

C R O E T

enter for
Research on
Occupational and
Environmental
Toxicology



Mount Hood and Wild Irises by Fred Berman

NEWSLETTER

INSIDE

*Domestic Violence in
the Workplace.....2*

**Oregon FACE Program
Releases Publications. .3*

*Linda Ruggiero
Receives Award.....4*

*CROET Exhibits at
Body Worlds 3.....5*

**Oregon-FACE focuses on
young worker safety....6*

*Summer Students Win
Poster Awards..... 6*

Dr. Pam Lein Receives NIH Chemical Agent Countermeasures Grant

CROET scientist Pam Lein, PhD, and co-investigator Byron Ford, PhD, associate professor in the Department of Anatomy and Neurobiology at Morehouse School of Medicine, have been awarded a grant from the National Institutes of Health (NIH) to develop neuregulin-1, a naturally occurring nerve growth factor, as an antidote against lethal nerve agents like sarin and VX.

Dr. Ford made the discovery that neuregulin-1 is effective in the treatment of stroke in laboratory mice and reduces brain cell death by up to 90 percent. He also has evidence that neuregulin-1 might have the same success rate with humans who suffer one common type of stroke. And because brain damage caused by stroke is remarkably similar to that caused by certain chemical nerve agents, Drs. Ford and Lein suspect that neuregulin-1 may also protect the brain from the damaging effects of a class of nerve agent known as organophosphates (OP).

Dr. Lein's work involves studying the neurotoxic effects of OP compounds, which not only include nerve agents, but are also among the most

commonly used pesticides in the U.S. and world. Many injuries and deaths occur worldwide as a result of excessively high exposure to OP pesticides. In fact, since OP pesticides and nerve agents exert similar effects on the central nervous system, OP pesticides are often used as surrogate chemicals in the study of nerve agents.

Treatments currently available for people exposed to excessive concentrations of OP pesticides are effective at preventing death but are not particularly effective at preventing brain damage. If



Dr. Pam Lein

neuregulins are shown to protect the brain from damage caused by exposure to OPs, then this would represent a significant clinical advance in treating people poisoned by OP pesticides and nerve agents, and would provide a novel and effective way to protect

the public and first responders in the event of a terrorist use of nerve agents.

The NIH is funding the comprehensive Countermeasures Against Chemical Threats (CounterACT) Research Network, which conducts basic, translational, and clinical research aimed at the discovery and identification of better therapeutic and diagnostic medical countermeasures against chemical threat agents. Drs. Lein and Ford are funded through a five-year, \$3.2 million CounterACT Grant.

Currently, Dr. Lein is developing the animal model that will be used for the research. Dr. Ford will then direct the project that investigates the effects of neuregulins on OP pesticide-induced brain damage from his lab at Morehouse. The collaboration between Drs. Lein and Ford represents a mutually beneficial effort that builds on and enhances their individual expertise.

Domestic Violence and the Workplace

Domestic violence (DV) causes severe injuries, mental and physical health problems and even death to Oregonians, primarily women. And domestic violence costs Oregon industry an estimated \$50 million per year. Dr. Nancy Glass of Johns Hopkins (formerly of OHSU) has been studying this problem, and this year has partnered with Dr. Kent Anger of CROET to develop a training intervention to inform Oregon employers about what they can do about DV—and what a new Oregon law will require them to do in 2008.

The research team, which interviewed 281 recipients of domestic abuse and 198 perpetrators, found that 37% of perpetrators reported preventing their spouse from getting to work on one or more occasion, 35% reported going to work to harass their spouse, and 24% reported making untruthful statements about their spouse to the spouse's co-workers.

Dr. Anger developed the training format for the project, which includes photographic representations of the information and movies of key partners who describe the abuse experience. The training films also describe actions employers can take to create a safe workplace and to protect the abused, and inform employers about the 2008 law requiring them to take certain steps in an abuse situation. Dr. Anger conducted the pilot study (pictured) to evaluate the training and is developing an intervention strategy with the research team.

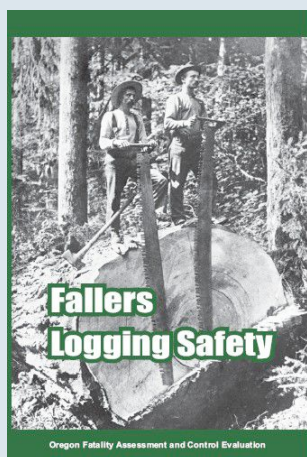
(See DV and the Workplace, continued on p. 4)



Volunteers are pilot testing and evaluating domestic violence training materials, developed by Dr. Anger.

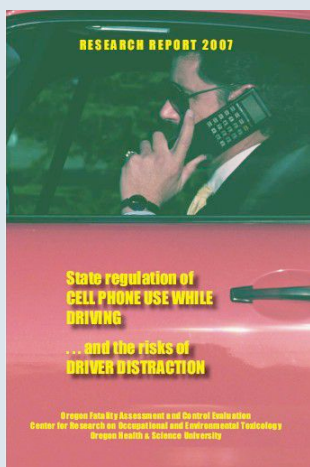
Oregon FACE Program Releases Four New Publications

CROET's Oregon Fatality Assessment and Control Evaluation (FACE) Program, directed by Dr. Gary Rischitelli, has released four new publications, including a logging safety manual that is intended to help train new tree fallers. Working as a tree faller is the most dangerous job in Oregon, and safety training is vital. The manual, titled "Fallers Logging Safety", is designed to help both trainers



and trainees cover safety issues completely, and to remember key points necessary in falling a tree safely every time. Topics covered in the first half of the manual include statistics on Oregon logging fatalities, a discussion of primary hazards for fallers, safety recommendations, and specific hazard topics, including snags, kickback and falling zone hazards. The second half of the manual provides specific five-step plans for falling (assess the area, assess the tree, establish a safe work area, fall the tree, get in the clear) and for limbing and bucking (assess the area, assess the log, establish escape routes, buck the log, get in the clear), as well as work rules provided by Oregon OSHA under the Forest Activities Standard. This logging safety manual is recommended for anyone, novice or professional, who is engaged in tree falling.

Oregon FACE also released a 2007 research report titled "State regulation of CELL PHONE USE WHILE DRIVING and the risks of

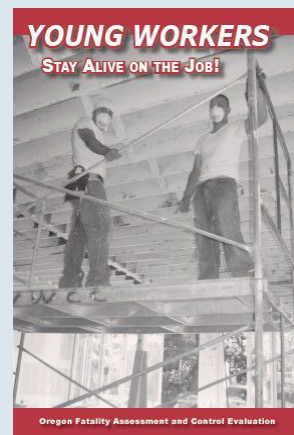


DRIVER DISTRACTION". Legislation is emerging in several states related to the hazards of using a cell phone while driving. This report was prepared for the 2007 session of the Oregon Legislative Assembly. It summarizes an expanding body of research on driver cellphone use and other distractions, and answers key questions likely to be of most interest to legislators.



The third publication, a fatality alert titled "Parked Vehicles Kill", addresses the hazards presented by parked vehicles and recommendations for reducing or eliminating those hazards. Parked vehicles kill at least four workers in Oregon each year. The report describes seven incidents that occurred in Oregon in one 12-month period.

The final publication, titled "YOUNG WORKERS-Stay Alive On The Job!", tells the stories of young workers aged 16-24 who were killed on the job in Oregon from 2003 through 2006. In those four years, 282 workers of all ages were killed in Oregon, including 41 young workers. There are almost 51,000 teens in the Oregon workforce between the ages of 14-18 and another 190,000 young workers between the ages of 19-24. Motor vehicle crashes are the leading cause of death at work. Other fatal events include falls, contact with machines, drowning, poisoning, and violence. All of these events, and more, are described in this booklet (see also page 6).



All four of these publications are available free by contacting Terry Hammond, OR FACE at:

OR-FACE/CROET L606
Oregon Health & Science University
3181 SW Sam Jackson Park Rd.
Portland OR 97239-3098

Tel: 503-494-2281

Linda Ruggiero Receives OHSU Wellness Program Award

The OHSU Employee Wellness Program has awarded Linda Ruggiero its October Apple Award for being a wellness role model. Linda is a graduate student in David Robinson's CROET lab, part of Dr. Chuck Allen's laboratory. Like many hard-working people at OHSU, Linda has struggled with stress and anxiety much of her life. She found peace while participating in activities such as



Linda Ruggiero

pottery and painting, but was thrilled to discover portable stress relief from knitting 4 years ago. "I bring it with me everywhere. I no longer feel stressed out while waiting in traffic on the bus or waiting for hours at the doctor's office because I knit!"

Inspired by her own ability to focus and relax by knitting, Linda created "Neurotrans-Knitters," a knitting circle at OHSU. The group meets twice per month on campus during lunch, and one evening at a yarn shop. "People come to knit, crochet or just hang out," Linda says of the group, "Some people come who do not know how to knit at all, and I just teach them." Neurotrans-knitters quickly expanded to more than 40 members in less than two months, helping many people break up their work day and relax for a bit. Realizing a number of people joined Neurotrans-Knitters as a way of combating nicotine addiction, Linda decided to launch "Knitting for Quitting," which opened an invitation to individuals striving for tobacco cessation to alleviate stress and anxiety. Knitting provides benefits for a variety of health issues. "We have a few other members who say that knitting helps

them stay on their diets as well," Linda reported.

As a graduate student in the Neuroscience Graduate Program at OHSU, Linda has absorbed a great deal of information regarding learning and synaptic plasticity, hence the name Neurotrans-knitters. "Evidence suggests that learning new tasks is a great way to improve the health of the brain and prevent the onset of neurodegenerative diseases. As a result, I always try to do this. Even the most experienced knitters continue to learn, every time they attempt a new pattern."

By thinking outside the box and facilitating a group that tailors to the health and wellness needs of so many, Linda has brought a wonderful gift to OHSU. The group has brought so much more than stress relief, and the kinship emerging from Neurotrans-knitters is testimony to that.

(This article was first published in the OHSU Wellness Program Newsletter and was written by Ashlee Marston, OHSU Health Promotion Specialist. It has been modified for publication here.)

(DV and the Workplace, continued from p. 2)

Dan Gardner, Oregon Bureau of Labor and Industries (BOLI) Commissioner, was filmed explaining that employers of 6 or more people must respond to a request for time off to deal with an abuse problem by granting unpaid leave if the abuse is documented. This law goes into effect on January 1, 2008, and there are penalties for failure to grant the requested leave.

The training was pilot tested for reactions to the training by managers in Gresham, led by Chief of Police Carla Piluso, who was also filmed for the training. Comments on the training were quite positive: for example one respondent said, "The movies and discussion were interesting—true life stories help understand 'real life' abuse situations." And a former systems analyst said: "I normally hate computer-based training, but I really liked that interface." Nonetheless, several improvements were identified that will be incorporated in the training for the formal experiment on intervention effectiveness planned for early 2008.

CROET and the Oregon Poison Center Team Up for Body Worlds 3 Exhibit

From May to October 2007, Portland's Oregon Museum of Science and Industry (OMSI) hosted an anatomical exhibition of real human bodies, Gunther von Hagens' *Body Worlds 3*. Presented by Oregon Health & Science University, and with the financial support of Acumed, this educational exhibit gave the public unprecedented anatomical views of the human body and its many parts in both healthy and disease states. As of late September,



Sarah Schmidt (CROET), Charisse Pizarro-Osilla, RN (OPC), Fred Berman (CROET), Tonya Drayden, RN (OPC) and Joan Rothlein (CROET)

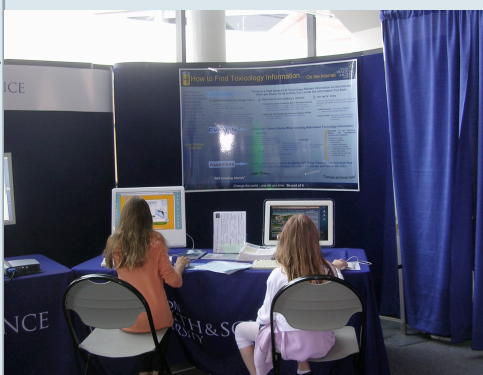
Body Worlds 3 had been seen by over 300,000 attendees, all of whom passed by educational "theme week" displays in the OMSI lobby presented by clinical departments and research centers within OHSU. CROET's Joan Rothlein was on OHSU's Body Worlds steering committee and served as theme week coordinator. Tonya Drayden, RN, OPC Education Coordinator and Fred Berman, DVM, PhD, CROET Toxicology Information Center Director, teamed up (along with lots of help from volunteers) for a presentation about chemical hazards in the home and workplace. A prominent feature of this display was a large "Mr. Yuck" head, that ubiquitous green character that warns children about the dangers of common but potentially dangerous household products. Among items displayed by the OPC was a table full of cleaning agents and other consumer products that, unfortunately, are packaged in such a manner as to appear



almost identical to consumable items such as fruit juices and bottled water. Children were able to distinguish poisons from consumables by the presence of Mr. Yuck stickers on hazardous items, and parents were given their own Mr. Yuck stickers for use at home. The Toxicology Information Center provided attendees with the use of computers, along with



Unidentified Pharmacy Student volunteer, Tonya Drayden, RN (OPC), and Patricia Campbell, RN (OPC) display potentially hazardous consumer products.



Young attendees visit Tox Town and Tox Mystery

information on how to locate, evaluate and assimilate toxicology and health information from the Web. A particular hit with youngsters were two interactive websites from the National Library of Medicine, "Tox Town" and "Tox Mystery", that teach users about hazardous substances that may lurk in the home or community. Attendees were also provided the opportunity to present their questions about hazardous substances to a real live toxicologist. Last but not least, CROET's Dr. Ryan Olson and graduate students participated in this event with a demonstration of Dr. Olson's research

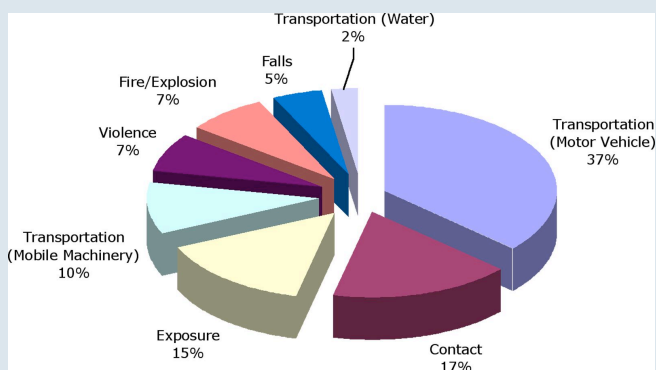


CROET volunteer Terry Hammond

program on safety in the trucking industry, including the Safety & Health Involvement for Truck Drivers (SHIFT) program, as well as a poster on transportation fatalities from CROET's FACE program (see page 3).

OR-FACE: Young Worker Health and Safety is a Priority

The OR-FACE program, sponsored by NIOSH, identifies and studies fatal occupational injuries and develops outreach strategies for education and prevention (see page 3). OR-FACE outreach activities are guided in part through the identification of local areas of concern to Oregonians, one of which is young worker safety. CROET's OR-FACE data from 2003 through 2006 reveal the tragic loss of 41 Oregon workers aged 16-24. Nearly half of all young worker fatalities have been in transportation, including highway, mobile machinery such as tractors and ATVs, and transportation accidents on water when no life vests were worn.



Young worker fatalities in Oregon, 2003-2006

Young workers tend to receive minimal or inadequate training on safety and health issues and have unique risk factors for injury; lack of awareness of these issues extends to parents, educators, employers and healthcare providers. To address this problem, a new statewide Coalition for Young Worker Health and Safety is being formed and held its first meeting in October at OHSU. Representatives of state agencies, including OR-OSHA, BOLI, DOE and DHS, and members of labor, insurers, career and training programs and health and safety professionals, attended the meeting, hosted by Laurel Kincl of the University of Oregon's Labor Education and Research Center (LERC) and CROET's Joan Rothlein. The response to this first coalition meeting was very positive, and plans are underway for the coalition to

continue to meet and discuss new approaches for improving safety and health awareness among young workers in Oregon.

OR-FACE and LERC have also hosted several workshops to prepare teachers, career counselors, study-to-work supervisors, and other trainers and educators to use the **Youth@Work: Talking Safety** curriculum. The Oregon version of the curriculum is now available on line at <http://www.cdc.gov/niosh/talkingsafety/>. OR-FACE has also completed a new booklet intended for young worker and student audiences, titled "YOUNG WORKERS-Stay Alive on the Job" (See page 3).

Summer Student Program Ends With Awards

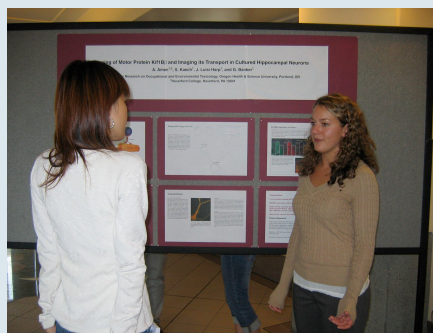
CROET's 8-week summer college student program culminated with each of the 14 students presenting a poster of the research they conducted from June to August, 2007.



Ben Anderson is congratulated by CROET Director, Peter Spencer

Two students won prizes for their posters: Ben Anderson, from Dr. Glen Kisby's lab, won for his poster "Comparative analysis of

methylazoxy-methanol and tobacco- specific nitrosamines on neurodevelopment", and Alexandra Amen, in Dr. Gary Banker's lab, for



Alexandra Amen discusses her work with a colleague

"FP-tagged Kif1B beta labels different carriers from Kif1A in mouse hippocampal neurons." Both federally supported research projects address

how brains develop normally.

Center for **R**esearch on **O**ccupational and **E**nvironmental **T**oxicology

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 ~100+ 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.

How to Contact Us

MAIL ADDRESS

CROET
Oregon Health & Science University
3181 SW Sam Jackson Park Rd, L606
Portland, OR 97239-3098

Web site

<http://www.ohsu.edu/croet/>

TELEPHONE

Main CROET number
(503) 494-4273
Facsimile
(503) 494-4278
Toxicology Information Center
(800) 457-8627

E-MAIL

Toxicology Information Center
croettic@ohsu.edu

You may share your comments regarding this publication by calling (503) 494-2514, by e-mailing us at linstrom@ohsu.edu or by faxing us at (503) 494-4278

Directors and Scientists

DIRECTOR AND SENIOR SCIENTIST

Peter S. Spencer, PhD, FRCPath

ASSOCIATE DIRECTOR AND SENIOR SCIENTIST

W. Kent Anger, PhD

ASSISTANT DIRECTORS

Gregory Higgins, PhD
Janice Stewart, BS

FACULTY

Charles Allen, PhD
W. Kent Anger, PhD
Gary Banker, PhD
Anne Greenlee, PhD
Gregory Higgins, PhD
Glen Kisby, PhD
Dennis Koop, PhD
Doris Kretzschmar, PhD
William Lambert, PhD
Pamela Lein, PhD
R. Stephen Lloyd, PhD
Amanda McCullough, PhD
Irina Minko, PhD
Harvey W. Mohrenweiser, PhD
Ryan Olson, PhD
Bruce Patton, PhD
D. Gary Rischitelli, MD, JD, MPH, FACOEM
Diane Rohlman, PhD
Jackilen Shannon, PhD
Show-Ling Shyng, PhD
Peter S. Spencer, PhD, FRCPath
Philippe Thuillier, PhD
Mitchell Turker, PhD
DongRen Yang, PhD

INVESTIGATORS

Robert Irwin, MD, MPH
Ilena Herrero-Hernandez, MD, PhD
Stefanie Kaech Petrie, PhD
Mohammad Sabri, PhD
Daniel D. Tshala-Katumbay, M.D., PhD

SCIENTIFIC STAFF

Ludovic Alvado, PhD
Daniel Austin, MS
Frederick Berman, DVM, PhD
Heather Fercho, MS
Karen Fujimoto, BS
Terry Hammond, MPH
Chun-Fang Huang, PhD
Robert Kayton, PhD
Leena Knight, PhD
Olena Kolotushkina, PhD
Mike Lasarev, MS
Yu-Wen Lin, PhD
Mykhaylo Moldavan, PhD
Dede Montgomery, MS, CIH
Valerie Palmer, BS
Diane Rohlman, PhD
Joan Rothlein, PhD
Bernard Sampo, PhD
Vladimir Vartanian, PhD
Izabela Wojnarowicz, MS
Feifei Yan, PhD
Erika Zoller, BS

OUTREACH

CROET will exhibit at the following conferences.

Mid-Oregon Construction Safety Summit

Eagle Crest Resort - Conference Center, Redmond, Oregon

January 28, 2008

Cascade Occupational Safety & Health Conference

Lane Community College Center for Meeting & Learning - Eugene, Oregon

March 18-20, 2008

Join our monthly E-mail list

Join CROET's e-mail list for monthly updates about additions to the CROET web site, news and upcoming events. To subscribe or read past updates, go to <http://www.croetweb.com/>

Oregon Health & Science University includes the Schools of Dentistry, Medicine, Nursing and Science and Engineering; 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.

Oregon Health & Science University
CROET, the Center for Research on
Occupational and Environmental Toxicology
3181 SW Sam Jackson Park Rd., L606
Portland, OR 97239-3098



Non-Profit Org.
U.S. Postage
PAID
Permit No. 722
Portland, OR