**Title: Inhibitory Control and Emotion Processing in Adolescents with Eating Disorders**

**Scientific Abstract**

 Eating disorders (EDs) are a group of psychiatric conditions in which disordered eating leads to severe impairment in psychological and physical functioning. Disordered eating can be characterized by a severe restriction of food intake that results in dangerous weight loss (e.g., as in anorexia nervosa) or episodes of disinhibited binge eating that can lead to compensatory behaviors (e.g., as in bulimia nervosa). Numerous studies have revealed that negative affect exacerbates dietary restraint and binge eating in patients with EDs. However, the way by which negative affect leads to excessive control over one’s eating (i.e., severe dietary restraint) in some individuals and a loss of control over one’s eating behavior (i.e., binge eating) in others is unclear. Inhibitory control (IC) is the cognitive mechanism responsible for regulating behavior, by way of preventing oneself from acting on impulse. Studies in healthy individuals show that IC interacts with emotion processing. Furthermore, emotion regulation and IC commonly develop during adolescence, a peak period for the onset of EDs. Therefore, IC is one of the most relevant mechanisms that may link negative affect with the ability to exert control over one’s eating. However, the relationship between IC and emotion has rarely been studied in individuals with EDs.

The proposed research project aims to fill this gap by examining potential causal relationships between IC and emotion processing in adolescents with restrictive and binge eating/purging EDs. Study 1 will assess if manipulating emotional states in adolescents with EDs can influence their ability to exert control and inhibit particular responses when exposed to food stimuli. The primary hypothesis is that negative emotions will lead to a disinhibited response following exposure to food stimuli among individuals with binge eating/purging EDs and an excessive inhibitory response among individuals with restrictive EDs. The results will shed light on the mechanism by which negative affect exacerbates disordered eating in individuals with bulimia nervosa and anorexia nervosa. Study 2 will examine if experimentally manipulating IC will modulate an involuntary physiological response to high-calorie foods (assessed via pupil diameter). It is expected that adolescents with restrictive EDs will be able to utilize IC resources to attenuate their sympathetic physiological response to high-calorie foods, in contrast with adolescents with binge eating/purging EDs. Study 3 will examine if priming IC can enhance the use of effective emotion regulation skills in adolescents with EDs, and specifically, their ability to reappraise a negative emotional experience. It is expected that adolescents with binge eating/purging EDs, in which limited use of reappraisal predicts binge eating, will show improvement in their ability to reappraise negative emotional scenes after being primed with IC. Finally, a three-month follow-up assessment of disordered eating will allow for examining if the primary measures in each of the three studies can prospectively predict disordered eating patterns. Results of the proposed studies are expected to make a significant contribution to understanding the mechanisms that contribute to and maintain eating disorders during adolescence.