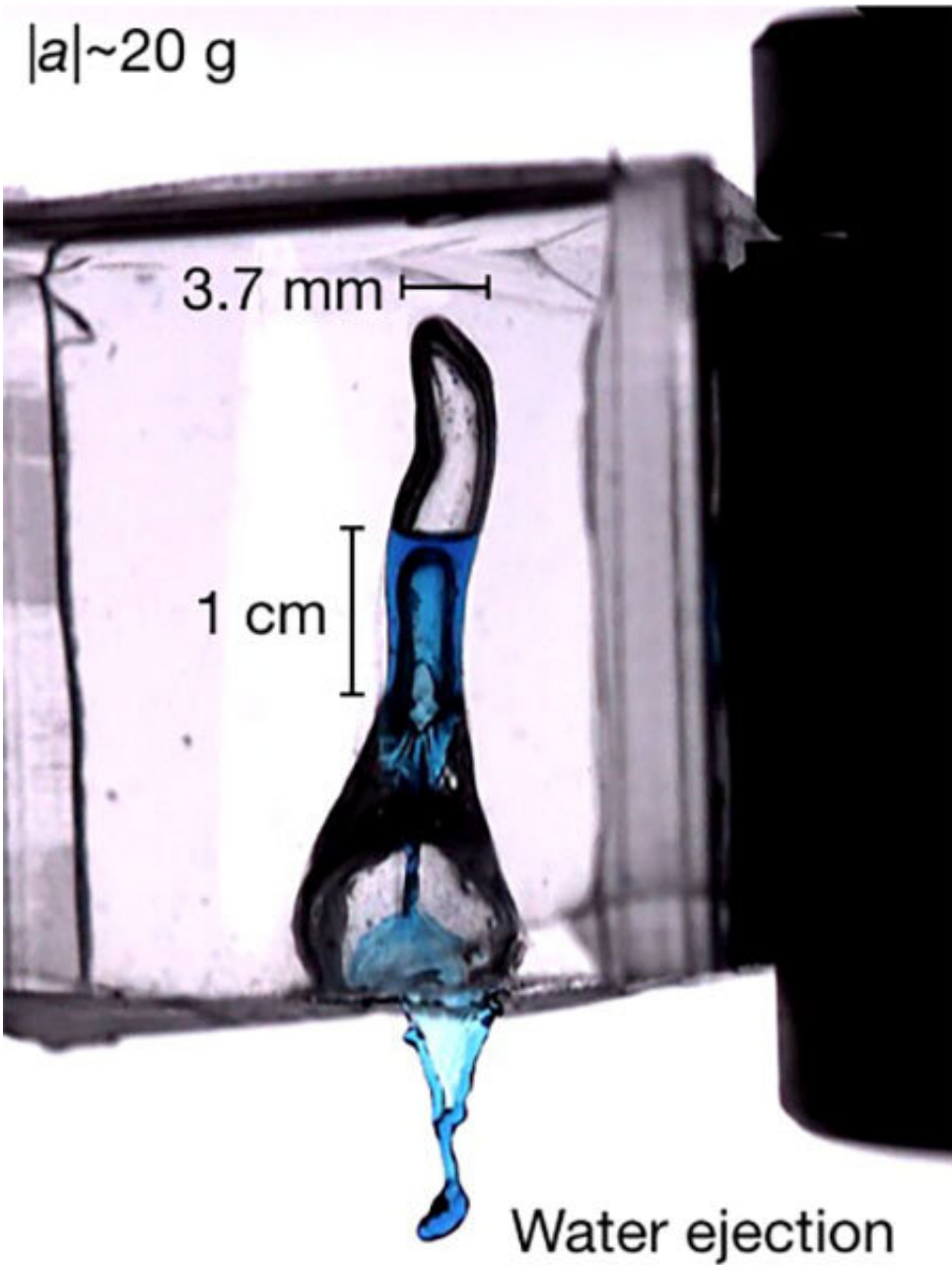


Shaking head to get rid of water in ears could cause brain damage, physicists find

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Various tube sizes and different accelerations were tried to determine what combination was necessary to remove water from a confined area. Credit: Anuj Baskota, Seungho Kim, and Sunghwan Jung

Trapped water in the ear canal can cause infection and even damage, but it turns out that one of the most common methods people use to get rid of water in their ears can also cause complications. Researchers at Cornell University and Virginia Tech show shaking the head to free trapped water can cause brain damage in small children.

Anuj Baskota, Seungho Kim, Hosung Kang, and Sunghwan Jung will present [their findings](#) at the American Physical Society's Division of Fluid Dynamics 72nd Annual Meeting. The conference takes place at the Washington State Convention Center in Seattle on Nov. 23-26, 2019.

"Our research mainly focuses on the acceleration required to get the water out of the [ear canal](#)," said Baskota. "The critical acceleration that we obtained experimentally on glass tubes and 3-D printed ear canals was around the range of 10 times the force of gravity for infant ear sizes, which could cause damage to the brain."

For adults, the acceleration was lower due to the larger diameter of the ear canals. They said the overall volume and position of the water in the canal changes the acceleration needed to remove it.

"From our experiments and theoretical model, we figured out that surface tension of the fluid is one of the crucial factors promoting the water to get stuck in ear canals," said Baskota.

Luckily, the researchers said there is a solution that does not involve any head shaking.

"Presumably, putting a few drops of a liquid with [lower surface tension](#) than water, like alcohol or vinegar, in the ear would reduce the surface tension force allowing the [water](#) to flow out," Baskota said.

More information: www.apsdfd2019.org/

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