

WHAT FACTORS LEAD A FROG MISTAKENLY TO CONSIDER ANOTHER FROG AS PREY?

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Prey catching behavior of frogs is a relatively stereotyped ballistic motor program that is normally released by small moving prey objects. When a group of frogs (*Rana pipiens*) is presented with prey, they will snap at and capture the prey objects, and occasionally snap at other frogs. In a group of frogs that were not offered any prey, we have never observed frogs to snap at each other. Additionally, frog-frog snaps (FFS) have not been observed *before* one of the frogs in the group has attempted to capture a prey. The objective of this study was to investigate the relative contributions of two factors (visual after-images and reduction of stimulus threshold) to FFS. The experimental procedure consisted of placing three frogs and two prey objects (mealworms-three sizes) in a testing arena, and recording their behavior with an overhead video camera. The frogs were of uniform size (7.0 to 9.5 cm snout to vent length). The following results and analyses are based on more than 440 feeding trials with 24 frogs. The probability of FFS increased with the size of mealworms. This suggests that the length of the prey object, and hence the size of the visual after-image affects the probability of eliciting FFS. The frog that initiates the FFS is referred to as the active frog (AF), and the target of the FFS is referred to as the passive frog (PF). When mealworms were offered as prey, 92% of the FFS occurred after the second prey object had been captured, i.e., in the absence of any prey in the testing arena, 83% of the FFS were directed at PF that had snapped at prey, and 57% of the FFS were initiated by AF that had not snapped at prey earlier in the trial. 53% of FFS occurred within ten seconds of the PF snapping at a prey object. Finally, when a group of frogs was presented with the odor of crushed mealworms, without a corresponding visual stimulus, FFS were observed. The dependence of FFS on the size and position of the visual object indicates a role for after-images in the elicitation of FFS. On the other hand, occurrence of FFS in the absence of a preconditioning visual image points to a reduction in the threshold that is required to elicit snapping as also contributing to the elicitation of FFS.

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