Previous studies (Fumihiro, et al., 2018) have found that diet supplementation of docosahexaenoic acid (DHA) mitigate autistic like behaviors in mice. When this research examining DHA effects on autistic behaviors in a gene/prenatal stress mouse model was replicated, there seemed to be a difference in litter sizes in mice between the different diets and chronic variable stress conditions. In this experiment, we are looking to see if litter sizes differ to a significant degree between mice based on their genotype, chronic variable stress condition, and diet.

Mice were randomly paired for mating, ensuring that pairs were not related in the previous two generations. 30 Dams were given either a control or DHA diet and then mated with males at 10 weeks old. Once conception was confirmed by the presence of a vaginal plug, dams were separated and placed in clear polycarbonate cages and provided with aspen bedding and nestlet. Some dams were then randomly assigned exposure to a chronic variable stress condition cycle starting on gestational day 6. 21 days postnatal, number of surviving pups were noted. Data was collected during the months of June, August, and September 2019.

Statistical analyses will be performed using SPSS software. Data will be analyzed using a 2 x 2 x 2 ANOVA (genotype × prenatal stress × diet). Subsequent one-way ANOVAs and t-tests will then be conducted to specify significant effects of interactions revealed by the ANOVA.

Conclusions from this study will provide researchers with more information about the impacts of DHA and the gene/prenatal stress mouse model on litter sizes and offspring weights and may impact future research in these areas.