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African Clawed Toads Responses to Varying Two Lateral Line Stimuli Separated by Variable Delays

College of Sciences and Health Professions

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Abstract

African Clawed Toads are a model organism for research on sensory integration due to their lateral line system that allows them to sense water movement. This study further investigates the choices made by toads when presented with two lateral line stimuli in the form of surface waves. When such stimuli are initiated simultaneously, toads tend to turn towards the more rostral stimulus or the nearer stimulus, waves from which arrive first. We introduced a delay between stimuli to allow the waves from the farther stimulus to arrive first.

Toads were more likely to respond to a single stimulus than they were to a double stimulus (25% versus 18% of trials, respectively). In these responses to double stimuli, toads generally turn as accurately toward one stimulus or the other as they do toward single stimuli; this indicates a choice rather than a confused or mixed response. As before, both proximity and stimulus angle affect the choice; toads prefer the more rostral stimulus and the closer of the two stimuli. Finally, delaying one stimulus increased the toads' choice of the first stimulus to arrive.