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Bonobos' (Pan paniscus) and chimpanzees' (Pan troglodytes) understanding of, and pupillary responses to, others' needs

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Abstract

Humans are uniquely impressive cooperators, and yet it remains unclear exactly which cognitive and motivational mechanisms set human cooperation apart. Our closest relatives, bonobos and chimpanzees, have also demonstrated a range of prosocial tendencies across experimental and observational contexts. Critically, however, we do not yet know whether their helping behavior, like that of humans, is motivated by an acute sensitivity to others' needs. We investigated this question in a novel eye-tracking task, with a large sample of captive apes. While their gaze and pupils were tracked, apes viewed controlled videos of an agent reaching toward objects that ultimately would or would not be attainable without help. If apes are acutely sensitive to others' needs, we predicted that they would show greater pupil dilation (arousal) when the agent could not complete a goal on his own. Our findings shed light on the mechanistic and evolutionary bases of human prosociality and empathy.