ScienceShot: How to Confuse a Predatory Fish

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The deceivingly eyelike spots on the back ends of swimmers like the butterflyfish (pictured) might not scare off predators, but they do mess up their aim, a new study has concluded. Scientists had previously hypothesized that fish evolved eyespots either to scare off or to misdirect their enemies, but data have been hard to come by. In the study, researchers trained predatory three-spined sticklebacks (Gasterosteus aculeatus, inset) to attack strips of paper by hiding food rewards underneath. Each strip had either no eyespot, an eyespot smaller than the stickleback’s own eye, or a larger eyespot. The stickleback attacked each type of prey at the same speed when being released into the aquarium, showing that the larger eyespot didn’t act as a deterrent and that neither size dot made the prey any easier to find. When eyespots were present, the stickleback were most likely to aim their attack directly toward the spot, wherever it was located, the scientists report online today in the journal the Proceedings of the Royal Society B. The finding is the first report that eyespot location affects predation tactics, and it supports the hypothesis that the spots evolved because they help prey. Whether such misdirected attacks help eye-spotted prey in the wild survive a fight or lower their chances of being attacked in the first place still remains to be seen, and the results don’t rule out other benefits of the eyespot, such as catching the attention of potential mates.

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