



**44th Annual  
Conference of the  
Association of  
Canadian  
Ergonomists**

**October 8 - 10, 2013  
Whistler, British Columbia, Whistler Conference Centre  
[www.ace-ergocanada.ca](http://www.ace-ergocanada.ca)**

**Workshops  
October 7, 2013**

**Conference Proper  
October 8 - 10, 2013**

**Exhibitor Showcase  
October 8 - 9, 2013**

# **FINAL PROGRAM**



Continuing Education Credits have  
been applied for, or are eligible for:

ABIH  
BCRSP  
CCPE  
BCAK

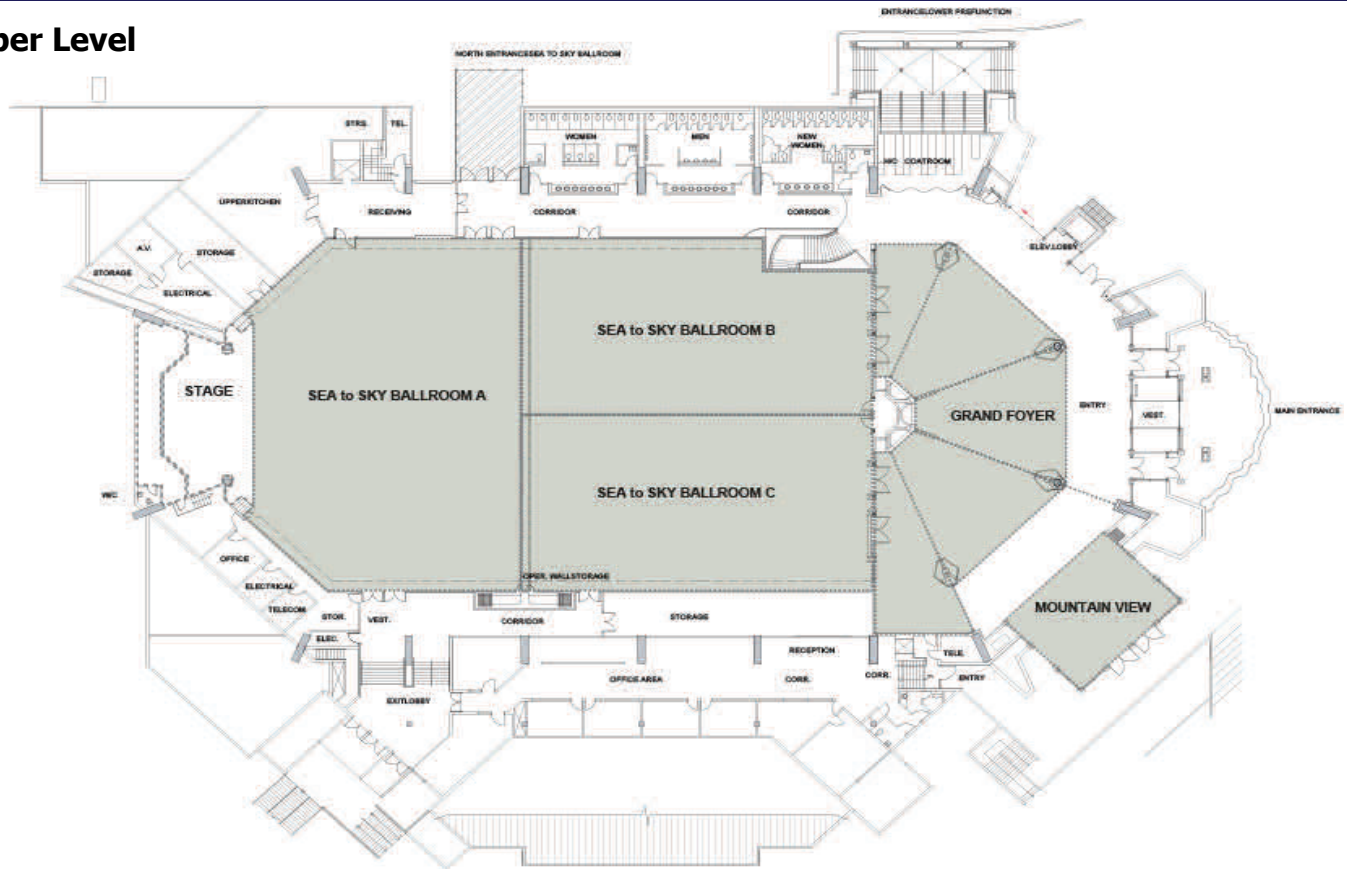


**Association of Canadian Ergonomists  
Association Canadienne d'Ergonomie**

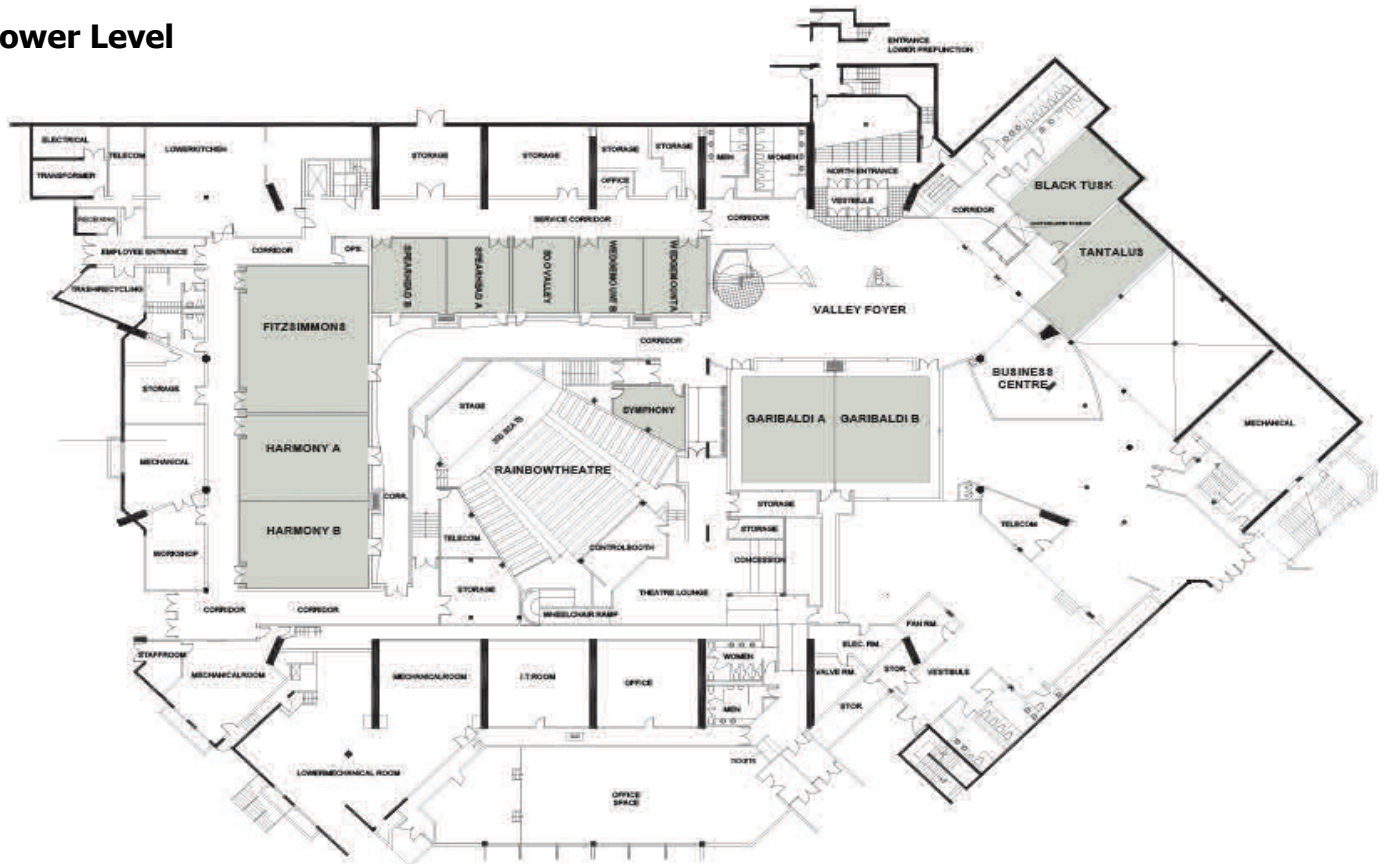
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# ACE 2013 Conference Floor Plan

## Upper Level



## Lower Level





We are pleased to welcome you to the 44th Annual Conference of the Association of Canadian Ergonomists (ACE). The theme, "From Sea to Sky: Expanding the Reach of Ergonomics", is not only symbolic of the world-renowned highway connecting Vancouver to Whistler, but is also resonant with our continued effort to increase awareness of ergonomics to the world. The ACE 2013 Conference will explore the many ways ergonomics knowledge is enlarging and how the application of this knowledge can positively impact everybody.

We are excited to offer internationally renowned speakers, practicing ergonomists, researchers and students presenting their most recent work in oral presentations, panel discussions, workshops, and symposia sessions. The annual conference is also set to provide ample opportunities for professional networking. **Two social events** have been planned for delegates: one, our traditional reception on Tuesday night with our exhibitors, and two, a laid-back dinner and evening at the Garibaldi Lift Co. Bar & Grill in the middle of Whistler Village on Wednesday evening. One free drink ticket for each event is included in the delegate package.

The **technical programme** includes research, applied studies, and panel discussions on a range of topics spanning the physical, cognitive, behavioural, psychosocial, and organisational aspects of ergonomics. Five pre-conference workshops offer great professional development opportunities. The annual student paper competition in the Undergraduate, Masters Level and PhD Level will be held in conjunction with the conference. Student papers will be interspersed within content-related sessions.

The conference will be held in the **Whistler Conference Centre** in Whistler, British Columbia. It is a world-class facility located in the centre of Whistler Village, a mere two minute walk from the shops and restaurants in Village Square. Outdoor activities also abound in Whistler – we hope you are able to enjoy the beautiful scenery around us during the conference. We are confident there is something for everyone in Whistler – for more information please visit [www.whistler.com](http://www.whistler.com).

I would like to thank all the conference participants, exhibitors and sponsors for their support and participation in the ACE 2013 Conference. I owe special recognition as well to the small, but very talented, organizing committee. They have done a fantastic job in bringing to you what we hope will be an informative and rewarding conference experience.

*Kirsten Willms, M.Sc., CCPE  
2013 ACE Conference Chair*



Association of Canadian Ergonomists  
Association Canadienne d'Ergonomie

## Organizing Committee

**Kirsten Willms, M.Sc., CCPE**  
Conference Chair

**Abigail Overduin, M.Sc., AE**  
Sponsorship and Exhibitor Coordinator

**Margo Fraser, M.Sc., CCPE**  
ACE Executive Director

**Judy Village, CCPE, PhD Candidate**  
Technical Chair

**Catherine Trask**  
Student Awards subcommittee

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## About ACE



**Association of Canadian Ergonomists  
Association Canadienne d'Ergonomie**

Founded in 1968, the **Association of Canadian Ergonomists/l'Association Canadienne d'Ergonomie (ACE)** is an association of persons who have human factors/ergonomics interests, be they research workers seeking to expand knowledge in the field, practitioners endeavouring to apply existing knowledge, or members of the public and clients in need of human factors/ergonomics expertise and services. Membership is open to those who will benefit from the judicious application of human factors and ergonomic knowledge, either as individuals or as representatives of organizations.

**Find out more about ACE at [www.ace-ergocanada.ca](http://www.ace-ergocanada.ca)**



## Keynote Speaker - Tuesday, October 8



**Dr. Colin Drury**

Distinguished Professor Emeritus of Industrial and Systems Engineering at University at Buffalo: SUNY

### *Quality and Ergonomics: Coexistence or Collaboration?*

Over the past 15 years we have seen evidence that actions to improve industrial HF/E can have positive quality benefits. From the HF/E viewpoint, we expect that improving system ergonomics to reduce system errors will lead to higher quality. System ergonomics typically includes some task variability to meet human needs for both physical ergonomics and socio-technical systems design. However much of the quality improvement literature ignores HF/E, concentrating instead on reducing variance. So how do we reconcile the demands of quality (reduced variance) with the demands for both reduced errors and the human need for some variation? Here we can invoke Ashby's Law of Requisite Variety which states that the controller of a system (machine, task, process, plant) must have enough variability to deal with system disturbances, e.g. from raw materials changes or environmental factors. The implication is that to reduce output variability in the product, we need human variability in the control systems. Both the quality movement and the HF/E movement are indeed correct in their aims. Examples show how this can be achieved in practice and what we can do to make the two disciplines mutually beneficial.

**Colin G. Drury** is Distinguished Professor Emeritus of Industrial and Systems Engineering at University at Buffalo: SUNY, where his work is concentrated on the application of human factors techniques to inspection and maintenance processes. Since 1989 he has been leading a team applying human factors techniques to reduce errors in aviation maintenance and inspection as Director of Research Institute for Safety and Security in Transportation (RISST). He is also President of Applied Ergonomics Group Inc. He has over 200 publications on topics in industrial process control, quality control, aviation maintenance, security and safety. He is a Fellow of the Institute of Industrial Engineers, the Ergonomics Society, the International Ergonomics Association and the Human Factors & Ergonomics Society, receiving the Bartlett medal of the Ergonomics Society and both the Fitts and Lauer Awards of the Human Factors Ergonomics Society. In 2005 he received that FAA's Excellence in Aviation Research award, while in 2006 he was awarded American Association of Engineering Societies' Kenneth Andrew Roe Award.

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**ACE 2014 Annual Conference**  
Montreal, Quebec -  
October 7-9, 2014



Association of Canadian Ergonomists  
Association Canadienne d'Ergonomie

## Joint Keynote Speakers - Wednesday, October 9



### **Dr. David Rempel**

Professor of Medicine, UC San Francisco, Professor of Engineering, UC Berkeley, Director, Ergonomics Graduate Training Program, UC Berkeley

### ***Results of multi-center prospective studies on occupational carpal tunnel syndrome***

Between 2001 and 2010 six research groups in the US conducted coordinated multi-year, prospective studies of carpal tunnel syndrome (CTS) incidence among US workers from broad range of industries and collected detailed biomechanical and psychosocial exposure data with follow-up symptom, physical examination, and nerve conduction measures on every subject. After pooling the data, the sample included 3,515 participants, followed up to 7 years, who did not have CTS at baseline. Exposure assessment included worker estimated and objective measures of hand repetition, duty cycle, wrist posture and grip force. Early findings on risk for new CTS and personal factors (e.g., age, BMI, medical conditions, non-occupational hand activities) and work psychosocial and biomechanical factors will be presented. For some risk measures clear exposure-response relationships were observed. The findings provide practical information that can improve the effectiveness of workplace ergonomic programs.

**David Rempel** is Professor of Medicine at the University of California at San Francisco, Professor of Engineering at UC Berkeley, and director of the ergonomics graduate training program at UC Berkeley. He is a Fellow of the American College of Occupational and Environmental Medicine, a Fellow in the American College of Physicians, a Fellow of the Human Factors and Ergonomics Society and a Certified Professional Ergonomist.

His research is on understanding how tendons, muscles, and nerves are injured at work and how workplace tools and tasks should be designed in order to prevent musculoskeletal disorders. In the past 10 years his research team has conducted randomized controlled trials of workplace ergonomic interventions in the office, garment, dental, and construction sectors. The publications of his group and a description of research projects are at <http://ergo.berkeley.edu/>



### ***Ergonomics Canada magazine***

Watch for issue 5 of *Ergonomics Canada*, ACE's annual magazine for the public. Available in both hard copy and electronically, *Ergonomics Canada*, provides timely information on various aspects of ergonomics and human factors.

The electronic issue will be available via the ACE website ([www.ace-ergocanada.ca](http://www.ace-ergocanada.ca)) in mid-September, 2013. You can also download copies of past issues.

## Joint Keynote Speakers - Wednesday, October 9



**Dr. Stephen Bao, CPE, CCPE**

Ergonomist, Washington State Department of Labor & Industries Safety and Health Assessment and Research for Prevention (SHARP) Program

### ***Breadth and Depth Trade-offs in Tackling Musculoskeletal Disorders in the Workplace***

Although SHARP has been studying musculoskeletal disorders in industry for the last 20 years, two important efforts bring both breadth and depth to the effort. The first has been the Consortium of 7 different research groups (NIOSH, SHARP, UCFS, U Iowa, Washington University-St Louis, U Wisconsin-Milwaukee, and University of Utah-Salt Lake). This allows for greater power in detecting important relationships than any single study alone. Coming up with case definitions for specific disorders (e.g., CTS, hand/wrist tendinitis and epicondylitis) has been relatively straight forward compared to coming up with common exposure matrices. For example, although we all collected TLV for HAL, we did not necessarily collect it in the same way. Follow-up frequency of exposure assessment varied between research groups.

Nonetheless, the pooling of consortium member data (after the fact) provides incredible opportunity to determine what are important contributors to CTS and epicondylitis in the workplace.

An additional effort being conducted by SHARP involves visiting workplaces in the same industry subsectors and size workplaces, but with one company with high WC rates and the other with low rates to figure out what makes the difference. We are using 6 different checklist type exposure assessment methods to assess the workplaces, and management and worker safety committee member interviews regarding organizational culture and safety climate with the goal of developing better methods for engineers to use in design and for health & safety practitioners to use in musculoskeletal injury and assessment.

**Stephen Bao** received his Ph.D. and Licentiate both in Industrial Ergonomics from the Luleå University of Technology, Sweden, an MS in Orthopaedic Biomechanics from Shanghai Second Medical University, and a BS in Mechanical Engineering from Shanghai Jiaotong University.

Before joining SHARP in November, 1997, Stephen spent over 12 years in ergonomic research and consultation with the University of Waterloo (Canada), Advanced Ergonomics Inc. (Canada), Ergonomics Plus Inc. (Canada), Atlas Copco Tools (Sweden), the Swedish National Institute for Working Life, Luleå University of Technology, and Tongji Medical University (China). Stephen's major research interests include physical exposure assessment and workplace ergonomics risk evaluation, ergonomics intervention and hand tool ergonomics.

## Keynote Speaker - Thursday, October 10



**Dr. John Lewko**

Director, Centre for Research in Human Development, School of Rural and Northern Health, Laurentian University

### ***Advancing Safety From the Front Line: The Ergonomist as Investigator and Change Agent***

Ergonomists often find themselves working through the immediate causes of an occurrence at what Reason calls the 'sharp end'. What they do from there can be influenced by which ergonomics hat they wear: physical, cognitive, or organizational. Drawing on various success and failure experiences from the mineral processing industry, it will be argued that risk mitigation and prevention of future occurrences calls for shifting the focus from the front line worker to the conditions of work and its complexity. Integrating the three hats better positions the ergonomist to function within a systems framework and increases the possibility of contributing to system change. Using a human factors investigation model assists the ergonomist in integrating the three hats.

John H. Lewko is Professor of Human Development at Laurentian University in Sudbury Ontario. He spent his early professional years as a human performance specialist dealing with individual and team performance. He transitioned in to dealing with health, safety and environmental issues over eighteen years ago, giving particular attention to the areas of human factors, traumatic injury prevention, safety management systems and organizational change in various sectors, from heavy industry and transportation to health care and sports.

He is a trained Transportation Safety Board of Canada human factors investigator and continues to both actively investigate and train investigators in industrial settings. He has worked with various stakeholder groups, including safety associations (Ontario Service Safety Alliance; Mines & Aggregates Safety & Health Association; Construction Safety Association), regulators (Transport Canada), unions (USW) and private sector firms (INCO Ltd Ontario, Manitoba & Europe; Vale Ltd., Falconbridge Ltd., Hawker Beechcraft; Mac's Convenience Stores Inc.).

He is a former Board Member and past Chair of the Injury Prevention Committee of the Ontario Neurotrauma Foundation. He is currently working with Dr. Angela Colantonio of Toronto Rehabilitation Institute on analyzing the investigation reports of 200 construction fatalities in Ontario.



# Schedule at a Glance (subject to change)

Monday October 7		Tuesday October 8		Wednesday October 9		Thursday October 10	
7:30	Registration	Registration		Registration		Registration	
8:00	Workshops	<b>Welcoming Address</b> <b>Keynote Address - Dr. Colin Drury</b> Quality and Ergonomics: Coexistence or Collaboration?		<b>8:20 - Announcements</b> <b>8:30 - Joint Keynote Address - Sea to Sky Ballroom A</b> <b>Dr David Rempel:</b> Results of multi-center prospective studies on occupational carpal tunnel syndrome <b>Dr. Stephen Bao:</b> Breadth and Depth Trade-offs in Tackling Musculoskeletal Disorders in the Workplace		<b>Keynote Address - Sea to Sky Ballroom A</b> <b>Dr. John Lewko</b> Advancing Safety From the Front Line: The Ergonomist as Investigator and Change Agent	
8:30							
9:00							
9:30							
10:00	A.M. Break	A.M. Break & Exhibitor Showcase Sea to Sky Ballroom C		A.M. Break & Exhibitor Showcase Sea to Sky Ballroom C		A.M. Break - Grand Foyer	
10:30	Workshops	<b>Panel Session</b> - Ergonomics and Sustainability – a natural fit <b>Session 2</b> - Laboratory Based MSD (Musculoskeletal Disorder) Studies <b>Session 3</b> - Fatigue and Comfort		<b>Session 8</b> - Office Ergonomics Training: Comparing In-Person Training to e-Learning Training to a Blended Training <b>Session 9</b> - Musculoskeletal Disorders Pot Pourri <b>Session 10</b> - Doing Research		<b>Session 15</b> - Unintended Consequences of Adaptive Behaviour – Can the MSI Risk Factors Predict? <b>Session 16</b> - Health care case studies and program approaches	
11:00							
11:30							
12:00	Lunch	<b>12:15 Lunch &amp; ACE</b> <b>Annual General Meeting</b> Sea to Sky Ballroom A  <b>Exhibitor Showcase - Sea to Sky Ballroom C</b>		<b>12:00pm</b> - Lunch-Sea to Sky Ballroom A <b>12:00pm</b> - Exhibitor Showcase-Sea to Sky Ballroom C  <b>12:30 pm</b> - CCPE Application Q&A Sea to Sky Ballroom B <b>Ballroom A:</b> Exhibitor draws ACE 2014 Pre-view!		<b>12:15 pm Closing Lunch,</b> ergoCentric-sponsored ACE Promotional Contest Winners draw, and Student Awards - Sea to Sky Ballroom A	
12:30							
13:00	Workshops						
13:30							
14:00							
14:30							
15:00	P.M. Break			Break & Exhibitor Showcase - Sea to Sky Ballroom C			
15:30	Workshops	Break and Exhibitor Showcase - Sea to Sky Ballroom C		<b>Panel Session 13 - WorkSafe BC</b> Gaps in Accident Investigation  <b>Session 14</b> - Qualitative Studies			
16:00		Session 6 - Knowledge Transfer and Exchange: Approaches, Networks and Messages					
16:30		Session 7 - Posture studies: Sitting/Standing/Leaning					
17:00		ACE Regional Meetings					
17:30		Opening Reception with Exhibitors Sea-to-Sky Ballroom C		Delegate Social Garibaldi Lift Co. Bar & Grill			
18:00							
18:30							
19:00							
19:30							
20:00							

# Conference Sessions

**Tuesday October 8, 2013**

**8:30 am:** Welcome and Exhibitor 60 second Challenge

**9:00 am:** Keynote (Sea to Sky Ballroom A) Dr. Colin Drury - ***Quality and Ergonomics: Coexistence or Collaboration?***

**10:00 am:** Break & Exhibitor Showcase - Sea to Sky Ballroom C

Room	Sea to Sky Ballroom A	Sea to Sky Ballroom B	Garibaldi A/B
Time	Session 1 <b>Ergonomics and Sustainability – a natural fit</b>	Session 2 - Catherine Trask <b>Laboratory Based MSD (Musculoskeletal Disorder) Studies</b>	Session 3 - Jack Callaghan <b>Fatigue and Comfort</b>
10:30 am	Panel Session <i>C. Drury, M. Lynch</i>	<p>Lab-based validation of an occupational kneeling sensor, <i>Shrestha, R., Trask, C., Lanovaz, J., Paterson, Q., Dinh, A</i></p> <p>The Interacting Effects of Forearm Rotation and Exertion Direction on Wrist Strength, <i>Langstaff, N., La Delfa, N., Hodder, J., Potvin, J.,</i></p> <p>Maximum Inline Forces During Simulated Occupational Leaning, <i>Fewster, K., Potvin, J.</i></p> <p>Biomechanical Effects of Whole-Body Vibration Exposures on the Lumbar Spine, <i>Aulck, L., Johnson, P., Ching, R.</i></p>	<p>Prediction of Muscle Fatigue During Complex Submaximal Handgrip Tasks Using a Three-Compartment Model, <i>Sonne, M., Hodder, J., Potvin, J.</i></p> <p>Repeatability Of Fatigue Accumulation During Complex Submaximal Hand Gripping, <i>D'Isabella, N., Hodder, J., Sonne, M., Potvin, J.</i></p> <p>Do Aids Reduce Rate of Fatigue when using Computer Tablets?, <i>Khare, K.</i></p> <p>The Role of Comfort in Mediating Posture: Towards an Application for Virtual Ergonomics, <i>Kajaks, T., Pozdniakova, P., Krasko, N., Yeung, A.</i></p>
12:15 pm	<b>Lunch &amp; ACE Annual General Meeting Sea to Sky Ballroom A</b>	<b>Exhibitor Showcase - Sea to Sky Ballroom C</b>	

# Conference Sessions

## Tuesday October 8, 2013 continued...

Room	Sea to Sky Ballroom A	Sea to Sky Ballroom B	Garibaldi A/B
2:00 pm	<p>Session 4 <b>Ergonomic Projects gone wrong – lessons learned from the field</b></p> <p><b>Panel Session</b> <i>M. Hill, A. Lalumiere, J. Kumagai, W.P. Neumann</i></p>	<p>Session 5 - Ben Amick <b>MSD Symptoms and case studies</b></p> <p>Musculoskeletal Disorders (MSDs) Amongst Diamond Drillers, <i>Schell, T.</i></p> <p>Frequency and Duration of Occupational Physical Factors for the Job of the North American Railroad Carman in Car Repair Service: In Support of Risk Evaluation, <i>Weames, G., Page, G., Vanderpool, J., Fleming, S., Frolich, J.</i></p> <p>Analysing computer vision syndrome risk factors: A case study of control room operators, <i>Miller, L., Antle, D.</i></p> <p>How The Cookie Crumbles: Ergonomics Design For a Tray Packer Workstation at a Bakery, <i>Reider, V., Hoodless, K., Davis, A.</i></p> <p>Musculoskeletal disorders – are we better off seeing them as pain conditions rather than injuries?, <i>Baird, A., Williams, C.</i></p>	
3:30 pm	<b>Break and Exhibitor Showcase - Sea to Sky Ballroom C</b>		
4:00 pm	<p>Session 6 <b>Knowledge Transfer and Exchange: Approaches, Networks and Messages</b></p> <p><b>Panel Session</b> <i>D. VanEerd, T. King, B. Amick</i></p>	<p>Session 7- Nancy Black <b>Posture studies: Sitting/Standing/Leaning</b></p> <p>An investigation of vascular outcomes and reports of discomfort in a sit-standing work posture, <i>Antle, D.M., Vézina, N., Côté, J.N.</i></p> <p>Back pain and sitting: are chairs or breaks the answer?, <i>Diana E. De Carvalho, D.E., Callaghan, J.P.</i></p> <p>Sit-stand workstations: does posture rotation affect pain development?, <i>Gallagher, K.M., Callaghan, J.P.</i></p> <p>Impact of regular workstation-initiated movement on posture and perception of wellness in a sedentary work environment, <i>Black, N.</i></p> <p>A comparison of local and whole body movement patterns in low back pain developers during prolonged standing, <i>Gallagher, K.M., Callaghan, J.P.</i></p>	
5:00 pm	<b>ACE Regional Meetings</b>		
6:00 to 8:00 pm	<b>Opening Reception with Exhibitors - Sea-to-Sky Ballroom C</b>		

# Conference Sessions

**Wednesday October 9, 2013**

**8:20 am:** Announcements

**8:30 am:** Joint Keynote (Sea to Sky Ballroom A): **Dr David Rempel:** Results of multi-center prospective studies on occupational carpal tunnel syndrome | **Dr. Stephen Bao:** Breadth and Depth Trade-offs in Tackling Musculoskeletal Disorders in the Workplace

**10:00 am:** Break & Exhibitor Showcase-Sea-to-Sky C

Room	Sea to Sky Ballroom A	Sea to Sky Ballroom B	Garibaldi A/B
Time	Session 8 <b>Office Ergonomics Training: Comparing In-Person Training to e-Learning Training to a Blended Training</b>	Session 9 - Geoff Wright <b>Musculoskeletal Disorders Pot Pourri</b>	Session 10 - Jim Potvin <b>Doing Research</b>
10:30 am	Panel Session <i>B. Amick, D. VanEerd, K. Turner, T. King</i>	Sit tight and drive right. <i>Hoodless, K.P., Galloway, J.</i>  Experiences of female firefighting and task performance: implications for injury management, <i>Sinden. K.E., MacDermid, J.C., D'Amico, R.</i>  Challenges of integrating new workers in the mining sector – Example of the service truck operator position, <i>Beaugrand, S., Ouellet, S., Ledoux, É., Fournier, P.-S., Jolly, C</i>  Modeling of occupational physical factors for the job of the north american railroad carman in car repair service: in support of risk evaluation, <i>Weames, G.G., Page, G.B., Vanderpool, J., Frohlich, J., Fleming, S.</i>	Challenges of pooling physical exposure data from multiple research sites., <i>Bao, S., Kapellusch, J., Garg, A., Silverstein, B., Burt, S., Dale, A., Evanoff, B., Gerr, F., Harris Adamson, C., Hegmann, K., Merlino, L., Rempel, D.</i>  Getting what we pay for: comparing the cost-efficiency of observation and direct measurement of working posture., <i>Trask, C., Mathiassen, S.E., Wahlström, J., Forsman, M.,</i>  Lessons learned from an unsuccessful research project: preventing musculoskeletal disorders in emergency medical services., <i>Kawaja, K.M., Potvin, J.P.</i>  User-centered development of a workstation efficiency evaluation tool., <i>Greig, M.A., Dixon, S.M., Annett, T.L., Village, J.L., Neuman. W.P.</i>  A systematic review of ergonomics and human computer interaction literature regarding social and collaborative media in occupational health and safety. <i>Boulay, A.J., Grewal, R.</i>
<b>12:00 pm</b>	<b>Lunch-Sea to Sky Ballroom A</b>		<b>Exhibitor Showcase-Sea to Sky Ballroom C</b>
<b>12:30 pm</b>	<b>Exhibitor draws ACE 2014 Preview!</b>	<b>12:30 pm CCPE Application Q&amp;A Sea to Sky Ballroom B</b>	

# Conference Sessions

## Wednesday October 9, 2013 continued...

Room	Sea to Sky Ballroom A	Sea to Sky Ballroom B
Time	Session 11 <b>Work Related Musculoskeletal Disorder Prevention—where do we go from here?</b>	Session 12 - Kevin Hamilton <b>Training and Behaviour</b>
1:30 pm	Panel Session <i>D. Rempel, B. Amick, J. Potvin, S. Bao</i>	<p>Training to recognize worksite hazards using 3-d and degraded imagery., <i>Hamilton, K.M., Saffari, N., Colman, J.</i></p> <p>1000 words: photography for ergonomists., <i>Taylor Van Velzer, C.</i></p> <p>The ClinErgoAssess pictographic tool: integrating ergonomics into existing clinical education for dentists and dental hygienists, <i>Rucker, L.M.</i></p> <p>Play by ear: adaptive ear clips case study., <i>Louie, B.C.</i></p>
<b>3:00 pm</b>	<b>Break &amp; Exhibitor Showcase - Sea to Sky Ballroom C</b>	
Time	Session 13 <b>Gaps in Accident Investigation</b>	Session 14 - Judy Village <b>Qualitative Studies</b>
3:30 pm	Panel Session: <i>J. Dolan, B. Jackson, W. Olsson, J. Lewko, M. Hill</i>	<p>A qualitative survey of agricultural quad-bike incidents: "she'll be right, it won't happen to me!", <i>Clay, L., Treharne, G.J., Hay-Smith, E.J.C., Milosavljevic, S.</i></p> <p>Quality Requirements of the Aeronautics Sector and How They Impact Assembly Work?, <i>Gonella, M., Denis, D., St-Vincent, M.</i></p> <p>Ergonomics training for engineers: are we meeting their needs?, <i>Village, J.L., Annett, T., Greig, M.A., Neumann, W.P.</i></p> <p>A survey of leaning and bracing behaviours during automotive assembly tasks., <i>Cappelletto, J., Smets, M., Liebrechts, J., Potvin, J.R.</i></p>
<b>6:00 pm</b>	<b>Delegate Social – Garibaldi Lift Co. Bar &amp; Grill</b>	



# Conference Sessions

**Thursday October 10, 2013**

**8:30 am:** Announcements

**8:45 am:** Keynote (Sea to Sky Ballroom A) Advancing Safety From the Front Line: The Ergonomist as Investigator and Change Agent - Dr. John Lewko

**10:00 am:** Break: Grand Foyer

Room	Sea to Sky Ballroom A	Garibaldi A/B - Anne-Kristina Arnold
Time	Session 15 <b>Unintended Consequences of Adaptive Behaviour – Can the MSI Risk Factors Predict?</b>	Session 16 <b>Health care case studies and program approaches</b>
10:30 am	Panel Session: <b>WorksafeBC</b> <i>H. Kahle, J. Coleman, T. Perkins</i> <i>WorkSafe BC</i>	An investigation of the barriers to using ceiling lifts for in-bed positioning tasks in an acute care setting., <i>Smiley, R.C.</i>  Ceiling lift design options and evaluation., <i>Gee, M.K., Thomas-Olson, L., Harrison, D.</i>  Effect of flooring material and wheel orientation on pushing forces in common health care tasks., <i>Korall, A.M., Bremner, A, Leong, J., Arnold, A-K., Feldman, F., Laing, A.C., Daniel Robinson, D., Robinovitch, S.N.</i>  Mental Injury Prevention Tools Guide for Ontario Workers and Joint Committees., <i>Naqvi, S.</i>  Outlining a comprehensive tool kit for “Participatory Ergonomic” interventions and a case study detailing its application in a concrete pipe production plant., <i>Antle, D.M., Miller, L.L., Vézina, N., Neis, B.</i>
12:15 pm	<b>Closing Lunch, ergoCentric-sponsored ACE Promotional Contest Winners draw, and Student Awards—Sea to Sky Ballroom A</b>	

## Technical Committee

**Chair:** Judy Village

**Student Awards Committee:** Catherine Trask

## Reviewers:

Mohammed Abdoli-Eramaki  
Wayne Albert  
Dave Andrews  
Stephen Bao  
Nancy Black  
Jack P.Callaghan  
Jenny Colman  
Robert Dewar

John Doan  
Heather Kahle  
John Kozey  
Linda Miller  
Anne Moore  
Patrick Neumann  
Michele Oliver  
Sylvie Ouellet

Robert Parkinson  
Jim Potvin  
Jeremy Rickards  
Dan Robinson  
Joan Stevenson  
Judy Village  
Geoff Wright

## Panel Session Descriptions

### **Panel # 1: Tuesday, October 8, 10:30 am** **Ergonomics and Sustainability – A Natural Fit**

Sustainability issues are of concern at the national and international levels due multiple factors such as the current choice between energy alternatives and global environmental concerns (United States EPA, 2013; United Nations, n.d.). To address these issues, there has been significant growth in the area of sustainable development (United States EPA, 2013; USGBC, 2013). Sustainable development, including building, products, and technologies, is defined as development that meets the environmental, social, and economic demands of the current generation while also taking into account the needs of future generations (United Nations, n.d.). In this definition, sustainability is viewed as three interrelated pillars: economic, social, and environmental. To date the primary focus of many sustainable development projects has heavily supported the environmental pillar, with limited attention given to the economic and social pillars (United States EPA, 2013; USGBC, 2013; Institute of Medicine, 2011). All three need to be addressed if we are to achieve global sustainability.

The impact of the required green initiatives on people has been largely overlooked, and the literature suggests that this is of concern (Hedge, Rollings & Robinson, 2010; Institute of Medicine, 2011). Much of the literature to date has been conceptual in nature. In one paper by Wise (2001), it is argued that human factors/ergonomics has even been absent from the sustainability revolution.

In the symposium, three areas of sustainable development will be discussed comprising green building design and construction, green industry jobs, and overall sustainability efforts. We point out opportunities that exist for those practicing in the field of ergonomics to contribute to achieving sustainability.

#### **Panelists:**

Colin Drury – University of Buffalo SUNY  
Mallory Lynch – University of California Berkeley

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### **Panel # 2: Tuesday, October 8, 2 pm** **Ergonomic Projects gone wrong – lessons learned from the field**

"Good people are good because they've come to wisdom through failure. We get very little wisdom from success, you know." William Saroyan

In a casual discussion that followed a keynote lecture at last year's conference, the keynote presenter commented on the value of the lessons learned through the experience of well-intentioned ergonomic interventions that had gone wrong. Picking up on the theme, four experienced ergonomic practitioners will provide case studies to illustrate, from a systems perspective, how and why projects had failed to achieve their expected goals. To enhance the quality of the panel discussion, the audience will be invited to provide their examples. A record will be kept of the systems "lessons learned" with a view to provide the basis of an article in Communiqué.

#### **Panelists:**

Maury Hill – Maury Hill and Associates  
Audrey Lalumiere – ErgoConseils  
Jason Kumagai – Optimal Fit Inc.  
W.Patrick Neumann – Ryerson University

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## Panel Session Descriptions

### **Panel #3: Tuesday, October 8, 4 pm**

#### **Knowledge Transfer and Exchange: Approaches, Networks and Messages**

Knowledge transfer and exchange (KTE) can be defined simply as “the process of sharing timely, useful evidence-based research findings with decision-makers and other who use research. KTE also involves actively engaging external audiences in research to make studies more relevant” ([www.iwh.on.ca](http://www.iwh.on.ca)). KTE is known by various different terms (such as knowledge translation, knowledge exchange, research utilization, implementation, dissemination, and diffusion). While the terms used and the definitions vary somewhat it is considered an important practice at research organizations worldwide. Work disability and injury prevention researchers are challenged to provide high quality knowledge/evidence about a range of often complex interventions. The messages may require transfer/translation to a diverse audience including policy makers, scientists, practitioners, employers and workers.

The objective of this symposium is to present and discuss knowledge transfer and exchange. We will provide a definition and some practical details about the concepts of knowledge and evidence, systematic reviews, and stakeholder involvement. In addition we will discuss the development of tools and messages from available evidence.

First we will present and discuss a KTE approach from the Institute for Work & Health including our focus on engaging with stakeholders in the research process. In a second presentation we will present some details about our Educationally Influential networks, as a key stakeholder engagement opportunity. Lastly we will provide an update of research findings from our systematic review program including key messages for ergonomists. In this final presentation we will also describe a new project to update evidence and messages about MSD interventions.

The session will consist of three presentations with time for questions about each. In addition we plan to engage the audience in an interactive discussion about KTE and the use of evidence. We will engage the audience with some questions about searching for and using evidence in practice. We will focus on the experiences of the presenting authors as well as the audience in this discussion session. An interactive approach will help to ensure that the session is relevant for the audience.

#### **Panelists:**

Dwayne VanEerd – Institute for Work and Health

Trevor King – Institute for Work and Health

Benjamin Amick – Institute for Work and Health

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## Panel Session Descriptions

### **Panel #4: Wednesday, October 9, 10:30 am**

#### **Office Ergonomics Training: Comparing In-Person Training to e-Learning Training to a Blended Training**

Recently, a systematic review examining the effectiveness of occupational health and safety training reported that all ergonomic training programs had no effect on health outcomes. However, a closer examination of this data reveals that often a trainer shows up delivers the training and then leaves. This may increase knowledge but does not increase the worker's self-efficacy in managing the hazards in the work place. To build a workers self-efficacy requires more engagement of the workers in both hazard identification and control so problem solving skills are developed. Trainers refer to this approach as a blended training. Furthermore, when comparing different types of training programs the e-learning and in-person may have different content and thus observed differences could be due to content versus mode of delivery. Today, more than ever, businesses are looking to e-learning solutions to hopefully improve the health and safety of workers at a minimum cost – yet there is little evidence on the effectiveness of these programs.

The objective of this symposium is to present and discuss a new study completed in Ontario that examines the differential impact of an office ergonomics training program that compares an in-person training with an e-learning and a blended training.

The session will consist of three presentations with time for questions about each. In addition we plan to engage the audience in an interactive discussion about the implications of this training for their practice. We will focus on the training experiences of the audience in this discussion session with specific attention to 'best practices' for engagement. An interactive approach will help to ensure that the session is relevant for the audience.

#### **Panelists:**

Benjamin Amick – Institute for Work and Health  
Dwayne VanEerd – Institute for Work and Health  
Karen Turner – Institute for Work and Health  
Trevor King – Institute for Work and Health

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### **Panel #5: Wednesday, October 9, 13h30**

#### **Work Related Musculoskeletal Disorder Prevention—where do we go from here?**

Much of ergonomics-related research in the last two decades has focused on determining the causes of work-related musculoskeletal disorders (WMSD). At this point, do we know enough to turn the focus to preventing the disorders? Where should ergonomics research and practice go from here and how do we get there? This panel of four leading international experts on musculoskeletal disorders will share their experience, opinions and ideas for the future role of ergonomics in WMSD prevention.

#### **Panelists:**

David Rempel – University of California Berkeley  
Benjamin Amick – Institute for Work and Health  
Jim Potvin – McMaster University  
Stephen Bao – Washington State Department of Labor and Industries SHARP Program

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## Panel Session Descriptions

### **Panel #6: Wednesday, October 9, 15h30** **Gaps in Accident Investigation**

The ultimate goal of an accident investigation is to determine how and why a failure occurred and apply what is learned to prevent further occurrences. While investigations are required and they form a key element in developing and maintaining a strong safety culture; investigations remain a challenge for many reasons. Are you a part-time investigator? Are you a supervisor? Or do you have a role in Human Resources blended with safety? This session will be of interest to you. From reporting to investigation procedures to roles, planning, gathering and analyzing information, making recommendations, writing reports and following-up, there are many elements that combine for an effective investigation. Experts in the area of investigations will present and discuss gaps, blind spots and trip points they've identified in investigations from their unique experiences and perspectives. It will be a lively and informative session to explain among others, investigator biases, challenges in gathering and analyzing information and making effective recommendations. Come along to see how you can improve your accident investigations to help advance safety.

#### **Panelists:**

Jeff Dolan – WorkSafeBC

Bruce Jackson – WorkSafeBC

Wendy Olsson – Occupational Health & Safety, Whistler/Blackcomb

John Lewko – Laurentian University

Maury Hill – Maury Hill and Associates

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### **Panel #7: Thursday, October 10, 10h30** **Unintended Consequences of Adaptive Behaviour – Can the MSI Risk Factors Predict?**

Organizations effectively reducing workers' exposure to risk factors for musculoskeletal injuries such as repetitive motion, static postures, contact stress, awkward postures and forceful exertions has improved working conditions and lowered injury rates across many industries. Improving elements of a task and how tasks are performed to mitigate risk also happens informally. For example, when a job stresses the body with awkward postures, forceful exertions, contact stress or repeated movement, to avert fatigue, discomfort, and pain, workers often adapt their performance and/or modify the work task(s) to more effectively manage the associated risk factors. All apparently lowering risk or do they? It is possible that the modifications can introduce new risks that can lead to injury or even possibly death.

To effectively mitigate workplace hazards and reduce risk factors, often a task risk assessment is conducted. However, human, organisational and technological elements interact continuously with each other creating a unique and complex system. The variability of the which; makes risk assessment challenging and the system performance particularly difficult to predict. For example, the actual work conditions compared to the ideal conditions (often described in safe work procedures) are often quite different. A risk assessment may only be a snapshot of the risks associated with a task. Rather than focus on an individual or specific risk factors, examine the organizational factors that set up the conditions for the adverse event to occur.

Four case studies highlight incidents where task modifications and adapted performance were used as strategies to reduce the physical demands of the task but in turn introduced new risks. The ability to respond, monitor, anticipate and learn is also discussed in context.

#### **Panelists:**

Heather Kahle – WorkSafeBC

Jenny Colman – WorkSafeBC

Tami Perkins – WorkSafe BC

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## Conference Social Events



### Welcome Reception & Exhibitor Showcase

Tuesday, October 8, 2013

Sea to Sky Ballroom B/C, Whistler Conference Centre

Join other conference delegates and presenters at this year's opening reception to be held on Tuesday, October 8, in the Sea to Sky Ballroom B/C. This is an excellent opportunity to catch up with school mates or network with like-minded colleagues from across Canada, the United States and other parts of the world. In addition, you can view the latest and greatest ergonomics products and services being showcased by our exhibitors!

**Time:** 6:00 pm -8:00 pm

**Cost:** Included when registered as a full conference delegate (includes one complimentary drink ticket and appetizers). Additional tickets can be purchased for guests or delegates not registered for the full conference using the registration form or on-line, at a cost of \$40.00 each.



### Social Event

Wednesday, October 9, 2013

Garibaldi Lift Co. Bar & Grill  
Whistler Village

This year's social event for the ACE Conference will be held at the Garibaldi Lift Co. Bar & Grill. Nestled at the base of Whistler Mountain, above the Whistler Village Gondola, the GLC has classic ski lodge charm with an open-floor plan, floor-to-ceiling windows and a giant rock fireplace. Join your friends and colleagues for a drink, appies and/or dinner. A full menu will be available. The details for this event are as follows:

**Time:** Arrive any time after 6:00 pm

**Transportation:** Walk—it is right in the Village

**Cost:** **One free drink ticket** is included with conference registration, compliments of the BC-YK and PNR Regions. Individuals are responsible for purchasing their own food and beverages beyond this from a full pub-style menu. Mains range from \$13-\$16.

Minors are permitted until 8 pm.

This event promises to be memorable and enjoyable for everyone; we hope to see you all there!

## Exhibitor Showcase

ACE 2013 brings together a diverse and influential group of professionals from throughout North America whose common goal is to enhance the safety and effectiveness of people at work and at play. Involvement with this event provides high profile exposure for your people, your products and your organization. Plan to visit our exhibitors during the conference!



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## Exhibitor Showcase continued... Exhibitor Showcase



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We value the relationship that we have built with our community of Ergonomists, Occupational Therapists and Occupational Health and Safety professionals. We look forward to hearing from you on how we can help problem solve to find a solution for your clients' needs.

[www.chairlines.com](http://www.chairlines.com)



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## Exhibitor Showcase continued...



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[www.dalimar.ca](http://www.dalimar.ca)

Occupational Ergonomics Certificate and BPK Co-op Program, **Simon Fraser University**, Department of Biomedical Physiology and Kinesiology

SFU's tradition of Ergonomics education continues with our new Occupational Ergonomics certificate, starting January 2014, providing students and practicing professionals theoretical background, practical skills and practicum experiences in occupational ergonomics.

BPK's co-op program has provided organizations with students skilled in ergonomics, active health and rehabilitation and research for over 20 years. Students in their 2nd to senior year are available for 4 or 8 month placements.

**Come by our exhibit booth at the conference for more information, or contact us at:**

[aarnolda@sfu.ca](mailto:aarnolda@sfu.ca) (Occupational Ergonomics Certificate)

[bemister@sfu.ca](mailto:bemister@sfu.ca) (Co-op) <http://www.sfu.ca/bpk>



## Exhibitor Showcase continued...

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## Exhibitor Layout



## ACE Corporate Membership

ACE aims to promote ergonomics and to raise the standards of practice in ergonomics. Through our Corporate member program, we are building stronger links between ACE and private and public enterprise in pursuit of this mission.

Corporate members will be recognized as supporters of ergonomics in Canada. They will help ACE to achieve its goals and ACE will reciprocate with special Corporate member benefits. The program is a great step for both ACE and the field of ergonomics in Canada and we welcome the partnership opportunities it will provide!

### **Some of the advantages associated with Corporate membership include:**

- Recognition as a supporter of ergonomics in Canada
- Visibility on the ACE Web site
- Access to the network of Canadian Ergonomists including professional consultants and researchers
- Access to national and regional conferences and workshops
- Member advertising rates for *Ergonomics Canada* magazine

For more information about Corporate membership, please contact the ACE National Office at 1-888-432-2223

**Thank-you to our Corporate Members for their support of ACE and ergonomics in Canada.**



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**Diversity of interventions, diversity of populations**  
What are the issues and challenges facing  
ergonomics?

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