

Lincoln College Endowed Chair in Chiropractic & Biomechanical Research

By John Mayer, D.C., PhD, Lincoln College Endowed Chair, University of South Florida

The research program of the Lincoln College Endowed Chair in Chiropractic & Biomechanical Research of the University of South Florida (USF) celebrated its seven-year anniversary on October 1, 2014. The program continues to expand as a top-tier research program while remaining the only endowed chiropractic research program at a college of medicine within the US. This unique arrangement continues to provide an unparalleled opportunity to build interprofessional partnerships, serving as an outstanding environment from which to conduct ground-breaking neuromusculoskeletal research. Some of the key research achievements over the past year are highlighted below.

Firefighter Research Initiative

The Lincoln Chair's research team with Dr. Mayer as principal investigator was awarded a \$1.322 million federal research grant, including a five percent extramural match from Florida Chiropractic Foundation for Education and Research (FCF). This grant, titled "Worksite exercise interventions for low back injury prevention in firefighters," is the largest single commitment from FEMA's Assistance of Firefighters Grants, Fire Prevention and Safety research program specifically aimed at interventions for back injury prevention. The three-year project is phase

three of the Lincoln Chair's on-going FEMA-funded research initiative on preventing low back injury and illness in firefighters. Phase one of this initiative demonstrated a link between poor back muscular fitness and low back pain in firefighters. Phase two demonstrated that a work-site exercise intervention is safe and effective in improving back and core muscular endurance in firefighters. Phase three, the current study, will assess the clinical effectiveness of supervised and web-based exercise interventions performed over 12 months on preventing low back injury and illness in firefighters.

DOD-funded Research Grant “Reduction of Risk for Low Back Injury in Theater of Operations”

Primary data analysis for this project is finished. Results indicate a positive effect of isolated lumbar extensor progressive resistance exercise (compared to core stability exercise) on back extension muscular strength and endurance in US Army Soldiers. Results have been presented at major scientific conferences and manuscripts are in preparation.

Dr. Mayer was awarded the 2014 George B. McClelland Researcher of the Year Award from the American Chiropractic Association. Through this award, the ACA recognizes individuals who are leading the profession in advancing chiropractic research.

Development of a Web-based System to Enhance Delivery of Back Exercise and Education Programs

This research project is underway thanks to support of the Lincoln College Education and Research Fund (LCERF) and existing funds from the USF Lincoln Chiropractic Research Endowment, which was established through funds from the FCA, FCF, LCERF, and the State of Florida.

PhD Program in Rehabilitation Sciences

USF’s new PhD degree program was authorized by the Florida’s State University System Board of Governors. Dr. Mayer serves as coordinator of this program, which will be housed in the USF School of Physical Therapy & Rehabilitation Sciences, Morsani College of Medicine. We hope that future funding from the FCA, FCF, and extramural research grants to the USF Lincoln Chair can be allocated in part to help support a qualified Doctor of Chiropractic to be enrolled in this new PhD program.

Professional Spine Care Service

Dr. Mayer was invited to serve on two committees of the North American Spine Society (NASS): Exercise and Allied

University of South Florida Awarded \$1.3 Million to Expand Research to Prevent Back Injury in Firefighters

The grant is largely funded by FEMA with some matching support by the Florida Chiropractic Research Foundation
Tampa, FL (September 3, 2014)

The University of South Florida’s John Mayer, DC, PhD, recently received a \$1.3 million Department of Homeland Security/Federal Emergency Management Agency (FEMA) Assistance of Firefighters grant—an award that will help build upon cumulative research evaluating the effectiveness of targeted exercise programs to reduce the risk of low back pain and disability in firefighters. The grant total includes a five percent extramural funding match from the Florida Chiropractic Research Foundation.

Dr. Mayer is the Lincoln Endowed Chair of Biomechanical & Chiropractic Research and Coordinator of Research for the USF School of Physical Therapy & Rehabilitation Sciences, Morsani College of Medicine. The new funding supports the third phase of an ongoing FEMA-funded research project investigating the link between poor back muscular fitness and low back pain in firefighters and ultimately identifying exercise interventions that would be safe and effective in helping prevent low back injury and illness in this at risk population.

For the latest study, a full-scale randomized controlled prevention trial, USF will partner with the Tampa Bay region’s three largest fire departments, employing a total of 2,000 firefighters: Tampa Fire Rescue, Hillsborough County Fire Rescue, and St. Petersburg Fire Rescue. The researchers will compare the clinical effectiveness of two intervention groups—one receiving a directly supervised exercise regimen at the fire station and the other receiving the same exercise regimen only as a web-based, remote interaction—with a control group.

A smaller randomized controlled trial conducted by Dr. Mayer and colleagues published online earlier this year in the HYPERLINK "[http://hscweb3.hsc.usf.edu/goto/http://www.ajhpcontents.com/doi/abs/10.4278/ajhp.130228-QUAN-89?queryHash=\t\"_blank](http://hscweb3.hsc.usf.edu/goto/http://www.ajhpcontents.com/doi/abs/10.4278/ajhp.130228-QUAN-89?queryHash=\t\)" American Journal of Health Promotion demonstrated that a two-time per week, 24-week supervised exercise program targeting back and core muscles in firefighters was safe and effective. Firefighters in the supervised exercise program experienced 12 percent and 21 percent greater gains in back and core muscular endurance, respectively, than did firefighters performing the usual physical fitness regimen (control group).

Back injuries are the leading cause of permanent disability and early retirement among firefighters, who in their physically demanding jobs often carry more than 50 pounds of protective gear, haul heavy fire hoses, and lift and maneuver stretchers around tight corners or contort themselves to extract accident victims from cars.

“Our research thus far indicates that worksite exercise training for back and core muscles is a potentially useful countermeasure to reduce risk of low back pain in firefighters,” Dr. Mayer said.

Health. NASS is the largest spine care professional organization in the world. Dr. Mayer's appointments at NASS add to the growing involvement and active roles of the chiropractic profession in this prestigious organization.

USF Interdisciplinary Center for Neuromusculoskeletal Research (CNMSR)

The CNMSR received funding again this year from the State of Florida, thanks to Senator Dennis Jones, the Florida Chiropractic Association (FCA), and the Florida Legislature. Total funding from the State for the CNMSR over the past three years is now \$1.5 million. While the Lincoln Chair's chiropractic research program and the CNMSR are separate programs, they are complementary to reach other. Taken together, these programs provide a platform for excellence in research and innovation.

The Lincoln Chair's chiropractic research program at USF has again made great strides over the last year as a top-tier research program by securing new extramural research grant funding, disseminating key research findings, assisting with the development and implementation of a new doctoral research educational degree program, and participating in professional service activities. We thank USF, the sponsors (FCA, FCF, and LCERF), and the State of Florida for their financial support, and being proactively involved in developing unique opportunities for chiropractic research. The Lincoln Chair's chiropractic research program at USF is well-positioned to continue expansion of its transformational research initiatives in the future. ◀FCA

Dr. Mayer is the Lincoln College Endowed Chair in Biomechanical and Chiropractic Research, and a tenured faculty member in the College of Medicine of University of South Florida. He is the principal



investigator and co-principal investigator on federally-funded, injury prevention research projects. He is instructor for the Health Promotion and Wellness, Critical Injury 3, and Primary Care Clerkship—Low Back Pain graduate courses at the USF College of Medicine. He serves as a manuscript reviewer for several scientific journals and advisory board member for various health and research organizations. He is also an honorary member of the Florida Chiropractic Association.