atwork

Sharing knowledge about workplace health

www.iwh.on.ca

Issue 51 • Winter 2008

# Resources and support are vital in a PE program

Research evidence shows that a participatory ergonomic (PE) program can help prevent musculoskeletal disorders in workers. Yet, what are some key elements of participatory ergonomics that can help ensure its success in workplaces?

A unique systematic review conducted at the Institute for Work & Health (IWH) sheds new light on what can help and hinder workplaces in establishing a successful PE program. In this approach, a team works together to identify risks, and change tools, equipment and work processes to improve workplace conditions. It encourages workers to be involved in building safer and healthier workplaces. This can lead to a decrease in certain risk factors that are related to musculoskeletal disorders, such as low-back pain.

The review found that resources and support from management, supervisors and workers were the most important factors in ensuring a successful PE intervention. "This also suggests that management commitment is vital," says IWH Research Associate Dwayne Van Eerd.

An ergonomic team composed of the right mix of people appropriate to the workplace was also important, notes Van Eerd, who led the review. Workers, supervisors and external advisors such as ergonomists were most often identified as those involved in group consultations.

Plus, ergonomic training was an important component. "Training was clearly a significant facilitator when it was offered," he says. However, more information on who conducted the training, the length of the training sessions and the frequency could have helped the review team come to a stronger conclusion.

## Grey literature used in the review

Van Eerd and his team conducted a comprehensive review of the research to reach these conclusions. Unlike other reviews, they included the "grey literature." These are publications that are not reviewed by independent experts – or peer-reviewed – the way that scientific journals typically are. Documents that could be systematically searched such as conference proceedings, dissertations and institutional reports were also used.

The grey literature often provided "rich descriptions" of PE processes, facilitators and barriers. Though the processes described in the grey literature were somewhat different than peer-reviewed – for example in the types of changes or team structures – the review team was able to synthesize key aspects across both types of literature. While the grey literature enhanced and supported the findings from the peer-reviewed literature, reviewing both literatures resulted in a comprehensive overview of PE process and implementation.

The review's results are based on 33 peer-reviewed and 19 grey literature documents. They capture many PE interventions from several countries and across industries and sectors. Most interventions took place in the manufacturing, health-care and construction sectors. "However, we feel that the findings reported here about process and implementation should apply to almost any setting or industrialized country," explains Van Eerd.

## Major input from OHS experts

A variety of occupational health and safety experts played a key role in this review. In fact, the review team sought feedback from experts from British Columbia, Manitoba and Ontario. More than 70 representatives

(continued on page 8)

## In this issue



INSTITUTE FOR WORK & HEALTH
INSTITUT DE RECHERCHE SUR LE TRAVAIL ET LA SANTÉ

*Research Excellence Advancing Employee Health*

*At Work* is published by the **Institute for Work & Health**
*481 University Ave., Suite 800, Toronto, ON Canada M5G 2E9*
To be notified by e-mail when a new issue of *At Work* is published and available on our website, send your e-mail address to atwork@iwh.on.ca. *Our website address is www.iwh.on.ca*
Director, Knowledge Transfer & Exchange: **Jane Gibson**
Editor: **Katherine Russo**
Layout & Design: **Philip Kiff**
Contributors: **Anita Dubey, Philip Kiff, Lynda Robson, Katherine Russo**
*Issue #51 Winter 2008 ISSN # 1261-5148*


***The Institute for Work & Health operates with the support of the Ontario Workplace Safety and Insurance Board.***

WSIB Workplace Safety & Insurance Board
CSPAAT Commission de la sécurité professionnelle et de l'assurance contre les accidents du travail

## What researchers mean by …

# internal validity

In one current systematic review at the Institute for Work & Health, we are trying to answer the question, *Do workplace interventions prevent injuries in the upper body?* Once the reviewers have identified all of the relevant studies on this topic, they will judge the quality of each study.

A key aspect of quality is the **internal validity** of a study. Internal validity, in essence, is whether the study's findings result from the intervention being studied, and are not due to chance or some other factor. You could also say that internal validity is how well the study was set up and executed to prevent systematic errors or bias (*see previous column on bias in fall 2007* At Work).

Let's take a fictional example to see how this plays out. Suppose researchers wanted to study the effectiveness of an ergonomic program that included staff training. The program was targeted at garment workers, who often experience wrist pain. In the study, the workers in one factory completed a test of their knowledge of postures to prevent wrist pain. Then an ergonomic program and training were introduced. Six months later, fewer workers reported pain symptoms and when tested again, their scores were better.

At face value, this sounds like a promising program. But in reality, something else could have caused these changes. A study with strong internal validity would be set up in a way that ruled out other explanations.

The review team uses a detailed list of questions to ensure the researchers have considered these other causes and minimized bias. Here are some things the reviewers would be looking at:

• Did the researchers use a control group of workers who didn't participate in the program? A control group provides a way for researchers to see if the program led to the changes, as they can check whether any changes occurred in the control group.

• What else was happening in the workplace that might explain the results? For instance, suppose a staff ergonomist was hired after the program began. This might account for the improvements and would need to be considered.

• Was it possible that workers, over time, became more knowledgeable about preventing injuries on their own?

• Did completing the first knowledge test affect results the second time around?

• Were the workers given the same test, in the same way, both times?

• Who dropped out of the study before it ended? Maybe some workers withdrew because their pain symptoms weren't getting better. Any improvements in pain in workers remaining in the study wouldn't reflect the whole truth. The researchers need to look at the reasons that people dropped out, to see if this is an issue.

• How were workers chosen to participate in the study? The researchers need to report on how they selected the groups, and the differences between groups. If the workers who did the program volunteered, they may be more highly motivated and it would affect the findings.

• What was the average rate of reported pain before the program? Suppose the factory's management agreed to the program because in the previous year, reports of pain and work absences increased dramatically, far above the average rate each year. However, these rates may fluctuate naturally, from year to year. So the improvement may just mean the rate is coming back to the average.

Internal validity is also influenced by the way that people naturally interact. For instance, if workers in the control group found out about the program, they might try to do something similar themselves. Or, management may decide that having a control group is creating too many problems among employees, and may allow these workers to access the program or create a new one for them.

All of these scenarios show how difficult it can be to do research in workplaces. They also show how important it is to have a well-designed study when you're trying to find out if a program really works.

Overall, the higher the internal validity, the better the quality of the study. And the more sure we are that the results are due to the program, and not due to something else. ✪

# Activity is key to recovery, leading low-back pain researcher says

Dr. Maurits van Tulder talks in a quiet but direct way. Yet the Dutch scientist, who is a leading expert in low-back pain research, speaks loud and clear about the current state of research in low-back pain. Along with Institute Senior Scientist Dr. Claire Bombardier, van Tulder is coordinating editor of the Cochrane Back Review Group (*see sidebar*).

Van Tulder recently talked with *At Work* about the important work that the Cochrane Back Review Group conducts and how it has influenced the international occupational health community.

### What have been some of the Back Review Group's recent successes?

Recently, the Back Review Group's research evidence around treatment and management of low-back pain was the basis for several clinical guidelines, including the European Agency for Safety and Health at Work's back to work report, the American College of Physicians and the American Pain Society guidelines on the management of low-back pain, and European guidelines on low-back pain management. These are important accomplishments because guidelines help practitioners and patients to make informed decisions about appropriate health-care treatments.

*Dr. Maurits van Tulder*

The European Agency's report can be downloaded here:
**http://osha.europa.eu/publications/reports/7807300**

The American guidelines can be viewed here:
**www.annals.org/cgi/content/full/147/7/478**

The European guidelines can be viewed here:
**www.backpaineurope.org**

### What challenges do review groups, such as the Back Review Group, face?

The most important challenge is keeping up-to-date with the number of published studies. The structure of a systematic review is to search and select relevant studies, which in itself is not an easy thing to do. It may take up to one year to conduct the initial review and, by the time the review is complete, other studies may have been published that could impact it.

Plus, the Cochrane Back Review Group is an international initiative so there could be language issues around communicating among the researchers and volunteer readers, for example.

### What are the differences between how the North American labour market and how the European labour market view low-back pain?

Worldwide, low-back pain is a huge social and economic problem. I think the main difference is in the interpretation of low-back pain itself. In North America, low-back pain is mainly called an "injury" and it has to be claimed as a work-related disorder for a worker to receive health-care treatment and compensation. In Europe, low-back pain is classified as a health-care problem which doesn't need to be attributed to work exposures. For example, if I have low-back pain in the Netherlands, my company reimburses me for my health-care costs and work absenteeism costs – there is usually no claim.

### There is a vast amount of research related to the treatment of low-back pain and some research on prevention efforts. Why haven't we seen a greater drop in the prevalence or in workers' compensation claims?

The impact of anything we do in health care is limited to the impact of policy decisions. We have made progress on the treatment side, but it's only with policy decisions that we will see any real decreases in rates or claims. For example, about 10 years ago, there was a drop in the prevalence of low-back pain in the Netherlands because there was a change in the social security system. The new policy is if a worker is off for more than one year due to low-back pain, the worker would begin to receive a disability pension. We saw a drop in prevalence after this policy was initiated.

### If you could make a global recommendation in how clinicians treat patients with low-back pain, what would it be?

For acute low-back pain, I would recommend that clinicians provide patients reassurance and advise them to stay as active as possible – there is no need to over-treat patients. For chronic low-back pain, I would suggest clinicians help assist patients to change their lifestyle to a more active one. ✪

### About the Cochrane Back Review Group

The Cochrane Back Review Group coordinates the publication of research reviews on the prevention and treatment of neck and back pain and other spinal disorders. It was established in 1996 and is hosted by the Institute for Work & Health.

It is one of 50 review groups of the Cochrane Collaboration, an international not-for-profit and independent organization dedicated to making up-to-date information available about the effects of health care. It produces and disseminates systematic reviews of health-care interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions.

## In the next issue...

In a special themed issue on return to work and disability management, we present important results from several Institute projects.

# Strong Institute presence at international MSD conference

Several Institute researchers recently presented key findings from their research at PREMUS, the Sixth International Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders. Every three years, international experts including scientists, occupational health and safety experts, ergonomists, economists and policy-makers, attend the conference to discuss the latest research results on musculoskeletal disorders, or MSDs. The conference was held in Boston.

Research Associate **Colette Severin** was part of a study that examined the relationship between six early return-to-work (RTW) strategies and work absence duration. The researchers were looking at a group of injured workers who filed a lost-time claim for an MSD. Some early RTW strategies included early contact with the worker by the workplace, a work accommodation offer and an ergonomic worksite visit. Severin noted that receipt and acceptance of a work accommodation offer, and advice from a health-care provider to the workplace on preventing re-injury predicted a shorter work absence.

Associate Scientist **Selahadin Ibrahim's** presentation focused on how chronic work stressors – such as job strain and insecurity – impaired daily activity functions in a group of Canadian workers. Ibrahim's work identified two groups of workers with different levels of activity and depression. The first group had low activity levels and the presence of depression; the second group had high activity levels and lower levels of depression. Those who reported chronic work stress were more likely to be in the group with lower levels of activity and the presence of depression. Reducing job strain may help reduce depression and increase activity levels in workers.

**Dwayne Van Eerd**, a Research Associate, presented findings from a study that assessed changes in various mechanical exposures in a group of office employees. The assessment involved extensive measurement of workstation dimensions, worker postures, and muscle loading/rest. Van Eerd noted that the workstation dimensions and worker postures improved. There were corresponding changes noted in some muscle loading and rest measures suggesting a decrease in mechanical exposures.

Scientific Director **Dr. Benjamin C. Amick III** presented results from a systematic review on interventions that may reduce MSDs in health-care workers. Sixteen studies were summarized. Amick said there is moderate evidence that multi-component patient-handling programs involving a worksite policy change, new patient lifting equipment and broad-based ergonomic training, have a positive effect on musculoskeletal health. Physical exercise training also had a positive effect. However, he suggested that future researchers must use higher quality methods to move the evidence forward.

This report is available at
**www.iwh.on.ca/sr/wi_healthcare_MSK.php**

Institute Mustard Fellow **Dr. Ivan Steenstra** explored the results from a published randomized controlled trial (RCT). He looked at the participants in the RCT in more detail. The goal was to see if a workplace intervention that was found to be effective in returning workers with sub-acute low-back pain to work could be applied to more specific populations. Sub-acute low-back pain is defined as pain lasting between four and 12 weeks. Steenstra found that the ergonomic intervention was more effective in older workers and in workers who took sick leave in the previous year. However, he noted that these findings should be formally tested in future RCTs.

Former Institute Research Associate **Xiaoqing Yang** presented some findings on how often workers who filed a compensation claim due to neck pain sought treatment. Her research team used linked data from all reimbursed health services by the Workplace Safety and Insurance Board and the Ontario Health Insurance Plan. These data were analyzed to obtain a comprehensive record of health-care usage. Before an injury claim, the average number of health-care visits was 60 per 1,000 claimants per day. After a claim, it increased to 430 visits, but then decreased quickly within the first 12 weeks after injury. At the two-year follow-up, those with the higher health-care use rates before injury returned to the pre-claim level. Those with lower rates maintained higher health-care use than before the claim. Women and older claimants had higher rates of health-care use. ✪

*To find out more about PREMUS, visit: www.premus2007.org*

## *IWH News*

### U of T honours Dr. Bombardier

The University of Toronto honoured Dr. Claire Bombardier last fall by appointing her to the newly-minted Pfizer Chair in Rheumatology. Bombardier is an Institute Senior Scientist and the Director of the division of rheumatology research at the University of Toronto.

The Chair supports new and ongoing research into the prevention, diagnosis and treatment of rheumatic diseases such as arthritis. Pfizer Canada is donating $1.5 million toward the funding of the $2 million Chair.

"There is still much to be learned about rheumatic diseases," says Bombardier. "Our mandate is to focus our research efforts on unmet needs in rheumatology, such as improved access to early diagnosis and appropriate innovative therapies."

### Institute works with IAPA

For the first time, the Institute for Work & Health assisted with the planning and selection of scientific posters for the IAPA (Industrial Accident Prevention Association) conference this year. The 2008 IAPA conference will take place from April 21 to 23 at the Metro Toronto Convention Centre. This year's theme is "*Are you Ready for the Future?*"

# Workplace safety practices must have active leadership

A welder is working on an assembly line and notices a potential safety hazard. He reports it to his supervisor and waits for action yet nothing is done. What does the worker think? Perhaps management does not care, even though the company says it promotes workplace health and safety.

"Effective leaders monitor their team's situation and provide feedback and recognition to all workers," says Dalhousie University Professor David Stuewe. "Effective leadership explores safety concerns with staff – this includes plant managers and front-line supervisors. They all require mechanisms to record and report to all staff on a firm's steps to address risks that have been identified and priorized for removal or mitigation in a timely manner."

Stuewe delivered this message to more than 140 people who attended the Institute for Work & Health's annual Alf Nachemson Memorial Lecture held in October. The lecture is named in honour of Dr. Alf Nachemson, an orthopedic surgeon and researcher who was a founding member of the Institute's Scientific Advisory Committee and co-editor of the Institute-based Cochrane Back Review Group. He passed away in 2006.

It is a leader's job to create and maintain workplace cultures that promote safety, says Stuewe. "It is normal that most people assume that 99 per cent of the time everything's going to be okay and that they particularly will be okay – so slight risks are taken. However, those slight risks, when condoned by leaders, can create an unsafe culture. To change this situation it is vital that the leader help the men and women on their team to consider the ramifications of unsafe work practices."

Although there are "no simple answers" that address safety, Stuewe explained it is effective leadership that ties systems and people together. Lasting solutions must be composed of three key ingredients: personal wellness, organizational wellness (culture) and the physical work environment (materials and processes). "What we know is, if you don't address all of these factors, you will not have an effective system," he said. The research he has been involved in indicated that the use of appropriate feedback and recognition by leaders, to address safety climate issues, can lead to improvements in the workplace culture.

*Professor David Stuewe*

Stuewe, a former CEO of Nova Scotia's Workers' Compensation Board, discussed being a part of a research team that implemented an intervention involving safety leadership training at a large company. As part of this project, the firm's safety climate was measured to help plant leaders understand how their individual and firm-level approach to safety was viewed by employees. This information, provided confidentially by employees, was used in workshops and coaching sessions with leaders.

A senior manager at the company explains safety before and after the intervention. "Six to eight months ago (before the intervention), no one talked about safety," he says. "We did safety talks every Monday and we thought it was the right thing to do, that was our concept of safety....We provided PPD (personal protection devices), but we didn't enforce it. When we look at safety now (post intervention), we talk about what can go wrong if you don't have the safety equipment or if you don't use it. I think the fact that we now talk more about safety makes a difference." After the intervention, the departments that were involved had a 40 per cent drop in injury rates.

Stuewe noted there is often a trade-off between productivity and safety. Safety precautions usually have modest and immediate costs (such as slower pace and extra effort). Unsafe behaviours offer immediate rewards; safe behaviour offers delayed and uncertain rewards, he says. "Leaders can reverse the payoff structure of short-term versus long-term rewards. Leaders must accept that safety is a long-term investment and they must take action and be responsible for it."

Recently Stuewe has started to look at other ways to improve safety climate. What does he see as the next steps?

"We want to administer the safety climate survey in more Canadian workplaces and confirm the relationship between safety climate and the frequency of workplace injury. Plus, we need to develop cost-effective means to administer these surveys to support those leaders who wish to receive information on the safety climate in their workplace," he said.

*Stuewe's presentation can be downloaded from: www.iwh.on.ca/about/nach_lecture.php*

*In addition, several articles on safety climate have appeared in the summer 2007 and spring 2007 newsletters.*

## Journal appoints Dr. MacEachen

Institute Scientist Dr. Ellen MacEachen has been appointed Associate Editor for the *Journal of Occupational Rehabilitation*. The journal publishes peer-reviewed research on work disability rehabilitation from a broad array of fields. MacEachen brings a strong background in qualitative research methods to the post and looks forward to applying those skills in a multidisciplinary setting.

## Dr. Zohar honoured

Dr. Dov Zohar, an IWH Adjunct Scientist and a professor at Technion–Israel Institute of Technology, will receive the Lifetime Achievement Award in Occupational Health Psychology. This prize is awarded jointly by the American Psychological Association (APA) and the Centers for Disease Control and Prevention. It will be presented at the APA's Work, Stress and Health conference in Washington, DC in March.

## *In Brief ...*

Workplace leaders must be active around safety practices.

infocus

# International task force reports on neck pain

Neck pain is common among workers, and has many different causes. It can include the chronic pain of workers whose jobs can strain their necks, such as nurses' aides or construction workers. It results from accidents, such as whiplash in drivers who've been rear-ended. And neck pain also includes the tension headaches in anyone who's had a tough day at work.

One challenge is that there hasn't been agreement on which treatments are the most effective. Since 1999, an international task force, including scientists from the Institute for Work & Health (IWH), has been working to bring some clarity to this and other issues on neck pain (*see sidebar on page 7*). Their work has produced a comprehensive picture of neck pain – including its causes, how many workers report it, and how it progresses – based on all the research conducted to date.

The task force was convened following a United Nations' (UN) initiative to improve the lives of people with musculoskeletal disorders (MSDs), which include neck pain. The UN declared 2000-2010 as the Bone and Joint Decade to focus on this issue. As its work nears completion, the task force is publishing more than 20 research studies and "best evidence" systematic reviews on neck pain. These appear in a supplement to the February 2008 issue of the scientific journal, *Spine*.

"The biggest challenge was in defining neck pain," says Dr. Sheilah Hogg-Johnson, IWH Senior Scientist, reflecting on the work of the task force. There were about 300 different definitions of neck pain, which made it hard to compare findings from different studies.

Some of the main results from the task force are summarized below.

## How common is neck pain?

About two in 100 adults say that they've had neck pain so severe in the past year that it's interfered with their ability to work. Almost 12 in 100 say that activities in general have been limited because of neck pain.

These were among the findings of a review on the rate and risk factors for neck pain in the general population. The review revealed several trends from the 101 studies that met the task force's scientific criteria (*see sidebar on methods*):

- neck pain peaks between the ages of 35-49, and then declines
- neck pain is more common in women than in men
- for disc degeneration, there is not enough evidence that the gradual deterioration of discs in the spine with age is associated with neck pain

"The findings show a lot of overlap with other MSDs, such as low-back pain," notes Hogg-Johnson. "For instance, low-back pain is most common around middle age as well."

## Neck pain in workers

How many workers report neck pain? This answer varies greatly across different jobs and populations of workers, according to another review that focused on workers.

Between 11 and 15 per cent of workers limited their daily activities over the past year because of neck pain, says Institute Scientist Dr. Pierre Côté. In one Swedish study, about half of the workers with neck/upper-back pain reported going to work even though they felt they should have taken sick leave. "This suggests that external pressures such as finances, job security or deadlines may influence workers' decision to remain at work despite being limited in some activities of daily living."

The findings came from the review that focused on workers, which included 109 studies published from 1980 to 2006. Researchers excluded studies if the pain was associated with a serious condition such as a tumour or arthritis.

The task force conducted a separate study, the first of its kind in Canada, to find out how often workers in Ontario missed work due to neck pain. Using data from the Workplace Safety and Insurance Board (WSIB) from 1998, they found that about three per cent of Ontario workers who had a lost-time claim cited neck pain as the cause.

However, this may not accurately reflect all neck pain claims. When a worker is injured, the "most severe injury" is coded in the WSIB database. A neck pain or injury may not be counted because they are given a lower coding priority relative to other injuries, such as concussions or cuts.

"When we accounted for neck pain in workers who were coded with other musculoskeletal injuries such as low-back pain, the annual rate of neck pain rose to just over 11 per cent," says Côté, also a scientist at the Centre for Research

## Summary


Here are some findings from the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders:

- up to 15 per cent of workers say they've limited their daily activities over the past year because of neck pain
- in Ontario, health-care workers have the highest percentage of compensation claims for neck pain
- modifying workstations or work postures is not effective in limiting neck pain
- for both whiplash and general neck pain, there are several equally beneficial treatments
- patient preference is important in treating patients with neck pain
- more than 60 per cent of workers with neck pain report that they have it one year later

Expertise in Improving Disability Outcomes (CREIDO).

Workers in the health-care sector had the highest percentage of claims with neck pain, followed by workers in the electrical sector, then in transportation.

## Causes in workers remain elusive

Curbing neck pain in workers is not a simple matter of changing the height of a worker's desk or ensuring that workers don't have too many repetitive tasks.

"There is no one single cause of neck pain in workers," says Côté. "In fact, neck pain is a result of many risk factors that are related to the workplace and to workers."

In the task force's review, they identified several risk factors associated with neck pain. These included previous musculoskeletal pain, high job demands, low social support at work, job insecurity and repetitive work, among others.

There was evidence that gender, headaches, smoking and poor job satisfaction were factors that may be associated with neck pain. In the review of the general population, exposure to tobacco, genetics and poor psychological health were also risk factors. However, there was no evidence that treating mental health issues would improve neck pain.

Although poor posture and inadequate workstation setup are risk factors for developing neck pain, the review that specifically examined workers found no evidence that modifying workstations and worker posture were effective in reducing the rate of neck pain.

Côté suggests that researchers should partner with workplaces to tailor an intervention that addresses both the workplace and workers. The next generation of interventions must address the interactions between individual and workplace physical and psychosocial factors. "It's now time to roll up our sleeves and customize an evidence-based workplace intervention suited to help workers," he says.

## Recovering from neck pain

More than 60 per cent of workers who experienced neck pain reported the same condition one year later. Yet there aren't many factors that can be targeted to try and improve recovery.

Dr. Linda Carroll was part of a best evidence review that examined many factors to determine which ones were associated with recovery from neck pain. "Most workplace factors – such as workplace setup or physical job demands – were not important in how quickly people recovered from neck pain," says Carroll, an associate professor in the department of public health sciences at the University of Alberta.

Based on 14 articles, reviewers were unable to distinguish if the neck pain cases were continuous or recurrent. They did find that blue-collar workers were six times more likely than white-collar workers to take more than three days of sick leave for neck pain, although this may reflect different job demands rather than actual pain recovery. Workers who had prior neck pain, prior sick leave, or those with little influence in their own work situation had a poorer course of recovery.

There were some encouraging findings. People who did general exercise were more likely to experience improvements in neck pain, says Carroll. However, the most effective types and duration of exercise are still unknown.

## Patient preference important

Clinicians who prescribe collars for whiplash patients are likely doing more harm than good.

Instead, there are three effective options for patients with whiplash and associated disorders, according to a systematic review of non-invasive neck pain treatments.

While this review provides some clarity on what works, all the treatments in the studies lasted less than 12 weeks and their effects were generally small and short-lived, notes Dr. Eric Hurwitz, an associate professor of epidemiology in the department of public health sciences at the University of Hawaii.

One treatment approach is using educational videos that reassure patients, promote exercise, advise them to keep active and take pain medications as needed. The second option is exercise.

*(continued on page 8)*

### Canadians play key role in neck pain task force

Canadian scientists played an important role in the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. From the Institute for Work & Health, members of the 12-person Scientific Secretariat included:

- Dr. Sheilah Hogg-Johnson
- Dr. Gabrielle van der Velde
- Dr. Pierre Côté

Several IWH Adjunct Scientists were also members of the Secretariat. They included Dr. David Cassidy from the Centre for Research Expertise in Improved Disability Outcomes (CREIDO), Dr. Jaime Guzman of the Occupational Health & Safety Agency for Healthcare in Vancouver, British Columbia, and Dr. Linda Carroll of the University of Alberta. Other members came from the U.S. and Sweden.

The task force also has an advisory board, which included IWH Senior Scientist Dr. Claire Bombardier and Scientist Dr. Dorcas Beaton.

### About the Methods

In systematic reviews, rotating pairs of Scientific Secretariat members independently reviewed each article to determine its quality. An article was accepted only when it met strict scientific criteria. In a best evidence synthesis, more weight was given to evidence from studies with a stronger research design. (*See* Spine *supplement for more details*).

*International task force reports on neck pain (continued from page 7)*

Finally, mobilization – a technique to stretch joints and relieve pain – also benefits whiplash patients. These three options were compared with simply seeing a doctor, or other common treatments such as ultrasound or electrical stimulation.

"We hope one outcome of the task force is that practitioners will use evidence," Hurwitz says. Results for this review were drawn from 139 studies that were admissible.

Reviewers also looked at treatment approaches to chronic or recurrent pain.

There were several effective options compared to no treatment, sham (fake) treatments or other options.

One was supervised exercise, in which clinicians teach patients exercises and then watch them. "This was more effective than just referring a patient to exercise, or giving them a brochure," says Hurwitz. A second effective option was manual therapy. This included mobilization, massage or manipulation techniques. Low-level laser therapy was also effective.

"No single intervention stood out," says Hurwitz. "Several interventions do have a benefit. This is why patient preference should play a strong role in treatment."

Another treatment with emerging potential was acupuncture, but the evidence was weaker due to inconsistency in the findings, he says.

What was clear was that soft and hard collars for whiplash did not work. "We found over and over that collars do not help," says Hurwitz. "They prevent patients from participating in activities and cause muscles to weaken."

There were three studies on workplace interventions for neck pain, but each looked at a different program in different settings, so the findings could not be synthesized.

In general, interventions were more effective when they focused on patients regaining function as soon as possible. Long-term results were understudied.

## Determining the best treatment

Your patient is a 45-year-old worker who's had intense neck pain for more than two weeks.

If you're a doctor, you'll probably consider a referral to a physiotherapist, or offering a non-steroidal anti-inflammatory drug (NSAID). If you're a chiropractor, you may consider offering a manual treatment such as mobilization or manipulation. These are the most common treatments for neck pain in Canada and the U.S.

But deciding which of these treatments is best for your patient is difficult because there are trade-offs between the potential benefits and harms. Which treatment, on average, has the least harmful and most beneficial impact on a patient's health?

None of the above treatments are clearly better, according to Dr. Gabrielle van der Velde, a chiropractor and PhD candidate in clinical epidemiology and health care research at the University of Toronto.

Van der Velde and the research team undertook a study to identify the best treatment for non-specific neck pain. They looked at five treatments: standard NSAIDs, Cox-2 inhibiting NSAIDs (Coxibs), exercise, mobilization and manipulation.

Comparing these treatments is challenging. For instance, one potential side effect of NSAIDs is a bleeding stomach ulcer. Each treatment might make patients feel better. How do you compare these disparate treatment results on a common yardstick?

Van der Velde used an approach called Decision Analysis. She used a statistical model to look at the impact of potential treatment harms and benefits on patients' health. The common outcome was patients' average life expectancy and quality-adjusted life expectancy (which considered health-related quality of life, not just quantity of life). The probability of beneficial and harmful treatment effects and patients' preferences were incorporated into the model. The model forecasted the average life expectancy and quality-adjusted life expectancy for a simulated group of 45-year-old patients.

Using this approach, the greatest difference among treatments was only 4.5 life days over the average life expectancy of the simulated patient group. For quality-adjusted life expectancy, the greatest difference was 7.3 quality-adjusted life days. These differences were too small to conclude that one treatment was better than another.

"This suggests that clinicians should make treatment decisions on a patient-by-patient basis," says van der Velde. She noted that clinicians should consider patients' preferences for treatment processes – some patients may prefer taking an NSAID, while others may prefer the hands-on approach of chiropractic treatment – as well as their attitude to risk. ✪

*Visit www.spinejournal.org to see the Spine supplement.*

---

*Resources and support are vital in a PE program (continued from page 1)*

from health and safety agencies, provincial labour ministries, workers' compensation boards, labour organizations and workplaces attended meetings. They supplied additional search terms and grey literature sources, proposed ways to present information, and suggested who might be interested in the results.

"These experts brought many great ideas and feedback to the table," explains Van Eerd. "They helped to shape the final research question, and they encouraged us to use the grey literature." ✪

*A copy of, "Report on process and implementation of participatory ergonomic interventions: a systematic review," will be available on the IWH website soon.*

### *In Brief ...*

**Resources and support, the right mix of people, and training are important for a successful participatory ergonomic program.**