BottomLine

For members of Bloom Benefits Association 2025

Medical Robots to the Rescue

New Technologies to Help Our Health

What do you think of when you hear the word robot? Is it a human-like assistant with a friendly face, or a large and menacing foe? Generally, a robot is a machine that that's been built to perform specific tasks.

"When most people hear the term 'robot,' they think of things made of solid metal and electronics," says Dr. Ryan Sochol, a mechanical engineer at the University of Maryland. But medical robots can come in many shapes and sizes.

Sochol and his colleagues are creating tiny flexible robots to improve surgical techniques. Other scientists are developing wearable robots to enhance mobility. And others are creating and testing human-like social robots. These may be able to provide information and improve well-being.

Most of these robotic devices are still in the research and development phase. They're not yet ready for general use. But some may become available within the next five to ten years.

Also included in this issue:

Robots usually have three key features. They have a sensor that can detect things—like light, motion, heat, or sound. They have an "actuator" that converts energy into movement. And they have a control system or computer program that directs the robot's activities. Many robots today also depend on artificial intelligence (AI) to assess large amounts of data.

"Robots are everywhere. Even many cars now have robots," says Dr. Xiaopeng Zhao, a biomedical engineer at the University of Tennessee, Knoxville. These systems can help drivers with parking, staying within lanes, or cruise control. "And with the support of AI technology, robots will become more useful and more powerful."

Social Robots Help Out

Zhao and others are studying how human-like, interactive robots could help people with dementia and their caregivers. As the U.S. population ages, there's a growing need for caregivers. Family caregivers often provide countless hours of support. That can lead to a lot of stress.

Zhao and his team interviewed patients and caregivers at assisted living facilities, senior centers, and memory clinics. They asked about their needs and challenges. They then customized a four-foot tall, human-like robot. It has a touch screen on its chest. These AI-powered robots can listen, talk, move, play videos, and dance. They can also encourage people to reminisce about earlier experiences.

"Patients with Alzheimer's can have short-term memory loss," Zhao says. "But they may be able to recall what happened 20 or 30 years ago."

The robots can play old songs, discuss sports, or ask questions to trigger memories.

"Reminiscing may not restore memory, but it can improve emotional well-being and quality of life," Zhao says. Robots can patiently listen to the same stories over and over.

Zhao's group is also developing robots that can assist caregivers by providing evidence-based information about dementia. The robots can give tips to help caregivers reduce their own stress and stay healthy.

Robots for Surgery

Other researchers have been developing tiny robotic tools to help surgeons and physicians. Robotic surgery can lead to less pain and blood loss, smaller scars, and quicker recovery. It can have fewer complications compared to traditional surgery.

Robotic surgeries usually involve making little openings through the skin and then inserting small 3D cameras and surgical tools. Sochol's team is developing miniature tools and robotic techniques to assist with complex surgeries. They're creating soft robotic devices, made of flexible or compliant materials. These flexible gadgets are helping to improve a type of brain surgery for weakened and bulging blood vessels, called aneurysms.

Minimally invasive aneurysm surgery typically involves threading a thin plastic tube, or microcatheter, through the body to reach the brain. The weakened blood vessel can then be repaired or sealed. But the microcatheter has to make many twists and turns along the way, and it can be hard to maneuver. If the catheter can't reach the aneurysm, the surgery must be canceled.

Sochol and his team used 3D printing to create microcatheters that surgeons can steer to reach these tricky parts of the brain. "We created a soft robotic microcatheter that can bend on demand during the procedure to help surgeons reach those hard-to-access areas," he says.

Other NIH-supported scientists are developing soft robotic techniques to improve heart surgery, bowel surgery, and lung biopsies. These soft robotic tools are still
considered experimental.

Wearable Robotics

NIH also funds studies to develop artificial limbs, or prosthetic devices, to replace lost or damaged body parts. Some of these robotic devices connect to the brain and let people control movement of artificial hands, legs, and other limbs.

Other researchers are developing battery-powered exoskeletons to help move existing limbs. "Exoskeletons are robots that you wear on your body. They can fit on top of your limbs, kind of like clothing. You can put them on and take them off, like boots or pants," says Dr. Gregory Sawicki, a biomedical engineer at the Georgia Institute of Technology. "They can work in synch with your muscles, so your muscles don't have to do all the work."

Sawicki and his colleagues have been studying how exoskeletons might help improve mobility and prevent falls as people age. Falls can lead to fractures, hospitalization, and disability in older adults. "A primary reason why people fall is that their body can't react fast enough," Sawicki says. Robots have the potential to respond more quickly to balance problems than the human body can. Researchers are working to develop more comfortable and lightweight exoskeletons that seem more like clothing.

"To live long happy lives, we've got to be mobile for as long as possible. Mobility helps us have social connections, which are incredibly important as we age," Sawicki says. "These kinds of mobility assistive technologies can help us move farther on less energy and to interact with people."

Robots can make life easier or better in many ways. But they're no substitute for human interactions.

"It's clear that many tasks can be done by robots. They're especially helpful with repetitive or tedious tasks," Zhao adds. "But when we're talking about love, empathy, and bonding between humans, these qualities remain uniquely human."

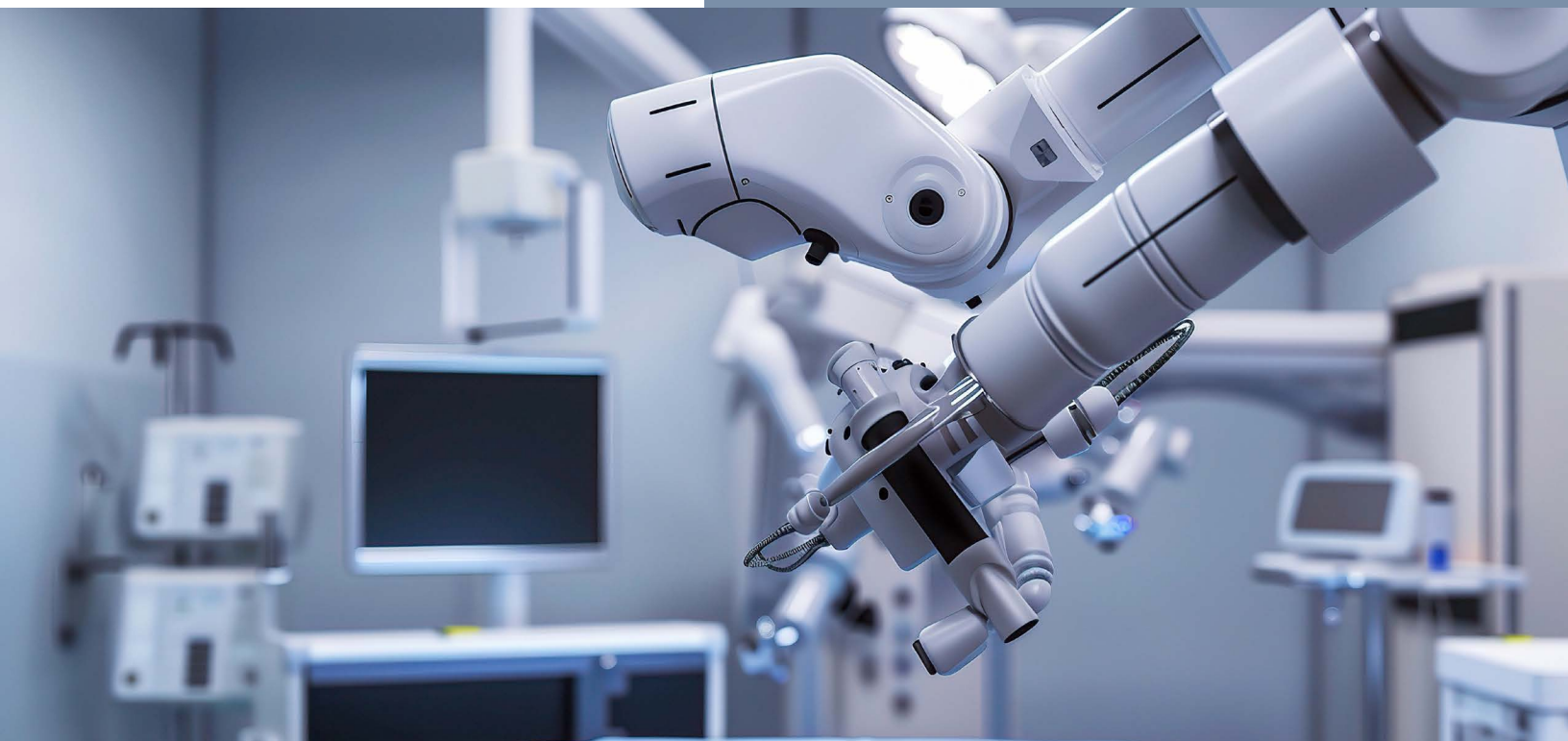
Article reprinted from NIH-News In Health

Wise Choices

Medical Robots in Development

NIH supports several robot-related studies that aim to improve human health and well-being, including:

- "Gripper" tools that can help people reach and maneuver everyday items, like utensils or laundry.
- Devices to track whether patients are taking prescribed medications as directed.
- Head-mounted robotic technology that improves delicate sight-saving eye surgeries.
- Magnet-guided robots to provide safer and more comfortable alternatives to standard colonoscopy.
- Robot-assisted correction of ankle bone fractures and injuries.
- Unique flexible robot to improve radiation therapy for breast cancer.
- Robotic "smart" needle to improve accuracy and reduce invasiveness of radiation therapy for prostate cancer.



NOTICE OF ANNUAL MEETING OF MEMBERS

The Annual Meeting of the Members of Bloom Benefits Association will be held at 12444 Powerscourt Drive, Suite 500A, St. Louis, MO 63131, on Wednesday, September 24, 2025 at 11:00 a.m. (CST) for election of Directors and for the transaction of such other business as may properly come before the meeting and any adjournment thereof.

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

PROXY
Bloom Benefits Association
September 24, 2025 Annual Meeting of Members
THIS PROXY IS SOLICITED ON BEHALF OF BLOOM BENEFITS ASSOCIATION

The undersigned member of Bloom Benefits Association does hereby constitute and appoint the President of Bloom Benefits Association, 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 Bloom Benefits Association 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: Tim Twellman, Thom Messmer, and Nathan Dierking
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: _____ , 2025

Signature _____

Name (please print) _____

Please date and sign and return promptly to 12444 Powerscourt Drive, Suite 500A, St. Louis, MO 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
September 21, 2025
Date

UPS Delivery Services

Flat Rate Discounts on Shipping

Members-Only Savings Include:

- 10% on UPS Next Day Air® Early
- 50% on Domestic Next Day / Deferred
- 30% on Ground Commercial / Residential
- International: 50% on Export / 40% on Import / 25% Canada Standard
- Savings begin at 75% on UPS Freight® shipments over 150 lbs
- In addition, members can take advantage of UPS Smart Pickup® service for free

Get the flexibility you need to capture the full benefit of growth opportunities: UPS' logistics experts and tools can help optimize your supply chain and let you react quickly to shifting market needs.

Open a new account, or if you are already taking advantage of our UPS savings program, re-enroll and apply the new discounts to your existing account.

Visit bloombenefitsassoc.com for complete details.

Treatment May Help Youth Quit Vaping

Nearly 1 in 4 youth between ages 18 and 25 regularly vape nicotine using e-cigarettes. Vaping puts youth at risk for nicotine addiction. It can also expose them to harmful chemicals. A new study showed that a smoking cessation drug may help youth quit vaping.

A drug called varenicline is FDA-approved for smoking cessation in adults. It works by blocking some effects of nicotine in the brain. This makes nicotine less enjoyable and reduces cravings.

The new study included 261 participants, ages 16 to 25, who vaped nicotine almost daily. They were divided into three groups. All the groups received a referral to a free text messaging-based program called "This is Quitting." It encourages people to quit vaping. One group was only given this referral. The other two groups received weekly counseling with a person trained to help youth stop vaping. One of these groups also took the drug varenicline twice a day. The other took an inactive placebo pill.

After 12 weeks, 51% of those taking varenicline had stopped vaping. Only 14% of those taking the placebo had quit. Just 6% of those who received only a referral stopped.

By six months, 28% of those who took varenicline still weren't vaping, compared to 7% of those who took the placebo. Only 4% of those in the text-only group were still vape free.

"Vaping is extremely popular among kids," says Dr. A. Eden Evins at Massachusetts General Hospital. "We know that … early nicotine exposure can make drugs like cocaine more addictive down the line."

More research is needed to learn how best to use the drug to reduce vaping among teens and young adults.

Article reprinted from NIH-News In Health

BottomLine is published by:
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For information regarding your membership
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Benefits may not be available in all membership levels.
For more information, or to upgrade your membership, please call 1-800-387-9027.

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