HFES 2016 International Annual Meeting
September 19–23
Washington Hilton, Washington, DC

Top scientists and practitioners from around the world will gather at the 60th International Annual Meeting to deliver cutting-edge presentations of the latest research and practical applications in human factors/ergonomics in 23 technical areas of expertise.

You will walk away with
• Insights and techniques from more than 100 peer-reviewed sessions and interactive posters, demos, and skill-building workshops
• Increased career visibility and an expanded professional network
• Information, inspiration, and insights to move your career forward

It is knowledge you can use right away to lead, grow, and become an innovator in your field.

Keynote Speaker:
Norman R. Augustine, Retired Chairman and CEO of Lockheed Martin Corporation, former Undersecretary of the Army, and long-time proponent for ensuring the place of science and engineering on the nation’s list of priorities.

hfes.org
WELCOME TO ERGOX 2016!

This event is designed to present and apply the latest ergonomics science to workplace health, safety, wellness, and injury-prevention issues across a variety of settings.

Our keynote speaker is none other than Richard Hawk, the famous workplace safety guru and author. We hope that his presentation, “Great Leaders Make Safety Fun! Using Your Influence to Create a Vibrant Safety Culture,” will inspire you to enhance safety in your company. Following that, we have an incredible lineup of presenters covering a broad range of contemporary topics.

Many thanks to our Platinum Sponsor, Liberty Mutual Research Institute for Safety, whose commitment to work safety is unparalleled in the insurance industry. In addition, we thank Herman Miller for sponsoring our Networking Ribbons, which can be found in the registration area. Please take a look at this fun new feature of ErgoX, which is designed to help you to connect with attendees who share your interests. And, of course, we deeply appreciate the contributions of our exhibitors, program committee, and advisory board members.

We hope you enjoy this unique and interactive experience, in which you will both learn and share ergonomics knowledge in a unique environment. Thank you for attending ErgoX 2016!

Tweet at #ErgoX2016!

Anthony D. Andre and Kermit G. Davis
ErgoX 2016 Cochairs
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ERGONOMICS
**SCHEDULE OF EVENTS**

**MONDAY, JUNE 6**

10:00 a.m.–7:00 p.m.  
Registration Services  
Royal Registration Desk

1:00–5:00 p.m.  
Workshop  
Valencia

**Examining Your Ergonomic Issues: Tools of the Trade**  
Susan Kotowski, PhD, CPE — University of Cincinnati  
Sheree Gibson, PE, CPE — Ergonomics Applications

An effective ergonomics program depends on good, objective assessments of jobs and tasks. There are a lot of different assessment tools from which to choose. How do you select the best one(s) for your application? This workshop will provide guidelines for selection and will include demonstrations and hands-on practice with a number of useful peer-reviewed tools. It will include general tools as well as those for repetitive tasks and manual material handling such as the NIOSH Lifting Equation, Job Strain Index, Quick Exposure Checklist, Liberty Mutual Psychophysical Tables, and a new proposed version of the NIOSH VDT Checklist.

Susan Kotowski is an assistant professor and director of the Movement Analysis Lab in the College of Allied Health Sciences at the University of Cincinnati. She holds a PhD in occupational safety and ergonomics and has over 10 years of experience in teaching and ergonomics assessment. She is current chair of the HFES Occupational Ergonomics Technical Group and is also active on the AIHA Ergonomics Committee.

Sheree Gibson is the president of Ergonomics Applications, an industrial ergonomics consulting firm. She has been practicing ergonomics and engineering for the past 37 years. Sheree has degrees in both mechanical engineering and industrial ergonomics. She is past chair of the Ergonomics Committee of AIHA.

5:30–7:30 p.m.  
Opening Networking Reception and Exhibits  
Royal C/D & Hall
TUESDAY, JUNE 7

7:30 a.m.–5:30 p.m.
Registration Services
Royal Registration Desk

8:00–8:30 a.m.
Continental Breakfast
Royal Foyer

8:30–10:00 a.m.
Opening Keynote Address
Royal A/B

Great Leaders Make Safety Fun! Using Your Influence to Create a Vibrant Safety Culture
Richard Hawk

Leaders at Southwest Airlines, Google, Raytheon and other world-class companies know that when employees are in a good mood and enjoy their work — in other words, having FUN — they perform better. That means they make fewer mistakes and have fewer accidents. In this engaging program, you will learn how to leverage your influence to instill a spirit of fun in your company’s safety culture. Richard Hawk, world-renowned expert on making safety fun, uses stories, props, songs, and innovative interactions to share what he’s learned from working with hundreds of leaders in all kinds of industries. Audiences can’t help but have fun while they discover new ideas they can put into action right away. During this talk, Richard will tailor his content to include examples and ideas for ergonomic professionals.

Richard Hawk has been in the safety and health field for more than 30 years. He spent 15 of them as a safety professional in the nuclear industry and safety consultant on construction projects. Richard’s background also includes theater where he toured with acting companies and wrote a musical that was produced by Emerson College in Boston. His depth of knowledge and extensive experience make for content-rich, behavior-changing learning programs that are truly “fun.”

10:00 a.m.–7:00 p.m.
Exhibit Hall
Royal C/D & Hall

10:00–10:30 a.m.
Break/Exhibits
Royal C/D & Hall

10:30–11:30 a.m.
Session 1
Royal A/B

Hitting the Target: Identifying Root Cause Exposures to Reduce Low-Back Injuries
W. Gary Allread, PhD, CPE — Spine Research Institute-Ergonomics at The Ohio State University

Many ergonomists who attempt to lower the numbers of low-back injuries among employees often focus on just two aspects of the work — the weight or location of the item being handled (through physical changes to the work area), or the way in which individuals do the job (such as through “safe lifting” techniques). Although these can be valid strategies, they may be missing other factors that are just as important, or even more associated with any low-back concerns about the job. This talk will present the known multifactorial causes of low-back injury and discuss methods to comprehensively address and solve these prevalent and debilitating conditions.

W. Gary Allread is the Program Director of SRI-Ergonomics at Ohio State and has worked in the field for over 25 years. He consults with companies and organizations on their ergonomics issues, conducts applied ergonomics research, and coordinates various educational programs, including Ohio State’s biannual ergonomics Short Course, Putting Ergonomics Into Practice. Gary has authored peer-reviewed research articles on various ergonomics topics, including injury risk factors from materials handling and interventions to reduce low-back injuries. Gary is also a Certified Professional Ergonomist.

11:30 a.m.–12:00 noon
Session 2
Royal A/B

Bio Sensor Technology: A Sneak Peek Into the Future
Joy K. Boese, BA, CAE — E3 Consulting

Integrating bio-sensors into the workplace? It is not as far fetched as one would think. Learn how bio-sensor technology was integrated into a five-week study
performed by Fujitsu Labs of America, Sony Pictures Entertainment, and E3 Consulting. We will discuss how meaningful, unbiased data was collected, analyzed, and tailored to serve both the individual and the organization. You’ll leave with exciting ideas for integrating cutting-edge technologies into new ergonomic design projects. Session takeaways:

- Determine which information to gather, share, and process
- Discover how current technology is bringing change to the ergonomics industry
- Discuss new and emerging technologies

**Joy K. Boese** is the president of E3 Consulting Corporation, a leading edge office and industrial ergonomics, design, health, and wellness consulting firm, established in May of 1996. With over 20 years experience, Joy’s vision was to create a company that set the highest service standard available in the field of ergonomics. Ms. Boese has been involved in developing, maintaining and implementing office ergonomic programs for clients such as Toyota Motor Sales, Bank of America, Northrop Grumman, Sony Pictures Entertainment, Fox, Dreamworks, Paramount Pictures, Irwin Mortgage Corporation, Kroger Foods, Google, Rand Corporation, Rovi Corp., and Polycom. Joy’s passion is to provide cost-effective and innovative solutions guaranteed to increase employee productivity, health, wellness, and comfort, while dramatically improving a company’s bottom line.

**Peter W. Johnson** is a professor in the Occupational and Environmental Exposure Sciences program at the University of Washington, specializing in ergonomics. He earned his doctorate in bioengineering from the University of California – Berkeley and has worked as a researcher at the National Institutes of Occupational Health in the United States, Sweden, and Denmark. Dr. Johnson is a nationally and internationally recognized leader for his lab’s work evaluating seating alternatives to reduce exposures to Whole Body Vibration (WBV). Currently his lab is conducting studies evaluating ways to reduce WBV exposures in semi-truck, bus, and mining industries. In addition, Dr. Johnson conducts research with vehicle seating suppliers and seat end-users investigating ways to reduce vehicle operators’ exposures to WBV.

**Stephen Bao** is a certified professional ergonomist at Washington State Department of Labor and Industries. As a researcher, he has performed numerous projects, primarily in real workplaces, to study relationships between workplace factors and musculoskeletal disorders, develop job assessment tools, and evaluate workplace ergonomics interventions. With an engineering background, Stephen promotes solutions that can be integrated in industrial processes to enhance productivity and improve efficiency. He has done many ergonomics consultations with a wide range of industries. As a seasoned instructor, Stephen has taught many targeted audiences including ergonomists, health and safety specialists, engineers, production workers, and university students.

**Lunch and Sponsor Spotlight**
(Complimentary for registered attendees.)
Royal E/F

**1:30–2:15 p.m.**
**Session 3**
Royal A/B

**Good and Bad Vibrations: From Whole Body to Hand-Arm Vibration**

*Peter W. Johnson, PhD — University of Washington and Stephen S. Bao, PhD, CPE — SHARP, Washington State Department of Labor and Industries*

This will be a practitioner-focused introduction to whole body and hand-arm vibration. It will describe the requirements based on U.S. and International standards when workers are exposed to whole body or hand-arm vibration. Topics covered will include: (1) technical preventive measures aimed at reducing the exposure to whole body or hand-arm vibration, (2) administrative preventive measures aimed at reducing vibration exposures, (3) advice to individuals who are exposed to vibration and (4) medical preventive measures associated with regular exposure to vibration. This presentation is aimed at ergonomics practitioners and safety professionals who may need to deal with vibration-related health issues associated with vehicle/equipment operation or hand-held power tool use in workplaces.
The Great Sit-Stand Workstation Debate: Effective or Urban Legend?

David M. Rempel, MD, MPH — University of California, Berkeley/University of California, San Francisco vs. Kermit G. Davis, PhD, CPE — University of Cincinnati

Prolonged sitting at work has been called the new smoking and sit-stand workstations a way of preventing heart disease. Many recommend sit-stand workstations to reduce neck and back pain and improve productivity. Overall, it appears that sit-stand workstations are beneficial, but is that reality? A vigorous debate will review the evidence for and against sit-stand workstations.

David M. Rempel is professor of engineering at UC Berkeley, and professor of medicine at UC San Francisco. His research focuses on hand biomechanics and the design of tools and tasks in order to improve productivity and the quality of work while preventing hand and arm fatigue and injury. The lab has developed and tested new keyboards, mice, tablets, pipettors, and agricultural and construction tools. Recently, Rempel has directed a national study of 4,321 workers to identify risks factors for carpal tunnel and tendonitis. He also treats patients at UC Berkeley. Publications and descriptions of research projects are at ergo.berkeley.edu.

Kermit Davis was trained in industrial engineering with specialization in occupational ergonomics and low-back biomechanics with special interest in multiple exposures, both physical and psychosocial stressors. He is an associate professor at the University of Cincinnati. One of his current research focuses is the investigation of the synergistic effect of physical and psychosocial workplace demands on the responses within the lower back. He has published numerous articles about the impact of complex workplace stressors on the lower back over his 20-year career.

Drilling Deep Into Ergonomics: A Successful Case Study of a Construction Task Modification

David M. Rempel, MD, MPH — University of California, Berkeley/University of California, San Francisco

Hanging conduit and upgrading large buildings require construction workers to drill thousands of holes into concrete. The drills are heavy and noisy, and this is one of the most physically demanding jobs done by workers. The Ergonomics Program at UC Berkeley conducted a 5-year research project to design and test new solutions. The successful process of involving workers in the design and testing will be described and can be applied to other jobs.

Ergonomics Design Considerations for Rapidly Changing Work Environments

Meg Honan, MS, CPE, RPT — Genentech

Contemporary mobile work presents tremendous change and opportunities for ergonomists and researchers to keep pace with fitting the changing models of work to the person. Ubiquitous access to data on mobile devices has led a full transformation from traditional offices to working from home to working from anywhere imaginable. More research data are needed, AND practical strategies from intervention studies provide direction now. Pragmatic guidelines for design and selection of furniture for work spaces are available to deploy today. Like all companies, Genentech had a steep learning curve to transition toward a combination of assigned and unassigned work spaces on our South San Francisco campus. Using a methodical, evidence-based approach to follow the science is all endeavors, we found that collaboration was the key to a successful launch of a new building of 1,500 shared work spaces. This talk is an opportunity to share in the process of taking ergonomics to the next level needed for 2020 and beyond.
Meg Honan’s ergonomics experience has focused on employee work area and work method assessment and participatory ergonomic process development in plant, laboratory, R&D, and office work environments. At Genentech, the Ergonomics Group engages a staff of 14,000 at the South San Francisco site. She works with interdisciplinary teams using participatory ergonomics, including design, process and production engineers, EHS, and safety teams to integrate ergonomics into Genentech’s continuous-improvement process. Since 2010, Meg has been highly engaged in ergonomics as it relates to the expanding role of mobile devices and new work environments. She is a Certified Professional Ergonomist.

4:30–5:15 p.m.
SPOTLIGHT TALKS
Royal E/F

A Repetition Is Not a Repetition Is Not a Repetition
Sean Gallagher, PhD, CPE — Auburn University
Several lines of evidence suggest that musculoskeletal disorders (MSDs) are the result of a fatigue failure process. If true, there are numerous important implications that will impact how physical risk factors are assessed. For example, the impact of repetition would be highly influenced by the amount of force experienced. For another example, at low levels of force, each repetition would result in a minor increase in risk; however, at high levels of force, each repetition can increase risk of MSDs rapidly. Fatigue failure theory has techniques for estimating cumulative damage development for tasks that involve jobs having a variety of loading and repetition rates. These techniques may soon improve our ability to more accurately predict MSD risk and develop improved interventions to reduce the costs and disability associated with these disorders.

Sean Gallagher is a Certified Professional Ergonomist and a Fellow of the American Industrial Hygiene Association. From 1984–2011, Dr. Gallagher performed research to reduce musculoskeletal disorder risk in the mining industry, initially with the U.S. Bureau of Mines and subsequently with the National Institute for Occupational Safety and Health. In 2012, Dr. Gallagher accepted a faculty position in the Industrial and Systems Engineering Department at Auburn University. Dr. Gallagher was the recipient of the 2013 International Ergonomics Association/Liberty Mutual Medal in Occupational Safety and Ergonomics for his paper suggesting that musculoskeletal disorders are the result of a fatigue failure process, which may change the manner in which MSD risk is assessed in the future.

A Leaner Approach to Workplace Ergonomics
Jessica Ellison, MS, CPE, CSP — BSI EHS Services and Solutions
Have you ever had a challenge “selling” your ergonomics story and getting the management support you need to make a change? This TED-style presentation will show you how to get everyone on the same page using concepts from Lean and will help you to tell your “ugly story” to win over management and get the funding and support you need.

Jessica Ellison is a Certified Professional Ergonomist and Certified Safety Professional with over 10 years of experience in ergonomics and safety. She has helped companies develop and streamline global ergonomics and safety programs to improve efficiencies for ergonomics and safety support. She has experience conducting qualitative and quantitative ergonomic risk assessments with recommendations for reducing risk and increasing efficiencies in many different industries including office settings, laboratories, warehouses, and field, agricultural, hospitality, and industrial operations. She is an account manager and has managed national and global projects. Ms. Ellison is a principal consultant with BSI EHS Services and Solutions. Jessica was the winner of the 2013–14 Safety Professional of the Year for the ASSE Ergonomics Practice Specialty.

Spotlight Talk: Obesity Simulation Suit: Extreme Users’ Experience
Sharon M. B. Joines, PhD — North Carolina State University
The prevalence of obesity has been rapidly increasing in recent years; obesity in the United States is higher...
than in any other developed country. Obesity increases the risk of musculoskeletal pain in adults including upper and lower extremities. The World Health Organization classifies an individual’s amount of body fat by using Body Mass Index (BMI). Normal weight is defined as a BMI of 17–24, overweight a BMI of 25–29, and obese a BMI of over 30. These classifications, based on large epidemiologic studies, give an estimate of the relation between body mass and health outcomes.

The experiential approach to learning used in short courses and design classes highlights the trials of many physical challenges such as visual impairment, wheelchair use, and use of walking aids. Simulations have been found to fuel enthusiasm for learning change perspectives, and to increase empathy, increase self-awareness, and increase tolerance for ambiguity. Broadening the experiences to which individuals may be exposed beyond mobility and vision impairment was at the core of this simulation-suit development project. The purpose of the simulation suit was to provide designers, engineers, educators and students with an experience meant to highlight the challenges of individuals with a high Body Mass Index when performing tasks, using products, or experiencing an environment. During this presentation, Sharon will fit select participants with the obesity suit allowing participants first-hand experience performing simple activities encumbered by excess mass and girth associated with an obese physique. Participants’ experiences and observers’ insights will be explored.

Sharon M. B. Joines received her bachelor’s, master’s and PhD in industrial engineering from NC State University. Sharon is a researcher, ergonomist, and design educator, teaching courses in human-centered design and ergonomics. She is an NC State University Faculty Scholar, associate professor, and director of graduate programs in industrial design and is director of the Research in Ergonomics and Design (RED) Lab in the College of Design. Her interests reside in universal design, applied product and process research, innovation and the effect of aging on fatigue development and work. Her research focuses on transdisciplinary collaboration and quantifying the interaction between individuals, products, and their environment. Sharon works with engineers and designers in all phases of the design cycle. The challenges they have addressed have traversed consumer markets, warehousing and distribution, medical applications, and manufacturing environments.

Imperial

Chair Adjustments from A to Z
Alison R. Heller-Ono, MSPT, CDA, CPDM, CIE, CPE—Worksite International, Inc.

Ergonomic chairs are most often purchased and assigned to workstations without regard to the end user’s stature, fit, and functional tasks performed. As a result, employees are often left to deal with a chair that doesn’t fit or support them as desired. The chair may have the appropriate “bells and whistles,” but no one knows how to adjust for best fit and comfort. Ergonomic chairs are assigned “willy-nilly” in the workplace, where petite-stature employees sit in oversized chairs and large-stature employees sit in undersized chairs, and the ones that fit just right don’t even know it! Furthermore, many employees continue to use a chair that is far past its prime, not knowing that the chair could fail at any moment or cause them harm with ongoing use. The lack of a systems approach and quality management results in commonplace chair “misfits” throughout the workplace and increased risk exposure for both employees and employers. In 30 minutes, Alison will show you how to assess a chair for quality, competency, and fit, resulting in reduced risk, improved comfort, and productivity for seated workers and minimizing chair misfits in the workplace.

Alison R. Heller-Ono, President/CEO of Worksite International, Inc., is passionate about how people work! As an entrepreneur and thought leader in her area of expertise as a physical therapist, professional ergonomist, and disability manager, Alison has sought to keep healthy employees healthy while helping injured employees reach their maximum potential at work and at home. Her 27 years of experience as a licensed physical therapist gives her an edge in helping employers better understand work-related musculoskeletal disorders and identify the root cause of these injuries through biomechanical analysis.

Alison has been dually credentialed as a Certified Industrial Ergonomist and Certified Professional Ergonomist for the last 18 years, contributing to her expertise and understanding of ergonomics in the
workplace. Her expertise in the application of ergonomics in workers’ compensation and disability management is evident. As a Certified Disability Analyst and Certified Professional Disability Manager, she demonstrates her commitment to helping employers with workers who require accommodation so they can stay or return to work safely and productively. As a Certified Management Consultant, Alison has sealed her professional uniqueness by becoming the only PT/ergonomist/disability manager to achieve this pinnacle in the management consulting industry.

5:15–7:00 p.m.
Reception and Exhibits
Royal C/D & Hall

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June 19–21, 2017 | Tampa, Florida

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• Solutions to pressing issues on workplace ergonomics
• Knowledge about ergonomics risk factors

Learn more at hfes.org
Lost in The Translation? Not Here!
Lessons Learned from Liberty Mutual’s
Approach to Ergonomics Knowledge
Translation

Y. Ian Noy, PhD, CPE — Liberty Mutual Research Institute for Safety

The effective and timely translation of scientific knowledge has been a challenge since the Industrial Revolution, but is now gaining prominence as a critical need and a bona fide area of exploration. Several definitions exist for knowledge translation (KT), but in general it is the process of transforming new knowledge into value-added and practice-oriented interventions, tools, or services to affect positive outcomes. Today, the process can be considered more as an art form than a science, as there is no systematic and validated methodology for accomplishing the various steps that would define the process. It is clear that scientists may not be the most proficient translators of their own research findings. It is equally clear that practitioners do not always possess the skills to understand the potential or limitations of published research, nor are they necessarily conversant with the most recent available knowledge. KT requires a set of competencies that can effectively bridge the science-to-practice divide. It is an open question, which essential competencies are most effective and efficient for the KT process. Various approaches are being instituted by government and academic institutions that involve multilevel exchanges among creators and users of knowledge.

At Liberty Mutual, we have instituted a unique and powerful approach to KT, predicated on the synergistic interactions between researchers at the Liberty Mutual Research Institute for Safety and key partners within the various business units who develop services, and practice standards or who manage risk control or claims for our customer base. Examples will be discussed to illustrate the process.

Y. Ian Noy is Vice President, Liberty Mutual Group and Director, Liberty Mutual Research Institute for Safety. He holds a doctorate in industrial engineering from the University of Toronto, specializing in human factors. Prior to joining Liberty Mutual he was Director, Standards Research and Development, with Transport Canada’s Road Safety Directorate. He is a Certified Professional Ergonomist with 35 years of professional research and practice experience. Dr. Noy’s R&D experience covers a broad range of areas, including traffic safety, workplace ergonomics, human-machine interface design and evaluation, human performance and training, and behavioral research. He has published over 150 scientific and technical reports, and conference and journal articles.

What Makes a Successful Ergonomics Program Tick? Ergonomics Programs That Deliver!

Ira Janowitz, MPS, PT, CPE — University of California, Berkeley

Virtually any organization can develop an excellent ergonomics program, but it takes an in-depth diagnosis of the barriers to be overcome, and a lot of thinking outside the box. Many employers are stuck in a reactive mode in which the program is a haphazard series of evaluations of individual employees who ask for help or file a claim when they can’t pick up their kids or (a coffee cup). After a report is written, months may go by before recommendations are carried out, and there’s no system to learn from the findings of the evaluation and apply the lessons to improve the ergonomics for other employees. Management motivation is key, but the impetus for change may come from a variety of unexpected directions. This presentation will distill lessons learned from years of experience in ergonomics and will illustrate the implementation of practical programmatic and physical changes that converted reactive, ineffective programs to responsive, successful ones. A variety of examples from office, laboratory, and industrial settings will be included.
Ira Janowitz has an extensive background in ergonomics, with a focus on optimizing human performance, workflow, and safety. He has degrees in industrial engineering, occupational health and safety management, and physical therapy. Since 1983, Ira has been active in performing ergonomics evaluations, and has in recent years worked on program development with the goal of assisting organizations in building internal capabilities and partnerships to help manage ergonomics issues. He has co-authored chapters in several occupational medical and safety texts, and is the author of more than 30 peer-reviewed publications on the assessment and outcomes of ergonomics improvements.

10:00 a.m.–3:30 p.m.
Exhibit Hall
Royal C/D & Hall

10:00–10:30 a.m.
Break/Exhibits
Royal C/D & Hall

10:30–11:30 a.m.
Session 2
Royal A/B

Take a Walk on the Wild Side: Where Ergonomics, Safety, and Health Promotion Meet
Nicholas Warren, ScD, MAT — University of Connecticut Health Center

Simply put, ergonomics means (re)designing work to fit the worker, thereby improving and protecting employee health by reducing musculoskeletal disorders (MSDs). Ideally, ergonomically designed work also increases productivity. This presentation first explores a broad definition of ergonomics, encompassing not only biomechanical exposures but also the psychosocial and organizational contributors to poor worker/work fit. Without attention to factors at the multiple organizational levels that underlie problems on the shop floor—a macro-ergonomic approach—ergonomic interventions can have suboptimal or even counterproductive effects.

On the other end of the spectrum, at the tissue and cellular level, MSD development depends on the interaction between workplace risk factors and body capacity to tolerate exposure and repair damage. Thus, employee health status strongly influences the success of ergonomic interventions. CPH-NEW (the Center for Protection of Health in the New England Workplace) is a NIOSH-funded Center for Excellence. For 10 years, we have been conducting cross-disciplinary intervention research that has evolved into the Total Worker Health™ approach, promoted by NIOSH. Total Worker Health™ integrates the macro-ergonomic approach to identifying and controlling workplace risk factors with an equally multi-level approach to workplace health promotion—designing work that allows and encourages employees to adopt healthy behaviors. This necessarily includes attention to family and non-work factors, as well.

The presentation focuses on examples of effective, multilevel ergonomic initiatives that integrate worker health and safety with workplace health promotion. An experience-based blueprint is presented for participatory methods that engage front-line workers in all aspects of the process and greatly improve chances for deep, sustainable change.

Nicholas Warren received a BS from Swarthmore College in 1965, an MAT from the Harvard Graduate School of Education in 1967, an MS in ergonomics from UMass Lowell in 1993, and a ScD in ergonomics and work environment from UMass Lowell in 1997. Dr. Warren’s research and consulting/training work include:

- Identification of biomechanical, psychosocial and organizational risk factors for MSDs and their interaction.
- Development of control strategies to reduce or eliminate these risk factors.
- Development of multilevel assessment and intervention programs to control these risk factors, centering on participatory workplace teams and programs.
- Health-care research, examining the links between organizational characteristics, employee working conditions, and quality/safety of patient care. He translates research to practice in the UCHC teaching hospital’s quality improvement initiatives, assessing hospital organizational culture.
- Integration of workplace health and safety initiatives with workplace health promotion in these activities, the Total Worker Health™ project.
Dr. Warren translates research findings in these areas into workplace assessments and trainings, delivered to companies and agencies through the Ergonomic Technology Center. These are offered to all levels within organizations, and at a wide variety of detail. Trainings focus on the establishment of ergonomics teams and programs within companies, with an emphasis on creating sustainable ergonomic capacity within the organization. This approach trains ergonomics committees to assess MSD prevalence, identify risk factors, generate solutions, evaluate intervention success, and disseminate program successes to other parts of the organization.

11:30 a.m.–12:00 noon
Session 3
Royal A/B

**Improving Health-Care Workplace Design Through Ergonomics Principles**

*Lynn Marie Vincent, MA — Kaiser Permanente and Debbie Eshbach, MS, CEES, ASP — Kaiser Permanente*

As the nation’s largest not-for-profit health plan, Kaiser Permanente is taking on the challenges of unprecedented growth. With a “Mission to Thrive,” Kaiser Permanente’s focus is on the health and well-being of its staff and members. New construction and remodeling are constant as KP strives to meet the demands of more than 9 million members, 175,000 employees and 17,000 physicians. Rapidly changing technologies that must be incorporated into existing workspaces present innumerable ergonomics challenges as the spaces were not designed for the new technology.

Unfortunately, older existing designs in construction can hamper goals of creating safe, accessible environments for all. Input from all stakeholders is critical to ensure work flow and technology changes are incorporated in new designs and are incorporated as work flow changes. See how Kaiser Permanente ergonomists have worked with their National Environmental Health and Safety and National Facility Services to create templates that comply with ergonomics standards. Two work environments: reception stations and optometry/ophthalmology exam lanes, will be explored by showing a series of fixes that were used to mitigate ergonomic risk in old designs as well as the evolution of new design templates based on ergonomics standards. The application of ergonomics and universal design are essential in creating an environment fit for all.

**Lynn Marie Vincent** has been helping injured workers for over 20 years—first as a vocational rehabilitation counselor and now as an ergonomist for Kaiser Permanente in Orange County, California. She provides ergonomics services for the Irvine Medical Center and twelve medical office buildings located throughout South Orange County. Her responsibilities include developing and managing the ergonomics program, conducting ergonomic assessments and training, and working with construction on new and remodel projects. She is a member of the Workplace Safety Team, Safe Patient Handling Task Force, and the Regional Ergonomic Peer Group. Marie earned her bachelor’s degree from the University of California, Santa Barbara and her master’s degree from the California State University at Fullerton. She received Advanced Office Ergonomics Training through the Center for Occupational and Environmental Health through the University of California, Berkeley. She has been a presenter three times at the National Ergonomics Conference.

**Debbie Eshbach**, Ergonomic Project Manager II, is responsible for managing the Kaiser Permanente ergonomics program in San Diego County, covering over 9,000 employees. She performs ergonomic assessments in a variety of settings including office, laboratory, pharmacy, patient care, and material-handling areas. She is a subject matter expert in performance improvement projects and works directly with National Facility Services on remodels and new construction.

12:00 noon–1:30 p.m.
Lunch and Sponsor Spotlight
(Complimentary for registered attendees.)
Royal E/F

1:30–2:30 p.m.
Session 4
Royal A/B

**Report to Duty: Fit-for-Duty Programs That Work to Decrease Injuries and Improve the Bottom Line**

*Paul Fontana, OTR, FAOTA — Center for Work Rehabilitation, Inc.*
We’ve all seen the statistics on the cost of injuries each year to business. It’s in the billions of dollars! There are many programs on the market that profess to decrease injuries. This talk will cover pros and cons of various programs and provide attendees with specifics on a fit-for-duty program that will reduce injuries and is defensible when challenged in court.

Paul Fontana is a registered and licensed occupational therapist with 40 years of professional experience. Since Paul founded the Center for Work Rehabilitation, Inc.® in 1986, it has been an industry leader in providing injury prevention, rehabilitation, fit-for-duty, and return-to-work programs to the business community. Over the past 40 years, Mr. Fontana has had extensive opportunities to both teach ergonomics concepts as well as perform ergonomics assessments in both office and industrial work sites. He taught extensive two-day seminars on ergonomics to over 500 occupational and physical therapists across the country as well as to occupational therapy students in multiple states. In May 2005, Paul was designated a Fellow of the American Occupational Therapy Association for his work in ergonomics, industrial injury prevention, and return-to-work programs.

2:30–3:00 p.m.
Session 5
Royal A/B

The Value Proposition of Ergonomics: What Counts and What Doesn’t
James R. Mallon, CPE — Humantech, Inc.

Gaining support to implement a new ergonomics process or to continue investing in an established ergonomics process is a challenge for many ergonomists and health and safety professionals. While return-on-investment carries the day in most discussions, more is required to present a compelling value proposition for ergonomics. This presentation will discuss the key steps to position the ergonomics value proposition for success at your organization.

James R. Mallon has supported clients in all facets of deploying the ergonomics improvement process over the course of almost 20 years working as a consultant to industry. He trained employees, ergonomics teams, engineers and management teams on the tactics and strategies needed to deploy world-class ergonomics improvement processes. He has conducted thousands of simple assessments and complex engineering reviews. His most recent client engagements include Toyota Motor Manufacturing, Cummins, The Goodyear Tire & Rubber Company, and ZF TRW. He received BS and MS degrees from Dalhousie University in Halifax and an MBA from the University of Western Ontario.

3:00–3:30 p.m.
Break/Exhibits
Royal C/D & Hall

3:30–4:30 p.m.
Audience Participation Panel
Royal A/B

Addressing Contemporary Ergonomics Issues
Moderator: Anthony D. Andre, PhD, CPE — Interface Analysis Associates; San Jose State University

4:30–5:15 p.m.
SPOTLIGHT TALKS
Royal E/F

Creating an Ergonomics Evaluation Report That Writes Itself
Fran Wagner, MS, CIE — Sutter Health, Sacramento Sierra Region

Share your ideas on exploring the ergo reporting process so that you aren’t spending your valuable time writing reports (for non-litigated ergo evaluations). First, we’ll examine which elements of the ergo report are really necessary, and which are not. Next, we’ll discuss how to establish the ergonomics standards or guidelines against which you will compare your evaluation findings; and finally, we will design a report format that will document your findings as compared against the ergonomics standards/guidelines, in which you can make recommendations, and that can be completed with minimal writing/typing. All this from a report that writes itself!
Fran Wagner has worked as the ergonomics program coordinator for Sutter Health, a large health-care provider in northern California, for the past 7 years. Fran has worked with injured and disabled workers since 1988, with field experience in industrial and office ergonomics. Fran has a bachelor’s degree in interior design, a master’s degree in vocational rehabilitation counseling (workers’ compensation), and a master’s degree in human factors and ergonomics. She understands how injuries and disabilities affect work functions and can identify the work functions that are likely to cause injuries. As a technical writer for Cal/OSHA and Federal OSHA, Fran authored ergonomics training materials that are distributed nationally. In 1996, Fran founded the Sacramento Ergonomics Roundtable, which continues to be a forum for employers and ergonomics professionals committed to making the workplace a safe place.

In a Galaxy Far, Far Away, There Is a World Without MSDs. What’s an Ergonomist To Do?

Nancy L. J. Larson, PhD, MS, CPE — 3M Company

Historically ergonomics is about designing to maximize human performance. In the late 1980s, Andy Imada wrote: “While ergonomics has received attention for improving productivity, profitability, and quality over the past few years, its contributions to occupational safety and health have received less attention.” Since then, in industry, the application of ergonomics (and human factors) has increasingly focused on prevention of work-related musculoskeletal disorders. Today’s global business climate, with its emphasis on bottom-line financial results, is an opportunity to resurrect the business emphasis on enhancing employee performance in order to achieve operational excellence.

The most common metric used to assess the value of ergonomics programs and initiatives is OSHA Recordable MSD injury rates. Logically, as a program is more effective, rates decrease and the value to the company becomes less visible—where’s the problem? Thus ergonomics can become a victim of its own success. Identifying and measuring the return-on-investment (ROI) of ergonomics related to quality, sustainability, operation effectiveness, and operational efficiency while continuing to improve employee well-being, is both the past and the future of ergonomics in industry.

Ergonomics needs to focus on the performance of both employees and the organization. What metrics can be developed to demonstrate value to industry related to quality (customer satisfaction, rework, replacement, scrap), sustainability, operational efficiency (processes, systems, downtime), employees (injury/illness, turnover, hiring, presenteeism, training), and company reputation (compliance, brand)?

Consider a world where musculoskeletal disorders do not exist. What would an ergonomist do? The possibilities are endless.

Nancy L. J. Larson has been a practicing ergonomist for over 25 years. For over 18 years, she has been the manager of 3M Company’s corporate ergonomics program. Previously, she managed the ergonomics program for American Express and American Express Financial Advisors and worked as an ergonomics consultant in a number of industries including health care, electronic assembly, meatpacking, manufacturing, and office. Nancy has a PhD in industrial design from Delft University of Technology and a master’s degree in IE and a bachelor’s degree in psychology from North Carolina State University. She became a Certified Professional Ergonomist in 1993. She was awarded the HFES Alexander C. Williams, Jr., Design Award for the design of the Ergonomics Job Analysis System at 3M in 2015. Nancy has presented and published frequently about developing and implementing ergonomics within industry.

Royal A/B

iHurt, uHurt, wii All Hurt… The Ergonomics Toll of Technology

Kathy K. Espinoza, MS, MBA — Keenan and Associates

From Blackberries to iPads to Windows-based tablets, mobile technology is an ever more common feature in America’s homes and offices. We see them everywhere, from planes to trains to preschool classrooms. In our modern world, the quest for interconnectedness through mobile technology is at an all-time high, but at what personal price? Texting thumb? iPad neck? Cell-phone shoulder? Instant communication by text message, whether through iPhones, iPads, Xbox, or laptops, has changed our culture and expectations while creating a civilization that screams iHurt! This session will discuss the ergonomics of modern
technology and its role in preventing the personal toll that technology can take on our bodies.

**Kathy Espinoza** is a Certified Professional Ergonomist with dual master’s degrees. She has an MBA and a master’s degree in work science/physiology. She has worked at Keenan for 13 years providing ergonomics assessments and injury prevention training to office personnel, hospital workers, fire departments, and city and county staff.

She taught ergonomics in the Workplace at UC, Riverside for ten years and was the 2010 recipient of the UCR Instructor Excellence Award. Kathy has been a keynote at professional conferences on the topics of stress reduction, ergonomics, the graying of the American workforce, employee engagement, the culture of wellness, working with multi-generations in the workforce, and post-recession leadership. She has published 57 articles in the field of ergonomics.

**Rani Lueder**, MSIE, CPE, is principal of Humanics Ergonomics, Inc., an ergonomics consulting firm in Austin, Texas, that she established in Los Angeles in 1982. Since then, she has consulted, researched, and served as an expert witness in occupational ergonomics and the design and evaluation of products and places for adults, children, and people with disabilities in nine countries. She consulted on about 200 lines of seat and workstation products for offices as well as design for the elderly, the disabled, and children. She also consulted on large-scale evaluations and served as an expert witness on cases including for the Department of Justice on accommodating people with disabilities. She served on retainer to Waseda University and the government-sponsored Japan Institute of Human Posture Research for twelve years and co-organized the Second International Conference on Seated Posture in Tokyo. She served as adjunct faculty at Art Center College of Design in Pasadena for eight years and taught a six-week class in at a medical conference in Antarctica.

**Imperial**

**Experiencing the Functions of Daily Living of the Elderly While You’re Still Young**

*Rani Lueder, MS, CPE — Humanics Ergonomics, Inc.*

Professionals who specialize in health and safety (including human factors and ergonomics) commonly recognize the health, safety, and design implications of aging over users’ lifespans. Despite variability between individuals, the life stages are generally characterized by different abilities, challenges, and cognitive, sensory, and functional capabilities and limitations.

Yet while intermittently teaching human factors at a design college, I was surprised to find that these bright and talented product design students largely perceived themselves as designing products for others like them. They continued to refer to themselves as the “normals” and needed to be admonished that “children are normal, teenagers are normal, adults are normal and elders are normal – and you’re not allowed to kill any of them.”

In 2002, the World Health Organization (WHO) redefined the nature of disability. Each of us becomes successively enabled and disabled at different times of our lives as our environments enable or disable each of us. Although our research continues to expand on our understanding about how to accommodate a broad section of users, it sometimes fails to communicate to specific end users how the interplay between users’ different functional limitations interacts with specific characteristics of their environment.

This presentation will describe a broad range of projects involving teams of students to experience a simultaneous range of functional limitations that a typical “normal” 80-year-old might experience a variety of environments associated with the functions of daily living, such as transportation, shopping, and accessibility. For example, visual limitations might be assigned to different teams to study the implications of low vision, macular degeneration, cataracts, glaucoma, and diabetic retinopathy.

5:15–6:00 p.m.

**Closing Reception**

Royal E/F

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Research Areas

Driving
Studies risk factors for crashes, such as distraction and fatigue, and investigates how telematics and vehicle automation affect safety.

Workplace
Develops understanding of why and how workplace injuries occur in order to develop effective preventive recommendations and tools.

Built Environment
Examines how injuries occur in built environments (such as homes, schools, parks, and commercial and public buildings), with an emphasis on prevention by design.

Disability
Researches recovery after injury or illness to improve function, reduce work disability, and educate employers in strategies for return to work and stay at work.

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