

Preventive and Reversal Treatments for Work-Related MSDs: Lessons Learned from an Animal Model of Work (prevention easy/reversal difficult)

Keynote Sessions

Faculty:

Mary Barbe

We have a unique operant rat model of upper extremity repetitive strain injury in which animals operantly learn to perform reaching and grasping tasks and a variety of reach rates and force levels. With this model, we found that highly repetitive and forceful tasks cause local nerve and musculoskeletal tissue injury and inflammation and then fibrosis, and systemic inflammation, each contributing to discomfort and motor declines that progress with continued exposure. In our search to identify effective treatments across several decades of research, we have examined the utility of pharmacological (ibuprofen, anti-TNFalpha, a Substance P blocker, anti-CCN2 to block fibrosis) and non-pharmacological treatments (ergonomic task reduction, rest, treadmill, manual therapy). The most important lesson learned was that prevention is easy, while reversal of established fibrosis or central sensitisation (central nervous system changes that enhance pain) is difficult. This talk will conclude with our current attempt to use whole-body voluntary running wheel exercise to reduce systemic inflammation and, hopefully chronic pain.

About Our Speaker:

Mary Barbe

Mary F. Barbe, PhD, is a Full Professor at the Center for Translational Medicine at Lewis Katz School of Medicine, Temple University, Philadelphia, USA. She has over 216 peer-reviewed publications to her credit. She has researched mechanisms and treatments for pain and work-related musculoskeletal disorders in humans and rat models. She is a Fellow of the American Association of Anatomists and the American Society of Bone and Mineral Research. She received the Senior Faculty Research Excellence Award from the Lewis Katz School of Medicine in 2017, Temple University Faculty Research Award from Temple University in 2019, and several teaching and mentoring awards.