

NIH News in Health

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Inside News: 3 Massage Therapy... 4 Cooling Treatment for Infants... Hypertension in Kids... Impact of NIH Research

Digging a Vegetarian Diet Plant-Based Eating Can Reap Rewards

Vegetarians miss out on lots of foods. No grilled burgers or franks at picnics. No holiday turkey or fries cooked in animal fat. Strict vegetarians may even forego honey made by bees. But vegetarians also tend to miss out on major health problems that plague many Americans. They generally live longer than the rest of us, and they're more likely to bypass heart-related and other ailments.

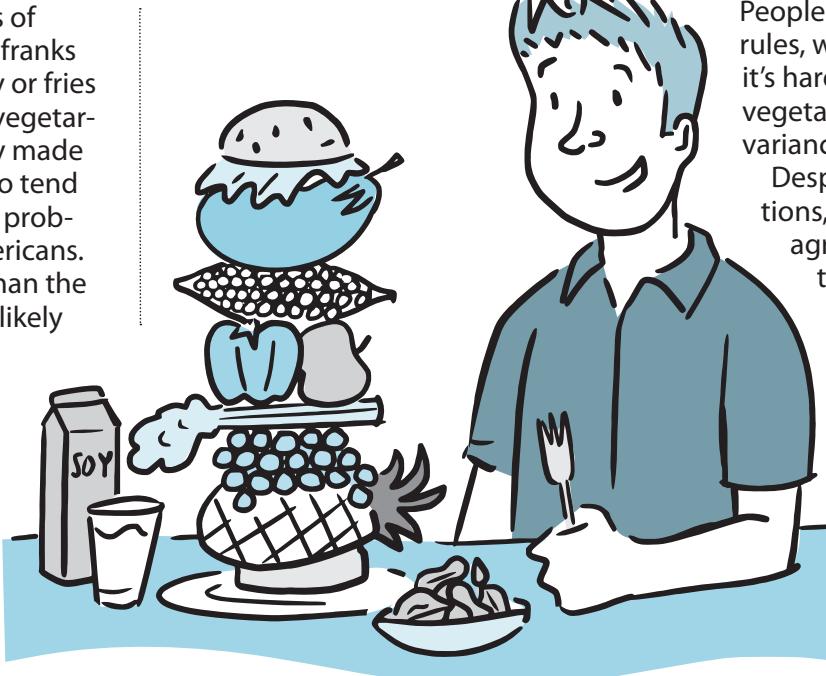
The fact is, eating a more plant-based diet can boost your health, whether you're a vegetarian or not.

What is it about the vegetarian lifestyle that can protect your health? And are there risks to being vegetarian? NIH-funded researchers are looking for answers. They're exploring the many ways that diet and other factors affect our health.

Vegetarian meals focus on fruits and vegetables, dried beans, whole grains, seeds and nuts. By some estimates, about 2% of the U.S. adult population follows this type of diet.

People have many reasons for becoming vegetarians. Some want to eat more healthy foods. Others have religious or economic reasons or are concerned about animal welfare. "Vegetarian diets are also more sustainable and environmentally sound than diets that rely heavily on meat, poultry and fish," says NIH nutritionist Dr. Susan Krebs-Smith, who monitors trends in cancer risk factors.

Most people think of vegetarian diets as simply eating plant foods and not eating meat, poultry and



fish. "But in fact, there are many different types of vegetarian diets," Krebs-Smith explains. "Some are more restrictive than others."

Strict vegetarians, or vegans, eat plant foods and reject all animal products—meat, poultry, fish, eggs, dairy and sometimes honey. Those who also eat dairy products are called lacto vegetarians. Vegetarians who eat both dairy and eggs are called lacto-ovo vegetarians.

Some vegetarians eat fish but not meat or poultry. They're called pescatarians (pesce is Italian for fish).

"Then there are the so-called flexitarians, or semi-vegetarians. These are people who eat a mostly vegetarian diet, but they occasionally eat meat," says Jody Engel, a nutritionist and registered dietitian at NIH. "They might say I'm a vegetarian, but I need

to eat my burgers every Sunday.' People tend to follow their own rules, which is one reason why it's hard for researchers to study vegetarians. There's so much variance."

Despite the different definitions, "there's tremendous agreement among nutrition experts and health organizations that a more plant-based diet is beneficial, whether you're a true vegetarian or not," says Krebs-Smith. "Most Americans don't eat enough fruit, vegetables, legumes or whole grains. There's a huge consensus that eating more of these foods would

be a good idea for everyone."

Vegetarian diets tend to have fewer calories, lower levels of saturated fat and cholesterol, and more fiber, potassium and vitamin C than other eating patterns. Vegetarians tend to weigh less than meat-eaters, and to have lower cancer rates. "Evidence also suggests that a vegetarian diet is associated with a lower risk of death from certain heart diseases, and that those who follow a vegetarian diet tend to have lower LDL [“bad”] cholesterol levels," says Engel.

continued on page 2

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continued from page 1

In some cases, though, it's unclear if certain health benefits come from plant-based eating or from the healthy lifestyle of most vegetarians. "Vegetarians are generally more physically active and have healthier habits than non-vegetarians. They also typically have a higher socioeconomic status, at least in the United States," says Krebs-Smith.

To tease out the effects of diet, scientists have to conduct large, carefully controlled studies that

account for other factors. One of the world's largest studies of plant-based diets is now underway at Loma Linda University in California. Cardiologist Dr. Gary Fraser is leading an NIH-funded team of scientists to analyze data on 96,000 Seventh-day Adventists in all 50 states and in Canada. Members of this religious group have unique dietary habits and a generally healthy lifestyle.

Adventists are encouraged to follow a vegetarian diet, but about half the population sometimes eats meat. These variable eating patterns allow scientists to compare a wide range of dietary habits and look for links between diet and disease.

To date, the researchers have found that the closer people are to being vegetarian, the lower their risk of diabetes, high blood pressure and metabolic syndrome (a condition that raises your risk for heart disease and stroke). "The trend is almost like a stepladder, with the lowest risks for the strict vegetarians, then moving up for the lacto vegetarians and then the pescatarians and then the non-vegetarians," Fraser explains. Earlier studies found that vegetarian Adventists also tend to live longer than both meat-eating Adventists and non-Adventists. The vegetarians also have less coronary heart disease and lower rates of some cancers.

Because vegetarians by definition don't eat meat, some people jump to the conclusion that simply cutting meat from your diet will lead to health benefits. "But it's actually more complicated than that," says Fraser.



Web Links

For more information about vegetarian diets, see our links online:
<http://newsinhealth.nih.gov/issue/Jul2012/Feature1>

"Differences in life expectancy and other health matters might be related to the extra fruits, vegetables, nuts and legumes—including soy—that vegetarians tend to eat. You can't necessarily conclude it's based on the absence of meat," he says.

Experts generally agree that vegetarians who eat a wide variety of foods can readily meet all their body's needs for nutrients. "At any stage of life, you should be able to eat a healthy diet by consuming vegetarian foods. But it does take a little planning," says Rachel Fisher, a registered dietitian involved in nutrition research at NIH.

Vegetarians need to be sure they take in enough iron, calcium, zinc and vitamin B12. Studies show that most vegetarians do get enough, in part because so many cereals, breads and other foods are fortified with these nutrients. "Vegans in particular need to be certain to get enough vitamin B12 and omega-3 fatty acids," says Fisher. Omega-3—found in fish, flax seed, walnuts and canola oil—is important for heart health and vision.

Some vegetarians take dietary supplements to make sure they're getting everything they need. It's a good idea to talk to a registered dietitian or other health professional if you're a vegetarian or thinking of becoming one.

Whether you're a vegetarian or not, Fisher says, you can benefit from the high fiber, low fat and rich nutrients of a vegetarian diet. "Vegetarian foods can be so delicious, and they're so good for you," she says.

Try using a variety of spices and herbs to make things interesting. And make sure not to overcook your vegetables, or they might lose some of their valuable nutrients. ■



Wise Choices Tips for a Vegetarian Diet

- Meet protein needs by eating a variety of plant foods, nuts, eggs or dairy foods.
- Snack on unsalted nuts and use them in salads or main dishes.
- Vitamin B12 is naturally found only in animal products. Choose fortified foods such as cereals or soy products, or take a vitamin B12 supplement if you don't eat animal products.
- Get calcium from dairy products and calcium-fortified soy milk, breakfast cereals or orange juice.
- Beans and peas have many nutrients and are recommended for everyone, vegetarians and non-vegetarians alike.

Learn more at ChooseMyPlate.gov.

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Massage Therapy

What You Knead to Know

Many people associate massage with vacations or spas and consider them something of a luxury. But research is beginning to suggest this ancient form of hands-on healing may be more than an indulgence—it may help improve your health.

Massage therapists use their fingers, hands, forearms and elbows to manipulate the muscles and other soft tissues of the body. Variations in focus and technique lead to different types of massage, including Swedish, deep tissue and sports massage.

In Swedish massage, the focus is general and the therapist may use long strokes, kneading, deep circular movements, vibration and tapping. With a deep tissue massage, the focus is more targeted, as therapists work on specific areas of concern or pain. These areas may have muscle "knots" or places of tissue restriction.

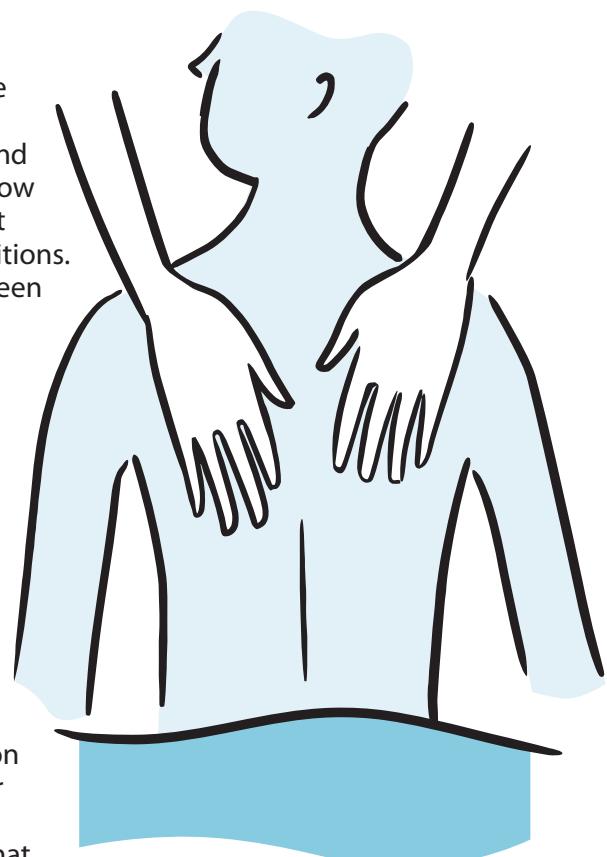
Some common reasons for getting a massage are to relieve pain, heal sports injuries, reduce stress, relax, ease anxiety or depression, and aid general wellness. Unfortunately,

scientific evidence on massage therapy is limited. Researchers are actively trying to understand exactly how massage works, how much is best, and how it might help with specific health conditions. Some positive benefits have been reported.

"Massage therapy has been noted to relax the nervous system by slowing heart rate and blood pressure. Stress and pain hormones are also decreased by massage, reducing pain and enhancing immune function," says Dr. Tiffany Field, who heads a touch research institute at the University of Miami Medical School. Much of her NIH-funded research focuses on the importance of massage for pregnant women and infants. Some of her studies suggest that massage may improve weight gain and immune system function in pre-term infants.

A study published earlier this year looked at how massage affects muscles at the molecular level. The findings suggest that kneading eases sore muscles after exercise by turning off genes associated with **inflammation** and turning on genes that help muscles heal.

A recent NIH-supported study found that an hour-long "dose" of Swedish massage therapy once a week was optimal for knee pain from osteoarthritis, especially when practical matters like time, labor and convenience were considered. Other research suggests that massage therapy is effective in reducing and



managing chronic low-back pain, which affects millions of Americans.

If you're considering massage therapy for a specific medical condition, talk with your health care provider. Never use massage to replace your regular medical care or as a reason to postpone seeing a health care professional.

Every therapist and every massage is unique. If you decide to try massage therapy, work with different therapists until you find one that meets your needs. One of the best ways to get a great massage is to communicate with your therapist. Most will check in with you during your session for feedback, but—if not—speak up! ■



Wise Choices Getting a Safe Massage

- If you have a medical condition, ask your health care provider if massage therapy is right for you.
- Before beginning massage therapy, ask about the therapist's training, experience and credentials. Also ask about the number of treatments that might be needed, the cost and insurance coverage.
- Massage should not hurt. If you feel pain, tell your therapist.
- Tell your health care providers about all complementary and alternative practices you use, including massage.



Definitions

Inflammation

Heat, swelling and redness caused by the body's protective response to injury or infection.



Web Links

For more information about massage therapy, see our links online:
<http://newsinhealth.nih.gov/issue/Jul2012/Feature2>

Health Capsules

Cooling Therapy Helps Newborns Years Later

A cooling treatment for infants who lack oxygen at birth brings benefits that last for years, a new study shows.

Blood loss and other complications during birth can cause severe oxygen deficiency. This condition is called birth asphyxia or hypoxic-ischemic encephalopathy. Surviving infants often suffer from brain damage. Even without detectable damage, children who've had birth asphyxia are at risk for learning and memory problems later in life.

In 2005, an NIH-supported study found that a cooling therapy called hypothermia treatment could help

these babies. The treatment involves placing newborns on a special blanket with cool circulating water. The study showed that treated babies had a lower risk of death and disability nearly 2 years later. The therapy is now used in many neonatal intensive care units.

In the new study, scientists looked to see if the benefits lasted even longer. They examined data from 190 of the original study participants at ages 6 and 7 years. About half the children had received the hypothermia therapy as newborns. The others had received usual care.

For links to more information, see these stories online:
<http://newsinhealth.nih.gov/issue/Jul2012/Capsule1>

The researchers found significantly fewer deaths and cases of severe disability in the hypothermia treatment group. The death rate in the group was 28%, compared to 44% in the usual care group.

"This follow-up study confirms the original finding, showing that children who received the cooling treatment were more likely to survive, and that the survivors were no more likely to have a disability than the children in the untreated group," says senior author Dr. Rosemary D. Higgins of NIH. ■

High Blood Pressure in Children

About 1 in 3 adults nationwide has high blood pressure, or hypertension. But did you know that kids can get hypertension too? By some estimates, up to 3% of U.S. children have high blood pressure. A new study by NIH-funded scientists shows that the number of kids hospitalized with hypertension is rising.

Scientists analyzed data on children, ages 2 to 18 years, who were hospitalized for high blood pressure. Over a 10-year period, the number of these hospitalizations nearly doubled, climbing from 12,661 in 1997 to 24,602 in 2006. On average, children with hypertension also remained in the hospital twice as long as kids with other illnesses—8 days compared to 4 days.

Pediatric hypertension can lead to later complications. "A child with high blood pressure is at increased

risk for having high blood pressure in adulthood and the heart and stroke risks that come with that diagnosis," says study co-author Dr. Cheryl Tran of the University of Michigan. She and her colleagues suggest that the rise in hospitalizations for hypertension may be partly due to increased childhood obesity.

Hypertension often has no symptoms, but it can be easily diagnosed by a health care provider. The sooner it's found, the sooner it can be treated. A healthy diet, physical activity and weight loss can help to keep blood pressure in check.

To learn more, read NIH's new brochure *High Blood Pressure and Children: What Parents Need to Know* at <http://nkdep.nih.gov/resources/children-high-blood-pressure.shtml>. To order a free print copy, visit <http://nkdep.nih.gov/resources.shtml> or call 1-866-454-3639. ■

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Featured Website

Impact of NIH Research

www.nih.gov/about/impact

Whether you realize it or not, NIH has probably had a major positive impact on your life. As the world's leading supporter of biomedical research, NIH has helped to improve our health, fuel our nation's economy and create jobs in our communities. Find out more at this new website.



The screenshot shows the homepage of the NIH Impact website. At the top, there's a blue header bar with the NIH logo and the text "Impact of NIH Research". Below the header, there's a large image of a diverse group of people, likely researchers or patients, smiling. The main content area has a light blue background. It features several sections: "Impact", "Impact of NIH Research", and "Impact on Society". There are also links for "Health Information", "Grants & Funding", "News & Events", "Research & Training", "Institutes at NIH", and "About NIH". The overall design is clean and professional, using a mix of white, blue, and grey colors.