## Cardiac Rehabilitation Provides Significant Benefits to Patients With Heart Failure Bailey Frank and Marc Nahmani\*

Heart failure (HF) is a primary cause of death worldwide and affects roughly 1-2% of the population. HF leads to the heart being unable to pump enough blood to meet the body's needs. Exercise can be used as a method of heart regeneration to regain proper cardiac function. Due to the benefits of physical activity (PA), cardiac rehabilitation (CR) secondary prevention programs are now available, combining supervised PA with comprehensive counseling including nutritional, psychological, and smoking therapies. CR has shown to significantly reduce death rates in HF patients by strengthening heart structure and function. This review focused on understanding how preventative therapies might affect the mechanisms, progression, and outcomes of HF patients. To these ends, we reviewed primary literature on the effects of exercise on regenerating cardiac function. HF has devastating effects on heart physiology, resulting in structural and functional cardiac abnormalities which result in systematic congestion, which can lead to hospitalization and/or death. Our review found that exercise induces cardiac regeneration which is crucial for HF patient survival. CR programs that focus and maximize these training exercises improve systolic function and contribute to ventricular remodeling. Despite the benefits being well-established, we find that CR is regrettably still underutilized by physicians. While CR programs have been shown to provide benefits to people suffering from HF, roughly 70% of eligible CR patients are not receiving the option to participate. It's important to bring light to these missed opportunities for CR, as this health program has the potential to change someone's life.