

# **The effects of anorexia on CA1 pyramidal neurons in the hippocampus of pubescent male rats**

Adriana Shuster

Mentor: Dr. Aoki, Ph.D.

New York University

Anorexia nervosa is a well-known chronic psychiatric illness with one of the highest mortality rates yet there is no effective pharmacological treatment. On average, about one in every 200 American women is currently suffering from this disease with nothing but mental therapy and conditioning, which has yet to prove its effectiveness in treating anorexia. Developmental patterns have suggested that hormonal changes can trigger stress and anxiety, which have correlated with anorexia in the past. However, males and females have developmental differences that can impact the kinds of treatment that is being created, especially if it is to be effective on all of its patients. Anorexia is known for not just weight loss but also atrophy of developing neurons in certain subsections of the brain. My study looks into how different areas of the brain are affected by gender, a key aspect in developing a treatment. In females, traced neurons generally become less complex save for the CA1 region of the hippocampus, which has shown to actually show a mild increase in apical dendritic arbors. It's unknown, however, if the same result occurs in males. Therefore, in my study, male rats will be analyzed in the CA1 section after undergoing the animal model of anorexia nervosa to understand how their neurons will be impacted.

Awards:

4<sup>th</sup> Place Regional WESEF Fair in Animal Sciences

3<sup>rd</sup> Place Westlake Science Fair in Animal Sciences