

What shaking a container can teach us about touch

April 7 2022



Credit: Unsplash/CC0 Public Domain

We shake cereal boxes and milk cartons to figure out if there is enough for breakfast. We can easily tell if there is enough toothpaste left in the tube, or if we have enough vitamin tablets left in a bottle. For these

actions, we rely on our sense of touch (and hearing). New research led by Ilja Frissen, Associate Professor in McGill's School of Information Studies, with Professor Catherine Guastavino, demonstrates a natural human ability to understand how an object moves inside a container, providing new insights into the different kinds of information that can be conveyed through the sense of touch.

In the future, Frissen said, understanding how people can decipher the hidden contents of a [container](#) could help create a more natural and comprehensive communication between humans and machines, such as smart devices, as well as educational simulation tools and accessibility technologies for those with [visual impairments](#).

Researchers created a set of five fiberglass tubes that contained a metal ball that could move between two internal walls. Seventeen people participated in this perceptual study. They were asked to figure out how far the ball had rolled inside the tube. In a second experiment, researchers used virtual reality technology to simulate and isolate the various physical cues that occur, such as the ball rolling along a surface or bouncing off an internal wall. "We found that our participants, who received no particular training, were surprisingly accurate in doing this curious task. And thanks to the [virtual reality technology](#) we were able to start piecing together how the various physical cues played a role," Frissen said.

The research was published in the *Quarterly Journal of Experimental Psychology*.

More information: Ilja Frissen et al, EXPRESS: Humans sense by touch the location of objects that roll in handheld containers, *Quarterly Journal of Experimental Psychology* (2022). [DOI: 10.1177/17470218221086458](https://doi.org/10.1177/17470218221086458)

Provided by McGill University

Citation: What shaking a container can teach us about touch (2022, April 7) retrieved 5 February 2024 from <https://medicalxpress.com/news/2022-04-what-shaking-a-container-can.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.