

## **Jithin George**

### **Senior**

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### Summary:

Long term high-fat diet (HFD) exposure in mice increases glutamate uptake kinetics and glutamate concentrations; upregulates glutamate transporters; downregulates glutamic acid decarboxylase (GAD)-65 and GAD-67, and cortical and hippocampal GABA concentrations. Mice subjected to long-term HFD exposure show decreased levels of GluT4 expression and impaired memory. We exposed mice to high-fat diets (and sucrose diets as a calorie matched control and standard vivarium chow) for 2 weeks until glucose intolerance developed in HFD-fed mice ( $t(6.4955) = 2.05, p < .05$ ). Following glucose intolerance, mice were tested on Open Field and Barnes Maze. Mice from all three diets performed similarly on Open Field and showed no signs of motor impairment ( $F(2, 14) = 1.023, p > .05$ ). There were no significant differences across diets in the amount of time mice spent in target quadrants during the probe trial of Barnes maze ( $F(6, 24) = 0.491, p = 0.808$ ). Mice also performed similarly on each acquisition day of Barnes Maze ( $F(2, 14) = 1.428, p = 0.273$ ). Further behavioral testing and molecular testing is required to ascertain the effects of short-term high-fat diet exposure in C57Bl/6 mice.