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in Brown Planarians (*Dugesia tigrina*)

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Effects of Ethanol on Negative Phototaxis and Motility in Brown Planarians (*Dugesia tigrina*)

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Highlights

- Ethanol impaired light avoidance in planarians tested in both within-subject and between-group designs.
- In general, dose-dependent effects were noted with both exposure time and concentration of ethanol in solution.
- Ethanol reduced motility and altered patterns of movement in an open-field test.
- Negative phototaxis is a reliable behavior in planarians that can provide a stable baseline for studying drug effects.

Abstract

The behavioral effects of ethanol in brown planarians were studied in four experiments. In the first two experiments, acute administrations of ethanol increased travel time in a dose-dependent fashion in individual planarians moving away from a light source. Orderly results were obtained using both within-subject and between-group designs. In a third experiment, ethanol dose was arranged by time rather than concentration. Ethanol increased travel time overall, but variability between subjects was considerable. In a final experiment, ethanol administration reduced motility and altered movement patterns in planarians in an open-field test. These experiments demonstrated that negative phototaxis by planarians may exhibit sufficient stability to allow for experimental determinations of dose-response curves utilizing both within-subject and between-subject designs.

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