

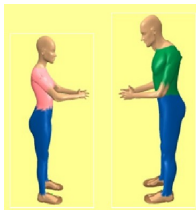


taylor'd ERGO TIMES



Taylor'd Ergo's Montreal ROI

You always hope, when you go to a conference, that you'll learn something. And there's an old saying that you "get out what you put in". Our recent conference in Montreal reinforced both of these thoughts. We did learn lots, and we worked hard to put together five presentations, which also taught us as much as it taught others. Sometimes, forcing yourself to put a paper together and present your work can be a very educational experience. Here is a summary of what our "return-on-investment" was at the Montreal conference of the Association of Canadian Ergonomists:



Design: The impact of design for average

Despite our understanding that we must design for the "limiting user" and offer adjustability wherever possible, ergonomists are often persuaded to provide specifications that accommodate "average" anthropometrics. Designers and clients often seek simple, fixed-height designs, suited to an average worker, to meet the economic demand for lowest cost design. A key concept is designing for one "average" worker means deciding whether to assume and all-male, all-female, or mixed male-female worker

population. If you design for "average adult" (males and females), you need to understand that you are designing, in effect, for a 5' 7 1/2" worker. This is a rather tall female, or a rather small male. This presentation reviewed a case study where a workstation was designed for "an average" worker, and evaluated the impact of this decision on other worker populations. When the work is awkward and forceful, the risk of injury to tall and small workers at an "average" height workstation can be high. The importance of adjustability relates back to the frequency, duration, force, and awkwardness of the task. Providing height-adjustability can reduce the risk for tall and small workers. Options for adjustability include height-adjustable tables, which can now be found for quite reasonable prices, height-adjustable platforms, and removable platforms.

MAE=1-(DC-[1/28,800])^0.24 Ergo-nerd alert: Using the duty cycle equation

In 2012, Jim Potvin published a "duty cycle" equation that allows us to evaluate force demands based on frequency and duration of exposure. (Really, you have no idea how exciting this is!) Our conference presentation reviewed the use of Potvin's duty cycle equation, in conjunction with a biomechanical model, in order to calculate a "risk

Our mission:

Inspiring, building, and supporting partnership between your organisation and our innovative team to advance ergonomics excellence.

Our team:

Carrie Taylor (far right)
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Principal Ergonomist

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M.Eng., CCPE, CPE
Operations Manager/Ergonomist

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Ergonomist, London, ON

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M.Sc., AE
Ergonomist, Mississauga, ON



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Shiftwork revisited

Shift work has been an industrial necessity since electricity lit way for work to be done after the sun set. In general, most people, given a choice, would elect to work during the day and sleep at night, the way our bodies were designed to function best.

However, the economic reality is that factories need to run at night to be "competitive", nurses need to take care of patients around the clock, and somebody needs to get up to give us the traffic report, long before any "zeitgebers" would cue us to wake naturally. Much research has been done regarding shift work and its effects on the human body. This presentation reviewed the latest research, and provided recommendations for employers interested in reducing the risk of injuries and accidents that occur when people are required to work shifts.



Sit fit – Ergonomics for drivers

Professional drivers sit for prolonged periods of time, often in awkward postures. They may not know how to use the adjustability features of their vehicles, or what the optimal driving posture looks like. The "Sit-Fit" process involves educating the driver, and making recommendations to address the risk factors found. This presentation demonstrated our process for evaluating and addressing driver issues. If you have drivers who are telling you that they are uncomfortable, you may want to schedule a sit-fit, or a driver "face-2-face" workshop. Call for info!



Professional development: Forging a common path for standard ergonomics practices

The profession of ergonomics promotes itself as a scientific body, with a creative component involved in optimizing human performance and well being (International Ergonomics Association). Certification provides minimum standards for education, experience and ethics, but does not set out standard practices for ergonomists. In Ontario, no standards exist to regulate who can practice ergonomics, although recent changes have begun to limit who can practice kinesiology. The practice is unregulated, and no quality standards exist. Ergonomics needs to advance from the "wild west", where standards are lacking, to a more civilized, consistently-applied, objective science. This presentation proposed a practice that would advance this cause.

From other presentations:

We were not the only presenters at the conference! Here are some of the "nuggets" that we gleaned in Montreal:

- **Vibration can now be measured with an ipod app.** (We're not sure how many people are willing to sit on their ipods all day to capture exposure data for whole-body vibration, but this app offers an extremely interesting advancement in measurement!) Vibration measurement still requires some expert guidance, but at least the equipment is more readily available. (Check out: <https://itunes.apple.com/ca/app/vr-mobile-vibration-testing/id469459743?mt=8>)
- The French organization ASSTSAS published an English guideline on **static work in dental clinics** (<http://www1.asstsas.qc.ca/publication.asp?DocPubliID=2&DocSubCatPubliID=13&Link=publication#227>), with some useful suggestions for this rarely-studied group of workers. ASSTSAS contributed to the development of some arm supports that, properly used, can help to reduce the load on the arms while working in awkward, static postures.

Get more Taylor'd ergo news!

We are now publishing bi-weekly blog updates, four newsletters and one calendar per year.



Save a tree, and get more news. Let us know if you prefer an email notice instead of paper mail. If you sign up for the e-list, you'll get links to our bi-weekly blog updates AND the newsletters. Send us an email at info@taylorordergo.com, call 519 623 7733, or fax 519 623 9164.



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- Cappelletto presented a paper on **lower body bracing** (also known as “leaning”). She reported that 43% of workers in one plant leaned on something, most commonly at around 50 cm high. She showed that people are twice as likely to lean at a far reach, and that they leaned more weight against the support when pulling up or back with the hands, in comparison with downward actions. Leaning allows people to apply more force, and increases their available reach. People prefer to lean on a support at 44% of standing height for work at low heights, and 48% of standing height for higher work.
- Coffey presented a study on the **ability of novices to do PDDs**, based on the Occupational Health Clinics for Ontario Workers (OHCOW) handbook on PDDs and their 3 hour workshop. They found that 4/10 people failed to reach accuracy targets, and concluded that they needed a longer duration workshop, with more emphasis on accurate measurements. They also recommended that if the PDDs were not being completed by “ergonomists”, that they should be completed by more than one observer. (This study supports the approach we take in our PDA workshop, which is 2 days long, has a very strong emphasis on measurement, and allows time for practice inside the workshop and a project afterwards. Please see the back page for registration info for our January session!)
- Jim Potvin, a professor at McMaster, presented a paper that shows that the NIOSH lifting equation is actually *overprotective*, by its own standards. He published tables that look much like the Liberty Mutual (aka “Snook”) tables, which incorporate physiological and biomechanical limits where the Liberty Mutual tables have been shown to insufficiently protect. (He called them the “**Composite Acceptable Limit**”) We’ll be reviewing these and using them where appropriate.
- Volkoff presented a paper on shiftwork and used a phrase that captured my interest. He said that **night nurses** report that they learn to “manage their nights”. In fact, he found that night nurses organize their shifts to avoid complicated tasks during peak tiredness times, and they put more effort into planning tasks in order to avoid emergency/urgent situations when they are working on their own.
- A new book, called “**Ergonomic Interventions**”, published by IRSST and translated into English, was launched at the conference. It has been released through iTunes; see <http://books.irsst.qc.ca/ergonomics/> for info.
- Village gave a keynote address that discussed the integration of ergonomics into the design process. She has found much greater success when ergonomists learn to **talk the language of engineers**. Instead of talking about static awkward postures and poor line of sight, we need to talk about improving precision, reducing waste, and increasing productivity. Many (if not all) ergo recommendations will simultaneously improve comfort/safety AND productivity, quality, and waste. She also emphasized the need for measurables, even if we know that a document will undoubtedly be revised as we learn more.
- Turcot presented a study that investigated the effect of four varieties of **anti-vibration gloves**, showing that at frequencies less than 300 Hz, vibration was not effectively mitigated. Workers found them hot, rigid, and uncomfortable. The jury is still out....
- Wendy Lee of Union Gas presented case study that we co-authored about **interventions for utility service reps**. It was a unique experience for us to see a client present a case study that we had been involved with, and we hope to do more work like this in the future....anyone interested?
- Van Eerd presented the results of IWH’s “comprehensive review” that looked for **proof of effectiveness for ergo interventions**. Sadly, the study showed “strong positive” results only for strength training, and “moderate positive” results for stretching, vibration feedback on mouse use, and forearm supports. As an ergonomist, this was incredibly disappointing, and undoubtedly the researchers felt that way as well. Unfortunately, the reason for the lack of evidence to support ergo interventions is that studies that might “prove” that ergo works do not meet the stringent criteria to be included in IWH’s review. As ergonomists, we are challenged by this paradigm: If a change didn’t work, we don’t want to invest more time studying it. If a change is successful, we are eager to press on and make improvements elsewhere (rather than spend time measuring and publishing our success.)



ACE “ErgoFest” 2015 conference in Waterloo

Karen will be chairing the conference in October, 2015. Unjumble the words below to find our suggestions, for making the ergo conference “ergonomic”. Maybe you can use these at your next conference or meeting!

More adjustable _____ R H I S C A _____ breaks every 20-30 minutes C E T T H R S
 Rooms without _____ R A L P I S L Larger _____ on the presenters’ slides T O S F N
 _____ -height tables at the back of the room D A I N G N T S



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Lifting Tips: Train-the-Trainer Wed, November 12, 2014

In this one-day session, participants get hands-on practice, learning how and why to lift using 15 proper lifting techniques. They will also learn to effectively coach others to use these tips. Participants get coaching plans with sample "takeaways" to reinforce all 15 messages.



Physical Demands Analysis Wed-Thurs, January 7-8, 2015

This two-day course will allow participants, including ergo co-op students, nurses, safety coordinators, and return-to-work coordinators, to collect data and write an objective, concise, quantitative physical demands analysis report for the WSIB, employee's doctor, physiotherapist, or for internal company use.

ONLINE registration and payment is now available at www.taylordergo.com. To register the "old-fashioned way", complete and fax this page to 519 623 9164, with your purchase order number, or mail it with a cheque to Taylor'd Ergonomics, 38 Water Street South, Cambridge, ON N1R 3C5. Your registration will be **confirmed by email, 1-2 weeks before the course. Register early, as space is limited. Cancellations within one week of the workshop will be subject to a \$100 charge, although substitutions are welcome at any time.**

Name(s): _____ Company: _____

Phone: _____ Fax: _____


e-mail: _____ P.O.# _____ (if no PO, please send cheque with registration)


Please register me for the:


- Lifting tips** course on Nov 12, \$370+hst **PDA** course on January 7-8, \$785+hst HST#89765 6377


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Schedule our "Face-2-Face" one-hour workshops, 1-5 sessions per day, with job coaching sessions in the time leftover (\$1100/day, plus materials and expenses, including prep, set up, facilitation, quiz/certificates, and coaching). There's a hands-on session available for every group of employees:

 **OFFICE:** Learn how to adjust your chair, including seat height, seat depth, backrest angle, backrest height, and armrest height. Learn where to position your keyboard, mouse, documents, and screens. Learn how to optimise work practices (ambi-dextrous habits, mousing techniques), eye health (the "20" rules), lighting (and avoid glare), and leg clearance. Learn how to work with laptops.

 **DRIVERS:** Learn to apply 10+ steps to drive comfortably, including adjusting your seat height, fore-aft seat position, backrest angle, lumbar support, steering wheel, mirrors, shoulder restraint, and headrest. Also includes lots of other tips to drive safely and comfortably.

 **LIFTING:** Learn how to apply 15 safe lifting tips, by practicing each one. Tips include: Keep the load close, maintain the low back curve, push before pull before lift, check your footing and path, use the golfer's lift (when it's appropriate), lift half the load at a time, avoid twisting, and 8 more proven techniques!

 **INDUSTRIAL** (health care, manufacturing, distribution, food processing, retail....this is a good overall session on how to apply ergo principles at work): This courses promotes the benefits of ergonomics by teaching participants to minimise reach, optimise working height, keep the "butt out" when lifting, optimise the direction of force, think "bottoms up" (footwear, sitting, creating a good stance), minimize gripping and wrist demands, choose gloves that fit, be a bit ambidextrous, minimize effort, and exercise.



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