MAYO CLINIC HEALTH LETTER

Reliable Information for a Healthier Life

VOLUME 33 NUMBER 1 JANUARY 2015

Inside this issue

HEALTH TIPS	.3
Living with bladder problems.	

NEWS AND OUR VIEWS4 New skin cancer drug seen as potential breakthrough. Chikungunya fever in the U.S.

EXERCISE AFTER JOINT REPLACEMENT.....4 The do's and don'ts.

PSORIATIC ARTHRITIS...... 6 Relieving symptoms, preventing damage.

DIURETICS AND BLOOD PRESSURE 7 Effective and inexpensive.

SECOND OPINION

Wrist fractures

Is surgery right for you?

In the minds of many people, treatment of a broken wrist is straightforward — the doctor makes sure the fracture is set properly, you wear a cast for several weeks, the bone heals, and all is well.

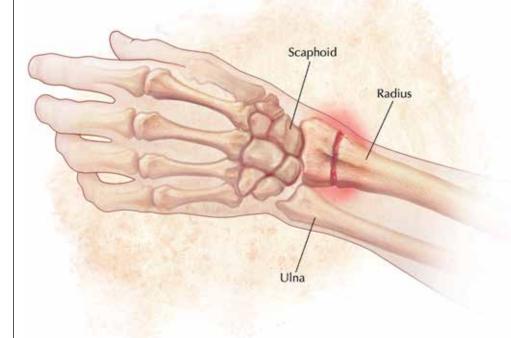
This may be true with a simple wrist fracture where the bone remains in position and is stable. However, treatment decisions quickly become more complicated with a displaced or more complex fracture — or with a fracture that isn't stable.

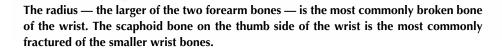
In short, a wrist fracture is a widely variable injury with a very individual-

ized approach to treatment that takes into account many factors such as the characteristics of the fracture, your overall health, and your occupation and lifestyle.

Breaking point

The wrist is made up of eight small bones at the base of your hand and the two bones of your forearm — the radius and ulna — that connect the elbow to the wrist bones. Any one of these bones can be fractured. However, the radius — the larger of the two forearm bones — is the most commonly broken bone of the wrist. When people talk about a broken wrist, they're generally referring to a radius fracture. The scaphoid bone on the thumb side of the wrist







is the most commonly fractured of the smaller wrist bones.

Wrist fractures almost always occur from some sort of trauma. The most common injury is simply falling onto an outstretched hand. In addition, sports and activity injuries such as falling off a bicycle or falling while skiing also are common causes of wrist fractures.

Although anyone can fracture a wrist from a fall or during a sport, older adults are at higher risk of wrist fractures primarily due to:

- Higher risk of falls Age-related declines in stability, balance, strength, reflexes, cognition and eyesight are some of the factors that can make older adults prone to falls. Lack of fitness greatly accelerates many of these factors beyond what occurs due to aging.
- Weakened bones The bonethinning processes that lead to osteoporosis weaken bones, making them more susceptible to breaking — sometimes from relatively minor forces.

Evaluation

A wrist fracture can vary in severity in terms of signs and symptoms. After a fall or other impact, you may have severe pain that tends to increase with

Osteoporosis check

An osteoporosis evaluation is usually warranted in older adults who sustain wrist fractures. For some, a wrist fracture may be the first indication of the disease. Osteoporosis is an ongoing, progressive disease that can often be slowed or stopped with appropriate treatment. If a wrist fracture triggers an osteoporosis evaluation and diagnosis, then treatment can begin in an attempt to reduce the risk of additional fractures, such as those of the spine or hip. However, according to research, the opportunity to catch and treat osteoporosis after a wrist fracture is often missed.

gripping or wrist rotation or a visible deformity such as a bent wrist or a wound where bone has protruded through the skin. These signs and symptoms — in addition to swelling, tenderness, bruising, numbness in your hand, or difficulty moving your fingers or thumb — warrant an immediate trip to urgent care or an emergency department for evaluation by a doctor.

However, not all fractures are as obvious, particularly when the small scaphoid bone is fractured. If you have fallen and feel that you may have sprained or hurt your wrist but you don't feel too much pain, a timely evaluation of the wrist is still warranted. Long-term complications related to improper healing are possible with fractures that seem mild.

Two main routes

A stable, properly aligned wrist fracture is most likely to heal well and result in the best possible function of the wrist after healing. In some cases, this can be achieved without surgery. With fractures of the radius, nonsurgical treatment is generally a good option when the fracture doesn't extend into or involve the wrist joint and when the wrist remains properly aligned. In these cases, stabilization with a splint or cast may be used, with a cast typically worn to maintain stability as the fracture heals.

A fracture that's not aligned (displaced) can sometimes be adequately aligned without surgery using a process called closed reduction. After receiving local anesthesia or another form of anesthesia, a closed reduction of the radius usually involves applying lengthwise tension to the arm and wrist, followed by manipulating the fracture back to proper alignment.

If closed reduction is successful and the fracture alignment is maintained after reduction, a splint may be applied, followed by a cast.

Surgery to align and stabilize the fracture (open reduction) is generally indicated when closed reduction doesn't result in adequate alignment of the bone, or when a reduction can't keep the bone from slipping back out of alignment. In addition, surgery is often indicated when a fracture extends into or disrupts the wrist joint. Surgery helps realign the joint properly to optimize future function and to minimize the risk of developing arthritis in the joint. Surgery is also indicated when the bone protrudes through the skin.

Surgery involves reduction and stabilization of the fracture with pins, rods, plates or screws, or with an external device. Splinting and, eventually, casting are used to keep the wrist stable after you've had surgery.

Individualized decisions

One of the primary treatment decisions for a wrist fracture is making the choice between nonsurgical and surgical treatment. Sometimes the choice is clear. Other times it's not. For older

MAYO CLINIC HEALTH LETTER

Managing Editor Aleta Capelle

Associate Editors Rachel Bartony Joey Keillor

Medical Illustration Michael King

Operations Manager Christie Herman

Administrative Assistant Beverly Steele

Medical Editor Robert Sheeler, M.D.

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

Editorial Research Deirdre Herman

Copy Editing Miranda Attlesev Julie Maas

EDITORIAL BOARD

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

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

adults, it's a decision that can be complicated by the possibility that surgery may not be tolerated as well as it would be in younger people.

In wrist fractures where the choice isn't clear, you and your surgeon need to consider the trade-offs with either approach. Nonsurgical treatment means avoiding the possible complications of surgery, including infection, nerve, blood vessel or tendon damage, difficulty with the implanted hardware, or the need for additional surgery. An older adult who is frail may face additional risks of surgery.

The main downside of nonsurgical treatment is that the fracture may not be optimally aligned using closed reduction — or it may not remain stable and alignment may be compromised. This can lead to a fracture that heals out of alignment, possibly resulting in loss of full motion or function of the wrist. For some older adults who are less active, some loss of wrist function may be well-tolerated and worth the tradeoff if it means avoiding surgical risks.

Surgery — when indicated — is very likely to stablize the fracture so that the fracture maintains proper alignment as it heals. This maximizes the odds of having the best possible wrist function after healing. For a healthy older adult who is active and wants to remain so, the balance may tilt toward surgical repair over nonsurgical treatment, as the desire for function outweighs surgical risk.

Choosing surgical or nonsurgical treatment is a very individualized decision. In making a recommendation, your surgeon may take into account your overall health, your activity level, your occupation and your desire for a fully functioning wrist, along with your body's ability to tolerate surgery. If you're an active person, it's important for you to discuss your activies with your surgeon.

Often, the decision is challenging and nuanced enough to make seeking a second opinion worthwhile. If you and your surgeon opt for a conservative route and you find that during healing the wrist doesn't feel right or that there's deformity, pain or numbness, it's OK to revisit options with your surgeon or to seek a second opinion.

After the fact

The amount of time needed for full healing can vary depending on the severity of your fracture, your health and whether you experience any complications. Even after the six to eight weeks it usually takes for a bone to heal, it may take a couple of months or a year or more for stiffness of the joint to go away. In fact, some level of stiffness or achiness may never go away.

To minimize this, your doctor may recommend that you perform movement as you're able — whether it's just finger movements or other range-of-motion exercises for other joints such as the shoulder or elbow. Surgical repair often allows for a more rapid advance to movement exercises than does nonsurgical repair.

□



Surgical repair of a wrist fracture involves reduction and stabilization of the fracture with pins, rods, an external device — or with plates and screws as depicted above.

Health tips

Living with bladder problems

Embarrassment or fear of an accident is common if you have urinary leakage. However, various therapies, medications and bladder training can help you gain better control over your bladder. Your doctor or urologist can help put together a plan specific to your needs. You also can boost your confidence in getting out and about by:

- Scouting your destination Once you arrive at a destination, locate the restroom.
- Locating a convenient spot
 Select a location to stand or sit that allows you to easily get away to go to the restroom. Select seating by the aisle at church or at a movie theater. If dining out, avoid getting seated in a booth or a corner.
- Avoiding or limiting bladder irritants Caffeine, citrus juices and fruits, carbonated beverages, alcoholic beverages, and tobacco products are known bladder irritants that may be best avoided before your outing.
- Wearing the right clothing Attire such as pants that don't require a belt may be practical.
- Having a supply of pads Pads specifically designed for urinary leakage are often very discreet and can easily fit into a purse or small backpack.
- Having a change of clothes
 If an accident does occur, this allows you to avoid going home.
- Having a purse, bag or sweater tied around the waist Should an accident or leak occur, this allows you to cover up on your way to the restroom. □

News and our views

New skin cancer drug seen as potential breakthrough

Melanoma isn't the most common skin cancer, but it's the most deadly. And until 2011, there were few treatment options for people with advanced-stage melanoma. That's when the Food and Drug Administration began approving a wave of new drugs to combat melanoma. Riding the crest of this wave is pembrolizumab (Keytruda), the most recently approved drug.

These new drugs tinker with certain aspects of the immune system to combat disease. With melanoma, the cancer uses cellular tricks to disguise cancer cells from the immune system. Newer drugs seek to block these cellular tricks, making cancer cells targets for immune destruction.

Pembrolizumab is the first melanoma drug to block a cellular pathway called programmed death receptor-1 (PD-1). In a recent study involving 173 people, pembrolizumab led to tumor shrinkage in about 24 percent of participants. The drug stabilized the melanoma in another 20 to 25 percent. Two people experienced complete remission. The anti-tumor effects seem to be long lasting. Six months after beginning treatment, 88 percent of people who responded to the drug were still alive and had no disease progression.

Those responses may not seem extraordinarily high, but it's important to consider that most of the people had disease that continued to progress, despite multiple prior therapies. Pembrolizumab is also quite safe.

Mayo Clinic doctors, some of whom were involved in the research, believe that pembrolizumab — or perhaps other drugs that block PD-1 or similar pathways — may be true game changers for melanoma, and perhaps other cancers as well. The long-lasting high degree of response to the drug and the mostly manageable side effects make it unique among melanoma drugs. \Box

Chikungunya fever in the U.S.

Chikungunya (chik-un-GUN-yuh) is a virus transmitted by mosquitoes that causes sudden-onset fever and severe joint pain similar to arthritis. First described in Tanzania in the early 1950s, the virus has spread from Africa into India and Southeast Asia, the Caribbean, and — most recently — the U.S. Although many Americans have been infected while traveling, only a few cases of locally acquired infection have been identified in Florida.

Signs and symptoms of chikungunya fever usually develop within three to five days of being bitten by an infected mosquito. The virus may cause headache, fatigue, muscle pain, nausea and rash. Joint pain can be severe and usually affects both sides of the body, often the hands and feet. If you have traveled to areas where the chikungunya virus is present and suspect that you may have chikungunya fever, see your doctor. Your doctor may order blood tests to look for chikungunya virus or other similar infections. Symptoms usually improve in seven to 10 days with rest and plenty of fluids. Pain relievers can help reduce fever and ease pain.

If you're traveling to an area with known outbreaks, Mayo Clinic doctors advise using insect repellents, wearing long-sleeved shirts and pants, and staying indoors or in screened-in places when possible. If you're older than 65 or have a condition such as high blood pressure, diabetes or heart disease, you're at increased risk of severe disease. Consider avoiding travel to areas with ongoing chikungunya outbreaks. \Box

Exercise after joint replacement

The do's and don'ts

You've finished your rehabilitation program and your new prosthetic knee is feeling good. You'd like to go back to doing some of the activities you enjoyed before, but you're still a little cautious about overdoing it. That's understandable. It takes a while to recover and adjust your activity patterns after a major joint replacement surgery, whether it's knee, hip or shoulder.

Although it's important to not put your new prosthesis through too much wear and tear, this doesn't mean you should be inactive. In fact, low-impact activity after joint replacement surgery is important for increasing bone density and fixing your prosthesis in place. In addition, improved muscle strength, balance and coordination resulting from regular exercise can help prevent falls, leading to the need for further surgery. And just as for anyone else, regular physical activity helps maintain your overall fitness and health.

Decisions about which activities to pursue depend on several factors, including which joint you had replaced, your previous experience with different activities and how active you want to be. Here are some general do's and don'ts to keep in mind as you go forward. See the chart on page 5 for activity recommendations based on the type of joint replacement.

The do's

Recommended regular activities after joint replacement surgery include those that don't place too much stress on your joints. These include walking, swimming, golfing and stationary bicycling.

But if you're used to doing certain higher impact activities for pleasure, such as hiking, playing tennis or crosscountry skiing, you may be able to continue doing them, as long as you do them only occasionally and not regularly. To reduce the load on your hips and knees, use a walking stick or ski poles while hiking, for example.

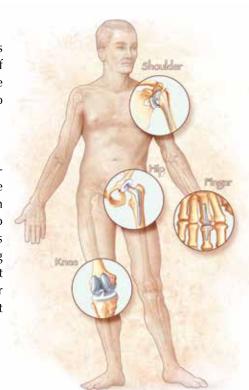
The don'ts

In general, avoid high-impact activities, such as contact sports, high-impact aerobics, running, racquetball, squash and other activities that involve lots of running and jumping. If you've had total shoulder replacement surgery, your doctor may recommend not beginning a new sport that requires you to throw with the affected arm, such as

softball or baseball. Also avoid positions that may place your new joint at risk of dislocation, such as some extreme stretches and yoga positions. Talk to your doctor before attempting them.

Bottom line

The key to living well with a prosthetic joint is to find the right balance between rest and activity. Too much stress on your joint can harm it, but too much inactivity can leave your muscles surrounding the joint weak, making movement more difficult. Regular light activities that you enjoy will keep your joint limber and keep you independent and mobile. \Box



Exercise caution after joint replacement

If you've had a joint replacement, it's generally best to avoid participating in high-impact or high-contact sports, such as football, basketball, racquetball, volleyball, hockey, running, martial arts and other similar sports.

These types of activities can place undue stress on your joint, causing premature loosening and wear and tear. If you're unsure about an activity or sport, talk to your doctor about what's best for you. Use the chart below as a guide.

After hip replacement			
OK	OK if you have experience	Not recommended	
Walking, stationary bicycling, low- impact aerobics, tai chi, gentle yoga, weight machines, gardening, golfing, shooting, swimming, rowing, doubles tennis, bowling, ballroom dancing	Weightlifting, Pilates, road bicycling, hiking, cross-country skiing, downhill skiing, horseback riding, ice skating or rollerblading	Singles tennis, racquetball, squash, jogging, running, baseball, softball, rock climbing, water skiing, other high-contact or high-impact sports	

After knee replacement			
ОК	OK if you have experience	Not recommended	
Walking, stationary bicycling, low- impact aerobics, tai chi, gentle yoga, gardening, bowling, golfing, shooting, horseback riding, swimming	Road bicycling, speed walking, weightlifting, doubles tennis, hiking, rowing, cross-country skiing, ice skating	Singles tennis, racquetball, squash, jogging, running, baseball, softball, rock climbing, waterskiing, other high-contact or high-impact sports	

After shoulder replacement				
OK	OK if you have experience	Not recommended		
Hiking, jogging or running, cross- country skiing, swimming using breast stroke, aerobics, Pilates, tennis, cycling, bowling, rowing, dancing	Racquetball or squash, baseball or softball, golfing, shooting, downhill skiing	Weightlifting, rock climbing, water skiing, other high-contact or high-impact sports		

Psoriatic arthritis

Relieving symptoms, preventing damage

Psoriatic arthritis is a type of arthritis that develops in some people who have psoriasis — a chronic skin condition characterized by thickened, reddish patches of skin that are often flecked with dry, white scales.

It can cause painful, swollen joints — not unlike rheumatoid arthritis. Joint pain and stiffness are often worse in the morning after getting out of bed. Any joint can be affected, including your fingertips and spine, and the pain can range from mild to severe. In both psoriasis and psoriatic arthritis, you may find that symptoms flare up, recede and then flare up again.

Coping with the symptoms of one condition, let alone two, can be challenging. People with psoriatic arthritis often feel worn down by the chronic itching and pain that accompany the two diseases.

Although there's no cure, there are effective treatments that can help relieve the symptoms and even help prevent further joint damage. The sooner therapy is started, the less time the disease has to fester and cause permanent damage to your joints.

Relieve symptoms

A number of medications used for rheumatoid arthritis can also be used for psoriatic arthritis, and some of them are also effective for psoriasis. Which ones you use and for how long depend on how bothersome your symptoms are, how well the medication works and the potential side effects. You may have to try several different drugs but most people are able to find one that works.

■ *NSAIDs* — If your symptoms are mild, nonsteroidal anti-inflammatory drugs (NSAIDs) may be sufficient to relieve pain and reduce inflammation.

Nonprescription NSAIDs include ibuprofen (Advil, Motrin IB, others) and naproxen sodium (Aleve). Stronger NSAIDs are available by prescription.

- Disease-modifying antirheumatic drugs (DMARDs) These drugs can relieve pain as well as slow the progression of psoriatic arthritis and save joints and other tissues from permanent damage. Common DMARDs include methotrexate, leflunomide (Arava), and sulfasalazine (Azulfidine).
- Immunosuppressants These medications act to tame your immune system, which is out of control in psoriatic arthritis. Examples include azathioprine (Imuran, Azasan) and cyclosporine (Neoral, Sandimmune).
- Tumor necrosis factor-alpha (TNF-alpha) inhibitors TNF-alpha is an inflammatory substance produced by your body. TNF-alpha inhibitors block this substance. Examples include etanercept (Enbrel), infliximab (Remicade), adalimumab (Humira), golimumab (Simponi) and certolizumab (Cimzia).
- New drugs If established medications don't help or become less effective over time, there are two newly approved biological drugs your doctor may try. Ustekinumab (Stelara) works by blocking interleukin (IL)-12 and IL-23, a set of immune system proteins that recent research suggests may be involved in promoting psoriatic arthritis. The medication is injected under the skin.

Apremilast (Otezla) inhibits the activity of an enzyme involved in promoting inflammation, phosphodiesterase 4, and may help joint pain and skin inflammation, including hard-to-treat areas such as nails and scalp. It's available as a pill. During clinical trials, side effects were mild to moderate and didn't increase the risk of serious infection, as can happen with DMARDs, TNF-alpha inhibitors and immunosuppressants.

■ Medical procedures — If a joint becomes very swollen, a steroid injected directly into the joint can rapidly relieve inflammation. If a joint is severely damaged, surgery to replace it with an artificial joint may be an option.

Live better

The stress and frustration of living with a chronic illness can increase your sensitivity to pain and discomfort. Although the following measures aren't cures for psoriasis and psoriatic arthritis, they may make it easier for you to cope with them.

- Exercise Increasing your physical activity can help your body release "feel-good" endorphins. Regular exercise promotes relaxation and can also help you keep your joints flexible and maintain your overall health. Walking, swimming, stretching, yoga and stationary bicycling are all good activities.
- Relaxation Stress and anxiety may worsen psoriasis and complicate chronic pain. Taking measures to relieve stress such as visualization therapy, biofeedback or meditation may help you cope with day-to-day variations in symptoms of both conditions, such as itching and pain levels. Reducing stress may also help your treatment work better. One study found that practicing mindfulness meditation while undergoing phototherapy for psoriasis increased the effectiveness of the treatment.
- Protect your joints Changing the way you carry out everyday tasks can make a big difference in how you feel. For example, you can avoid straining your finger joints by using gadgets such as jar openers to twist the lids from jars, by lifting heavy pans or other objects with both hands, and by pushing doors open with your whole body instead of just your fingers. □



Psoriasis causes cells to build up rapidly on the surface of the skin, forming thick silvery scales and dry, red patches that are sometimes painful.

Diuretics and blood pressure

Effective and inexpensive

High blood pressure (hypertension) is a disease in which the pressure pushing blood through your arteries is high enough to gradually damage and stiffen normally elastic arteries throughout your body. It's one of the leading causes of disability or death due to stroke, heart attack, heart failure, kidney failure and dementia.

That's why treating hypertension is so important. Although lifestyle changes are the foundation of any plan to lower blood pressure, many with hypertension also need the help of medication — and a class of drugs called diuretics is often the cornerstone of therapy.

Test of time

Diuretic drugs have been available since the late 1950s. Other effective drug classes for hypertension have been developed since then, including angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor block-

ers (ARBs), calcium channel blockers and others. Still, diuretics have stood the test of time.

Taken alone, research has repeatedly shown that appropriate diuretics can deliver results in blood pressure reduction and reduced health risks including large reductions in your risk of heart disease, stroke, heart attack, dementia and kidney disease — that are as good as or better than other drug classes. A side benefit of certain diuretics is that they reduce the amount of calcium in your urine so that there's less calcium available for potential kidney stone formation. Less calcium excretion also means more calcium stays in your blood, potentially helping to reduce risk of bone-thinning osteoporosis.

Diuretics are particularly effective in older adults and those of African descent. In addition, diuretics pair well with other blood pressure medication classes for added blood pressure reduction, when needed. Since diuretic drugs have long since gone generic, they are typically the lowest cost drug choice, as well.

The water pill

Diuretics — which are commonly referred to as water pills — trigger the

kidneys to excrete extra sodium in your urine. The sodium takes water from your blood along with itself. That decreases the amount of fluid flowing through your blood vessels, which reduces pressure on the walls of your arteries and thus your blood pressure. Some diuretics also cause changes in certain blood vessels that cause them to dilate, which reduces blood pressure. There are three types of diuretics, as detailed in the chart below.

Diuretics are generally safe, but they can cause some side effects. Increased urination is the most common, but is often temporary. Older adults may experience dizziness upon standing, and may have a slightly increased risk of developing gout, impotence, increased blood sugar or worsened cholesterol levels.

Issues related to balance of electrolytes such as potassium, magnesium and sodium also may arise. In particular, low potassium levels can become a problem, with symptoms such as abnormal heart rhythms, muscle weakness or cramps, or tingling or numbness. This can often be corrected by adding a potassium supplement or a potassium sparing diuretic to offset the potassium loss caused by a thiazide diuretic. \Box

Most frequently used diuretic groups				
Diuretic group	Specific drugs	Uses		
Thiazide diuretics	Chlorothiazide (Diuril), hydrochlorothiazide and several others	Thiazides are the mainstay hypertension treatment for people with normal kidney function. Hydrochlorothiazide is a common first choice.		
Loop diuretics	Furosemide (Lasix), bumetanide, ethacrynic acid (Edecrin), torsemide (Demadex)	Loop diuretics often are used for people with diminished kidney function. They can be used as a substitute for thiazides if side effects are a problem when kidney function is decreased.		
Potassium- sparing diuretics	Amiloride, eplerenone (Inspra), spironolactone (Aldactone), triamterene (Dyrenium)	In people with normal kidney function, these are used in combination with thiazide or loop diuretics when potassium loss is a problem. As add-ons, spironolactone and eplerenone are particularly effective at treating resistant hypertension.		

Second opinion

I've heard that kale is really nutritious, but I'm having trouble incorporating it into my diet. Do you have any preparation tips?

You heard right. Kale is a very nutritious cousin to other cruciferous vegetables such as broccoli, cauliflower, Brussels sprouts, cabbage and kohlrabi. Like its cousins, it's a nutritional powerhouse, containing iron, calcium, protein and fiber, along with large amounts of vitamins A, C and K. In fact, kale contains so much vitamin K that people who take the anti-clotting medication warfarin need to be cautious about eating large amounts of kale, since vitamin K may interfere with the effect of warfarin.

Kale also contains an array of lesser known, disease-fighting phytochemicals. Among them, glucosinolates and several sulfur-containing compounds



appear to be a big part of why research has linked consumption of kale and other cruciferous vegetables to reduced risk of certain cancers. Kale also contains many other phytochemicals, including those related to eye health, such as lutein and zeaxanthin.

Kale is a very versatile ingredient with a visually pleasing depth of color that's hard to match. The leaves are heartier than common varieties of lettuce or spinach leaves, making the texture harder for some people to tolerate raw.

Slicing kale leaves into small pieces or strips helps diminish the chewiness factor, and mixing them with lettuce or other salad ingredients can further soften the texture. Blanching or braising can also soften kale, as well as reduce bitterness and enhance flavor.

An advantage of kale's hearty texture is that it doesn't wilt or break down easily. You can dress a kale salad up to a day in advance of serving, or massage dressing into kale leaves to infuse flavor and soften texture. Kale can also be roasted and grilled to soften its texture but without causing much change in shape and integrity. Kale can also be a colorful but texturally mild addition to an egg dish, a pizza, a smoothie, a grain salad or dish, a sauté, or a soup.

Kale becomes increasingly bitter with storage, and it's usually best to consume it within two to three days. Most people trim away the edible but more fibrous stem of the kale leaf. You can cut the stem out with a knife — or, more simply, you can pinch the stem and run your fingers down the stem to "strip" the leaves off. Here's a recipe to try:

Braised kale with cherry tomatoes

2 teaspoons extra-virgin olive oil 4 garlic cloves, thinly sliced 1 pound kale, tough stems removed, leaves coarsely chopped 1/2 cup vegetable stock or broth 1 cup cherry tomatoes, halved 1 tablespoon fresh lemon juice 1/4 teaspoon salt 1/8 teaspoon freshly ground black pepper

In a large frying pan, heat the olive oil over medium heat. Add the garlic and sauté until lightly golden, 1 to 2 minutes. Stir in the kale and vegetable stock. Cover, reduce the heat to medium low, and cook until the kale is wilted and some of the liquid has evaporated, about 5 minutes. Stir in the tomatoes and cook uncovered until the kale is tender, 5 to 7 minutes longer. Remove from the heat and stir in the lemon juice, salt and pepper. Serve immediately. \Box

Have a question or comment?

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

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

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

Copyright

© 2015 Mayo Foundation for Medical Education and Research. All rights reserved.

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

Purpose

To help our subscribers achieve healthier lives by providing useful, reliable, easy-to-understand health information that's timely and of broad interest.

Mayo Clinic Health Letter supplements the advice of your personal physician, whom you should consult for personal health problems. We do not endorse any company or product.

MC2019-0115CORP
Printed in the USA