

# at work

Information on workplace research from the **Institute for Work & Health**

## Ergonomic intervention improves health and productivity

### This Issue

#### For Clinicians

Work conditioning programs effective

Muscle relaxants work for some low-back pain

#### For Workplaces

Does a positive safety climate improve workplace health?

Scorecard survey to be piloted at a Toronto hospital

#### For Policy-Makers

Lack of "best evidence" an obstacle to rehab outcomes

No OH&S training for most Canadians in a new job

Experience rating and OH&S regulation:

What does the research say about their prevention incentives?

Time to clean up the "mess" in rehabilitation services

#### Infocus

#### This Issue's Supplement:

Educational Influentials: Keeping each other informed

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**Research Excellence**  
Advancing Employee Health

Providing office workers with highly adjustable chairs and ergonomic training can decrease soft-tissue injury and have a significant impact on productivity.

Dr. Benjamin Amick III, an Adjunct Scientist at the Institute for Work & Health and an Associate Professor at the University of Texas Health Science Center, says his recent study shows there is a "good business case" for implementing ergonomic interventions in the workplace.

"Our study of tax collectors working for a state Department of Revenue Services in the U.S. found that after receiving an adjustable chair and ergonomic training, workers reported less soft-tissue injury and pain," says Amick. "At the same time, their productivity increased nearly 18 per cent over the year."

The study is the first to examine the link between individual health and economic outcomes. It included about 200 workers in sedentary, computer-intensive jobs. They were divided into three geographically-separated groups:

- those who received a highly adjustable chair plus ergonomic training
- those who received only ergonomic training at a one-time session
- a control group who did not receive training until after the intervention was over

"The 90-minute training session was intended to improve workers' understanding of ergonomic principles and provide them with the skills to conduct an ergonomic self-evaluation," says Amick. After the session, the workers were encouraged to make changes to their workstations using the resources



provided to them by the organization.

In order to understand the impact of the interventions on injury and pain, participants filled in surveys about their symptoms at the beginning, middle and end of each day during a five-day work week. These one-week surveys were administered five times over the course of the study. The workers also completed a work environment questionnaire during the course of the study. Productivity was measured by examining the volume of tax revenues collected by workers and the number of sick leave hours each month.

The significant productivity gains can be attributed to a reduction in workers' pain and more effective use of workspaces rather than decreases in absenteeism.

Amick says the results indicate a win-win for workers and employers. Workers have less pain and fewer soft-tissue injuries and employers can realize a significant return on their investment in an ergonomic intervention.

"The implementation cost of the intervention including the chair plus training was about \$1,000 U.S. per worker. However one-year later, the benefit to the employer was more than \$25,000 per worker," says Amick. "The intervention paid for itself in about ten days."

*The health outcome results reported in this article appear in the December 15<sup>th</sup> issue of Spine.*

The Institute for Work & Health is an independent, not-for-profit organization whose mission is to conduct and share research with workers, labour, employers, clinicians and policy-makers to promote, protect and improve the health of working people.

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## Clinical

### WORK CONDITIONING PROGRAMS EFFECTIVE

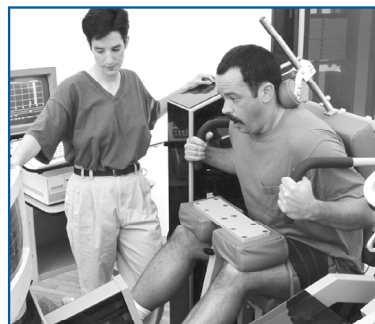
Comprehensive work-oriented back pain management programs can reduce sick days among workers with chronic back pain, according to a new review from the Cochrane Back Review Group (BRG).

But the evidence suggests such programs are most effective when they have a cognitive-behavioural component, are done at work (or in cooperation with workplaces), and are supervised by a physiotherapist or multidisciplinary team.

These programs, variously labeled as “work conditioning,” “work hardening” or “functional restoration/exercise programs,” often simulate work tasks and include physical and muscle training exercises.

The goals are to help injured workers return to their jobs, to resume normal activities (for those performing modified duties) and to achieve a higher level of function following recovery.

“Based on our review, we can conclude that physical conditioning programs for chronic back pain patients are more effective than usual care in reducing the number of sick days lost due to back pain,” says Eva Schonstein, a lecturer in physiotherapy at the University of Sydney in Australia who reviewed the evidence along with Dianna Kenny.



The review, published earlier this year in the journal *Spine*, looked at 18 randomized controlled trials. Participants included adults with work disability related to back or neck pain who had taken part in work conditioning programs.

It found that workers with chronic back pain benefited most from programs with “significant cognitive-behavioural components combined with intensive physical training (specific to the job or not) that included aerobic capacity, muscle strength and endurance and coordination.”

The Back Review Group, which is housed at the Institute, coordinates international reviews of literature on primary and secondary prevention and the treatment of neck and back pain and other spinal disorders. ▲

### Muscle relaxants work for some low-back pain

A new review of the evidence suggests that muscle relaxant drugs are effective in managing non-specific low-back pain (LBP). But because they can have troublesome side effects, they should be used with caution, according to the study that was published recently in the journal *Spine*.

For years, doctors have debated using muscle relaxants for LBP because these drugs are known to cause side effects, including drowsiness, headache, blurred vision, nausea and vomiting.

“Controversies surrounding muscle relaxants have resulted in some resistance to their use in patient care,” says lead investigator and IWH Adjunct Scientist Dr. Maurits van Tulder, who is currently based at the Vrije University Medical Centre in Amsterdam, the Netherlands. “So we carried out a carefully designed systematic review of the literature looking at the existing evidence for or against muscle relaxants in the treatment of non-specific low-back pain.”

To read the full text of this article, visit the IWH web site at [www.iwh.on.ca](http://www.iwh.on.ca). Click “At Work” then “Muscle Relaxants.”



## Policy-Makers

### LACK OF “BEST EVIDENCE” AN OBSTACLE TO REHAB OUTCOMES

**H**ow well does Ontario's rehabilitation system serve those who need it after being injured at work or in an auto accident?

The short answer, delivered last fall at a one-day conference on “Best Rehabilitation Outcomes” in Toronto, is: “We’re doing the best with what we have, but what we have is not enough.”

The fact that two distinct and historically separate organizations—Insurance Bureau of Canada (IBC) and the Ontario Workplace Safety & Insurance Board (WSIB)—came together for the first time to co-sponsor the conference, suggests that change may come from collaboration. (Together, these organizations cover the costs for a

significant proportion of claims for injuries and disability in Ontario.)

Stanley Griffin, President of IBC, told the audience of 250 physicians, physiotherapists, occupational therapists, insurers and disability experts: “We want a health-care system funded by premium dollars to work as effectively as possible.”

Glen Wright, Chair and President of the WSIB, agreed it is everyone's interest to encourage “an integrated health-care delivery model based on scientific evidence.”

Scientific evidence is one part of the continuum of care. IWH Senior Scientist Dr. Claire Bombardier, who spoke about the future of evidence-based practice (EBP) in rehabilitation said, “Clinicians

must always take the best evidence and combine it with their own knowledge of the patient and their clinical expertise before making any treatment decisions.”

Both the WSIB and IBC have developed programs using a model that combines evidence and expertise. For example, the WSIB has developed a program of care to guide delivery of rehabilitation services to people with low-back pain. The IBC uses a “pre-approved framework” for claimants with whiplash-associated disorders.

A major obstacle to developing services based on the best evidence is the relative lack of well-designed, properly done research in the field of rehabilitation science.

*(Continued on page 6)*

### TIME TO CLEAN UP THE “MESS” IN REHABILITATION SERVICES

**C**an you name a national health-care system that leaves many people with little or no health insurance coverage, has multiple payers, is not accountable to payers, patients and clinicians and whose health-care costs seem to be out of control?

If you immediately answered “The U.S. health-care system,” you'd be right, Mark Rochon told a lunchtime audience of 250 rehabilitation professionals attending a conference on best rehabilitation outcomes held recently in Toronto.

But if you answered “The rehabilitation sector within Canada's health-care system,” you would also be correct, said Rochon, President and CEO of the Toronto Rehabilitation Institute and Chair of the IWH Board of Directors.

“As a society, we have little or no tolerance to see the negative aspects of the U.S. health system replicated in Canada,” he said. “And yet while we are clear about what we don't want in our health services system in



Mark Rochon

general, we seem to accept these same negative elements when it comes to rehabilitation.”

Rochon called the current rehabilitation services system “a mess we have all had a hand in creating or sustaining.” He also stated that policy-makers “have not come to grips” with how rehabilitation fits within Medicare's system of insured health-care services.

He believes rehabilitation must be explicitly recognized “as a legitimate health service that citizens can expect as they have come to expect cardiac surgery or cancer therapy.”

So how can we begin to fix the current system? Rochon offered some suggestions, including:

- improving and standardizing access to rehabilitation services

- determining what a “reasonable basket of services” is for those needing rehabilitation, regardless of who pays
- developing clear expectations around rehabilitation services which will make those who provide services more accountable to users and payers
- exploring funding options that will “support an integrated policy framework. Are there alternatives to the current method of multiple payers managing numerous relationships with many providers?”
- developing ways to better integrate measurement systems and improve them so that there is a clearer picture of what is being provided

He emphasized that the quantity and quality of research into the effectiveness of rehabilitation interventions must be improved. “How can we argue the critical nature of what rehabilitation can offer...to insurers, taxpayers or premium payers, when we cannot clearly explain the difference that rehabilitation makes?”



## Policy-Makers

### No OH&S TRAINING FOR MOST CANADIANS IN A NEW JOB

**M**ost work-related injuries occur in the first month after someone starts a new job. But a survey of Canadians who had been with a new employer for less than one year shows that the large majority didn't receive any occupational health and safety (OH&S) or orientation training.

Using data collected by Statistics Canada during the *1999 Workplace and Employee Survey* (WES), IWH Research Associate Peter Smith found that just 19.8 per cent of workers who had started with a new employer in the past six months had received either OH&S or orientation training. Only 16 per cent of those who had been with a new employer for six to 12 months said they had received either type of training. Eighty per cent of young workers—those under the age of 25—reported they had not received either type of training.

“Workers in their first year with a new employer are no more likely than



other employees to get health and safety training,” says Smith, who presented the findings at the Association of Workers’ Compensation Boards of Canada (AWCBC) Public Forum in Montreal in November. “This finding, coupled with the low levels of orientation training in this group, is very troublesome given the increased risks of injury for employees early in a new job.”

Who is getting training? Smith says workers who belong to unions or are covered by a collective agreement, manual workers and those working in the for-profit sector or for large compa-

nies (100+ employees) appear to be the most likely to receive training.

Workers in some provinces are also more likely to receive training compared to those in other provinces, says Smith. Manitoba and Ontario workers had the highest percentage of workers receiving OH&S training—9.5 and 7.4 per cent of new workers said they had been trained. In Saskatchewan, nearly 22 per cent of workers received orientation training, the highest of the provinces.

“Although there is evidence that some workers are getting trained, the bottom line is that the large majority of workers across Canada who are in a new job are not being given the training needed to help prevent work injury and illness,” says Smith. “We need to find ways to ensure employers actively enforce policies and procedures that enable new workers to access the tools and skills they need to work safely.” ▲

### EXPERIENCE RATING AND OH&S REGULATION: WHAT DOES THE RESEARCH SAY ABOUT THEIR PREVENTION INCENTIVES?

**A**re experience rating programs and occupational health and safety (OH&S) regulations effective in preventing workplace injuries? In part because of uncertain research evidence, there is frequent controversy among labour market stakeholders about the effects of these policy instruments.

Institute Scientist Dr. Emile Tompa says comparing the vast literature on these “incentives” is difficult because the studies use varied statistical methods, samples, time periods and jurisdictions.

“Being able to compare and contrast the evidence from studies of these programs is important because these programs are the primary means of protection for workers. Policy-makers also rely on the research to assist them in the policy development process,” says Tompa. “Through a systematic review of the literature, we were able to assess the

quality of the studies, synthesize the findings and make some comparisons to try to inform both future research in this area and policy-making.”

Tompa, an economist, believes this is the first time someone has attempted to systematically review this literature. It is one of the very few attempts at a systematic review in the economics discipline.

The review focused on literature that investigated the effects on employer behaviour of several key features of insurance and regulatory mechanisms, including experience rating and OH&S regulation enforcement. The study found moderate evidence that the introduction of experience rating is associated with a reduction in the frequency of claims. The study also found moderate evidence that the degree of experience rating was

associated with a reduction in the frequency and/or severity of injuries.

There was little evidence to suggest that when employers are aware they might be inspected or penalized injuries or illness is reduced. What does seem to work, says Tompa, is the “real-life experience” of being penalized, or cited. “We based this conclusion on seven studies that looked at this relationship and found they had an impact on organizations’ claims rates and the severity of claims.”

The review suggests more research is needed to get a better picture of the effectiveness of these programs as incentives, including comparisons of differing experience rating features between jurisdictions and more detailed studies of the impact of various factors related to regulation. ▲





## Workplaces

### DOES A POSITIVE SAFETY CLIMATE IMPROVE WORKPLACE HEALTH?

Research has found a link between a company's safety climate and employees' safe behaviour and injuries. A company's safety climate comprises workers' shared understanding of their workplace's safety policies and procedures and its practices. It indicates the workers' perception of priority given to safety in their workplace.

Measuring safety climate can help to determine the gap between a company's stated safety policies and procedures and what they actually do, as well as workers' perceptions—or shared understanding—of the priority that their supervisors give to safety.

"We want to find out if creating a more positive safety climate actually leads to better safety performance and a reduction in injuries," says Dr. Gail Hepburn, an IWH Scientist.

She and IWH Visiting Scientist Dr. Dov Zohar have launched a two-year intervention project at two medium-sized Ontario manufacturing companies.

As a first step, researchers will survey workers to gather their perceptions about safety in the workplace. For example, do workers feel that safety is given a high priority in their particular department or workplace? What happens to safety policies and practices when

production deadlines approach?

We also want to know whether certain behaviours—such as reporting a hazardous condition—are routinely rewarded, ignored or even punished, Hepburn explains.

Once the survey is complete, the next step will be to introduce safety leadership training for supervisors and managers. This will include discussions about the importance of a positive safety climate and how best to encourage it.

This will be followed by careful observation by IWH researchers of safety behaviours on the shop floor and the ongoing tracking of minor injuries.

*(Continued on page 6)*

### SCORECARD SURVEY TO BE PILOTED AT A TORONTO HOSPITAL

A tool that could soon help employers pinpoint "areas for improvement" in the workplace is the subject of a pilot study now taking place at a large Toronto hospital.

The *Healthy Workplace Scorecard Survey* is one of the most comprehensive tools to date to measure employees' mental and physical health, conditions in the workplace impacting on both aspects of health, and employee attitudes linked to organizational performance.

Now being piloted at St. Joseph's Health Centre (SJHC), the survey is being tested to see how well it works. "Although the majority of survey questions have been used elsewhere and are known to be reliable and valid, they have not all been used with health-care workers and often not for the purpose of comparing groups," says IWH Research Associate Dr. Lynda Robson, the lead researcher on the Scorecard Survey project.

In November of this year, the 140-question survey was sent to 2,200 employees of SJHC. Once the survey data have been gathered and analyzed, IWH researchers will report the results to SJHC this spring.

"Improving the quality of our employees' work life is a corporate priority. We've made a commitment to incorporate feedback from the survey into our planning to become a workplace of choice," says Robert DaCosta, Vice President of Human Resources at SJHC. "Results from the survey will provide valuable insight from staff in all areas of the health centre."

The survey is based in part on a performance measurement framework (formerly known as the Healthy Workplace Balanced Scorecard) for organizations that researchers at the IWH first proposed in 1999. Feedback during a workshop with stakeholders in 2001 led to revision of the initial framework. Many participants indicated that it was important to link employee health and workplace conditions with other benefits to organizations. For this reason, measures of job satisfaction, organizational commitment and perceived patient satisfaction were included in the survey. As well, the survey results will be analyzed in conjunction with hospital administrative data—such as turnover, absenteeism, and claim rates—to look at



their relationships to survey measures.

The survey was tailored, in part, to meet the needs and interests of SJHC, Robson explains. Members of the SJHC's Quality of Work Life Committee were asked to rank the importance of 50 potential survey topics. Some of the Committee's top priorities identified through this process (for example, senior leadership, communication, availability of resources) were used to supplement the topics already identified for this survey.

Based on the results of the pilot study, Robson and her team will condense the larger questionnaire to a smaller, more manageable version. "We hope to make the Scorecard available to other health-care organizations by the end of 2004," she says. ▲

### IWH Board Changes

Andy King, one of the longest serving Directors, retired from the IWH Board of Directors this past September. King, who is Department Leader of National Health, Safety and Environment at the United Steelworkers of America (Canada) has served on the Board since 1994.

In addition to his regular director duties, King contributed to the development of many IWH projects and products. King will continue to be involved and provide his expertise as a friend of the Institute.

Ian Anderson, General Counsel for United Food and Commercial Workers, Local 1000A, has joined the Board of Directors. Anderson has a background representing workers in the workers' compensation system and in proceedings before arbitrators, the Ontario Labour Relations Board and the courts. He is well-known among advocates, not only for

his legal work, but also as a past Chair of the Board of Directors of the Injured Workers' Consultants Community Legal Clinic.

### New QuickDASH tool now online

The shorter version of the popular DASH tool can now be accessed online from the DASH web site.

The *QuickDASH* – a shortened version of the DASH Outcome Measure – provides clinicians and researchers with an option that enables faster but still reliable measurement of disability and symptoms in persons with musculoskeletal disorders of the upper limb. The *QuickDASH* uses 11 items to measure physical function and symptoms compared to 30 items in the full DASH Outcome Measure.

The *QuickDASH* is available free of charge (for non-commercial purposes) and may be downloaded from the DASH web site at [www.dash.iwh.on.ca](http://www.dash.iwh.on.ca).

### "Time is right" to shift our focus to prevention

A new IWH discussion paper that examines prevention efforts and suggests areas for discussion among stakeholders is now available online.

"We felt the time was right to push for renewed efforts into prevention," explains IWH Senior Scientist Dr. John Frank who is the lead author of a new paper called, *Preventing Injury, Illness and Disability at Work: What Works and How Do We Know?*

The paper has already been shared with a number of key players in Ontario's occupational health and safety community. However, the Institute is interested in partnering with others in prevention efforts.

*To read the full text of this article or to download the paper, visit the IWH web site at [www.iwh.on.ca](http://www.iwh.on.ca). Click "At Work" then "Time is Right."*

*Lack of "best evidence" an obstacle to rehab outcomes (continued from page 3)*

But everyone—clinicians, payers, and patients—must understand that just because studies have not been done to properly evaluate certain treatments, this doesn't mean the treatments don't work, Bombardier said. As one expert puts it, this is simply "evidence of absence, rather than absence of evidence."

Some attending the conference said payers must seriously consider funding research that provides the broadest base possible for evidence-based rehabilitation.

For example, the WSIB currently funds a wide spectrum of workplace health research through its support of the Institute for Work & Health and through the WSIB Research Advisory Council Grants Program.

"It is clearly in these payers' interests to fund studies that will fill in the gaps and tell us what works best," Bombardier said.

Conference attendees were asked to provide grassroots ideas about how best

to build and implement evidence-based care programming in the rehabilitation sector. Suggestions included:

- implementation processes that increase "buy-in" for EBP
- ongoing evaluation of these participative programs
- following a collaborative model

Conference organizers are preparing a detailed report on the suggestions, which will be available to participants and the public once it's complete. ▲



*Does a positive safety climate improve workplace health (continued from page 5)*

The interventions will be carried out at one company first and then a comparison will be made with the second company, Zohar explains. This will allow the researchers to see whether the intervention changed how workers perceive the safety climate and whether safe behaviours increased as a result.

"Research into safety climate takes an organizational approach to workplace health and safety, moving beyond the 'status quo' of hazard identification to include more complex factors such as workers' beliefs and management practices," Zohar says.

"We are doing workplace research that will make a difference," says Hepburn. "If our study demonstrates that improving safety climate actually improves workplace health by decreasing injury rates, such an intervention could then be used by other companies, thus spreading the benefits far beyond these two companies." ▲

*To read about Visiting Scientist Dr. Dov Zohar online visit the IWH web site and click "At Work" then "Dov Zohar."*

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## at work

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