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Manganese (Mn) is a metal ion that is essential for healthy brain functioning at low levels (Quintanar, 2008). However, excessive exposure to Mn can lead to manganism — a neurodegenerative disease that manifests in Parkinsonian symptoms. High levels of Mn are found in hazardous occupational environments, especially in the mining and welding industries. In addition to the Parkinsonian symptoms associated with exposure to high levels of Mn, low to moderate Mn exposure has been linked with subtle impairments, such as hyperactivity and decreased cognitive abilities (Neal and Zheng, 2015). These low to moderate exposures can occur due to unregulated Mn levels in public tap water, which is especially prone to infiltration of neurotoxic chemicals in regions with high levels of mining activity (Quintanar, 2008). It was hypothesized that low to moderate Mn exposure in crayfish would be associated with altered motility in a T-maze. Crayfish exposed to varying levels of Mn were tested in a two-arm T-maze with a lighted arm and a dark arm. Movements and behavior were analyzed with video tracking software EthoVision XT 11. Behaviors of interest, including place preference to maze zones, choice behaviors, and general activity levels were recorded. We expect that Mn exposure will be associated with significant deficits in crayfish motility, which can be inferred to affect decision-making and risk-taking behaviors.