

Health Post



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The Persistence of Plastics Can Tiny Plastic Pieces Affect Our Health?

(NIH-News In Health) Since their invention over a century ago, plastics have become part of our daily lives. Our food and drinks are often packaged in plastics. Plastics are also found in fabrics, toys, tools, and more. Plastic packaging can help keep medical tools and equipment germ-free. But we make and use so much plastic that plastic pollution is now a big concern.

Some plastics can be recycled. But most are thrown into landfills, where they break down over time into smaller pieces. These have seeped into our oceans and waterways, so tiny plastic bits are showing up in some seafood. And when we wash fabrics made of plastics like nylon or polyester, plastic bits can blow out of our dryers, adding to air pollution.

These tiny plastic particles, called microplastics, are raising health concerns. Microplastics are generally smaller than a sesame seed. They can get into our bodies through the foods we eat and air we breathe.

Scientists have found microplastics in human blood, lungs, guts, and feces. They've also been seen in the placenta and breast milk. Although microplastics have been found in people, it's not yet clear if and how these plastic pieces affect our health.

"Surprisingly, even though we produce millions of tons of plastic each year, we know very little about the health effects of microplastics," says Dr. Douglas Walker, an expert in environmental health at Emory University. "This is a relatively new and active area of research. We still have much to learn."

Walker and others have long studied how exposure to many different substances in our environment can affect human health. "We know that exposure to particles in air pollution has been linked to heart and



Reduce Plastic Use

- Experts recommend that we reduce, reuse, and recycle plastics.
- Pack lunch in reusable containers.
- Use glass or metal containers for food and drinks when possible.
- Choose reusable shopping bags.
- Bring old plastic bags to recycling bins at grocery stores.
- Recycle or reuse plastic packaging materials, like bubble wrap.
- Reuse plastic items that cannot be recycled in creative ways.
- Contact your local recycling office to learn what can be recycled.
- Never throw plastics into lakes, oceans, or other waterways.
- Participate in local litter clean-ups.

lung diseases," Walker says. Although microplastics have not been specifically implicated, these tiny plastics likely play a role.

Some researchers are focused on even smaller plastic bits, called nanoplastics. These are too small to be seen with your eyes. Nanoplastics may pose more serious risks to human health because they're small enough to slip into the body's cells and organs. Their small size has made nanoplastics especially hard to detect and study.

Earlier this year, an NIH-supported research team developed a powerful new imaging method that could detect both micro- and nanoplastics. They found that, on average, a liter of bottled water contained nearly a quarter-million plastic bits, mostly nanoplastics. This was up to 100 times more plastic pieces than had been seen in prior studies.

The health effects of these tiny plastics are still unclear. But scientists do know that some chemicals used in plastics manufacturing can cause problems. For instance, bisphenol A (BPA) and phthalates have been linked to various health concerns.

"There are over 10,000 chemicals used to manufacture plastics, and only a fraction of those have been studied for potential health effects," Walker says. "We're just barely scratching the surface of exposure to plastic-related chemicals.

Despite their drawbacks, Walker says, plastics remain important. "Plastics have changed how we save lives in hospitals, and they have countless other benefits. We could never completely eliminate plastic use, and we shouldn't try to."

But if you are concerned about possible health effects, Walker adds, "you can try to be mindful about your use of plastics."



NOTICE OF ANNUAL MEETING OF MEMBERS

The Annual Meeting of the Members of Peoples Benefit Alliance will be held at 12444 Powerscourt Drive, Suite 500A, St. Louis, Missouri, on Thursday, April 11, 2024 at 12:00 p.m. for election of Directors and for the transaction of such other business as may properly come before the meeting of any adjournment thereof.

The above notice is given pursuant to the By-Laws of the Association.

PROXY

Peoples Benefit Alliance

April 11, 2024 Annual Meeting of Members

THIS PROXY IS SOLICITED ON BEHALF OF
PEOPLES BENEFIT ALLIANCE

The undersigned member of Peoples Benefit Alliance does hereby constitute and appoint the President of Peoples Benefit Alliance, the true and lawful attorney(s) of the undersigned with full power of substitution, to appear and act as the proxy or proxies of the undersigned at the Annual Meeting of the Members of Peoples Benefit Alliance and at any and all adjournments thereof, and to vote for and in the name, place and stead of the undersigned, as fully as the undersigned might or could do if personally present, as set forth below:

1. FOR [], or to [] WITHHOLD AUTHORITY to vote for, the following nominees for Board of Directors:
Jay Delsing, John Perles and Ron Kotowski
2. In their discretion, the proxies are authorized to vote upon such other business as may properly come before the Meeting.

This proxy, when properly executed, will be voted in the manner directed by the undersigned member. If no direction is made, this proxy will be voted for the election of directors and officers.

DATED: _____, 2024

Signature _____

Name (please print) _____

Please date and sign and return promptly to 12444 Powerscourt Drive, Suite 500A, St. Louis, Missouri, 63131 whether or not you expect to attend this meeting. The Proxy is revocable and will not affect your right to vote in person in the event that you attend the meeting.

St. Louis, Missouri
April 2, 2024

Summer Road Trip

Summer road trips are more affordable when you take advantage of the car rental discounts available with your HVA membership!

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Battling Bites Blocking Mosquito- Borne Diseases

As the days grow longer and warmer, summer fun beckons. Swimming, sports, and picnics go hand in hand with warmer weather. But so do bug bites. Mosquitoes in particular can ruin a day outside. And their bites aren't just itchy and irritating. They can also spread disease.

The list of illnesses carried by mosquitoes keeps growing. Some, like malaria, are rarely seen in the United States. Others, like dengue fever, are spreading in the Southern states as temperatures get warmer. And others, like

West Nile virus, now pop up seasonally in most parts of the country.

NIH-funded researchers are working to help stop the spread of mosquito-borne diseases. They're testing ways to stop mosquitoes from biting people and keep those who are bitten from getting sick.

Blocking Disease

For decades, researchers have been trying to develop vaccines to protect people against mosquito-borne diseases. But most haven't been as effective as hoped, explains Dr. Matthew Memoli, an infectious diseases researcher at NIH.



"And there's a lot of mosquito-borne diseases," he says. "If you make a vaccine for every single one, that's a lot of vaccines to have to develop."

But what if you could vaccinate people against mosquitoes? That may sound far-fetched, but Memoli's lab has been trying to do just this. When a mosquito bites you, their saliva gets under your skin. This saliva contains compounds that make it easier for a mosquito to suck blood. It also has compounds that help any disease the mosquito is carrying to get into your body.

"When you get bitten by a mosquito, you have an allergic response to the saliva," explains Memoli. That response causes an itchy bump to appear after a bite. This is normal, but it can interfere with your body's ability to fight germs. "When that allergic response gets turned on, the anti-infection response gets turned down," Memoli says.

So Memoli's team is testing a vaccine that helps the body's defense system recognize mosquito saliva. They hope it can help the body prevent infections from sneaking in. In a small study, the team found that the vaccine was safe and boosted people's defense responses. They now hope to test the vaccine in areas of the world where the risk of deadly mosquito-borne diseases is high.

Deterring Mosquitoes

One of the best ways to avoid mosquito-borne diseases is to prevent bites in the first place. People can take certain steps to protect themselves.

"We have personal repellents, like DEET, which you can put on," says Dr. Carolyn McBride, who studies mosquito biology at Princeton University. Tools like mosquito nets can also prevent bites. But to keep diseases from spreading, they need to be used by everyone in an area.

Researchers want to develop better ways to prevent mosquito bites. But first they have to figure out how mosquitoes sense people. How do they find us to bite us?

McBride and her team recently uncovered a set of chemicals that the *Aedes aegypti* mosquito detects to let it home in on people. These chemicals include certain fats and other substances in and on human skin. They found that a specific mixture of these substances could attract mosquitoes from several feet away. They hope this knowledge can be used to design new ways to repel or trap mosquitoes, over large areas.

"This would allow us to push mosquitoes away from all the houses in high-risk neighborhoods. Or to place a trap where we can pull them in and kill them," McBride explains. This would allow for better control of mosquitoes

than requiring everyone to protect themselves.

Her team is now looking at a different kind of sensing: how mosquito eggs sense when it's time to hatch. "If we can understand that, we could screen for compounds that block hatching," McBride says. "Maybe chemicals that are otherwise safe, but if you sprinkle them on all the places mosquitoes lay their eggs, the eggs never hatch."

Reducing the Spread

If there were fewer biting mosquitoes around, there would be less disease.

"But trying to keep mosquitoes down to a low level is really hard," says Dr. Zach Adelman, a mosquito geneticist at Texas A&M University. "They're really resilient. Spraying insecticides can get them temporarily. But they always come back."

To disrupt this cycle, researchers have been working on an idea called reduce and replace. First, insecticides would be used to lower the mosquito population in an area. Then, before they could bounce back, new mosquitoes that are less likely to infect people would be introduced in their place.

Many ideas are being tested to make mosquitoes that can't spread disease. One is infecting them with bacteria called Wolbachia. This doesn't kill the mosquitoes. But mosquitoes that carry it have a harder time passing viruses on to people.

Adelman's lab is looking at ways to modify the genes mosquitoes carry to make them less able to spread disease. For example, mosquitoes aren't normally affected when they pick up the virus that causes dengue fever. Adelman and his team are trying to make a mosquito that would die when exposed to the virus. This would lower the chances that infected mosquitoes bite people and spread the disease.

They're also making sure that such gene changes would be temporary. "People want to know: What happens if these technologies don't work out? Can you stop them? If they're temporary, people are much more likely to want to try them," Adelman says.

While researchers continue to work on ways to battle mosquitoes, there are simple steps you can take to reduce bites right now.

Article reprinted from NIH-News In Health

Preventing Mosquito Bites

- **Cover your skin.** When outside, use long sleeves, pants, and socks to help block bites.
- **Use insect repellents when outside.** Products containing DEET, picaridin, lemon eucalyptus, IR3535, or para-menthane-dio can be sprayed directly on your skin. Follow label instructions. Products containing permethrin can be put on clothing and outdoor gear. Don't spray permethrin directly on your skin. [Find effective bug repellents from the EPA.](#)
- **Use a fan when sitting outside.** Aim the air from a box fan at your legs when eating outside or gardening.
- **Protect your home.** Use screens on open doors and windows. Repair screens if they get holes.
- **Remove breeding grounds.** Drain puddles around your house where mosquitoes can lay eggs. Look for pots, buckets, pet bowls, gutters, lawn decorations, and other sites that hold water.
- **Get vaccinated before you travel.** Talk to your doctor before going to areas with many mosquito-borne diseases. Learn more at the [CDC's Traveler Health website.](#)

The Health Post Newsletter is published by:

Peoples Benefit Alliance

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