

# Japan researcher builds device to 'transmit force'

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A physical therapist helps a patient stand up during a physical therapy session on February 10, 2011 in Novato, California.

A Japanese researcher on Friday unveiled an invention that instantly and wirelessly transmits force between two devices, in a development that could allow physical therapists to treat patients remotely.

Kouhei Ohnishi said his "[force](#) transceiver" permits two-way

communication of the amount of pressure being applied and the resistance it is encountering in real time.

If applied to a robot, for example, it would mean a skilled operator could use the [device](#) to remotely carry out complex work in areas where it was not safe for people to be—for example because of high temperatures or radiation.

"For physical therapy, the feeling and movement of therapists must be transferred without any delay," Ohnishi told reports.

"The therapist will also be able to feel how well the patient's limbs are moving, for example, which is a key piece of information".

The technology should help reduce the burden on [medical care providers](#) while increasing convenience for patients, said Ohnishi, a system design engineering professor at Keio University.

The technology could also amplify or diminish the force being applied, the professor said.

"We could apply this technology to do construction work that could not be done by humans," he said.

The system uses high-speed [wireless communication](#) many times faster than the presently-available wifi used for domestic Internet connections, along with high-speed computing capacity.

To demonstrate the [technology](#), Ohnishi's team built two box-like tools with levers on top.

When a user moved the lever on one of the units, the lever on the other moved at exactly the same speed and force instantaneously, as if they

were physically connected.

An AFP reporter who tested the device said when using a lever on one device to make the other one push a fork into an apple, it was possible to feel the resistance of the fruit's skin as the fork penetrated it.

Ohnishi said the device could in the future be used to preserve the techniques of skilled craftsmen, such as master lens grinders, who apply differing levels of pressure as they work their materials.

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