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Watching fights reshapes animals' aggression circuits much as fighting does

In a 2026 Nature animal study, watching aggression mimicked the brain activity of fighting, and a shared drop in inhibition was needed for the animals to change tactics.

13 November 2026 · based on a paper in Nature



Photo: Navy Medicine

Learning by watching others is one of the foundations of social life. Earlier research had shown that observing aggression switches on neurons in the hypothalamus, a structure deep in the brain that helps regulate basic drives, including fighting. What remained unclear was whether watching a fight and taking part in one rely on the same underlying circuitry, and whether both lead an animal to settle on the same new way of behaving.

A study published in Nature in 2026 by Jorge Iravedra and colleagues at Columbia University and Princeton University addresses that question in laboratory animals. The team developed a way to record, at large scale, the activity of specific types of neuron, rather than a blend of signals from many cell types. They recorded across several subcortical networks, the brain regions beneath the outer cortex involved in generating and learning social behaviour. The recordings were longitudinal, meaning the same animals were followed throughout training. Some animals trained

by experiencing aggression directly and others by observing it. Afterwards, the researchers tested them in an aggressive situation they had not met before. The abstract does not name the species or give the number of animals.

According to the authors, both trained groups then showed signatures of a shared adaptive strategy, which untrained animals did not show. The authors describe this strategy as proactive. While the animals were observing, the behaviour they watched recruited widespread activity across the recorded networks, and this activity resembled the activity evoked when aggression is experienced directly. These shared neural changes persisted into the unfamiliar test situation.

To explain the pattern, the team built a multiregion model, a computational description of how activity in several brain areas relates. The model pointed to changes in a core aggression network that were common to experience and observation. One of these changes was a widespread reduction in inhibition, the signalling by which some neurons damp down others. The authors report that this reduction was necessary for the animals' behaviour to adapt. They report that both experience and observation recruit a brain-wide network of excitatory, inhibitory and valence signals; valence signals mark whether something is felt as rewarding or aversive. According to the study, changes in this pattern of activity predicted the shared strategy in the new context.

This report is based on the abstract alone. The abstract does not say how the need for reduced inhibition was tested, how adaptive behaviour was scored, or how large the effects were. The work is an animal study, and the abstract makes no claim about people.

The finding sits alongside a braintankAI story about the fly brain, in which lifting inhibition appeared to let a ring-shaped circuit rapidly write a heading into memory (earlier story). In both studies, reduced inhibition is tied to a circuit changing with experience, though the behaviours involved differ.

PAPER	*Aggression experience and observation drive shared behavioural and neural changes*
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