

★ STUDY: MICROPLASTICS CAN GET INTO BRAIN TISSUE

Researchers make discovery in 8 of 15 adult cadavers

BY BART JONES

bart.jones@newsday.com

Researchers, in an apparent first, found evidence that microplastics — tiny bits of plastic fiber contained in everything from water bottles to clothes — have made their way into human brains.

A study published this week in JAMA Network Open, an online medical journal, found that eight out of 15 adult cadavers examined in Brazil had microplastics in their brains.

The researchers and other experts said microplastics can enter the brain directly from breathing through the nose. The tiny fibers are emitted from products containing plastic.

"To our knowledge, this is the first study in which the presence of MPs in the human brain was identified and characterized," wrote the researchers, who are from Germany and Brazil, including from the University of Sao Paulo.

The findings came as no surprise to Bernardo Lemos, a professor of toxicology and pharmacology at the University of Arizona who was not involved in the study.

Researchers have already found microplastics in other parts of human bodies including the lungs, Lemos said.

"It's an interesting paper. I'm glad it is out," said Lemos, who is also an adjunct professor at the Harvard T.H. Chan School of Public Health.

"It puts us all on notice."

Toxicology experts said the study did not address what health impacts microplastics in the brain could cause.

"It's a lot of guesswork here, but if I had to hazard a guess, would you want plastic in your brain? No," said Dr. Wells Brambl, a medical toxicology specialist at Northwell Health's Long Island Jewish Medical Center in New Hyde Park.

The autopsies of 12 males



ALAMY STOCK PHOTO / A-TS

"This is literally everywhere," a local expert said of microplastics.

WHAT TO KNOW

- **Researchers, in an apparent first, found evidence** that microplastics have made their way into human brains.
- **Microplastics are tiny bits of plastic fiber** contained in everything from water bottles to clothes.
- **The researchers and other experts said microplastics** can enter the brain directly from breathing through the nose.

and three females ranging in age from 33 to 100 took place at the Sao Paulo City Death Verification Service of the University of Sao Paulo. All had lived in Sao Paulo for more than five years.

The researchers also examined two stillborn infants. One showed no presence of microplastics. The other had insufficient material for analysis.

"Microplastic pollution is an emerging environmental and health concern," the researchers wrote.

The International Agency for Research on Cancer last year classified microplastics as a carcinogen, said Dr. Robert Schwaner, medical director of the department of emergency medicine and chief of the division of toxicology at Stony Brook University Hospital.

"I think they are starting to

get the attention that they deserve," Schwaner said.

Microplastics are ubiquitous in society, coming in all sorts of products including plastic containers used for food storage, bottle caps, baby bottles, carpets and even clothes — a growing area of use, experts said.

"This is literally everywhere," Brambl said of microplastics. "I think that this study is very thought-provoking in the sense that we need to start thinking about this as a real public health concern for the long term."

He and others cautioned, though, that a link between microplastics in the human brain and health problems has not been proved.

"You don't need to be up in arms over this study yet," Brambl said.

Stony Brook's Schwaner noted, though, that a study several years ago found cognitive decline, including dementia, in mice given microplastics.

Meanwhile, alternatives to plastics are growing in popularity around the world, with some producers using safer materials such as aluminum, Brambl said.

Other partial solutions might be using HEPA filters to clean air of some microplastics, Schwaner said.

Lemos said it was surprising that nearly half the cadavers examined did not have microplastics in their brains — and wondered why.

"How is it that these other people didn't have anything?"

Insurers

For some breast cancer patients, cost was a burden

BY LORENA MONGELLI

lorena.mongelli@newsday.com

Long Islanders who have braved mastectomies and breast reconstructions will no longer face a hurdle that added to worries for some: health insurers refusing to cover the cost of nipple tattoos.

Legislation that Gov. Kathy Hochul signed Aug. 26 requires commercial health insurers to provide coverage for nipple tattooing for patients in New York that a health care provider performs as part of reconstructive surgery. The tattoos can add color to an engineered nipple or etch a new one directly on breast skin.

Without the ink color, some area patients and medical providers said the reconstructions wouldn't look complete.

Lindenhurst resident Mary Leonardi said the legislation will make it easier for people who are coping with cancer.

After three surgeries in 2022, including the removal of her breasts, Leonardi, 51, dealt with what she said was unnecessary stress when her health plan initially declined to pay for tattooing to add color to nipples crafted from her own skin.

"You get to a point where you are clinically exhausted from procedures, appointments, commitments. You just want to go in and get it done without thinking about anything else," Leonardi said.

She decided on a double mastectomy in 2022 following the discovery of an invasive — yet benign — tumor. She said she didn't want to take a chance the tumor could become malignant because of a family history of cancer and a genetic mutation she has, called Lynch syndrome.

Insurer ultimately paid

Leonardi, a paralegal, said her insurance company eventually agreed to pay for nipple tattooing after she provided additional paperwork and resubmitted the claim.

"It should have been auto-



MARY LEONARDI

Mary Leonardi's insurer did not pay for nipple tattooing at first.

WHAT TO KNOW

- **A change in the law** requires commercial health insurers to provide coverage for nipple tattooing that a medical provider performs as part of reconstructive breast surgery.
- **The legislator who sponsored** the change said patients were having trouble getting insurance to pick up the cost of the procedure after surgery.
- **Experts said medical professionals** either can add pigment to an engineered nipple or design a realistic-looking 3D nipple on the skin.

matic that you're finishing it with the actual pigment. It's obvious it's not the same as your flesh color," Leonardi added.

Dr. Neil Tanna, a plastic surgeon who specializes in breast reconstructive surgery and has an office in Great Neck, performed Leonardi's reconstruction. He said insurance companies have varied in their coverage of the inking process because it often is considered elective but still is medically justified.

"The problem has been that insurance companies have been very good about recognizing the coverage for a mastectomy and your reconstructive surgery, but they have been inconsistent with coverage for a 3D tattoo," Tanna said.

The surgeon, who is vice president of Katz Women's Surgical

must cover tattoos



NEWSDAY / STEVE PROST

"Once I got the tattoos, I felt more feminine again," said breast cancer survivor Crystal Reiner, 46, seen behind her Hampton Bays home.

Center at Glen Cove Hospital, said nipple tattooing is the last step in making breasts look more natural after reconstruction and helps a woman regain a sense of her prior self.

"It could be an adverse reminder, especially if it's not completed," Tanna said, adding: "It aesthetically just looks better."

Out-of-pocket cost erased

Assemb. Amy Paulin (D-New Rochelle), who sponsored the bill, said she did so after hearing from concerned oncologists that patients were having trouble getting insurance to pick up the costs of the procedure after surgery.

"This way you don't have medical patients paying out of pocket for medical care," Paulin said in an interview.

To make the policy clearer,

the law now explicitly states that tattooing is part of breast reconstruction and must be covered by certain health insurers. The New York State Department of Financial Services said federally regulated government insurance programs and self-insured plans aren't covered by the legislation.

The cost of the procedure can range from \$350 to \$1,500, according to interviews with medical providers and legislative officials.

Breast cancer is the second-leading cause of cancer death in women after lung cancer, according to the American Cancer Society.

More than 43,100 women died of breast cancer in 2023, according to the U.S. Preventive Services Task Force, a panel of national experts. Nationwide,

the American Cancer Society said there were 287,850 new cases of invasive female breast cancer in 2022, the latest numbers available.

Other statistics show breast cancer rates among women on Long Island are higher than in New York City and the state. The Nassau County rate is about 146 people per 100,000, and Suffolk County's rate is 140 people per 100,000, according to the New York State Cancer Registry. New York City's rate is about 125 people per 100,000, and the state's rate is about 134 people per 100,000.

End of ordeal

At Memorial Sloan Kettering Cancer Center in Manhattan, physician assistants Emily Clark and Alicia Jones, from

the hospital's Center for Advanced Reconstruction, said they worked with the facility's legal team to make sure the new law would clarify that the process will be paid for when conducted by all medical providers, not just physicians. They said the new measure allows women to complete their medical journey with one less worry.

"The patient can come have the procedure and leave without having to worry, 'What is this going to cost me? Can I afford to do this for myself?'" Clark said.

Breasts commonly are formed during reconstructions using implants, or as in Leonardi's case, from a patient's own tissue.

When nipples and areolas cannot be saved, patients have

two options: Have them tattooed directly at the top of the new breast or have additional procedures to create a new nipple from a skin flap, medical experts said.

Depending on which avenue a patient chooses, medical professionals can either add pigment to an engineered nipple or simply design a realistic-looking 3D nipple directly on the skin, according to experts in the field.

"With new equipment and new shading techniques and new colors, we're able to create something much more realistic than we were doing before," Clark said.

The inking usually marks the end of a six-month to two-year ordeal.

"This closes the chapter for these patients of what can be a very long journey. They can do this and move on with their lives," Jones said.

'Feeling of normalcy'

Breast cancer survivor Crystal Reiner, 46, said she completed eight rounds of chemotherapy, a double mastectomy and 31 rounds of radiation by 2019. She also had her ovaries removed because of higher risks of cancer linked to her inherited genetic mutation, BRCA2.

The mother of two and teacher from Hampton Bays overcame two types of cancer, opting not to spare her nipples due to lingering cancer concerns. She settled on nipple tattoos in 2020 instead.

"You are already getting a piece of your body taken from you. So then when you get your reconstruction, you're like, your breasts are never going to be perfect again," Reiner said.

After the first phase of the breast reconstruction, she refused to look at her reflection because she did not like what she saw.

"You go to look in the mirror and you don't have any nipples, so you don't want to look," Reiner said.

But the tattoos have helped her put the past behind her.

"Once I got the tattoos, I felt more feminine again," she said. "It just gives you that boost of confidence. It gives you that feeling of normalcy again."