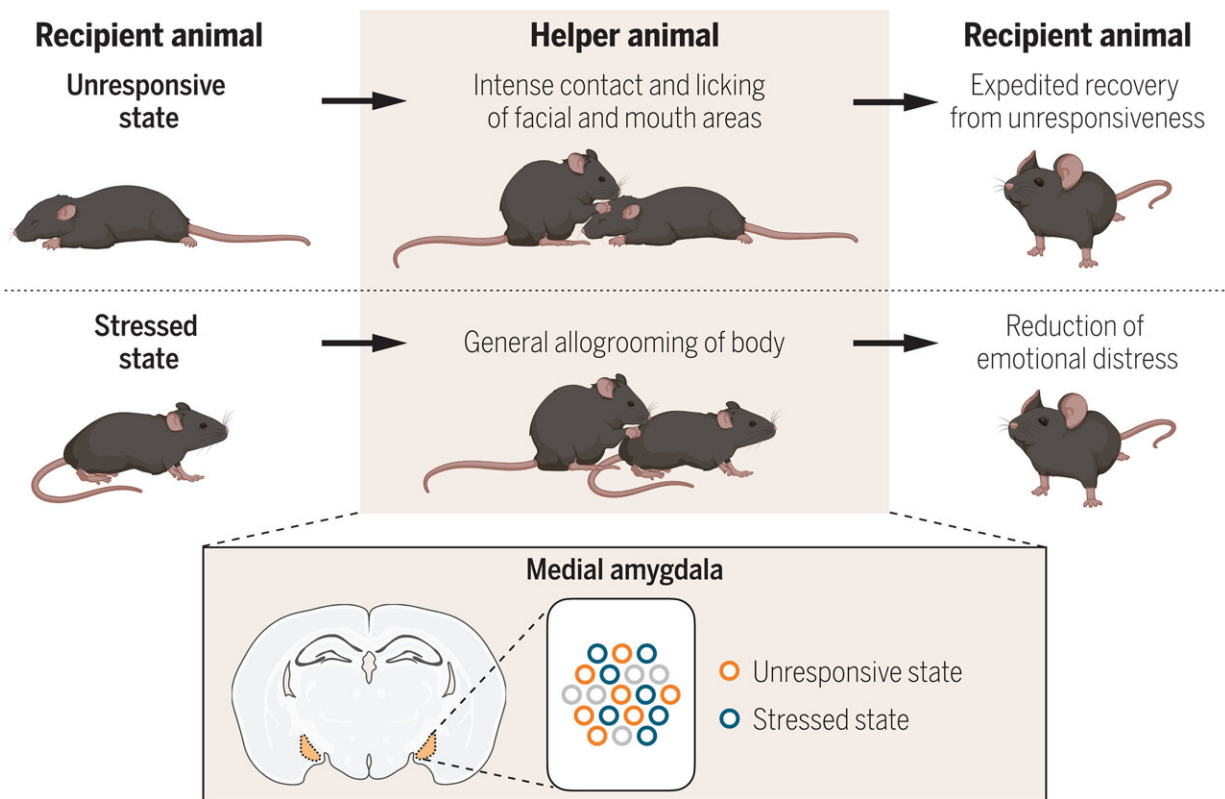


# Mice exhibit paramedic-like behaviors toward unresponsive peers, study finds

February 24 2025, by Justin Jackson



Mice can detect the unresponsive state of other individuals and exhibit rescue-like behavior characterized by intense physical contact directed at the recipient’s head region, which facilitates recovery from unresponsiveness. Credit: *Science* (2025). DOI: 10.1126/science.adq2679

University of California, Los Angeles, researchers have identified neural

mechanisms behind prosocial behaviors in mice directed toward unresponsive conspecifics. Their findings suggest that mice, driven by an amygdala-regulated response, preferentially approach and engage in head-directed grooming toward sedated peers, which facilitates their recovery from unresponsiveness.

Partial or complete loss of responsiveness, such as transient unconsciousness, increases vulnerability in animals. While humans readily recognize and assist unconscious individuals, previous documentation of similar behaviors in nonhuman species has been anecdotal and limited to a few taxa, including nonhuman primates and marine mammals.

Controlled experimental examination of such behaviors in other species and their underlying [neural mechanisms](#) has been lacking.

In the study, "A neural basis for prosocial behavior toward unresponsive individuals," [published](#) in *Science*, researchers used male and [female mice](#) to assess responses to conspecifics under unresponsive sedation induced by dexmedetomidine.

Behavioral assays revealed that mice spent more time engaging in intense physical contact and [grooming](#), particularly targeting the facial and mouth areas of sedated peers, compared with awake partners. Grooming intensity increased over time during the sessions and was not influenced by the sex of either the helper or the recipient.

Three-chamber preference tests demonstrated that mice favored interacting with unresponsive conspecifics over awake ones, and this preference was not driven by novelty or stationary object attraction.

Mice detected the unresponsive state of conspecifics without relying on visual cues. Behavioral responses, including head-directed grooming,

remained consistent when experiments were conducted in complete darkness, indicating that other sensory modalities, such as auditory, olfactory or somatosensory cues, likely mediated this detection.

Mice also distinguished between sedated and stressed partners, displaying head-focused grooming toward sedated individuals and body-focused grooming toward stressed ones.

Neural activity recordings via microendoscopic calcium imaging and optogenetic manipulations pinpointed the MeA as a critical neural substrate.

MeA neurons differentiated between awake and sedated partners at both single-cell and population levels. Optogenetic silencing of MeA GABAergic neurons suppressed head-directed grooming while activation promoted it.

Intense head grooming correlated with increased motor responses in sedated recipients, including tail twitching and expedited recovery from the unresponsive state. Understanding how mice detect and respond to specific adverse states of others offers insights into [neural circuits](#) underlying more general prosocial animal behaviors.

**More information:** Fangmiao Sun et al, A neural basis for prosocial behavior toward unresponsive individuals, *Science* (2025). [DOI: 10.1126/science.adq2679](https://doi.org/10.1126/science.adq2679)

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