Maintaining balance requires a finely tuned system working together. To maintain balance, your brain must coordinate sensory information sent to it from different locations.
ordinate sensory information sent to it from different locations. Your eyes process visual signals that help determine where your body is relative to your surroundings. Sensory nerves in your skin, muscles and joints relay neural impulses to your brain about your movements.

Your inner ear sends signals to the brain for the perception of how you are moving in space and also helps control eye movements so that what you’re looking at remains in focus while your head is in motion.

Balance also depends on other systems in your body. Your heart must consistently and effectively pump sufficient blood up to your brain. Your blood vessels must adjust to maintain a relatively constant blood pressure. And, you must have an adequate volume of blood circulating throughout your body. Conversely, cardiovascular changes, such as irregular heartbeats (arrhythmia), inappropriately dilated blood vessels or reduced blood volume, can challenge your sense of balance.

Symptoms of a departure from normal — meaning any recurrent, sudden, severe attacks or prolonged episodes of dizziness, faintness, lightheadedness or vertigo — can signal an underlying disorder and warrant a visit to your doctor. In some instances, additional symptoms point to the need for more immediate care.

Out of balance
Sometimes, symptoms that set you off balance are a direct result of a disorder affecting structures in your inner ear or other aspects of your vestibular system.

Vertigo — another type of dizziness
Vertigo is the false sensation that you or your surroundings are moving. Usually the movement is perceived as spinning or wheeling about, and some may feel pulled to one side.

Vertigo is made worse by moving your head. In large part, that’s because your primary organ of balance — the vestibular labyrinth — is in your inner ear. The labyrinth consists of three fluid-filled loops (semicircular canals). At the base of each are tiny embedded hairs (cilia) that detect and monitor angular head rotation. These canals are connected to a two-chambered structure called the vestibule. Both chambers contain a patch of sensory hair cells and tiny particles (otoconia) that help you detect gravity and straight-line motion.

The most common cause of vertigo is benign paroxysmal positional vertigo (BPPV). This occurs when otoconia particles break loose and wind up in one of the semicircular canals. The cause is often unclear. Certain movements — such as rolling over in bed or bending forward — can set the dislocated particles in motion. This disturbs the inner ear fluid and bends hair cells, setting off brief, intermittent episodes of vertigo.

BPPV generally can be treated in your doctor’s office. Treatment involves specific maneuvers to position the head so that the otoconia are directed out of the semicircular canal and back to the two-chambered vestibule. You may be taught how to perform the movements on your own in case vertigo returns.

Other inner ear problems can produce longer lasting and more intense vertigo than BPPV. Some of these include:

- **Infection of the vestibular nerve (vestibular neuritis)** — This can cause sudden vertigo, nausea, vomiting and involuntary jerking eye movement lasting from several days to weeks and gradually improving. It often develops after a cold or other upper respiratory infection. It doesn’t cause hearing loss.

- **Inflammation of the inner ear (labyrinthitis)** — This may occur in the wake of a bacterial ear infection or a viral upper respiratory illness. It’s marked by sudden, intense vertigo that may last for days, nausea and vomiting, hearing loss, and tinnitus. Antibiotics, steroids or antivirals may be prescribed along with anti-nausea drugs.

- **Meniere’s disease** — Meniere’s is marked by sudden vertigo attacks lasting 20 minutes to no longer than 24 hours that can cause nausea or vomiting. It’s associated with hearing loss, a ringing or roaring sensation (tinnitus), and the feeling of a plugged ear. Attacks may occur daily or as infrequently as once a year. Treatment may include a low-salt diet and use of diuretics. If conservative measures don’t help, more-aggressive measures may be taken. These include inner ear surgery or injection of an antibiotic into the ear to damage the vestibular labyrinth in order to stop the spells.
system. But there can be other causes — and sometimes several occurring at one time — such as:

- **Low blood pressure (postural or orthostatic hypotension)** — You may feel lightheaded or faint when you sit or stand too quickly.
- **Poor blood circulation** — Blocked arteries or heartbeats that are too fast, too slow or irregular may result in poor circulation. You may feel lightheaded if there’s inadequate blood flow to your brain. Vertigo can result from poor blood flow to the inner ear.
- **Multiple sensory deficits** — Examples include failing vision, nerve damage (neuropathy) in your arms and legs, osteoarthritis, and muscle weakness. Any of these can contribute to a feeling of unsteadiness.
- **Anxiety disorders** — Panic attacks or fear of open spaces (agoraphobia) can make you feel spaced-out or light-headed. Abnormally rapid breathing (hyperventilation) often accompanies anxiety disorders, contributing to the feeling of lightheadedness.
- **Migraines** — Whether they include head pain or not, migraine events are a common cause of dizziness.
- **Central nervous system disorders** — These include multiple sclerosis and tumors.
- **Certain medications** — Several types of medications may cause dizziness, especially in older adults. These include some varieties of antidepressants, antiseizure drugs, drugs to control high blood pressure, sedatives and tranquilizers. In addition, sudden withdrawal from certain antidepressants — selective serotonin reuptake inhibitors (SSRIs), such as paroxetine (Paxil, others), sertraline (Zoloft, others) and fluoxetine (Prozac, others) — can cause dizziness.

**Getting back in balance**

In diagnosing the problem, your doctor may suggest a series of tests to determine if your symptoms stem from inner ear problems or other health concerns that need to be treated or managed differently.

Identifying what’s causing dizziness is often a process of elimination. Along with a physical and neurological exam, you may have hearing and balance tests. Your eyes may be checked to look for any involuntary jerking movement (nystagmus) that’s associated with vertigo and some other causes of dizziness. The Dix-Hallpike test may be done. In this test, your doctor carefully turns your head in different positions while watching your eye movements to determine if you have a false sense of motion or spinning. Blood tests may be done to check for infection.

Older adults are more likely to have heart or cerebrovascular disorders that contribute to dizziness. Cardiovascular tests may be done to check heart and blood vessel health. Magnetic resonance imaging (MRI) can reveal abnormalities that may affect brain structures. Computerized tomography (CT) may be done to check for bone fractures or other skull abnormalities.

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**When to seek emergency care**

Although it’s uncommon for dizziness or vertigo to signal a serious condition, it’s important to see a doctor immediately if you experience dizziness or vertigo along with any of the following:

- A new, different or severe headache
- Blurred or double vision
- Hearing loss
- Impaired speech
- Leg or arm weakness
- Loss of consciousness
- Falling or difficulty with walking
- Numbness or tingling
- Chest pain or rapid or slow heart rate

Any of these signs and symptoms may signal a more serious problem, such as a stroke, a brain tumor or heart disease.

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**Health tips**

**Care for your hair**

Hair damage occurs when the protective fat (lipid) layer that makes hair shiny and pliable is destroyed. To keep hair healthy, avoid damage from:

- **Chemical products** — Frequent coloring, relaxing or permanents can damage your hair. A natural color and style involving minimal chemicals is optimal. Short of that, try to space colorings as far apart as possible. Avoid care involving coloring and a permanent or relaxer at the same sitting.
- **Heat** — Too much heat can damage hair. Letting hair air dry or going with your natural level of curliness is best. Short of that, use a hair dryer or curling iron on a low setting. With hair straighteners, place a moist cloth over the hot plates of the device so that they don’t directly touch the hair.
- **Rough handling** — Straight, wavy or loosely curly hair breaks more easily when wet. Be gentle when towel-drying. Let hair become mostly dry before gently combing it with a wide-toothed comb. For those of African descent with tightly curled hair, combing hair while damp is preferred. Only comb as little as needed to style your hair.
- **Tight hairstyles** — Avoid prolonged wearing of hairstyles such as ponytails, cornrows or braids.
- **Improper shampooing** — Massage shampoo into your scalp with your fingertips and rinse it away. After shampooing, use a conditioner on your hair if your hair tends to be dry or tangle easily.
- **The elements** — Protect your hair from the sun’s ultraviolet radiation by wearing a hat.

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Placebo effect

Enhancing healing

Most people associate placebos — inactive medical treatments — with medical research. The placebo effect is a person’s belief that a treatment — whether it’s a sugar pill, an injection, surgery, a device or some type of alternative therapy — is working just as well as the presumed active therapy being studied.

The placebo effect routinely upends long-standing beliefs about what works. Well-intentioned medical advances, when compared with placebo treatments, often turn out to derive most of their benefit from positive expectations, rather than the therapy itself.

Not surprisingly, doctors and researchers are fascinated by these healing qualities of expectation and belief. Researchers have been working to better understand the placebo effect, in terms of how it works and how it can be harnessed to improve therapies.

A better understanding

The healing benefit from the placebo effect can be divided into two main components:

- **Spontaneous healing** — No matter what drug or placebo you take or don’t take, the body often heals — or at least gets better — over time without any treatment. The odds of spontaneous healing or improvement are particularly high when you are at a peak of illness severity or discomfort, as those symptoms are likely to return to a less extreme level after that peak.

- **The true placebo effect** — This is the effect that can’t be accounted for by normal healing. The true placebo effect is partly attributed to expectations, belief and intent that a therapy will work, which is intertwined with the context of how care or therapy is delivered.

For example, people who receive a placebo pill or other placebo therapy in an experiment are aware that they are involved in an experiment. In

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News and our views

Exercise and physical activity may improve cancer survival

Being physically active is one of the best things you can do for good health. A growing body of research suggests that the health benefits of exercise extend to survivors of colon, breast and prostate cancers, and possibly other cancers as well. Exercise seems to not only reduce a survivor’s chance of developing problems such as heart disease, but also reduces the chances of dying of cancer.

One 2011 study looked at 4,643 postmenopausal women who had been diagnosed with invasive breast cancer. Over eight years, women who exercised the equivalent of three hours a week of brisk walking had a 46 percent reduced risk of death of any cause and a 39 percent reduced risk of death caused by breast cancer.

The benefit of exercise was seen regardless of the stage of breast cancer at diagnosis, and it occurred even in women who were inactive before their diagnoses and became more active afterward.

A 2013 review of research on the impact of exercise on colon cancer showed that after colon cancer diagnosis even small amounts of weekly brisk walking reduced the risk of death from colon cancer by about 25 percent over the span of several years. Other research has indicated that higher amounts of exercise — such as three or more hours of walking a week — may reduce the risk of death from colon cancer by an even greater margin.

According to a 2011 study of 2,705 men diagnosed with prostate cancer, it took seven or more hours a week of nonvigorous walking — meaning walking slower than 3 miles per hour — to make a modest dent in risk of death from prostate cancer over 10 years.

However, more vigorous exercise — such as faster walking, heavy yardwork, racket sports, running or fast bicycling — lowered the risk of dying of prostate cancer by about a quarter in those who exercised less than seven hours a week and by more than half in those who exercised seven or more hours a week.

Mayo Clinic cancer experts generally agree that regular exercise is important for cancer survivors, just as it is for the general population. Even if exercise had no effect on risk of death due to cancer recurrence, it would still improve many other conditions — from heart disease and diabetes to depression — that impact health and longevity whether or not you’ve had cancer.

However, there are a few gray areas. For example, not enough research has been completed to find out whether there’s an association between exercise and improved life span for people with various other cancers. Further, exercise may be very difficult or not recommended for those undergoing arduous therapy or those who have other serious health problems.

Still, for just about anyone diagnosed with cancer, it’s worth talking to your doctor about how you might become more active to potentially take advantage of the benefits that exercise and physical activity offer.
addition to medical routines — such as an evaluation before the experiment, signing paperwork, talking with the doctor, going into an operating room — there’s the belief that they might receive the pill with active ingredients or the actual therapy. Therefore, it’s the entire context of the experiment and the meaning that it imparts that leads to the placebo effect.

The placebo effect isn’t limited to experiments and doesn’t have to involve false therapy. In fact, it’s likely to occur to some degree just about anytime you seek healing in a setting that creates an expectation of improvement.

The placebo effect isn’t separate from — or in conflict with — true, active therapies that have been proved to work. In many cases, effective drugs, injections and surgeries can attribute a major portion of their effects to spontaneous healing and the placebo effect. Therefore, optimal therapy isn’t about avoiding the placebo effect. It’s about utilizing the effect that context and meaning may add to healing, including healing aided by proven and perhaps vitally important medical interventions.

The effect

The placebo effect can vary from having no effect to a 100 percent effect, even in the same condition. The variation is due to the wide variety of elements that can potentially contribute to the placebo effect, including:

- **Preset beliefs and expectations** — The color or size of a pill, a label, the name of the pill, your cultural beliefs, and many other conscious or subconscious factors can have an impact on the effectiveness of therapy. In short, the more you believe or expect a therapy to help — and follow through with that therapy — the more the benefit of the therapy is likely to be magnified.

- **Context of delivery** — The setting in which you receive therapy — windows in the room versus no windows, the hospital versus home — the words and tone your doctor uses, and whether your doctor touches you or leaves you with a positive or negative feeling have effects on your response to treatment. Devices used as a component of diagnosis or therapy — such as lights, lasers or needles — seem to ratchet up the placebo response, with surgery often causing a very strong effect.

- **Biological mechanisms involved** — Research is uncovering biological mechanisms that produce the placebo effect. These center around the way your emotional state and thinking impact your pain and immune systems and the rise and fall of various chemicals within the body. These include stress-related chemicals and natural pain-killing substances, such as the neurotransmitter and chemical messenger dopamine. Conditions related to the biological aspects that are strongly linked to belief and stress — such as allergies, insomnia, fatigue and pain triggers — tend to be conditions that respond the best to the placebo effect.

Putting it to work

Healers have always relied on the placebo effect to a certain extent. The basic steps of modern medicine — going to a doctor’s office and having a doctor look in your ears, talk to you, and offer a diagnosis and reassurance — are all steps that can improve healing independent of the treatment that’s prescribed. As doctors learn more from research on harnessing the placebo effect, more-deliberate attempts at harnessing its power in an honest and ethical way may emerge.

Research has yet to fully understand how people in need of healing can harness the placebo effect to help themselves. However, several factors appear to be important, including:

- **Believing you can get better** — Work to maintain optimism that medical therapies can help improve your situation. Match that belief with actions, such as following through with therapy recommendations, focusing on healthy eating, attempting to stay physically active, cultivating social connections, and taking time for relaxation and stress reduction.

- **Building relationships** — A good relationship with your doctor is important. It’s important that you trust and have confidence in your doctor. Healthy relationships with friends and loved ones can help provide support and motivation during a tough time, and also help give you a sense of purpose as you support them in return.

- **Being open to alternative therapies** — Acupuncture, massage, spinal manipulation, meditation training or hypnosis are all ways of obtaining hands-on care that may be different from those available at your doctor’s office. Ask your doctor for recommendations of qualified practitioners of accepted therapies to avoid useless — or even toxic — therapies.

The nocebo effect

Just as positive expectations can lead to healing, negative expectations may slow healing or even cause sickness or side effects. This is called the nocebo effect.

Research on the nocebo effect isn’t common because it often involves tricking people. Still, studies have shown that information from a source perceived as credible that leads people to believe that pain, illness or harm will occur often can cause those outcomes.

For example, verbal information that pain will likely increase or that a pain medication is being irritating can increase pain levels, even when nothing is done to increase pain or a pain medication isn’t reduced.

In one older study, asthma attacks were induced in people with an inhaler said to contain an irritant. The attacks were resolved when the participants used an inhaler said to contain asthma medication. However, all the inhalers contained the same substance — a harmless salt solution.
Zenker’s diverticulum

A pouch in the throat

Your doctor said that the pouch that has developed at the back of your throat — called Zenker’s diverticulum — would likely require a surgical procedure to fix. You expressed your worry about having to go through surgery at your age. However, your doctor said that the problem likely can be fixed without making an incision in the neck.

Zenker’s diverticulum often makes it progressively more difficult to swallow, and may cause other problems. It’s treated by eliminating the pouch with surgery that can usually be performed with instruments that are inserted into the throat.

Hard to swallow

Zenker’s diverticulum is a fairly rare problem in the overall population, but when it develops, it most commonly occurs in men older than 70. The development of Zenker’s diverticulum is thought to begin when the swallowing reflex becomes uncoordinated due to the inability of certain muscles to fully open at the appropriate time. This is usually due to various age-related changes. This swallowing difficulty increases pressure within the esophagus, potentially causing it to gradually balloon out at a weak point.

Intermittent difficulty swallowing may be noticed early on in the development of Zenker’s diverticulum. Over months or years, the pouch grows, becoming an increasingly larger trap for swallowed food particles, mucus and even pills. As the pouch fills, you may notice continued difficulty swallowing, throat irritation, bad breath or a gurgling noise at the back of the throat.

When the pouch becomes large enough, it may spill its contents into the throat hours after eating — especially when lying down — causing coughing and spitting up of food. Pouch contents may sometimes be inhaled into the lungs, causing a lung infection called aspiration pneumonia. In extreme cases, swallowing and eating becomes very difficult, causing weight loss and malnutrition.

If Zenker’s diverticulum is suspected, a diagnosis is usually confirmed with an X-ray of the throat area after you swallow a contrast material.

Surgical treatment

Treatment of Zenker’s diverticulum typically isn’t necessary until it becomes troublesome. When it does, surgical options may include:

- **Endoscopy** — This type of surgery is performed using instruments that are inserted into the throat. The most common form of endoscopy involves inserting a rigid tube into the throat, through which a lighted scope and surgical instruments can be passed. This requires general anesthesia.

  The procedure involves cutting with a laser or stapling through the wall of tissue that divides the diverticular pouch from the esophagus. This opens up the pouch to the inside of the throat, and essentially this turns the Zenker’s diverticulum into part of the esophagus. Cutting the tissue barrier involves cutting the muscle that likely led to the increased swallowing pressure and contributed to the development of your diverticulum in the first place.

  The surgery results in improvement of symptoms in about 90 percent of cases, typically with a complication rate of about eight percent. In those who don’t experience an improvement in symptoms or in those whose symptoms recur, a second procedure can be performed to further open up the diverticulum.

- **Open surgery** — For most older adults, surgically fixing Zenker’s diverticulum through an incision in the neck isn’t the first choice due to higher rates of complications. However, it’s an important option in select circumstances, such as with diverticula that are smaller or when some factor prevents an endoscopic approach.

Surgical treatment of Zenker’s diverticulum involves turning the Zenker’s diverticulum into part of the esophagus.
Rectal cancer

Early treatment is key

Ninety percent of cancers involving the colon are diagnosed in adults 50 and older. Of the estimated 143,000 colon cancers diagnosed in 2013, more than 40,000 occurred in the last several inches of the colon (rectum).

The primary treatment for rectal cancer is surgery and — depending on how advanced the cancer is — may also include radiation therapy and chemotherapy. But if rectal cancer is caught early, the long-term survival rate is about 85 to 90 percent. Those numbers decline sharply if rectal cancer has spread to adjacent lymph nodes.

Not to be ignored

Most rectal cancers begin as small, noncancerous (benign) growths of cells called polyps. Removing polyps before they become cancerous can prevent rectal cancer. That’s why timely colon cancer screening with a colonoscopy is important. Guidelines generally recommend screenings begin at age 50. Your doctor may recommend more-frequent or earlier colon cancer screening if you have other risk factors, such as a family history of colorectal cancer.

Many people with rectal cancer experience no signs and symptoms in early stages of the disease. Signs and symptoms in later stages may include:

- Rectal bleeding, often bright red
- Altered bowel habits
- Abdominal discomfort
- Rectal pain
- Persistent urges to have a bowel movement
- A sensation of fullness along with painful ineffective straining to pass stool

Any first episode of rectal bleeding should be evaluated to determine the cause. Although each of the above may be caused by other medical conditions, make an appointment with your doctor to have any concerns checked and treated as early as possible.

Making a diagnosis

If rectal cancer is suspected, your doctor may perform a digital rectal exam. To do this, your doctor will insert a lubricated, gloved finger into the lower part of your rectum to check for anything that feels unusual.

Other tests done to confirm the diagnosis and determine how advanced the cancer is — its stage — may include:

- Colonoscopy — The entire colon and rectum is viewed, and polyps or tissue samples may be removed (biopsied).
- Computerized tomography (CT) scan — A CT scan of the abdomen and pelvis can identify whether the cancer has spread (metastasized).
- Chest X-ray or CT — This is done to check for metastases to the lungs.
- Endoscopic ultrasonography or magnetic resonance imaging (MRI) — These tests help determine how deeply the cancer has penetrated the rectal wall and whether lymph nodes are involved. Occasionally, lymph nodes are biopsied through the endoscope.

Tailored treatment

Many factors influence the direction of a treatment plan. If the tumor hasn’t moved through the rectal wall and lymph nodes haven’t been affected, the cancer is considered to be very early (stage I). A tumor that has invaded through the wall of the rectum, but not spread to lymph nodes is stage II. If nearby lymph nodes are involved, it’s stage III. Cancer that has metastasized to other areas is stage IV.

Surgery is the most common treatment for all stages of rectal cancer. The type of surgery is determined by the tumor’s location and whether the muscle rings at the end of the rectum (anal sphincters) — which normally control release of stool — are involved.

For cancer that’s grown into or through your rectum, your surgeon may recommend removing (resecting) the part of the rectum with cancer along with a margin of healthy rectal tissue near the cancer. Nearby lymph nodes are removed and checked for cancer.

When possible, healthy remaining portions of the rectum and colon are reconnected. If that reconnection isn’t possible, then creating a permanent opening (stoma) from a portion of the remaining bowel through the wall of the abdomen may be necessary. This allows waste to pass out of the body into an external appliance (colostomy).

In addition to surgery, locally advanced rectal cancer generally is treated with radiation and chemotherapy. Chemotherapy and radiation generally are used when the cancer has spread to nearby lymph nodes or has clearly grown through the wall of the rectum.

If cancer has not spread to other areas of the body, chemotherapy and radiation therapy typically are done before surgery to shrink the tumor and improve the ability to completely resect it. Combined chemotherapy and radiation therapy generally is recommended before surgery for stage II and III rectal cancers, with more chemotherapy after surgery.

Given the seriousness of advanced rectal cancer, it’s important to see your doctor at the first sign or symptom.
Q My index finger is stiff, gets stuck and makes a clicking sound when it moves. My doctor told me I have trigger finger and to rest it for a few weeks to see if it improved. However, I kept working in my workshop and it hasn’t gotten better. Are there any other treatment options?

A Yes there are, but resting the hand with trigger finger for a couple of weeks or more is a component of just about all of them.

Normally, when you move your finger or thumb, tendons in the finger glide smoothly within a protective sheath. Injury or overuse — such as with high-repetition hand tasks, sustained gripping or gripping of vibrating tools — can cause the tendons to become irritated and inflamed. Infection, rheumatoid arthritis and diabetes also can cause or contribute to tendon inflammation. The tendon or its sheath may also thicken and nodules may form, making passage of the tendon through the sheath difficult. You may have pain under your knuckles.

At first, an affected finger may seem stiff, get stuck (locked) and may make a clicking sound when it moves. You may be able to feel a nodule in your palm at the base of the finger.

Eventually, the finger may start to catch when you try to straighten it. That’s the nodule getting caught on the sheath, and you may hear a “pop” as the nodule gets past the tight area and the finger suddenly straightens. The snapping can become increasingly painful, and the finger can become locked in the flexed position.

As your doctor said, resting the hand is the initial treatment step for mild trigger finger. This may include splinting or buddy taping the troublesome finger to the one next to it in an extended position for up to six weeks.

It can also help to modify your use of the hand — such as stopping an irritating activity or making things easier to grip. Warm water soaks also may prove helpful.

For persistent or advanced trigger finger, a corticosteroid injection can help control swelling and pain. A single injection resolves the problem in about 50 percent of people with trigger finger, although people with diabetes are less likely to have permanent relief. A second injection may be considered if the first isn’t fully effective. Injections are used more cautiously if you have rheumatoid arthritis, as multiple injections may increase risk of tendon rupture.

Even with an injection, avoiding potentially aggravating hand activity for several weeks is usually recommended. When injections aren’t effective, an outpatient surgical procedure to release the tendon from the sheath may be required for relief.

Injury or overuse can cause tendons in a finger to become irritated and inflamed. The tendon or its sheath may thicken and nodules may form, making passage of the tendon through the sheath difficult.