

Center for Research on Occupational and Environmental Toxicology



CROET at OHSU

NEWSLETTER

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PSU and CROET Focus on Work-Family Stress

A recent symposium and new research are increasing our understanding of the effects that work-family stress have on worker health and safety.

Stress at work — we all experience it. But when stress in the workplace and/or family pressures grow large, job performance and the ability to work safely may suffer. In recognition of this all too prevalent yet incompletely understood problem, CROET and the Occupational Health Psychology Program at Portland State University (PSU) recently co-sponsored a symposium titled “Work-Family Stress: Implications for Safety and Health”.

The symposium addressed the relationship between work-family conflict and individual and family health and safety, and what organizations can do about it. Keynote speaker Tammy Allen, Ph.D., Professor of Psychology, University of South Florida, defined work-family conflict in this way— it is the degree to which participation in one role (work or family) is made more difficult due to participation in the other role. Dr. Allen emphasized that work-family conflict can originate in either domain – work can interfere with family or



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family can interfere with work. It was within this overall context that symposium speakers addressed such issues as how work and elder care affect workers' health and well being, the connections between work-family stress and safety of workers, and strategies employees raising children with disabilities can use to reduce conflict and stress.

Leslie Hammer, Ph.D., Professor of Psychology, Portland State University, has been one of the first to conduct research on work-family stress and its connection to workplace safety. She pointed out that demands of the workplace, including physical, task-related, role-related and interpersonal, as well as conflicts between family and work demands, are clearly linked to stress that ultimately affects work safety. Dr. Hammer's research indicates that work overload, in combination with work-to-family and/or family-to-work conflicts, reduces worker safety performance. Her data show that family-to-work conflict produces measurable workplace cognitive deficits that ultimately affect safety.

A more recent intervention study led by Dr. Hammer, in collaboration with Dr. Ellen Kossek at Michigan State University and CROET Associate Director Kent Anger, showed that when supervisors are trained on ways to help employees reduce the conflict between work and family demands, the employees score higher than control workers when tested on measures of safety compliance and self-reported health. Family-supportive supervisory behaviors that helped reduce conflict included: emotional support for families; instrumental support with scheduling conflicts; role modeling; and creative work-family management. Dr. Hammer concluded by stating that work and family are two of the most important areas in adult lives, and the more that is known about the difficulties integrating these two roles, the more progress can be made towards reducing the negative outcomes on safety and health of workers

Recently, building on this research, Dr. Hammer, director of the Center for Work-Family Stress, Safety and Health (CWFSRH), housed at Port-

land State University, was awarded a \$4.1M grant to take part in a 5-year study evaluating innovative workplace change initiatives designed to improve employee health. Drs. Hammer and Kossek are collaborating with other research centers, including CROET, to refine and expand on the research cited above. That research showed that employees with family-supportive supervisors reported better overall health, lower blood pressure, lower turnover intentions, improved safety, and greater productivity, when compared with employees whose supervisors who weren't as supportive.

CWFSRH's research is part of a larger collaborative, The Work, Family and Health Network (WFHN), funded by the National Institutes of Health (NIH) and the Centers for Disease Control. Researchers in the Network are launching a num-



Leslie Hammer, Ph.D.

ber of creative projects. Topics include the impact of daily stressors on health, the influence of worker control ("work latitude") on job

strain and health, and the spillover effects of work stress on the health of workers and their families. The researchers expect to identify cost-effective ways to reduce work stress and increase the health of workers and their dependents.

The Network is composed of interdisciplinary research teams from the University of Minnesota, Penn State University, Harvard University, Portland State University, Michigan State University, Kaiser Permanente's Center for Health Research and the Research Triangle Institute at the University of North Carolina. The Network's goals are to conduct evidence-based research in the area of work and family programs and policies; to introduce health and well-being as the primary outcomes of interest in this area of research; and to improve the health of workers, their families

and employers by providing the scientific evidence on the effects of change in the workplace.

For more information on the Center for Work-Family Stress, Safety and Health, visit <http://wfsupport.psy.pdx.edu/>. To learn more about the Work, Family & Health Network, visit <http://www.kpchr.org/workplacenetwork>. For more information about stress in the workplace, visit www.croetweb.com and click on "Workplace Stress".

CROET Research Associate Wins National Award

Bradley Wipfli, PhD, Research Associate in the laboratory of Dr. Ryan Olson, has been awarded the 2009 Sport and Exercise Psychology Dissertation award from the National Association for Sport and Physical Education (NASPE). This national award recognizes student research that has the greatest potential for making a significant contribution to the knowledge base in sport psychology. It is presented for the outstanding doctoral dissertation completed during the previous year.

Dr. Wipfli's dissertation was aimed at defining biological mechanisms underlying recent scientific data that exercise is effective for reducing symptoms of depression and anxiety. To examine potential mechanisms, Dr. Wipfli conducted a 7-week exercise intervention, in which participants were randomly assigned to an aerobic exercise group, or a placebo-control stretching group. Participants completed several questionnaires to assess psychological variables, including measures of depression and anxiety, and blood was drawn pre- and post-testing to measure serum serotonin levels. Dr. Wipfli found that not only did the exercise group have lower levels of depression than the control group, who only participated in stretching, but serum serotonin was also reduced after exercise — an effect that is also produced in people taking selective serotonin reuptake inhibitors.



Brad Wipfli, PhD

The NASPE is a member of the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), an alliance of five national associations and six district associations designed to provide members with a comprehensive and coordinated array of resources, support, and programs to help practitioners improve their skills and further the health and well-being of the American public. AAHPERD is the largest organization of professionals supporting and assisting those involved in physical education, leisure, fitness, dance, health promotion, and education and all specialties related to achieving a healthy lifestyle.

2008 Oregon Occupational Health Nursing Worksite Award

The 2008 CROET Oregon Occupational Health Nursing Worksite Award has been presented to Linda Gifford Meuleveld on behalf of the Oregon State Association of Occupational Health Nurses (OSAOHN). Ms. Gifford Meuleveld, an Occupational Health and Safety Consultant for SAIF Corporation, submitted her proposal to develop and implement a program of informational



The 2008 Oregon Occupational Health Nursing Worksite Award is presented to Linda Meuleveld (L.) by CROET's Dede Montgomery

podcasts for occupational health and environmental nurses. The podcasts will enhance the ability of Oregon occupational health nurses to promote workplace safety and improve worker health by providing health and wellness information in an easy to access format. The grant

will be used as start-up money for the new program, with the podcasts accessible to all through the OSAOHN website. A variety of topics related to occupational health and environmental safety will be addressed, and each 15-minute podcast will include a moderator and subject matter expert. The OSAOHN website is <http://www.osaohn.org>.

2008 Oregon Safety Professional Worksite Award Presented

The first Oregon Safety Professional Worksite Award was presented to the City of Hillsboro Risk Management on September 11, 2008 at the American Society of Safety Engineers (ASSE) Columbia-Willamette Chapter Meeting. City of Hillsboro Risk Management Specialist Tanya Woodson and Risk Officer Michael Sorensen accepted the award. The award was presented by ASSE Columbia-Willamette Chapter President Clark Vermillion and CROET's Dede Montgomery.

The purpose of the Oregon Safety Professional Worksite Award is to support a project that improves safety and/or health in an Oregon workplace and to increase the visibility of Oregon Safety Professionals by awarding up to \$1500 to a worksite project. Among other requirements, the project or activity must focus on an Oregon workplace, have the potential for implementation in other workplaces or industries and be awarded to a member of an Oregon Chapter of ASSE. The City of Hillsboro's recognized project is titled "Safety and Loss Control Manual Implementation and Training". The control



Pictured from left: CROET's Dede Montgomery, Michael Sorensen and Tanya Woodson, City of Hillsboro, and ASSE President Clark Vermillion.

manual is a tool that managers, supervisors and employees can utilize to ensure occupational safety and health while meeting regulatory requirements. The safety training matrix and Annual Safety School effectively manages and fulfills training requirements. Tanya Wood-

son and Michael Sorensen will present information on their project, including an evaluation of effectiveness, at an ASSE meeting in 2009.

CROET also offers Professional Worksite Awards through the Oregon State Association of Occupational Health Nurses and the Pacific Northwest Chapter of the American Industrial Hygiene Association. For more information, contact Dede Montgomery at 503-494-4090 or montgomd@ohsu.edu.

Environmental Quality Commission Approves Revised Water Quality Standards

The Oregon Environmental Quality Commission (EQC) has given the Oregon Department of Environmental Quality (DEQ) the green light to pursue rule revisions that set new water quality standards for toxic pollutants in Oregon waters. The current standards are based on a "fish consumption rate", which is the estimated amount of fish taken from Oregon waters and consumed by Oregonians. The DEQ uses this estimate to calculate the maximum amount of toxic chemicals that can be allowed in Oregon waters while still protecting human health.

The EQC recommended a new fish consumption rate of 175 grams per day per person – ten times the current rate of 17.5 grams per day. This translates to an equivalent of eating about 23 eight-ounce fish meals per month as opposed to only two eight-ounce meals per month based on the current standard. The new standard, if implemented, is expected to protect at least 90 to 95 percent of fish consumers in Oregon from an increased risk for cancers and other adverse health effects. The recommended rate includes consumption of salmon and marine fish as well as freshwater fish such as trout.

ter the Oregon DEQ, Federal EPA and Confederated Tribes of the Umatilla Indian Reservation conducted numerous public forums with industry, natural resource groups and the general public to consider the current state of knowledge on fish consumption and public health as well as examine economic impacts of revising the existing fish consumption rate. In developing its recommendations to the EQC, the three agencies convened two advisory panels, the Human Health Focus Group and the Fiscal Impact and Implementation Advisory Group. Dr. Joan Rothlein of CROET played a role as member of the Human Health Focus Group.

For more information, visit:
<http://www.deq.state.or.us/wq/standards/toxics.htm>

Students Encouraged to Enter Safety Video Contest

Filmmakers will have work shown on the big screen in February

High school students across Oregon are invited to create a 30-second public service announcement (PSA) promoting young worker safety and health. All videos will be shown on the big screen at Portland's Laurelhurst Theater on Feb. 21, 2009. The top three winners will also take home cash prizes ranging from \$200 to \$400.

The Oregon Young Worker Coalition for Health & Safety, Oregon OSHA, SAIF Corporation, American Society of Safety Engineers - Columbia-Willamette Chapter and the Santiam Section, and the Center for Research on Occupational and Environmental Toxicology are sponsoring the contest. CROET's Dr. Joan Rothlein participated in the planning of this contest.

The contest is designed to increase awareness about safety on the job for young people, with the theme of "Save a Friend. Work Safe." Students are encouraged to develop a slogan, use humor, and get creative while emphasizing

ways to protect themselves at work. Submissions will be judged on the following:

- Clearly defined teen worker health and safety message based on theme
- Creativity and originality
- Overall production value (video and audio quality)
- Youth appeal

Bilingual or multilingual PSAs are welcomed, especially in languages commonly spoken in Oregon (such as Spanish and Russian). The deadline for submissions is Feb. 13, 2009.

Save a friend. Work safe.

PUBLIC SERVICE ANNOUNCEMENT
video contest

Entry form and contest rules: www.orosha.org/psacontest

Contest open to all Oregon high school students.

Create a 30-second video showing the importance of on-the-job safety for young workers.

First prize: **\$400**
Second prize: **\$300**
Third prize: **\$200**

The winning videos will be distributed around Oregon. You may even see them at movie theaters.

Deadline:
February 13, 2009

SPONSORED BY:

saif corporation, LERC, CROET, Oregon OSHA

Contest winners will be announced at the Oregon Governor's Occupational Safety and Health Conference on March 10, 2009.

For contest rules and entry forms, go to:
<http://www.orosha.org/psacontest/>

This OR-OSHA news release has been modified from the original and appears courtesy of Melanie Mesaros, Public Information Officer, Oregon OSHA.

Food Flavoring Agent a Potential Risk to Professional Cooks

A food additive that imparts a butter flavor to food products has been identified as the cause of a potentially serious lung ailment that affected hundreds of popcorn and food-flavor manufacturing plant workers. The additive is a flavoring chemical known as diacetyl, which when heated, disperses as vapor that can be inhaled into the lungs. Now there is concern that professional cooks may be at risk of developing the lung ailment, which in its most severe form manifests as a rare but potentially fatal disease known as bronchiolitis obliterans.

Recently, federal scientists have shown that even low-level inhalation exposure to diacetyl can cause lung damage in laboratory animals — this level of exposure may be relevant to human health. This finding not only reinforces the concern for professional cooks, but also focuses attention on consumers — two high-level consumers of buttery microwave popcorn (6-8 bags daily) have recently been diagnosed with bronchiolitis obliterans, and other consumers are undergoing medical evaluations for possible diacetyl-induced lung ailments.

The risk to chefs was first brought to light in a 2007 study commissioned by the Seattle P-I newspaper. In that study, an EPA-certified laboratory tested twenty-two popular cooking products for the release of diacetyl vapors when heated, and all released varying amounts of diacetyl into the air directly above a hot skillet, some at concentrations that could pose significant risk to cooks who might inhale them.

The extent to which professional cooks breathe diacetyl vapors under actual working conditions has not been determined, but two new studies, one in New York and the other in Seattle, are seeking to find the answer. In New York, a National Institute for Occupational Safety and Health team sampled air inhaled by cooks

working in kitchens of the financial offices of JP Morgan Chase and Goldman Sachs. This study was launched at the request of a union representing over 400,000 hotel, restaurant and hospitality workers, in response to the Seattle P-I study. The Seattle study is being conducted by Washington's Safety and Health Assessment and Research for Prevention (SHARP) program, at the request of Seattle union Local 8.

So what should professional cooks do to minimize their exposure to diacetyl? Although several food manufacturers are eliminating diacetyl from their products, the following are steps recommended by the Washington State Department of Labor and Industries:

- If possible, substitute butter-flavored oils with products that contain less diacetyl or no added diacetyl. The lower the product's diacetyl content, the lower the airborne diacetyl exposures will be during cooking.
- Maintain adequate ventilation over grills, fry pans, skillets, and other heated surfaces.
- Seal containers containing butter-flavored oils or butter substitutes when not in use.
- Inform workers about the potential hazards from exposure to diacetyl.

And what about the risk to home consumers? The risk is unclear, because no tests have been conducted, but it is likely to be low. Home cooks might be exposed to diacetyl, but the duration of their exposure is much shorter, and much less diacetyl-releasing product is used, relative to professional cooks. Nevertheless, consumers should ensure that the kitchen is well ventilated when cooking with diacetyl-containing oils or when preparing butter-flavored microwave popcorn.

For more information about diacetyl, visit these sites and type 'diacetyl' into the search window:

<http://www.croetweb.com>

<http://www.lni.wa.gov>

Center for Research on Occupational and Environmental Toxicology

CROET, the Center for Research on Occupational and Environmental Toxicology at Oregon Health & Science University, conducts research, provides consultations and offers information on hazardous chemicals and their health effects. CROET's scientists and research staff explore a range of questions relating to health and the prevention of injury and disease in the workforce of Oregon and beyond. CROET's Toxicology Information Center is open to the public and is staffed to answer Oregonians' questions about hazardous substances in the workplace and elsewhere. CROET's Web site also provides answers to questions about industries found in Oregon through links on a series of pages devoted to industry-specific topics.

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OUTREACH

Oregon Governor's Occupational Safety & Health Conference

Oregon Convention Center - Portland, Oregon

March 9-12, 2009

Blue Mountain Occupational Safety & Health Conference

Blue Mountain Conference Center - LaGrande, Oregon

June 10, 2009

Central Oregon Occupational Safety & Health Conference

Eagle Crest Resort - Redmond, Oregon

September 16-17, 2009

Southern Oregon Occupational Safety & Health Conference

Smullin Center - Medford, Oregon

October 21-22, 2009

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Oregon Health & Science University includes the Schools of Dentistry, Medicine and Nursing; OHSU Hospital; numerous primary care and specialty clinics; multiple research institutes and several outreach and public service units. OHSU is an equal opportunity, affirmative action institution.

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