancer. The findings appeared in the Jan. 9, 2009, issue of the Journal of the American Medical Association.

Previous studies had also linked selenium supplement use and high blood selenium levels to an increased risk of diabetes. In addition, recent population studies have suggested that increased selenium intake in populations that already are well supplied with this trace mineral could induce diabetes and possibly elevate blood cholesterol levels. Mayo experts advise against the use of selenium supplements unless specifically prescribed by your doctor for a deficiency or if your gut is unable to absorb nutrients properly.

Any alcohol consumption increases women's cancer risk

A recent study found that cancer risk may increase among women who drink even one alcoholic beverage a day. The findings appear in the March 4, 2009, issue of the Journal of the National Cancer Institute.

Data were drawn from the ongoing Million Women Study in the United Kingdom. Alcohol consumption and cancer risk were compared over a span of about seven years in more than 1.2 million women with an average age of about 55. Three-quarters of the women in the study reported drinking alcohol, and most of these women consumed on average one drink a day.

Compared with women consuming two drinks or less a week, women who consumed one alcoholic drink a day, be it wine, beer or hard liquor, had increased cancer risk of 1.5 percent overall, especially for cancers of the breast, liver, rectum, mouth, throat and esophagus. Among 1,000 women younger than 75, each additional daily drink of alcohol was linked to 15 additional cases of cancer. Breast cancer was the most common, representing 11 of the 15. The increased risk of head, neck and digestive cancers occurred only in those drinkers who were also smokers. But with increased drinking, there was a decrease in thyroid, non-Hodgkin’s lymphoma and renal cell cancers.

Mayo Clinic doctors say this study makes it difficult to say if there’s any safe minimal amount of alcohol in regard to cancer risk, although other studies have found that one drink a day may reduce a woman’s risk of heart disease death. It is clear that higher levels of alcohol intake — more than two drinks a day for women and more than three drinks a day for men — increases the risk of both heart disease and cancer. The benefits and risks of drinking should be considered on an individual basis with your doctor’s guidance.
**Improvement without surgery**

Most women can benefit from physical therapy that's designed to strengthen the pelvic floor muscles. For milder cases of pelvic floor weakness, you may be able to improve symptoms — or at least keep them from getting worse — and possibly delay or avoid the need for surgery. For women past menopause, using estrogen replacement applied to the vagina also may help.

Even women bound for surgery can benefit from physical therapy before surgery and after recovery. Exercises won't put a prolapsed organ back in place, but they may help improve symptoms and urinary or fecal incontinence.

Kegel exercises are the main way to strengthen pelvic floor muscles. These involve a daily routine of contracting the muscles that you’d use to stop the flow of urine.

However, many women who think they’re doing Kegel exercises correctly aren’t exercising the proper muscles. Your care provider or a physical therapist specializing in pelvic floor exercise can help you identify the proper muscles.

Also of help may be techniques such as biofeedback and electrical stimulation. A physical therapist can help come up with a plan to address your muscle weaknesses, which may include Kegel exercises or bladder or bowel training.

**Correcting with surgery**

For many women, surgery is an option if conservative therapy doesn’t resolve their symptoms. Surgery generally involves moving shifted organs back to their normal locations, and then tightening muscles and ligaments to hold the organs in place. Often, removal of the uterus (hysterectomy) is done to facilitate this goal. If urinary incontinence is an issue — or occurs after surgery — additional surgical repairs may be made for the leakage problem.

**Surgical mesh**

A surgical technique that has become more common in recent years involves the implantation of a surgical mesh fabric to help strengthen weak spots in the pelvic floor. This can be done through the abdomen or intravaginally through an incision in the vaginal wall.

It’s known that placing mesh through the abdominal approach carries a small risk of complications, such as the mesh eroding into the vagina, chronic pelvic pain, infection and pain with intercourse. In addition, the Food and Drug Administration recently issued a warning about similar complications that have occurred when the mesh is placed intravaginally. It’s too early to tell if the risk of complications is higher with intravaginal placement than with placement through the abdomen. However, based on clinical experience, Mayo experts believe the risk may be significant.

Mayo Clinic experts say mesh procedures can offer some advantages, but if a problem develops, it can be difficult to fix and additional problems may result from the repair. They recommend carefully comparing risks and benefits of a mesh procedure to those of non-mesh alternatives — and doing so with a surgeon experienced in using mesh.

There are many procedures to accomplish these goals, each with pros and cons. Choosing the best surgical procedure for you depends on the nature of your problem, the results you hope to achieve and the experience of your surgeon.

Some procedures are best done through open incisions in the abdomen, and others may best be done through the vagina. Some abdominal procedures may be done using minimally invasive techniques that involve inserting thin surgical instruments through several small incisions. Use of robotic procedures is becoming more common with certain abdominal procedures.

Minimally invasive procedures generally result in less pain and shorter hospital stays.

Correcting the problem may not always be necessary for women who aren’t sexually active or who don’t have symptoms. In women who aren’t candidates for surgery — or for those who want to avoid or delay surgery — a removable, intravaginal device called a pessary can be fitted so that it holds your pelvic organs in place.
Probiotics

The friendly bacteria

Infectious bacteria have long been viewed as the scourge of humanity. But that’s just one side of the story. Our digestive tracts are loaded with trillions of bacteria that aren’t harmful and are actually beneficial — or even crucial — to our health.

Probiotics are foods or dietary supplements that contain these types of beneficial bacteria or certain types of yeast. They’re consumed as a way to treat disease and improve or maintain health.

There’s a growing interest in the potential of probiotics. Evidence is accumulating in regard to certain gastrointestinal benefits, but other potential benefits suggested by initial research will require more evidence to prove or disprove.

Complex interaction

Probiotic supplements come in capsules, tablets and powders. Certain foods also may contain probiotics, including yogurt products such as Dannon’s Activia and Yoplait’s Yo-Plus, fermented milk products such as Dannon’s DanActive, and products containing kefir. Other foods that may contain probiotics include miso, tempeh, some juices and soy beverages. Some foods naturally contain probiotics, but to get the bacteria or yeast count up to a potentially therapeutic level, additional probiotics usually are added.

It’s suspected that probiotics work in a number of ways. Most importantly, they seem to change how the immune system reacts to an invading microorganism. Probiotics may compete with harmful bacteria or enhance the immune system.

At the same time, they may also help calm immune system overreaction in ways not fully understood. They may also be able to help reduce or maintain proper bacteria balance in your intestine, which can be upset by taking an antibiotic or by an invading microorganism.

The mechanism of action with any probiotic may depend in part on the type of probiotic used and its dose. Different bacteria or yeast strains may or may not be effective depending on the condition you wish to treat.

What can they do?

Diseases and conditions that may respond to probiotic therapy fall into three main categories, including those with:

- **Strong evidence of benefit** — Well-done studies suggest that probiotics are effective in treating and possibly preventing diarrhea, including diarrhea caused by antibiotics, traveler’s diarrhea and certain forms of infectious diarrhea. Several strains of lactobacillus and *Saccharomyces boulardii* appear to be most effective for this purpose.

- **Hints of possible benefit** — There’s strong evidence that probiotics can stimulate and enhance the immune system. However, research has yet to determine if this may lead to a real-world benefit. A few small studies have hinted that probiotics may have some effect in preventing vaginal and bladder infections, eliminating harmful bacteria from the nasal lining, and reducing tooth decay. In addition, a small study found that a group of workers who took a lactobacillus probiotic had fewer sick days than did workers who weren’t given the probiotic.

- **Hints of possible benefit** — Several small studies have shown that probiotics — mainly lactobacillus strains and VSL#3 — can help reduce symptoms of irritable bowel syndrome (IBS), particularly bloating and flatulence. Still other studies have shown no benefit. Mayo Clinic experts see this as an area of promise, but say more research is needed to determine if probiotics can play a role in IBS treatment.

Seek advice

Before you decide to try a probiotic, talk to your doctor about the relative effectiveness of using a probiotic for your condition. Your doctor may also be able to advise you on appropriate probiotic strains for your condition — and on how to find a reputable supplier of quality probiotic formulations.

So far, no harm has been proved from taking probiotic supplements, but they may cause some mild gastrointestinal upset when you start taking them. Avoid them if your immune system is severely impaired or if you have acute pancreatitis.

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The main strains

Probiotics mainly come from two groups of bacteria called lactobacillus and bifidobacterium. A common probiotic yeast group is *Saccharomyces*. Within these groups are numerous strains including *Lactobacillus acidophilus*, *Bifidobacterium bifidum* and *Saccharomyces boulardii*.

Although exact dosages of probiotics for various treatments have yet to be established, it’s generally thought that a daily dose of around 10 billion colony-forming units (CFUs) of lactobacillus and bifidobacterium strains are needed to provide significant benefit.

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Bone spurs

Sometimes, a source of pain

Medical news related to bone health often focuses on bone loss due to osteoporosis. But too much bone growth can cause problems, too.

Bone spurs (osteophytes) are bony projections that develop on the edges of bones. These bony growths may be smooth or sharp. Although bone spurs themselves aren't painful, they may cause pain if they rub against nearby bones, nerves or soft tissues, such as tendons and possibly ligaments.

Most bone spurs go undetected for years. For those that do cause pain, treatment depends on where they're located.

There's the rub

Bone spur formation is believed to be your body's attempt to repair itself. One line of thinking is that the body may create bone spurs to stabilize aging joints so as to protect tissues that are being damaged in overused joints.

Although most bone spurs don't cause any signs or symptoms, those that do may be responsible for joint pain or loss of joint mobility. Usually, these bony growths occur as a result of a disease or condition. The most common offender is osteoarthritis, in which gradual wear and tear over time breaks down the slippery tissue (cartilage) covering the ends of bones within joints.

Location, location

Bone spurs in the wrong places can be a constant aggravation and may cause other problems, in locations that include the:

- Shoulder — Your arm’s range of motion may be restricted by bone spurs in the shoulder. If they rub on the tendons that control shoulder movement — collectively called the rotator cuff — there can be swelling (tendinitis) and rotator cuff tears.
- Knee — Bone spurs here may interfere with the bones and tendons that otherwise allow your knee to move smoothly, making it painful to extend or bend your leg.
- Spine — If bone spurs push on nerves or the spinal cord, you may experience pain, numbness or weakness in areas of the body served by those nerves.
- Neck — Cervical spine bone spurs occasionally interfere with swallowing or make it painful to breathe. If they push against key blood vessels, they may restrict blood flow to your brain.
- Fingers — Bone spurs may show up as hard lumps under the skin and may cause intermittent pain.

If necessary, treatment

There's no single treatment for bone spurs. A spur is likely a sign of an underlying disease process or condition. For those that develop as part of an underlying medical problem — such as osteoarthritis — treatment is typically directed at the disorder, rather than simply removing the bone spur.

Some of the other diseases and conditions in which bone spurs occur or may play a role are:

- Plantar fasciitis — Chronic irritation or inflammation of the long ligament on the bottom of the foot (plantar fascia) can sometimes set you up for bone spur formation where the ligament connects to your heel bone. Plantar fasciitis pain isn’t usually caused by the heel spur, and removal in many cases won’t relieve the pain.
- Spinal stenosis — Bone spurs can contribute to a narrowing of the bones that make up your spine (spinal stenosis) with the result being pressure on the spinal cord.
- Spondylitis — This involves the wear-and-tear changes of bones in the neck (cervical spondylitis) or lower back (lumbar spondylitis) due to osteoarthritis and the bone spurs that result from osteoarthritis.
- Diffuse idiopathic skeletal hyperostosis (DISH) — With this condition, bony growths form on the spine’s ligaments.

If bone spurs are thought to be involved in joint pain, joint locking or narrowing of critical areas adjacent to the joint, imaging tests — such as X-ray, computerized tomography (CT) or magnetic resonance imaging (MRI) — may be done to help your doctor determine if surgery is needed.

In the case of osteoarthritis, surgery is rarely done for the sole purpose of removing osteophytes, as the removal of osteophytes alone doesn’t provide long-lasting pain relief. Often, bone spurs are removed as part of a more comprehensive surgery for arthritis, such as during a joint replacement.

Depending on the location, extent of the problem and underlying condition, the surgical procedure may be done with an open incision that exposes the joint.

Spur removal also can be done arthroscopically, meaning through several smaller incisions that accommodate a camera and specialized surgical tools.
Second opinion

Questions and our answers

Q: Is it possible to get injured doing yoga?

A: In its gentler forms, yoga is generally a safe and effective way for reasonably healthy adults to improve flexibility, strength and balance — and to alleviate stress and anxiety.

However, injuries during yoga do happen. Some yoga positions put an increased level of strain and stress on muscles, ligaments, bones and joints. Sometimes, it can be too much. Injuries range from the mild — such as strains and repetitive use injuries — to the serious, such as muscle or tendon tears, herniated disks or even bone fractures.

People with prior injuries or musculoskeletal problems — such as arthritis, back pain, previous spine surgery, carpal tunnel syndrome, hip replacement or osteoporosis — are at particular risk of injury. Talk to your doctor and yoga instructor about how to avoid putting undue strain on any problem areas and avoid poses or positions that are painful to hold or cause pain in a specific joint or muscle. As long as you stay within your limits, gentle yoga may actually be beneficial for many with these conditions.

In addition, injuries also commonly occur when people:

■ Don’t spend five to 10 minutes warming up muscles before beginning a yoga session

■ Attempt a position or stretch that’s painful — or push a stretch farther despite pain

■ Receive instruction from an unqualified instructor or an instructor that encourages students to push themselves despite pain

■ Perform more intense forms of yoga, such as power yoga or Bikram yoga, which is practiced in a hot, humid room

Taking precautions to avoid these pitfalls is likely to reduce your risk of an injury. Remember, yoga isn’t meant to be a competition. Ideally, practicing yoga is as much about controlled breathing, relaxation and stress relief as it is about physical exercise.

Q: Can you recommend any hiccup cures?

A: Yes, but for short-lived bouts of hiccups, they’re probably the ones your mother told you about.

Hiccups are involuntary contractions of the diaphragm that affect almost everyone from time to time. Often, there’s no obvious cause, but common hiccup triggers include eating a large meal or hot and spicy foods, drinking carbonated beverages, sudden excitement, or a sudden temperature change.

Most cases of hiccups go away on their own after a few minutes. There’s no surefire way to make them go away quicker, but the following home remedies may help:

■ Swallowing a teaspoon of sugar

■ Breathing into a paper bag

■ Drinking a cold glass of water

■ Holding your breath for a count of 10

■ Pulling your knees to your chest

■ Pulling your tongue

■ Rubbing the roof of your mouth with your finger

In rare cases, hiccups may last for days or weeks. This may be a side effect of a drug or abdominal surgery — or a sign of an underlying problem. If your hiccups last more than two days, contact your doctor. Correcting an underlying problem may cause them to stop. Drugs or other techniques may be used for persistent cases.

“Perhaps one is justified in saying that there is no disease which has had more forms of treatments and fewer results from treatment than has persistent hiccup.”

— Charles W. Mayo, 1932

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:

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