

The Rocky Mountain Center

Gateway to OSH

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Occupational Safety and Health

RMCOEH Hosts Conferences

The Rocky Mountain Center hosted three conferences this past spring, all of which involved research results addressing the National Occupational Research Agenda (NORA).

The State of the Art Conference on Musculoskeletal Disorders was held on February 23 and 24 at the Marriott hotel in downtown Salt Lake City. This extremely successful two-day conference was designed to present up-to-date research findings from our two prospective cohort studies (Upper Limb Musculoskeletal Disorders: Quantifying Risk and Low Back Pain: Quantifying Risk), along with the results of other major researchers performing NORA musculoskeletal disorders related research. The conference was very well attended, drawing people from all over the United States. From all accounts, this meeting was highly successful in meeting and exceeding expectations of excellence.

The Rocky Mountain Center also sponsored the largest NORA II Town Hall Meeting of the meetings in the US, held in Salt Lake City on February 27, 2006. The meeting drew over 150 individuals including OHS professionals, business owners, researchers, and employees from a broad spectrum of fields throughout the entire Intermountain West. This meeting was held to obtain local feedback for NORA II, which will be the next 10 year focus of research in occupational health and safety. Topic areas discussed included: musculoskeletal disorders; small business; agriculture, forestry and fishing; health care and social assistance; mining; general training of employees; construction; manufacturing; public and private services; and transportation, utilities and warehousing. The agenda for this meeting is posted on the RMCOEH website (<http://rocky.utah.edu/>) under the News/History link. The RMCOEH has already begun to work on this research agenda.

Utilizing NORA Support funds, RMCOEH faculty also organized the Fourth Annual NORA Young/New Investigators Symposium in Salt Lake City on April 20-21, 2006. The symposium represents another significant effort to promote occupational safety and health throughout the region. Financial support is provided to young and new investigators to facilitate their attendance at the meeting. This effort is specifically designed to enable junior faculty and students in gaining experience in developing and presenting research to colleagues and peers. Regional investigators are also invited to participate in the symposium to exchange research findings and advances. In addition, the Rocky Mountain Center exhibits at national and regional association meetings as available funds allow.



Dr. John Howard, NIOSH Director, and Dr. Kurt Hegmann, RMCOEH Director, at the 3rd Annual NORA Young/New Investigators Symposium

Federal Motor Carrier Safety Administration Appoints Medical Review Board

Earlier this year the U.S. Secretary of Transportation announced the composition of the first ever Federal Motor Carrier Safety Administration (FMCSA) Medical Review Board (MRB). The FMCSA was established as a separate administration within the U.S. Department of Transportation (DOT) on January 1, 2000, in response to the Motor Carrier Safety Improvement Act of 1999. FMCSA is headquartered in Washington, DC and employs more than 1,000 people in all 50 States and the District of Columbia. Their purpose is dedicated to improving the safety of commercial motor vehicles (CMV) and saving lives. The MRB consists of five medical experts from a broad range of educational background and experience who will serve for two year terms, and may be reappointed based on issues and agenda that the board will have in the upcoming term. Criteria for appointment include medical expertise within a medical specialty or subspecialty, a broad understanding of research methods, knowledge of transportation medical issues, experience on similar panels or boards that are charged with the development of medical standards, a record of scientific collaboration, professional service, and experience developing teaching programs.

The board is comprised of the following individuals:

- * Dr. Kurt Hegmann, Director and Associate Professor of Rocky Mountain Center for Occupational and Environmental Health, Department of Family and Preventive Medicine at the University of Utah;
- * Dr. Matthew Rizzo, Professor of Neurology at the University of Iowa College of Medicine;
- * Dr. Gunnar Andersson, Senior Vice President for Medical Affairs, Rush University Medical Center, and Professor and Chair of Orthopedic Surgery;
- * Dr. Barbara Phillips, Chair of the National Sleep Foundation and Professor at the University of Kentucky College of Health in the Department of Preventive Medicine; and
- * Dr. Michael Greenberg, Associate Director for Medical Toxicology, Drexel University College of Medicine and Director of the Medical Toxicology Fellowship Program;

The docket for the upcoming term includes planning updates to physical qualification regulations of CMV drivers and providing essential evidence based guidance to update and establish current CMV medical standards and practices.

Advisory Board Spotlight: Tori Burns



Tori Burns, CIH, MSPH

Tori Burns has been on the RMCOEH Advisory Board for nine years and is the Compliance Manager for the Occupational Safety and Health Division (UOSH) of the Utah Labor Commission.

During her tenure at UOSH, she has managed both the compliance and industrial hygiene activities for this state program and has served on various OSHA task forces. She has been a guest lecturer for the Rocky Mountain Center for Occupational and Environmental Health at the University of Utah for several years and

also serves on the program committees for industrial hygiene and continuing education. Tori is a Certified Industrial Hygienist and

received her BS degree in Biology and her MSPH in Industrial Hygiene from the University of Utah.

Tori has served as president of the American Industrial Hygiene Association, Utah Local Chapter, and received the Meritorious Achievement Award in 2002 from the American Industrial Hygiene Association, Utah Local Chapter. She serves on the planning committee of the annual Utah conference on Safety and Industrial Hygiene. Tori is also on the Continuing Education Advisory Committee and on the Industrial Hygiene Advisory Committee at the Rocky Mountain Center for Occupational Safety and Health.

"Tori has always been a brilliant gem with a warm smile and a good sense of humor. Dr. Moser's educational nugget is right...personalities just don't change!"
-Dr. Kurt Hegmann, RMCOEH Director

Physical Activity and Carpal Tunnel Syndrome Among Workers

Carpal tunnel syndrome (CTS), compression of the median nerve at the wrist, is the most common entrapment neuropathy of the upper extremity and is a major part of the cost of occupational upper-extremity disorders. Physical activity is thought to play a role in the prevention of musculoskeletal diseases, especially in workers with monotonous physical loading and several studies have reported a relationship between physical fitness, measured by body mass index, or by level of physical activity, and CTS. Only a few epidemiologic studies of the effects of physical activity on CTS of working populations have been reported, and the type and metabolic equivalents (MET) of physical activity have not been studied in detail.

Using detailed assessment of physical activity, we examined the magnitude of associations between each of the measures of physical activity (total time, the total MET-hours, and the total Calories of exercise) and the prevalence of CTS. Physical activity was assessed via questionnaire, and outcomes were defined as either 1) numbness or tingling in two or more median nerve served digits (thumb to ring finger) and 2) numbness/tingling combined with an abnormal Nerve Conduction Study (NCS), interpreted as consistent with CTS.

We assessed the statistical relationship between the possible explanatory factors and CTS outcomes by using cross-tabulation and t-tests. Those factors which approached statistical significance ($p \leq 0.10$) were included in multivariable logistic regression model and were eliminated in a backward stepwise fashion.

The workers are 33.5% male and 66.5% female. The worker's mean age is 41.8 ± 11.3 years. Almost half are lifelong non-smokers. The measured average body mass index is nearly on the border between overweight and obese (mean 29.6 ± 6.9 kg/m²). Approximately 85.0% self report that they are right hand dominant, 9.2% left handed and 5.8% ambidextrous. Hypertension was self reported by 16.4%, and other co-morbid conditions appear typical for a population, providing reassurance of generalizability.

There were differences in univariate analyses for both paraesthesias and CTS for: age, gender, BMI, history of bothersome family problems, high cholesterol and thyroid disease. In these univariate analyses, diabetics were more likely to have CTS, and were nearly statistically significantly more likely to have paraesthesias. There were no differences in ratings of job satisfaction among either those with paraes-

thesias or CTS. Those with hypertension or osteoarthritis were more likely to have CTS.

The overall prevalence of carpal tunnel syndrome in the right hand was 12.6%. Paraesthesias in at least two median nerves served digits were far more common, affecting 27.4% of all subjects. Similarly, the prevalence of abnormal nerve conduction studies consistent with CTS was common, affecting 27.1% of subjects.

Many subjects reported participating in no regular physical activity at least once a month (34.5%). Among those engaging in physical activity, the most common mode was walking (49.2%), followed by weight lifting, bicycling and running.

For hand paraesthesias the statistically significant multivariate findings were age, gender, and history of family problems. For CTS, age, BMI, a reported history of family problems, and high cholesterol were statistically significantly associated. Borderline significance was present for thyroid abnormalities and diabetes. Age was statistically significantly associated, but the relationship was not linear, with greatest risk among those 45-54 years.

There is no statistically significant relationship between any of these measures and either paraesthesias or CTS. In analyzing the separate types of physical activity, only aerobics was statistically significantly protective. Swimming is borderline significant for paraesthesias. Perhaps the more interesting results are weight lifting, for which point estimates are unexpectedly less than unity. Lastly, the analyses for hand intensive physical activity were also not statistically significant, although there was a tendency for there to be slightly lower risk estimates among those doing non-hand intensive physical activity.

We found higher estimates of paraesthesias in the median nerve distribution, nerve conduction study results consistent with carpal tunnel syndrome and case definitions of carpal tunnel syndrome than nearly all prior reported studies. We attribute most of these differences to more thorough assessments of a large, well defined population. We confirm prior reports of major impacts of age and obesity on carpal tunnel syndrome. Additional risk factors appear to likely include diabetes, high cholesterol, and thyroid disease. We failed to confirm a prior reported protective effect of physical activity on CTS. We report a new finding of a psychosocial risk from family problems that is substantial and whose mechanism of operation is perplexing. Final determination of true risk factors awaits outcomes from prospective analyses.

Spotlight: Two Recipients of the Dr. Paul S. Richards Safe Workplace Scholarships

The Workers Compensation Fund (WCF) is the largest workers' compensation insurance carrier in the State of Utah. It insures approximately 30,000 Utah employers and employees. In an effort to further serve these employers and employees, WCF has established the Dr. Paul S. Richards Scholarship to assist graduate level students at the University of Utah's Rocky Mountain Center for Occupational and Environmental Health. Scholarships are awarded to students in the areas of Occupational Medicine, Environmental Health, Safety and Ergonomics, and Industrial Hy-

giene. Recipients are selected based on past academic performance, professional work or personal experience, financial need, as well as potential to complete the program and contribute to worker health and safety. Students receiving this scholarship are required to maintain at least a 3.0 GPA at all times in their selected field of study and are encouraged to complete an internship with the Workers Compensation Fund's Safety and Loss Prevention Department.

Steven Angerbauer, MD, JD, MBA is one of the new RMCOEH Occupational Medicine residents. Steven obtained his undergraduate in psychology from the University of Utah. He then went on to obtain both his Juris Doctorate and his MBA from University of Utah. After working several years in various law settings, Steven decided to go back to school and received his medical degree from Jefferson Medical College in 2004.

Steve served as an Intern with experience and responsibility for direct patient care in the ICU, Medicine, Surgery, Ambulatory, Emergency, Family and Sports and Orthopedic.

Prior to his medical career, Steven was a contract attorney in Philadelphia where he performed various legal services including preparation for complex product liability litigation concerning a major drug recall for Wyeth/Ayers and litigation support for a large environmental pollution case with Drinker, Biddle & Reath,

Steve chose the field of Occupational Medicine due to his interest in clinical practice and also his background and experiences in law. The scholarship has assisted with the program's expenses and has allowed him the opportunity to travel to various conferences, receive more specialized training, and complete a research project.

Outside of work Dr. Angerbauer is the proud father of five children. He enjoys skiing, mountain climbing, racquetball and softball. Some of his interests include attending sporting and cultural

events, coaching Little League, teaching first aid and emergency medical care to community and special interest groups, serving as Scoutmaster and Explore Post Leader, camping, boating, residential design and remodeling, traveling and public speaking.



Robert Myrick WCF Board Chair; Steven Angerbauer, Scholarship Recipient; and Clark Richards, grandson of Dr. Paul S. Richards

John Parker is a second-year Masters student in the Industrial Hygiene program and is studying to become a Certified Industrial Hygienist. John became interested in environmental health

after being recruited by the Air Force in 2000 where he served 4.5 years and worked as the Weapons of Mass Destruction field team leader for his duty section. He found himself interested in a variety of duties which included noise, ergonomics, chemical monitoring, and hazardous materials to be very interesting.

John recently completed the majority of his research on the relationship between indoor air quality and outdoor pollution. One paper was accepted as part of the Proceedings of the 4th Annual Regional NORA New/Young Investigators symposium last April. He will be authoring another paper for submission to a peer-reviewed journal on this subject later this year. He is currently completing an internship for the LDS Church Risk Management Department in which he has been working on a project studying indoor air quality in church facilities. In addition, John has just renewed his 40 Hour HAZWOPER certification.

In his free time, John enjoys strategy games, spending time with his son in soccer and boy scouts, and also has an interest in computers and science fiction.



Dan Hair, WCF Senior Vice President; Robert Myrick, WCF Board Chair; John Parker, Scholarship Recipient; and Clark Richards, grandson of Dr. Paul S. Richards



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Inside this issue:

RMCOEH Hosts Conferences	1
FMCSA Appoints Medical Review Board	1
Advisory Board Spotlight	2
Study Update: Physical Activity and CTS Among Workers	2
Dr. Paul S. Richards Safe Workplace Scholarship Recipients	3
Upcoming CE & HST Courses	4

Upcoming Continuing Ed and HST Classes and Events

September

- * OSHA 510: Occupational Safety and Health Standards for the Construction Industry
- * OSHA 8-Hour Hazardous Waste Refresher Course
- * Pulmonary Function Testing
- * OSHA 502: Update for Construction Industry Outreach Trainers
- * CAOHC-Approved Occupational Hearing Conservation/Refresher
- * Asbestos Contractor/Supervisor Refresher (Pocatello, ID)
- * Asbestos Inspector/Management Planner Refresher (Pocatello, ID)
- * Advanced Hazmat Chemistry
- * OSHA 500: Trainer Course in Occupational Safety and Health Standards for the Construction Industry
- * Core Concepts in Safety and Health (Night Class)

October

- * OSHA 10-Hour for the Construction Industry
- * OSHA 10-Hour for the General Industry
- * Voluntary Protection Program Administration
- * Practical Ergonomics

- * Fundamentals of Hearing Conservation and Noise Measurement in Industry
- * Electrical Safety
- * Effective Occupational Health and Safety Management Systems
- * Generational Diversity
- * Rigging
- * Tips, Tricks, and Hints for More Effective EHS Training
- * Sleep, Fatigue, and Accidents
- * Lock Out/Tag Out and Machine Guarding
- * 23rd Annual Utah Conference on Safety and Industrial Hygiene

November

- * OSHA 8-Hour Hazardous Waste Refresher Course
- * Lead Supervisor/Contractor Training
- * OSHA 40-Hour Hazardous Waste Operations Course (HAZWOPER)
- * Asbestos Inspector/Management Planner Refresher
- * Asbestos Contractor/Supervisor Refresher

For additional information on CE and HST classes, please visit the continuing education section of the RMCOEH website: <http://rocky.utah.edu/>