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Biofeedback-Assisted Stress Management Training to Reverse Myocardial Remodeling in Patients with End-Stage Heart Failure

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Heart failure is the leading cause of death in American men and women, and for years this disease was believed to be irreversible. Pharmacological therapies were provided to control disease symptoms, but cardiac transplantation was viewed as the only truly successful therapy. Recent studies, however, have illustrated marked recovery in end-stage heart failure patients who have been hemodynamically

supported by a left ventricular assist device (LVAD) prior to transplantation. Cardiac tissue removed from these patients before and after LVAD support has shown a reversal of the maladaptive changes to both muscular and cellular function as well as gene and protein expression, suggesting that the failing heart is capable of recovery. This project will test the hypothesis that biofeedback-assisted stress management (BFSM) training can cause a similar reversal of myocardial remodeling in end-stage heart failure patients. The hypothesis will be tested using end-stage heart failure patients who are listed for heart transplantation at the Cleveland Clinic Foundation over a 2-year period. Patients will be divided into three groups: (1) patients who receive BFSM training, (2) patients who do not receive BFSM training, and (3) patients who do not receive BFSM training but require LVAD support while waiting for cardiac transplantation. These three groups will be compared in order to achieve the following specific aims: (1) to measure the efficacy of BFSM on cellular and molecular myocardial remodeling, (2) to measure the clinical efficacy of BFSM on cardiac function, and (3) to assess the effects of BFSM on quality of life, perceived stress, and coping strategies.