



Puget Sound Human Factors and Ergonomics Society

November 2007 Newsletter

www.pshfes.org

Renew Your Membership or Join Today!

Our chapter is a non-profit organization associated with the Human Factors and Ergonomics Society and serves the interests of the local community of the Pacific Northwest. Our funding is generated via the chapter's membership dues and activities.

For only \$18 (\$9 for students), you can enjoy opportunities for professional development, network with fellow professionals, and tour local facilities when you join PSHFES.

Members receive discounts on all events, including tours, informative dinner meetings, and the Annual Occupational Ergonomics Symposium. Join and have your business listed on our Web site, too.

Join for the 2007 calendar year by visiting our Web site at www.pshfes.org/, click "Membership," and pay online (Pay Pal) or by check.

Symposium Unqualified Success!

By Deborah Read, MOTR/L

The Puget Sound Chapter of the Human Factors & Ergonomics Society held its annual Occupational Ergonomics Symposium September 12-13 at Seattle's Museum of Flight. Once again, it was quite a hit! This active group pulls in well known headliners: Hal Hendrick of Hendrick & Associates this year, Peter Budnick of ErgoWeb in 2006, Dave Alexander of Auburn Engineers in 2005, and Len Walsh in 2004!

This annual 2-day event draws ergonomists, Industrial engineers, health & safety personnel, occupational health nurses, occupational & physical therapists, vocational rehabilitation counselors, and company safety and ergonomics team members from around the region.



A few consistent themes shone through this year:

- ◆ Include employees in the selection and review of your ergonomic interventions. Not doing so will virtually guarantee failure.
- ◆ Pick low cost, high impact engineering interventions first, aka "low hanging fruit" – this gives you numbers to talk about with management and functional results to talk about with employees that can really get a "buzz" going in the workplace.
- ◆ Track data pre-intervention and up to 3 yrs post-intervention to get the cost-benefit or return on investment or payback period info you need. Including testimonials goes a long way toward building credibility among the workforce.
- ◆ Educate management all along the way, helping them connect the dots to understand the far-reaching effects of good ergonomic interventions.
- ◆ Advertise your successes – with employees, with management, with friends and family.
- ◆ Include what you did, what the functional outcome was, what the financial impact was, and what employees think about it. This will help elevate the community's understanding of what ergonomics can do for workers and businesses.



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Web site of the Month—page 2
Precor Member Tour—page 4



Symposium Success (continued)

Dr. Hal Hendrick shared wonderful stories of micro and macro ergonomics successes and helped teach us how to capture true cost benefits of ergonomic interventions, including using a company's financial and statistical personnel to help you. He shared that good ergonomics programs have pay-back periods from 6-24 months or cost-benefits from 1:2 – 1:10. He reminded us that once engineering changes and process changes have been made, and the money recouped for that, it's all profit after that! So, it's critical to look at the life cycle when trying to capture the financial benefits of ergonomic interventions.



We learned how data that gets tracked matures over time as ergonomics programs and initiatives mature. Jeannette Murphy of St. Luke's Rehabilitation Institute gave us an example of how you may start out only with access to injury data but evolve to tracking how many seconds have been saved to perform a particular task and translating that into money saved. And your data analysis typically begins using lagging indicators and evolves over the course of a few years into using leading indicators. Lagging indicators reflect, of course, a reactive program whereas leading indicators reflect a proactive program.

We learned about ground-breaking prospective research on upper extremity MSDs, including the fact that the Strain Index is more protective than the ACGIH HAL and that it is best to use the most

common exertion with Strain Index but the peak exertion with ACGIH HAL. For much, much more information, please contact Stephen Bao at baos235@lni.wa.gov, or Barbara Silverstein at silb235@lni.wa.gov, through the SHARP program at Washington State Labor & Industries. Some of the findings will be published soon in *Ergonomics*, titled: "Two posture analysis approaches and their application in a modified RULA evaluation." And their data will be analyzed for years to come.

Trying to capture the true and total costs of a workplace injury are very challenging indeed. How do you capture the emotional costs? Barb Smith from the Boeing Company presented her group's findings after conducting an extensive literature review of direct vs. indirect costs of injury in their attempt to find the "perfect" cost of injury model. As you may have guessed, it turns out there is no one accepted methodology to capture the costs of an injury due to the enormous complexities of capturing the trickle down effect of an injury.



Did you know that an employee's INTENTION to lift safely is what dictates whether or not s/he will lift safely? This intention is affected primarily by the perceptions of control over one's work techniques a person has. The second most important factor effecting intention is the workplace cultural / social environment. These issues -- NOT training -- are what impact an employee's choices to

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WEB SITE OF THE MONTH

eOrthopod

Clear, accurate, understandable information about your orthopaedic condition.
Topics - Downloadable Booklets - News Articles - Frequently Asked Questions

<http://www.eorthopod.com/public/>

Symposium Success (more)

use safe lifting practices. This research, by Stephen Johnson of the Boeing Company, can be found in the *Journal of Safety Research* (2004) 36(4).

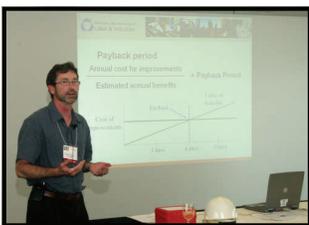
We got an eye-opener from statistician Steve Prevet of Fluor, who passionately instructed us in how to create, use, and interpret statistical process control

charts to prevent us from having knee-jerk responses to normal, random, and minor fluctuations in injury data. Data have natural fluctua-



tions so it is critical to know what is natural and expected versus what is a meaningful event or a trend change. He taught us how to use data to predict injury data ranges and how to detect that the trend has changed positively or negatively. He uttered one of my favorite phrases of the 2-day Symposium which he has used when speaking to managers about injury: "Who here in this room do you want to send home hurt today?" And he also drove home the point that we must change broken systems and processes to effect a positive change in our injury outcomes.

Jose Banaag of Honda of America shared his company's ergonomics program evolution and demonstrated nicely the major themes outlined above. He stressed the importance of perseverance, of picking low hanging fruit, of showcasing employee involvement in solutions development and of sharing your ergonomic success stories in every medium available to you from newsletters to employee picnics to incentives for devising good solutions.



Rick Goggins shared his newly developed and soon to be published Cost – Benefit calculator as a way of determining the highest value ergonomic interventions for a

given problem. He incorporates injury costs and productivity savings and reduced risk exposure calculations in his model and it is a fabulous tool to

help us communicate with management, for those of us who are not economists! We hope to make this calculator, and the supporting documents for it, available on the PSHFES website by the end of this year (www.PSHFES.org). And it will soon be published in the *Journal of Safety Research* titled "Estimating the Effectiveness of Ergonomics Interventions through Case Studies: Implications for Predictive Cost-benefit Analysis", with co-authors Peregrin Spielholz and Greg Nothstein.

And this year also highlighted the third annual Ergonomics Professional of the Year Award, which went to Rich Gardner, PE, CPE, and lead ergonomist at the



Boeing Company, for his work on the 787 Dreamliner. While working to bring ergonomics into every aspect of this airplane, Rich was the principle inventor of the U.S. patent pending **Methodology to Manage Ergonomics Risk in Manufacturing**. Richard also pioneered the use of **3-D**

virtual reality (VR) technology or "**Immersive Engineering**" in the advancement of human factors and ergonomics. Instead of building an expensive physical model to evaluate human access, reach, and visual parameters during the design phase, he researched ways to apply VR technology and digital human models to perform human factors and ergonomic assessments.

Deborah Read, MOTR/L, is an Occupational Therapist, Ergonomics Consultant, Fitness Trainer, & President of ErgoFit Consulting, Inc. in Seattle, WA. ErgoFit Consulting, Inc. collaborates with their client companies to improve the productivity and performance of their industrial, Fire/EMS, and office workers. She is the 2007 President of the Puget Sound chapter of the Human Factors & Ergonomics Society, www.PSHFES.org. Contact her at ErgoGirl@ErgoFitConsulting.com or www.ErgoFitConsulting.com.

A Very Special Thanks to the Participating Vendors and Sponsors This Year!

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[Boeing Enterprise Ergonomics](#) [Alpha Modalities](#)
[Boeing Everett Environmental Health and Safety](#)

MEMBER TOUR OF PRECOR

Eight PSHFES members met on the morning of November 1 for a tour of the Precor facility. Precor is a premier builder of exercise equipment, and its main manufacturing plant is located in Woodinville, WA. We were greeted by Laura Legel and William Tyler who gave us a brief presentation on the history of the company and its current status. The company began with one engineer who developed a rowing machine in his Seattle garage and it has grown today to be a premier fitness industry company with 1000 employees, supplying exercise equipment to hotel chains and fitness clubs including Bally's and YMCA.

In 1998, an ergonomics initiative brought the company's OSHA recordables down from 17.52 to its present level of 0.24. This calculates to spending less than 4 cents per hour worked on medical costs. The Precor team explained that the investment in ergonomically designed tooling and employee empowerment in safety issues was an easy sell to the company's management since ergonomics design is key for their exercise equipment. Also, Precor management's bonuses are tied to attainment of their safety performance goals.



John Jorgensen, the company's lead tooling engineer led us on a tour of the manufacturing area. From the robotic welding to the height adjusted conveyor assembly line with ceiling mounted tool balancers for hand tools, the ergonomics improvements were obvious and plentiful throughout their build and assembly processes. It was explained that since 65% of the Precor workforce is female, it was necessary to build the tooling to accommodate. In addition, every 2 hours, employees rotate to another process task, further decreasing the possibility of accumulated ergonomics risk. Weekly product cell meetings with factory employees and engineering are conducted to address any emergent safety issues.

In summary, the PSHFES members would like to thank Laura, William and John for the fantastic tour and for taking the time to explain their ergonomics/safety program, how they attained their successful safety record, and their creative ergonomics improvements in the factory. It is evident that both the Precor management and employees believe and are empowered to create an injury free work environment.

Cindy Williamson—Program Chair

FOR A VERY GOOD TIME, GO TO

"ERGONOMICS HUMOR"

AT

<http://www.humanics-es.com/ergojokes.htm>

WARNING: BE PREPARED TO LAUGH



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