Title:	Characterising effects of Lithium in zebrafish (Danio rerio) and examining its associated behavioral changes
Authors:	Powar, Atharva
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Abstract:	Lithium acts as a positive regulator of Wnt signaling pathway by inhibiting GSK3β. β-catenin/Wnt cascade is required to maintain retinal stem cells for both homeostatic growth and epimorphic regeneration. It is also a paradigmatic treatment in bipolar disorder and is used as a mood stabilizer due to its ability to reduce anxietylike behavior. Thus, Lithium makes for an appropriate candidate for combined pharmacological and behavioral studies. In the current study, we attempt to explore the physiological and behavioural alterations caused by Lithium exposure in developing and regenerating zebrafish models using behavioral assays. Zebrafish retinae were injured and assessed at 1, 3 and 5 days post-lesion. Additionally, a light/dark box test was used to assess zebrafish behavior. In the experimental duration, the fish exhibited reduced locomotion, weakened phototaxis and significant thigmotactic behavior. However, the Lithium treated population of injured zebrafish scored lower in all of the above parameters, suggesting a role of Lithium in modulating these behaviors. This study demonstrates that stress responses following visual impairment appear to contribute to the alteration of behaviors in tandem with ocular regeneration in zebrafish, albeit differentially with respect to presence or absence of Lithium.
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