Regenerative medicine is the process of creating living, functional tissues to repair or replace tissue or organ function lost due to age, disease, damage, or congenital defects. Regenerative medicine has been shown to benefit from the application of targeted and specific mechanical stimuli, a mainstay of rehabilitation. Accordingly, the efficacy of rehabilitation interventions may be enhanced using cellular and other regenerative therapies. A better understanding of the synergistic effect of rehabilitation approaches and regenerative medicine technologies has the potential to propel the translation of regenerative technologies into functionally relevant treatment interventions for a host of pathologies. In addition, the more effective application of discoveries in regenerative biology will help guide the development of targeted and specific clinical rehabilitation programs.

With this as a backdrop, Dr. Ambrosio’s presentation will focus on the emerging field of **Regenerative Rehabilitation**. Regenerative Rehabilitation is the integration of principles and approaches from the fields of rehabilitation science and regenerative medicine. Specifically, Dr. Ambrosio will present work from her laboratory demonstrating that the application of modalities or graded exercise programs may promote intrinsic skeletal muscle healing of the host, help integrate donor stem cell and tissue engineering transplants in a useful and functional way, and help to recapitulate normally occurring developmental sequences at the donor-host interface.