Researchers characterize Meissner corpuscles in mice
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Meissner corpuscles are mechanosensory end organs found in glabrous (hairless) skin in all mammals. In humans, they are found in the fingertips, though until now, their function has been mostly a mystery to medical scientists. To better understand their function, the researchers studied Meissner corpuscles in mice, which express Meissner corpuscles in their fingertips and palms.

The work involved studying the organs up close with an electron microscope and disabling them in the fingertips of lab mice. The scientists then tested the mice to see if doing so resulted in any behavioral differences.

The close-up view of the organs showed that each Meissner corpuscle was made up of a pair of neurons, which had differences in their stimulus thresholds. Disabling the organs in mouse fingertips was just the first part of testing for behavioral differences. The researchers also had to teach each of the mice to respond differently to different gentle touches prior to disabling their Meissner corpuscles—that allowed them to determine differences in touch sensitivity.

The researchers found that without their Meissner corpuscles, the mice were less able to detect gentle indentations in a material, and they were also much less adept at prying opening sunflower seeds. These observations provided evidence that Meissner corpuscles play a role in the sense of touch, and are indispensable in providing a full spectrum of sensations. The researchers plan to continue their research—next up will be locating the ion channel and trying to understand the reason for a duel nerve structure.
