

Seeking New Members for NSF Musculoskeletal Disorder Prevention Research Consortium



An Update on Our Consortium

- The Ohio State University is a site within the Center for Disruptive Musculoskeletal Innovations (CDMI), with a **focus on primary and secondary prevention of MSDs through ergonomics innovations**. With supporting funds from the National Science Foundation, we strive to create a more comprehensive, quantitative understanding of causal pathways for MSD development in the occupational environment. This complements other CDMI efforts, such as managing musculoskeletal diseases through medical treatment advances, improving healthcare quality and health outcomes, and lowering treatment costs.
- We recently completed our first year of MSD prevention research projects with industry partners Boeing, Caster Connection, Liberty Mutual Insurance, and the Ohio Bureau of Workers' Compensation. From these, we:
 - Extended our exoskeleton research efforts, studying two more devices for the back. We found that, while they were beneficial for certain tasks, ergonomics job improvements had more potential to reduce spine loads;
 - Found that practitioners will get more accurate push/pull readings when measuring forces using a faster velocity than currently recommended by standards;
 - Discovered that velocity and acceleration data recorded from wearable sensors can accurately detect differences in task difficulty, making them useful metrics during ergonomics evaluations.
 - Developed general item slotting guidelines that distribution centers can use to reduce physical effort but not impact pick times.
- In December 2019, the NSF officially awarded our Spine Research Institute a **five-year grant** to continue these efforts. Our site research efforts were disrupted due to an unusually long delay in the NSF approval process. However, we are now able to plan for annual activities through 2024!

Seeking Membership Collaborations with Industry

- Within this NSF consortium, academic researchers and students collaborate with member companies who comprise our Industrial Advisory Board, to develop the research topics of most value to them. Then, **industry members determine which specific MSD prevention projects they believe most merit further study**, choosing from dozens of proposals submitted by our researchers each year. Becoming a part of this research site affords many **member benefits**, (see a complete list [here](#)), such as the ability to:
 - Discover state-of-the-art trends in primary and secondary injury prevention
 - Leverage member fees to fund research with only 10% overhead
 - Gain pre-publication access to important research projects
 - Get a large return on member investment (estimated at ~3.5)
- We continually seek to add members to our consortium. This allows us to further expand both the breadth and depth of our research efforts and, most importantly, provide more innovative MSD prevention knowledge to our members. Full membership requires an annual membership fee of \$40,000.

Contact Information

- To learn more about this exciting opportunity, please call or email us.

William S. Marras

Spine Research Institute
p. 614-292-6670
e. marras.1@osu.edu

Gary Allread

SRI • Ergonomics
p. 614-292-4565
e. allread.1@osu.edu

Steve Lavender

Integrated Systems Eng.
p. 614-292-9980
e. lavender.1@osu.edu

Carolyn Sommerich

Integrated Systems Eng.
p. 614-292-9965
e. sommerich.1@osu.edu