

An end to needle phobia: device could make painless injections possible

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Imagine no tears during infant vaccines and no fear of the needle for those old enough to know what's coming. Such painless injections could be possible with a device that applies pressure and vibration while the needle is inserted in the skin, according to a study presented at the Anesthesiology 2014 annual meeting.

"As many as 1 in 10 people experience needle phobia, which may have negative consequences, such as decreasing the rate of vaccinations and blood donation," said William McKay, M.D., lead author of the study and a professor of anesthesiology in perioperative medicine and pain management at the University of Saskatchewan, Saskatoon, Canada. "Our early research suggests that using a device that applies pressure and vibration before the needle stick could help significantly decrease [painful sensations](#) by closing the 'gate' that sends pain signals to the brain."

Researchers studied the use of pressure, vibration, and cooling or warming in 21 adults poked in the shoulder by a plastic needle that doesn't break the skin but produces needle-like pain. They tested different levels of pressure, vibration and temperature to determine the amount that provided the most benefit. The perception of pain was significantly decreased when a specific amount of pressure and vibration was applied to the site for 20 seconds prior to using the plastic [needle](#). The addition of heat added a small benefit, but it wasn't significant. The study should be repeated in children, who may experience pain differently, said Dr. McKay. The addition of heat or cold might be more beneficial, he said.

While commercial devices that include some of these features are available, they could be improved by incorporating the additional features tested in this and other studies, he said. They could be used to prevent pain prior to providing intravenous (I.V.) treatment, the drawing or donating of blood, or administering vaccinations.

The concept likely works by distraction as well as employing the gate-control theory of pain, in which these sensations (pressure, vibration and potentially temperature) close the gate that allows the brain to register [pain](#).

Provided by American Society of Anesthesiologists

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