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African Clawed Toads' Responses to Visual and Lateral Line Stimuli

College of Sciences and Health Professions

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Abstract

The African Clawed Toad, *Xenopus laevis*, is an aquatic species commonly found throughout Sub-Saharan Africa. Adults use vision to sense movements and lateral line to sense vibrations in the water. Here, we analyze the effectiveness of the toads' vision and lateral line systems individually and in combination. This study will help us understand how *Xenopus* utilizes sensory information to capture prey. We tested which sensory system elicits greater responses, how stimulus angle and distance affect the probability of a response, and if the toads respond equally to visual and lateral line stimuli.

We found that a combination of both visual and lateral line stimuli elicited the greatest response rate (55%). Compared to this, lateral line stimuli alone elicited almost equal response rates (42%). In contrast, visual stimuli alone were less effective (12%). In addition, toads were more likely to respond to rostral stimuli than to caudal stimuli. When a response was elicited, latencies did not differ according to stimulus type.