

NIH News in Health

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Plants: Partners in Health? Vegetables, Fruits, Herbs, and You

Is there anything more delicious and nutritious than vine-ripened tomatoes, just-harvested peaches and corn, or fresh herbs and spices? Growing your own edible plants—whether in a backyard garden or a few pots on your windowsill—can be fun, rewarding, and healthful. If you share your garden's bounty with friends and neighbors, you might even expand your social connections and spread the health around.

"Gardening has many health benefits. It allows you to get outside, get active, and sit less, which might help to reduce stress," says Dr. Philip Smith, a life-long gardener who oversees obesity research at NIH. "Gardening can also help to improve your diet if you eat more fruits and vegetables. They're especially delicious, with a more intense flavor, when ripe and freshly picked."

Fruits and vegetables are packed with fiber and essential vitamins and minerals. Research has shown that eating fruits and vegetables as part of an overall healthy diet can reduce your risk for long-term diseases, such as heart disease, stroke, and some types of cancer. The fiber in fruits and vegetables can help relieve constipation and normalize your bowel movements.

Fruits and vegetables may also help reduce your calorie intake—especially if they're replacing high-calorie, high-fat foods—to help you control your weight. Herbs can add rich and interesting flavors to your meals without adding calories.



Gardening might enhance your mental health as well. Some studies have found that being physically active in natural environments—or even simple exposure to nature—can improve mood, reduce anxiety, and enhance self-esteem. "Growing your own vegetables and digging into the dirt can increase physical activity and give one a feeling of well-being and a sense of connection to the Earth," Smith says.

Children can also benefit from growing and caring for edible plants. Some studies have found that kids involved with gardening programs tend to make healthier food choices, eat more fruits and vegetables, and have improved social skills.

"Gardening can help little children learn about growing and caring for things. They may find that they enjoy eating the fruits and vegetables

they've grown themselves. And they may like eating the foods they know are good for them," Smith says. "Adults, too, often find they appreciate the many delicious tastes of fruits and vegetables that come fresh from the garden."

Cancer survivors who took up gardening in a small NIH-funded study tended to have increased physical activity and vegetable intake, along with improved strength and endurance. A larger NIH-funded study is now under way to see whether gardening might enhance the health and well-being of older cancer survivors.

Another recently launched NIH-funded study is looking at whether American Indian families who engage in community gardening will boost their fruit and vegetable intake and reduce their body weight. "The researchers are also looking at whether gardening can lower blood pressure, increase hand strength, and lead to better mental and physical health," says NIH's Dr. Charlotte Pratt, who oversees research on nutrition, physical activity, and heart health.

"Americans generally don't eat enough fruits and vegetables; it's one of the major drawbacks of our diets

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today," Pratt says. The federal Dietary Guidelines for Americans published in 2015 recommends that adults who eat about 2,000 calories daily should eat about 2.5 cups of vegetables and 2 cups of fruit a day. But only a small percentage of adults and children meet both fruit and vegetable recommendations.



Wise Choices Safety Tips for Gardeners

- Wear gloves to avoid skin rashes, cuts, and contaminants.
- Keep harmful chemicals, tools, and equipment out of kids' reach. Read all instructions and labels so you use these items properly.
- Cut your risk for sunburn and skin cancer by wearing wide-brimmed hats, sun shades, and sunscreen with sun protective factor (SPF) 15 or higher.
- Protect against diseases carried by mosquitoes and ticks. Use insect repellent. Wear long-sleeved shirts. Tuck pants into your socks.
- If you're outside in hot weather, drink plenty of water.
- Pay attention to signs of heat-related illness, including high body temperature, headache, rapid pulse, dizziness, nausea, confusion, or unconsciousness. Seek emergency medical care if needed.

Adapted from U.S. Centers for Disease Control and Prevention.

When choosing vegetables, eat an assortment of colors and types every day. Broccoli, spinach, collard greens, kale, and other dark leafy greens are good choices. You might also choose red and orange vegetables, such as tomatoes, carrots, sweet potatoes, or red peppers. Many of these are easy to grow at home.

"These are all good sources of vitamins in general, including vitamins A and C, and they tend to be good sources of fiber as well," Pratt says. "Some vegetables can also provide minerals, like potassium, iron, and calcium."

The many nutrients in fruits and vegetables are essential to good health. If you're taking certain medications, though, you need to be aware that some plant-based products can interfere with how certain medicines work. For instance, grapefruit can interact with certain drugs—including some cholesterol, blood pressure, and allergy drugs—and lead to serious side effects.

"For people who take medications to prevent blood clots, problems might arise from eating dark green vegetables, which are rich in vitamin K, or by taking vitamin K supplements," Pratt says. Vitamin K helps to promote blood clotting, but blood thinners like warfarin (also called Coumadin) are designed to have the opposite effect. Foods rich in vitamin K include kale, spinach, Brussels sprouts, and some types of lettuce.

Many types of herbs can also interact dangerously with certain medications. But these problems are much



Web Links

For more about gardening and health, click the "Links" tab at:
<http://newsinhealth.nih.gov/issue/Apr2016/Feature1>

more likely when herbs are taken as supplements.

"Herbs and spices have long been used to flavor foods. And they've been used since ancient times for medicinal purposes as well," says Dr. Craig Hopp, an expert in herbal products research at NIH. "When you grow herbs in your garden, you've planted the seeds, watched them grow, and you know what they'll taste like. But when you get these things in supplement form, you're usually getting a concentrated extract of the plant that's much more potent than what's in your garden."

Hopp adds that some herbs purchased in supplement form are not what they claim to be—"either they're adulterated with some type of pharmaceutical ingredients, or they don't contain the ingredients that their labels indicate."

Hopp stresses that it's important to talk with your doctor about any supplements you're taking to ensure they won't cause harmful interactions with your medications. You can learn more about herbs, potential side effects, and what the science says about their medicinal properties at <https://nccih.nih.gov/health/HerbsAtaGlance.htm>.

If you think you don't have space for a backyard garden, think again. "Some vegetables like carrots, lettuce, kale, and hot peppers don't require much space," says Smith. These can be grown in pots or small gardens. "You can also try growing hanger tomatoes, which can be suspended from your deck or porch," Smith says.

But no matter where you get them—whether from your own backyard, a farmer's market, or a store—make sure you and your family eat plenty of fruits and vegetables every day. ■

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Block the Buzzing, Bites, and Bumps

Preventing Mosquito-Borne Illnesses

Summer can be a bummer if outdoor fun is interrupted by the irritating buzz of mosquitoes. Their bites not only create itchy red bumps on your skin; they also carry the risk of disease. NIH-funded scientists are working to find better ways to diagnose, treat, and prevent mosquito-borne illnesses. And we can all take simple steps to avoid getting bit by those blood-sucking insects.

Most mosquito bites are relatively harmless. The itchy bumps often last for just a day or 2 after a mosquito has punctured your skin. But if the mosquito is carrying certain germs, like viruses or parasites, these **pathogens** might enter your blood during the bite and make you sick.

The diseases spread by mosquito bites can be serious. Some experts call mosquitoes the world's most deadly animal. Mosquito-related illnesses kill about 725,000 people worldwide each year. By comparison,

snakes kill about 50,000; tapeworms about 2,000; and sharks only about 10 people per year across the globe.

Most mosquito-related deaths and illnesses occur outside the U.S., mainly in Africa. "But we've always had a variety of mosquito-borne pathogens in the U.S. as well," says Dr. Thomas W. Scott, an expert on insect-borne diseases at the University of California, Davis. "Right now, I'd say West Nile virus is the biggest problem in the continental United States."

West Nile tends to be a seasonal epidemic in the U.S. It flares up in late spring or early summer and continues into the fall. In 2015, more than 2,000 cases of West Nile disease arose nationwide, and the virus was blamed for nearly 120 deaths.

Most people with West Nile infections have no symptoms. Roughly 1 in 5 infected people have relatively mild symptoms, such as fever, headache, or nausea. West Nile can become serious or even deadly for about 1 in 150 infected people.

Another virus, called dengue, is one of the most common causes of mosquito-borne disease worldwide. A dengue outbreak in Hawaii has affected hundreds of people since late 2015.

No medications are available to treat the many viral diseases transmitted by mosquitoes. But current drugs can treat and prevent malaria, which is caused by a tiny mosquito-borne parasite and not a virus.

A few mosquito-borne illnesses, such as yellow fever and Japanese encephalitis, are preventable by vaccination. But vaccines are not yet available to protect against most mosquito-related diseases, including malaria and West Nile virus.



NIH scientists are working to develop and test potential new vaccines for dengue and West Nile viruses. An experimental dengue vaccine that showed promise in a small clinical trial is now being evaluated in a larger population in Brazil.

Zika is another mosquito-borne virus that's spreading throughout Central and South America. Because the dengue and West Nile viruses are closely related to the Zika virus, NIH researchers plan to create an experimental Zika vaccine by using methods similar to those used for the other vaccines. Small clinical trials may begin soon, but years of testing will be needed to fully evaluate potential Zika vaccines.

While preventive vaccines are still in development, Scott says, "There are things we can do right now to help protect against mosquito-borne disease." See the Wise Choices box for mosquito-blocking tips. ■



Wise Choices Avoid Mosquito Bites

- **Use insect repellents.** Products containing DEET, picaridin, lemon eucalyptus, para-menthane-diol, or IR3535 can be applied to skin. Follow label instructions.
- **Cover up.** When outside, wear long sleeves, pants, and socks. Mosquitoes may bite through thin fabric, so spray thin clothes with an EPA-registered repellent like permethrin. Don't apply permethrin directly to skin.
- **Mosquito-proof your home.** Install or repair screens on doors and windows to keep insects out. Use air conditioning if you have it.
- **Get rid of mosquito breeding sites.** Empty standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, and birdbaths on a regular basis.



Definitions

Pathogens

Viruses, bacteria, or other germs that can cause disease.



Web Links

For more about mosquito-borne diseases, click the "Links" tab at: <http://newsinhealth.nih.gov/issue/Apr2016/Feature2>

Health Capsules

For links to more information, see these stories online:
<http://newsinhealth.nih.gov/issue/Apr2016/Capsule1>

Testosterone Therapy Tested in Older Men

As men age, they often produce less testosterone than they did in their youth. Testosterone is a chemical signal that contributes to male characteristics, such as a deep voice, facial hair, and muscle growth. Men with low levels of testosterone may have symptoms such as fatigue, decreased sexual desire, and difficulty walking.

To see if testosterone therapy might help ease such symptoms, NIH started a series of studies called the Testosterone Trials. These trials are a key step before considering larger, lengthier trials to assess long-term risks and benefits.

Results are in from 3 of the trials. These focused on men with low tes-

tosterone levels who had either low sexual function, difficulty walking, or low vitality (fatigue and low energy).

Researchers enrolled 790 men, ages 65 and up, at 12 sites nationwide. The men received a gel, either with or without testosterone, to apply to their skin every day for a year.

For men who had low sexual function, the testosterone therapy increased sexual desire and function. But for the men in the other 2 trials, the treatment didn't improve walking ability or vitality.

When the researchers combined data from all 3 of the trials, walking speed and distance did seem to improve with testosterone. The therapy

also had some benefit for mood, energy, and depressive symptoms among men in all 3 trials combined.

The findings suggest that testosterone treatment of older men who have very low testosterone levels may have some benefit. "However, decisions about testosterone treatment for these men will also depend on the results of the other 4 trials," says head researcher Dr. Peter J. Snyder at the University of Pennsylvania School of Medicine.

Older men who are considering testosterone therapy should discuss potential benefits and drawbacks with a health care provider. ■

Sidestep Sports Injuries

Many people seem to be listening to their doctor's advice to get active to improve their health. Playing sports can be a fun way to start moving. But a downside of getting in the game can be injuries.

Anyone who exercises should pay attention to injury prevention. But some groups are at increased risk for injury. Young athletes, for example, aren't small adults. Their bones, muscles, tendons, and ligaments are still growing. That makes them more prone to injury.

Sports-related injuries can range from scrapes and bruises to serious brain and spinal cord injuries. The most common for kids are sprains and strains, repetitive-motion injuries, and heat-related illnesses. ■



Wise Choices Tips to Protect Kids from Injury

- Make sure you or your child uses proper gear for a particular sport.
- Make warm-ups and cool-downs part of the routine before and after participating.
- Make sure water is available during play so kids stay hydrated.
- Use sun protection.
- Avoid playing when very tired or in pain.

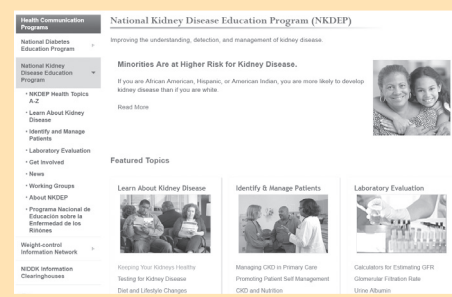
Learn more about sports injuries at www.niams.nih.gov/Health_Info/Sports_Injuries.



Featured Website National Kidney Disease Education Program

www.nkdep.nih.gov

Don't take your kidneys for granted. Learn how they work and why they're so important to your health. This site can also help you promote kidney health among your loved ones, patients, and community.



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