Chronic kidney disease

Early detection improves outcome

To many people, chronic kidney disease — or chronic kidney failure, as it's sometimes known — sounds bad. It may conjure up thoughts of dialysis and kidney transplants.

But the truth is, chronic kidney disease (CKD) spans many different stages. It’s only at the final stage — end-stage kidney disease — that intensive treatment, such as dialysis or a transplant, is necessary.

In its initial stages, CKD doesn’t really cause any symptoms. Your kidneys — some of the most industrious organs in your body with plenty of work capacity — are able to function despite increasing damage.

Consequently, CKD often goes unnoticed initially. But it’s precisely at this phase that early detection and treatment can change the course of the disease. By taking appropriate steps, you can protect your kidneys from further damage and prevent the disease from worsening to the point of kidney failure.

Your kidneys

Your kidneys are two fist-sized organs just under your rib cage, one on each side of your spine. One of their Within the kidney, blood passes through tiny filtering units called nephrons. There are about a million nephrons in each kidney. Each nephron consists of a tuft of small blood vessels (glomerulus) and attached small tubes (tubules).
biggest jobs is to remove excess fluid and waste material from your blood.

Every day, your kidneys filter between 30 and 50 gallons of blood. Blood enters each kidney from its renal artery, which branches off the aorta, the body’s main artery.

Within the kidney, blood passes through tiny filtering units called nephrons. There are about a million nephrons in each kidney. Each nephron consists of a tuft of small blood vessels (glomerulus) and attached small tubes (renal tubules).

Out of the gallons of blood that flow through the kidneys each day, about 1 to 2 quarts of unneeded fluids, excess salts and waste products — such as urea, creatinine and uric acid — are extracted, drained into your bladder and excreted as urine. The filtered blood leaves the kidneys containing just the right amounts of salts, protein, sugar, calcium and other substances vital to maintaining body function. This blood travels through the renal veins and back to the heart to recirculate through the body.

In addition to filtering your blood, kidneys produce hormones that help regulate your blood pressure, make red blood cells and strengthen your bones.

Most of the time this complex process is performed flawlessly. Sometimes, though, problems occur that impair the kidneys’ ability to do their job. This may happen suddenly (acute kidney failure), such as with severe dehydration or a blood vessel obstruction. But more often, the impairment occurs over many years as a result of the slow and silent destruction of the kidneys’ nephrons. This is referred to as chronic kidney disease.

What’s causing the damage?

Although some kidney filtration efficiency is lost with age, this generally isn’t a problem because of the extra work capacity your kidneys have. The biggest causes of extended nephron damage are diabetes and high blood pressure. These two conditions, when untreated or uncontrolled, cause almost two-thirds of adult cases of CKD in the United States.

Whether you have type 1 or type 2 diabetes, continually high blood sugar can harm blood vessels in your body, including the ones in your kidneys. The kidneys’ filters (glomeruli), can become thickened and stiff, making it difficult for your kidneys to function properly.

High blood pressure, especially when uncontrolled, can injure blood vessels as well. Not only can high blood pressure contribute to kidney damage, but diminished kidney function can make high blood pressure worse.

Many people with CKD have both diabetes and high blood pressure. Some have what is known as metabolic syndrome — a combination of high blood pressure, high blood sugar, excess belly fat and abnormal cholesterol levels.

Diseases that inflame, block or infect the kidneys — such as glomerulonephritis, autoimmune diseases, prolonged obstruction of the urinary tract or recurrent kidney infections — can also cause extensive damage. Polycystic kidney disease, a condition where fluid-filled cysts form throughout the kidneys, is a common inherited cause of CKD.

Early detection

If you have a personal or family history of diabetes, high blood pressure or kidney disease, it’s important to have your kidney function checked regularly. Some doctors also recommend checking kidney function if you smoke, are obese, have a family history of sickle cell disease, take medications that might affect your kidneys or are older than 60.

Screening for CKD is typically done with two simple tests:

- Urine test — With a urine test, your doctor is looking for elements in the urine that signify damage. Such elements as blood cells, bacteria, protein or crystals may signify specific ongoing injury patterns. Additionally, an inexpensive simple test called urine microalbumin can detect ongoing damage to the kidney’s glomeruli. An abnormal level of albumin in urine is a sign that your kidneys aren’t filtering properly.
- Blood test — A blood test is done to check levels of creatinine, one of the waste products your kidneys normally remove from your blood. Creatinine results are used in a formula along with other variables — such as age, sex and ethnicity — to estimate the glomerular filtration rate (GFR), or how efficiently your kidneys are filtering waste. Declining GFR is an indication of worsening kidney function.

These tests can be used to monitor your kidney health over time and to determine how treatment is working. In some cases — such as if you have polycystic kidney disease — your doctor may also use an ultrasound test to help with a diagnosis.
Chronic kidney disease is generally divided into stages 1 through 5 to indicate its severity — 1 being the earliest stage when kidney function is still normal, and 5 being end-stage kidney failure. Most people with CKD are at stage 3, with moderately reduced kidney function.

Protecting your kidneys

The first step in managing CKD and preventing kidney failure is to address any underlying causes that might be damaging your kidneys.

Obstruction of urine flow, damage caused by medications or a clogged artery leading to the kidney can often be stopped, cured or fairly well controlled. Drugs to treat CKD complications such as anemia, swelling and weakened bones also may be necessary.

While a kidney transplant isn’t a cure for CKD, it can help you feel better. And there’s much you can do to protect and preserve the function of your kidneys before a transplant becomes necessary.

To maintain and promote the health of your kidneys:

- **Control blood pressure** — This is the most important factor in managing all types of CKD. Some people may not have high blood pressure in the earliest stages of CKD, but their blood pressure eventually will rise.

  Your doctor may recommend medications to help you reach your blood pressure goal — generally 140/90 millimeters of mercury (mm Hg), or lower. Two of the most common and effective classes of drugs prescribed to treat high blood pressure related to CKD are angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs).

  Protecting your heart and blood vessels protects your kidneys and vice versa. Chronic kidney disease is a major risk factor for cardiovascular disease. For older adults with CKD, the risk of dying of heart problems is greater than the risk of eventually requiring dialysis.

- **Control blood sugar** — If you have diabetes, tightly controlling your blood sugar may help prevent further damage to your kidneys. It may also diminish your risk of cardiovascular disease and other complications of diabetes, such as nerve damage and blindness.

- **Make healthy choices** — Limiting your consumption of meat (animal protein) can help prevent CKD from getting worse. Keeping your low-density lipoprotein (LDL, or “bad”) cholesterol low will help protect your kidneys.

  Taking a cholesterol-lowering medication may be an option when lifestyle changes — such as eating less saturated fat and cholesterol, eating more soluble fiber, and losing weight — aren’t enough. Also, maintaining a healthy weight will help keep your blood pressure and blood sugar down. If you smoke, stopping can help slow the progression of CKD.

- **Use medications wisely** — Some medications can harm your kidneys and contribute to worsening CKD.

  Long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil, Motrin IB, others) and naproxen sodium (Aleve), as well as stronger prescription NSAIDs, can lead to kidney damage and generally should be avoided if you have kidney disease.

  Ask your doctor whether these drugs are safe for you. Your doctor might recommend the lowest dose for the shortest amount of time necessary to relieve your symptoms or an alternate pain relief option.

  The dye injected into your veins (radiographic contrast material) for imaging studies such as CT scans can potentially injure your kidneys. If you’re asked to take one of these tests, remind your health care providers that you have CKD. Another imaging test might be used, or you might be given intravenous fluids or a medication to help mitigate the risk posed by the dye.

- **Visit your doctor** — Evidence suggests that regular visits with your kidney specialist (nephrologist) decreases the risk of worsening kidney function.

### Health tips

**Weight-loss tricks**

Weight loss is likely to be more successful if you try to do — or avoid doing — the following.

**Try:**

- **Keeping track** — Whether using a journal or a smartphone app, keeping track of the food you eat and your physical activity helps you identify problem patterns and can be motivating.

- **Eating naturally** — Foods associated with weight maintenance or weight loss include vegetables, whole grains, fruits, nuts and yogurt.

- **Adding muscle** — Getting stronger with exercise burns calories when you exercise, and improves calorie burn when you’re not. Adding muscle helps burn fat and makes you leaner.

**Avoid:**

- **Processed foods and soda** — Foods associated with weight gain over time include potato chips, French fries, soda, refined grains, sweets and processed meats.

- **Watching TV** — Research has closely associated TV watching with weight gain. Try to match the time you watch television with an equal amount of time being physically active. Don’t eat while watching TV.

- **Extreme or fad diets** — Drastic reductions in calorie intake, such as liquid diets or eating only one meal a day slow metabolism and make weight loss harder. High-protein and low-carbohydrate diets often result in short-term weight loss, but it’s typically due to loss of water weight.

- **Viewing a setback as failure** — Use a setback or lapse as an opportunity to learn and improve.
Pelvic muscle dysfunction

Contributor to constipation

It took some courage to overcome your embarrassment, but you finally talked to your doctor about your constipation — and the overall difficulty and strain involved in having a bowel movement.

Your doctor suggested starting with some dietary changes, along with a laxative. However, the problems persisted. What else can be done?

Constipation is a common problem in older adults, particularly in older women. There are a wide variety of causes and potential contributing factors. In recent years, improper pelvic muscle function (pelvic floor dysfunction) has been recognized as a major contributor to constipation and difficulty having a bowel movement.

The good news is that once pelvic floor dysfunction is diagnosed, physical therapy often is a safe and effective means of correcting the problem.

Lack of coordination

Your pelvic floor includes a hammock of muscles that provide support to abdominal organs and to the spine. The pelvic floor includes muscles around the urethra, anus and rectum that facilitate urinary and bowel function in men and women. Pelvic floor muscles around the vagina play a role in sexual function in women.

When it comes to bowel function, the anal sphincter and pelvic floor muscles relax in a coordinated way that allows you to pass stool when you bear down. With pelvic floor dysfunction, there’s a lack of coordination in this complex muscular sequence. In general, the problem is that appropriate muscles don’t relax when needed. This is in contrast to other pelvic floor problems — such as pelvic organ prolapse — in which pelvic floor muscles are too relaxed.

News and our views

Walking groups provide health bonuses

If you’re looking for a way to increase your physical activity, you might want to consider joining a walking group.

In a survey published early this year in the British Journal of Sports Medicine, investigators looked at data from studies involving close to 2,000 participants in group walking activities. They found that walking in a group effectively increased physical activity for participants. They also found that people who walked in a group were more likely to stick with the activity over the long term. In addition, group walking lowered blood pressure, body fat, body mass index and total cholesterol. Any type of walking done regularly is likely to achieve similar results, but group walking appears to lower these factors by a greater degree. Group walking also reduces the odds of depression and enhances physical functioning. All of these benefits occurred despite the fact that most of the walking groups’ activity levels fell short of moderate activity guidelines.

To find a walking group, you might check with your doctor or local recreational or community center. Many walking groups can be found online. Try searching for the term walking group paired with your city or ZIP code. Or visit www.walkers.meetup.com. If you don’t have a computer, your local librarian may be able to help.

Being sedentary increases risk of depression

Do you spend a lot of time in a car or watching television? If so, you may be increasing your risk of developing depression, at least according to recent research published in the journal Mayo Clinic Proceedings.

The research began in 1982 when about 12,000 people responded to a research survey regarding overall health. Sedentary behaviors and exercise levels were assessed, as well as history of depressive symptoms.

About 4,800 people from the original survey who said they didn’t have depressive symptoms were assessed again 10 to 20 years later. For those who spent nine or more hours in a car each week, the risk of developing depressive symptoms was 30 percent greater than in those who spent less than five hours a week in a car. For those who watched more than 10 hours of TV a week, the risk of developing depressive symptoms was 47 percent greater than in those who spent less than five hours a week watching TV. Finally, for those who spent 19 hours or more each week either watching TV or in a car, the risk of developing depressive symptoms was 69 percent greater than in those who spent less than 12 hours each week doing so.

Engaging in physical activity and exercise didn’t offset the risk of developing depressive symptoms until the time spent being active or exercising equaled or exceeded five hours a week.

Depression is often a complex disease and its causes are often just as complex. Still, this research does highlight associations between sedentary behavior and developing depression that’s supported by past research.

Social isolation appears to contribute to — or be the result of — depression. Spending more time watching TV or in a car ends up displacing time you might have spent interacting with others or moving about. And there’s a clear link between physical activity and reduced depression.
It’s not always clear how this non-relaxing dysfunction develops. One cause is thought to be repeated holding of stool or ignoring calls to have a bowel movement. This may be a result of habit, occupation, difficulty getting to a bathroom or the constant contraction of muscles to prevent incontinence. Another contributing cause may be a history of surgery or injury in the pelvic area — or childbirth.

Sexual, physical or emotional abuse also is associated with pelvic floor dysfunction. The prevalence of multiple symptoms of pelvic floor dysfunction or of severe symptoms increases in those who have a history of these types of abuse. Telling your doctor about a history of abuse is important, as it may lead to important treatment modifications that take this into account.

**Varied presentation**

Symptoms of pelvic floor dysfunction tend to develop slowly over time. They may include prolonged and excessive straining with bowel movements and assuming certain positions — or using fingers — to help with the process. There’s often a sensation of blockage or of incomplete evacuation. Bloating and constipation are additional symptoms.

Stool leakage — which may result in anal itching and stained undergarments — can result from constipation related to pelvic floor dysfunction. If a hard mass of stool becomes lodged in the rectum, it can allow looser stool to leak around the edges. A history of constipation or difficult bowel movements raises suspicion that stool leakage may be related to constipation, rather than incontinence.

Pelvic floor muscles connect the spine, pelvic bones, urethra, anus and rectum — and in women, the vagina. As a result, symptoms related to strained bowel movements may be accompanied by urinary problems, pelvic pain or aching — which may occur in conjunction with intercourse — and low back pain that radiates to the thighs or groin. In addition, irritable bowel syndrome with constipation as a symptom may coexist with pelvic floor dysfunction.

**An assessment**

Constipation has a wide variety of potential causes and contributing factors. Diagnosing underlying causes may involve discussion of symptoms, a review of medical history, a review of drug or supplement use, physical exams, X-rays, blood or stool tests, or other tests as your doctor attempts to rule out or confirm various possibilities. A test measuring the speed of stool movement through the bowels also may be performed.

If pelvic floor dysfunction is suspected, a physical exam may be performed to assess muscle function, muscle tone and tension and to test for tender spots. A test where you attempt to expel an air- or water-filled balloon may be used to simulate pelvic floor activity during a bowel movement. Measurements of muscle function or various imaging tests may be performed to help diagnose dysfunctional muscles.

**Retraining**

Constipation can be a multifactorial problem, and plans to improve constipation may include more than one type of therapy. If pelvic floor dysfunction is identified as a contributing factor, the cornerstone of therapy in adults is a very specialized and intensive form of biofeedback therapy called pelvic floor retraining. At Mayo Clinic, pelvic floor retraining involves two to three, 30- to 60-minute sessions daily over two weeks. You will also be taught the skills needed to maintain improvements when you return home.

Pelvic floor retraining often starts with an educational component related to anatomy and proper use of pelvic muscles to have a bowel movement. A number of physical therapy techniques may be used, such as trigger point massage, pelvic relaxation exercises and application of muscle-relaxing heat. The biofeedback portion of retraining involves the use of small sensors that measure the amount of tension and relaxation of specific pelvic muscles. The sensors display results on a computer screen. By viewing this and working with a therapist, you relearn how to control and coordinate the necessary muscles for a bowel movement. Therapy also may include improving the ability to sense when stool has entered the rectum.

About 70 percent of people with properly diagnosed pelvic floor dysfunction experience improvement in bowel function with pelvic floor retraining. For those who don’t, additional options may include an implanted electrical device that stimulates nerves leading to pelvic floor muscles. This may improve symptoms, but results are variable and side effects can occur. Occasionally, surgery may be considered.
A true best friend

Benefits of pets

“To sit with a dog on a hillside on a glorious afternoon is to be back in Eden, where doing nothing was not boring — it was peace.” With these words, novelist Milan Kundera described a sentiment familiar to many over the ages. Medical science is gathering similar conclusions about the relationship between humans and animals, even though a little less poetically. Growing evidence suggests that pets can provide a number of health benefits for people, particularly older adults.

For thousands of years, human and animals have lived, worked, hunted, harvested and played together. Animals have provided humans with companionship, protection and assistance, not to mention a good dose of humor. Owning a pet can be good for you.

Friends with benefits

Many of the studies surrounding the potential benefits of the human-animal relationship are preliminary in nature and not rigorous. But overall they show a number of positive health trends for pet owners that are worth noting:

- Improved cardiovascular health — A number of studies have found a link between dog or cat ownership and lower blood pressure. Just the presence of a friendly pet can temporarily lower the blood pressure and heart rates of those around the animal.

- Pet owners also have been found to have slightly lower total cholesterol than do people who don’t own pets. Whether this is due to extra activity involved in walking a dog is uncertain. Other studies show a higher chance of survival after a heart attack among pet owners, perhaps due to the emotional support system that pets offer. The American Heart Association says pet ownership, particularly dog ownership, is probably associated with a decreased risk of cardiovascular disease.

- Relief from stress and sadness — Pets can provide a distraction from worry and discomfort by absorbing your attention in a nonthreatening way. People with pets appear to have fewer doctor visits during stressful events and experience fewer minor everyday health problems. Even under stressful circumstances, people with pets have smaller increases in heart rate and blood pressure — especially when the pet is present — than do those who don’t have pets. Pets can help relieve boredom, loneliness and depression, particularly in older adults.

- Expanded connection to the outside world — Caring for another living being, including a pet, and providing it with attention promotes the release of oxytocin, a chemical produced in the brain that enhances bonding and regulates social behavior — the same brain chemical that bonds parents to their newborn babies. Playing or snuggling with your dog or cat can be as relaxing as reading a book — both lower the stress hormone cortisol. But interacting with a pet causes a significantly higher increase in oxytocin.

- Pets can also connect us to other people, creating opportunities for social integration. This is illustrated by studies of people living in nursing homes. Those who were visited repeatedly by therapy dogs showed a greater willingness to smile and interact verbally with others. In another study, caring for a bird improved psychological symptoms of nursing home residents. People with dementia tend to behave less aggressively and engage with others more positively when there’s a pet around.

- Increased physical activity — Pets, especially dogs, can get their owners moving. Their need for regular exercise is great motivation to get their owners up and walking. Many, though not all, investigations have shown a positive link between dog owners and total walking time, and even just the likelihood of engaging in physical activity. Pet owners have also been found to experience a slower decline in daily living activities than do nonpet owners.

Is there a downside?

While there are lots of potential benefits to owning a pet, there are some potential risks, too. One of the biggest risks — especially for more-fragile adults and those who have trouble with balance — is that of tripping over a pet and falling. This could lead to broken bones and long recoveries.

Pet ownership also requires time and resources. Pets need to be fed, housed, groomed and taken regularly to a veterinarian. According to one estimate, the average lifetime cost of an average-sized dog can be around $10,000. For a cat, it’s about $8,000.

If not trained properly, unruly pets can cause damage to property. There’s also the possibility of human injury from scratches, bites or infection.

Although these potential risks shouldn’t prevent you from reaping the rewards of pet ownership, they are factors to consider.

What pet is best?

Before getting a pet, think how a pet would fit into your life. Dogs, for instance, are social animals. They’re interactive and they can help motivate you to become more active. But dogs need regular companionship, training, mental stimulation and exercise.

Cats don’t require as much interaction, but can be wonderful companions and provide many of the same stress-reducing benefits as dogs. Less-interactive pets such as birds and fish can provide purpose and visual and mental stimulation, as well as the opportunity for bonding.

Reputable breeders, rescue groups and pet adoption organizations are usually the best places to acquire dogs and cats.
Old disease names

New therapies

In putting together your genealogy, you stumbled upon an old letter discussing your grandmother’s health. The letter said she had dropsy, and was in too poor of health to make a trip. But what on earth is dropsy?

Medical terms have come and gone throughout history. Disease names have evolved to reflect advances in knowledge regarding the causes or mechanisms of a disease, the bodily tissues or fluids affected, and differentiation between diseases with similar symptoms.

In 1892, William Osler, M.D., published a seminal textbook of medicine titled *The Principles and Practice of Medicine.*

The chart below compares old disease names from Osler’s textbook with their modern counterparts. Examining it may make you appreciate the advances in knowledge that have been gained in the last century.

<table>
<thead>
<tr>
<th>Old name: Dropsy</th>
<th>Modern name: Swelling (edema) due to water retention, for example, from blood clots, heart failure or kidney disease</th>
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<td>Osler’s treatment options: A diarrhea-inducing drug that helps rid the body of water. Digitalis, a drug derived from foxglove, to speed fluid absorption by the lymph system. If that doesn’t work, puncturing holes in the legs to allow fluid to seep out, done with or without hollow needles called Southey’s tubes.</td>
<td>Modern treatment options: A sodium-restricted diet and elevation of the limb. Diuretic drugs that increase the kidney’s output of water. Compression stockings to prevent fluid from collecting in the tissue. The modern drug digoxin (Lanoxin) is the synthetic form of digitalis. It’s still used today for heart problems — including heart failure — but not specifically for edema. It improves the pumping function of the heart.</td>
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<th>Old name: Consumption</th>
<th>Modern name: Tuberculosis, a type of bacterial infection often involving the lungs</th>
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<td>Osler’s treatment options: Being outdoors in fresh air for the greater part of the day, preferably in a suitable climate such as one with a “pure atmosphere,” an “equable temperature” and a maximum amount of sunshine. Taking creosote as an expectorant, opium for cough, arsenic as a general tonic, the pain medications antipyrin or antifebrin for fever, and bismuth for diarrhea. A solution of iodine, carbolic acid and creosote in almond oil injected directly into the lungs, but this “…has not gained the general support of the profession, and is occasionally followed by serious results.”</td>
<td>Modern treatment options: Courses of multiple antibiotic drugs given simultaneously usually cure the infection.</td>
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<th>Old name: Rheumatism</th>
<th>Modern name: Osteoarthritis</th>
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<td>Osler’s treatment options: Counterirritation done by “firing” the skin near the joint with a cautery device. Massage, warm baths or “climate” treatment, with a preference for living in southern Europe or California. Prognosis considered “not favorable,” but the “disease does not necessarily shorten life.”</td>
<td>Modern treatment options: Various pain-relieving medications, physical therapy, application of cold and heat, and lifestyle measures. Surgery — including joint replacement — for when conservative measures aren’t sufficient.</td>
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<th>Old name: Lumbago</th>
<th>Modern name: Muscle and ligament strains or tears in the lower back, which causes muscles to tighten (spasm).</th>
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<td>Osler’s treatment options: Rest of first importance. Warm baths. Acupuncture for acute cases. “Needles of from 3 to 4 inches in length (ordinary bonnet-needles, sterilized, will do) are thrust into the lumbar muscles at the seat of the pain, and withdrawn after five or 10 minutes.” An injection of morphia (morphine) to relieve severe cases.</td>
<td>Modern treatment options: Rest, physical therapy, ice, heat, posture education, pain medications and acupuncture (but not with bonnet needles).</td>
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Second opinion

Q I can’t stand the colon preparation before a colonoscopy. Are there alternatives that would allow me to avoid it?

A When it comes to screening for colon cancer, there are several complementary tests, but none is a replacement for colonoscopy since no other test is as complete or as effective. Alternative tests that require some form of colon cleansing include flexible sigmoidoscopy, which is similar to colonoscopy except that the colonoscope is used to evaluate only the lower part of the colon, and sedation may not be used. Virtual colonoscopy, using computerized tomography (CT), can help spot suspicious tissues. This procedure still requires inflating the colon with air to provide a quality exam. Sedation isn’t required.

Tests that look for blood in the stool — which can sometimes catch cancer since polyps and cancer may bleed intermittently — are simple and low cost. However, polyps and cancers don’t always bleed, and blood in stool can come from a noncancer source.

A new stool test (Cologuard) that looks for blood and genetic changes associated with colon cancer can detect early-stage cancer about as reliably as colonoscopy. It also has a high detection rate of polyps that are at greatest risk of becoming cancerous.

The main benefit of these colonoscopy alternatives is that they are less arduous than colonoscopy and can be performed at shorter intervals than can colonoscopy. A key downside — in addition to generally being less accurate or complete — is that a positive result means you’ll still need a colonoscopy for a more thorough examination and if needed, to remove polyps or to make a diagnosis of cancer if it’s present.

Q I had a bone density test on my spine, after which my doctor requested another bone density test, this time on my hip. Why did I need testing at a different site?

A Sometimes, if there are problems with the bones or joints in the spine, the bone density test at that location won’t be accurate.

Your spine is made up of small, interlocking bones (vertebrae). If vertebral joints have degenerated with age or if compression fractures have occurred — vertebrae have weakened to the point where they crumble — the bone density in your spine may not accurately reflect bone density in other areas, which could lead to misdiagnosis and incorrect treatment. Outgrowths of bone from advanced arthritis, previous spine operations, scoliosis and other disorders of the spine also can muddle bone density test results.

When using the spine for bone density testing, doctors look for suitably healthy vertebrae to evaluate. Vertebral joints that have degenerated or are affected by spinal disorders are typically excluded because bone density may be higher at these sites than elsewhere, giving the wrong impression of bone strength. The fewer vertebrae available to test, the less accurate the test results become. In general, at least two vertebrae in your lower spine (lumbar vertebrae) must be in a good-enough condition to test for an assessment to be made on a bone density report.

If there’s only one vertebral joint that’s healthy enough to be evaluated, your doctor will likely recommend testing at the hip.

Testing of centrally located bones, such as your spine or hip, generally produces more-accurate results than do bones at the periphery of the body, such as your wrist or heel. If for some reason the hip area can’t be used, your doctor may recommend testing be done on your forearm area, which can still give a reasonable picture of your bone density.

Have a question or comment?
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