

Researchers at the Center for Disability Research conduct studies that focus on reducing occupational disability and promoting safe and sustained return to work.



The Center for Disability Research (CDR) conducts research on reducing occupational disability and promoting safe and sustained return to work. CDR scientists examine factors associated with work absence, re-injury, and post-injury job retention, and they investigate the impact of employer responses and accommodations, clinical treatments, case management, and other interventions. Our findings help physicians, case managers, and employers better understand the disability process, improve return-to-work outcomes, and ultimately, enhance the quality of life for workers.

During 2010, CDR researchers pursued several studies based on surveys, clinical encounters, and administrative data. We completed a study that showed the potential harmful effects of early Magnetic Resonance Imaging for low-back-injured workers. We used novel analytic strategies to develop new insights about the relationship between certain patterns of care or workplace-related interventions and various outcomes. Further, we continued our efforts to identify successful non-medical interventions, such as low back pain self-management strategies and supervisor assessment protocols for achieving sustained return to work.

We were honored to help organize the First Scientific Conference on Work Disability Prevention and Integration. This landmark conference, held in Angers, France, was the first to focus exclusively on work disability prevention research and the promotion of safe and sustained return to work (see page 36).

Center for Disability Research

Effects of Early MRI on Acute Low Back Pain Outcomes



The use of Magnetic Resonance Imaging (MRI) for acute low back pain has become increasingly common. However, current evidence-based clinical practice guidelines for acute low back pain (LBP) recommend the use of MRI in the first month post-injury only if certain “red flag” conditions are suspected. Further, they only recommend MRIs for sciatica patients who, after four to six weeks of conservative care, display evidence of significant neurological dysfunction. Despite these guidelines, MRIs are frequently ordered prematurely or without clear indications.

Studies have shown that an MRI may reveal abnormalities that are poorly correlated with symptoms. For example, disc herniations are found in approximately 30% of asymptomatic subjects. For most patients, a disc herniation and nerve damage will improve within the first month of onset with conservative management, and there is no

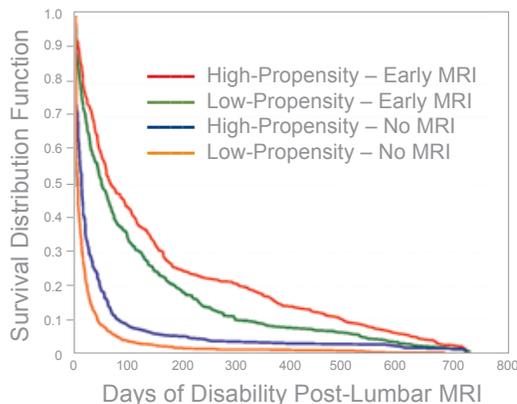
evidence that routine early MRI improves outcomes.

To better understand this issue, and to determine whether early MRI leads to increased disability duration, medical costs, or surgery, we conducted an epidemiological study of early MRI diagnostic testing for a workers’ compensation population with acute, disabling LBP. Using a data source representing 10% of the U.S. private workers compensation market, we used body-part and nature-of-injury codes to identify 7,210 LBP claims filed between January 1 and December 31, 2006. From these claims, we obtained a homogeneous sample of cases by excluding those with fractures, concurrent injuries, or diseases within the first month after the onset of injury, and excluding those with other work-related LBP claims within the prior year. Next, we used demographic and severity indicators to group these cases by high or low propensity for “early-MRI” or “no-MRI.” We then conducted a two-

year follow-up of the final cohort of 3,264 patients, the majority of whom (69.7%) were men.

Our results indicated that a total of 21.7% of the cases had early MRI, and the MRI was taken, on average, within the first two weeks after pain onset. A total of 156 (22.0%) of the early-MRI cases underwent surgery post-MRI. Furthermore, the cases that had early MRIs (both those in low- and high-propensity “early-MRI” groups) were more likely to have prolonged disability (see chart), higher medical costs, and greater utilization of surgery, even after controlling for severity indicators.

These findings suggest that early MRI may have an iatrogenic effect on acute LBP outcomes. The results emphasize the importance of making providers and injured workers aware that ordering early MRI, when it is not indicated, provides no benefits, and may worsen outcomes.



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Early Workplace Interventions for Patients with High-Risk Sub-Acute Low Back Pain

We continued to study early workplace interventions for patients with high-risk, sub-acute low back pain. Our current research in this area builds upon prior CDR and University of Texas Southwestern Medical Center findings, which suggested that early screening, directed intervention, improved communication, and functional restoration could lead to better return-to-work (RTW) outcomes for high-risk patients. To further investigate these promising strategies, we joined the University of Texas Southwestern Medical Center for a study of early treatment approaches that incorporate these interventions. Findings will be used to inform treatment strategies and to promote safe and sustained RTW among high-risk low back pain patients.

For the study, researchers interviewed nearly 1,000 patients with uncomplicated low back pain that had begun or worsened within the past three months and had resulted in significant daily pain and functional limitation at work. The researchers then screened the patients to identify those at higher risk for prolonged pain and work disability. A total of 142 high-risk patients agreed to enroll in the study. These patients were then randomized into three experimental groups: a control group that received usual care, a group that received early functional restoration only, and a third group that received early functional restoration along with workplace intervention. The workplace intervention component was designed to enhance safe and sustained RTW outcomes by addressing barriers to RTW through improved communica-

tions among patient, provider, and workplace. It included a discussion with the patient about physical and organizational barriers that might prevent RTW, problem-solving skills to help address these barriers, and suggestions for communicating with the employer about transitioning back to regular work with appropriate accommodations. The functional restoration component was similar to previously researched programs that emphasized early physical activation to facilitate a return to function and work.

During a one-year follow-up period, researchers interviewed participants to assess measures of pain as well as RTW outcomes and medical care received. Both intervention groups had significantly better RTW outcomes than the control group. At one year, 90% of subjects in the

intervention groups were working, compared with 68% in the control group. Similarly, the improvements in pain, self-reported work productivity, and functional limitations were greater in both intervention groups. However, there was no significant difference in any outcome between the two intervention groups.

Researchers concluded that the study supported the value of functional restoration in certain cases, but it did not demonstrate any added value of this workplace reintegration component. Possible reasons for the lack of added effect include the overall high rate of RTW in those receiving the functional restoration intervention, and the absence of direct provider-employer communication.

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Effectiveness of Low Back Pain Health Maintenance Treatment Strategies



Disability Recurrence

Type of care	Hazard Ratio
Physical therapists	2.0
Physicians	1.6
No treatment	1.2
Chiropractors	1.0

In the occupational health field, sustained return-to-work is considered an important milestone in the injury recovery process. Depending on a patient's condition and circumstances, if low back pain recurs and requires the patient to stop working again, this is considered a failure of the return-to-work process. However, little research has examined the associations between various health maintenance treatment strategies (defined as care received after returning to work) and low back pain recurrence. A significant association between a specific type of clinical treatment and fewer disability recurrences could represent an important advancement in the treatment of work-related back injuries. Therefore, we conducted a study comparing recurrence outcomes for health maintenance care delivered by three types of providers: chiro-

practors, physical therapists, and physicians.

Using workers compensation claims data, researchers examined treatment patterns for a cohort of 894 new-episode low back pain cases occurring over the course of one year (January 1 to December 31, 2006). Our goal was to compare repeated disability episodes across patients under the care of physical therapists, physicians, and chiropractors as well as patients who received no treatment after returning to work for more than 14 days. Providers were defined as those who provided the initial treatment as well as subsequent health maintenance care.

Controlling for demographics and severity, the hazard ratio (HR) of disability recurrence for patients of physical therapists (HR = 2.0) and

physicians (HR = 1.6) was higher than for non-treated patients (HR = 1.2) or chiropractic patients (HR = 1.0). These findings suggest that patients who receive health maintenance care services from physical therapists or physicians may have a higher rate of work-related non-specific low back pain disability recurrence than those treated by chiropractors or those who receive no health maintenance treatment. It should be noted that these results do not support any of these health maintenance strategies in preventing recurrence. Further research is needed to verify these preliminary findings.

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Low Back Pain Self-Management Practices to Reduce Work Disability

We advanced our multi-phase study of evidence-based low back pain (LBP) self-management strategies. This study seeks to determine whether common pain self-management strategies could be adapted to address the workplace concerns of adults with persistent or recurrent LBP. Ultimately, the information gained in the study will be used to develop and test a five-week intervention program to help workers suffering from LBP.

In a previous study, the researchers used qualitative methods to describe the types of problems encountered and the strategies used by workers to cope with LBP at work. This year, our researchers

evaluated individual instructional elements of existing, evidence-based pain self-management programs. The goal was to judge the elements' potential relevance and feasibility for inclusion in a trial pain self-management intervention program to prevent long-term back disability in the work context.

Researchers identified eight evidence-based pain and illness self-management programs to be considered further. Each program was supported by sufficient empirical evidence. We then extracted the individual instructional elements that composed each program and analyzed their potential relevance and feasibility for inclusion in a trial self-management intervention program. Relevance was based on whether

the self-management element might be reasonably applied or adapted to any of the four workplace problem domains identified in an earlier study: (a) pain interfering with work activities; (b) pain contributing to negative self-perceptions; (c) pain leading to interpersonal conflicts; and (d) inflexibility of work, making it difficult to manage pain. The main criterion for feasibility was that the self-management instructional element posed no obvious hazards or conflicts with respect to job performance in most work settings.

Of 24 instructional elements, 17 were shared by at least half of the pain self-management programs. The intervention elements judged most suitable for dealing with workplace concerns related

to reducing pain and discomfort, making informed decisions, communicating effectively, and dealing with thoughts and feelings.

Based on these elements, our researchers developed the content and materials for a five-session, facilitated group intervention program that will be pilot-tested in 2011. This program will integrate the principles of pain self-management with unique aspects of the workplace, including physical demands and limitations, job leeway, and the special nature of workplace roles and relationships.

This study seeks to determine whether common pain self-management strategies could be adapted to address the workplace concerns of adults with persistent or recurrent low back pain.

Effects of Patient-Provider Communication on Occupational Low Back Pain Outcomes

Researchers progressed in a study examining the effects of patient-provider communications on low back pain (LBP) outcomes. The study includes 97 patients with occupational LBP, and it evaluates their communications with healthcare providers. Ultimately, we aim to increase our understanding of how patient-provider interactions influence patient satisfaction, health, and disability outcomes. The findings will be used to inform more effective patient-provider communication strategies.

Earlier findings, based on self-report questionnaires given to patients with work-related LBP prior to their initial medical evaluation, indicated that some patients had significant psychosocial and workplace concerns about pain recovery and return-to-work, but they failed to communicate these concerns to their healthcare providers. This year, we explored the associations

between patient-provider communication and occupational LBP outcomes. Specifically, we set out to determine whether patients with poor outcomes (i.e., significant pain and dysfunction persisting at three months beyond their initial medical visits) showed any distinct patterns of communication when they first met with their healthcare providers about their LBP.

Trained technicians analyzed digital recordings for patient-provider visits that occurred in the first month of care. We then compared content between patients who experienced persistent pain and dysfunction and those who did not. The results indicated that those who had worse outcomes provided more biomedical information and were more negative during their provider interactions at the initial visit; however, they were no different in terms of the amount of psychosocial or lifestyle information that they shared. Thus, patients with delayed recovery are not likely

to share more personal details that might be useful to address psychological distress, workplace problems, and other lifestyle challenges that impede functional recovery.

An analysis of provider communication showed similar results. Providers had the same number of lifestyle or psychosocial discussions with patients who had positive results as with those who developed persistent pain. Thus, in the absence of specific tools to guide patient interviewing strategies, providers are not likely to elicit and address significant psychosocial concerns in patients who have the greatest need for support. Instead, providers asked nearly twice as many biomedical questions of these patients, and this may inadvertently contribute to added worries about injury severity.

One positive finding was that when first evaluating patients who would go on to experience more persistent pain problems, providers took

more time to establish initial rapport. However, this did not lead to additional discussion of psychosocial or lifestyle concerns.

Researchers concluded that better patient screening and early intervention methods are needed to elicit and address the psychosocial concerns of patients. Without these procedures, patients and their healthcare providers have few opportunities for collaborative problem-solving that might be helpful to prevent long-term pain-related distress and functional difficulties.

Factors Influencing Supervisor Decision-Making About Job Modifications

Musculoskeletal disorders, such as low back pain, represent a common and costly problem for working-age adults and their employers, and our researchers continue to look for ways to reduce the functional loss and work disability associated with these health conditions. Past research has shown that workplace interventions, such as the offer of temporary job modifications, can help facilitate a patient's early return to work, and curtail long-term absence. However, little has been reported about the process through which employers develop and support job modifications—a process that is typically spearheaded by supervisors.

With collaborators at the University of Toronto, we began a new study to examine factors that affect

supervisors' judgments about when and how to facilitate temporary job modifications for workers with musculoskeletal pain conditions. Our findings will be used to improve worksite job accommodation policies, practices, and training.

Eight participating companies (four in the U.S., four in Canada), agreed to allow their supervisors to participate in group interviews and web-based surveys over a period of several months. To identify relevant assessment domains for the larger, web-based surveys, the researchers first completed a series of small group interviews. Based on the identified domains, we reviewed the scientific literature to identify existing questionnaires that might be used to assess the relevant factors among supervisors in a more systematic way.

Through these interviews and literature reviews, we identified several factors that can influence a supervisor's efforts to provide job modifications: supervisor beliefs and practices, worker characteristics, perceptions of usual employer policies and practices, and the recommendations and engagement of healthcare providers (see chart). These observations were incorporated into the design of a 15-minute, web-based supervisor survey, which will be administered to approximately 500 supervisors from the eight participating employers in the quantitative phase of the study.

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SUPERVISOR FACTORS:

- Style of leadership
- Beliefs about pain
- Decision-making authority

EMPLOYER FACTORS:

- Health & wellness culture
- Physical job demands
- Disability management practices

Supervisor efforts to support, recommend, or coordinate specific job modifications

PROVIDER FACTORS:

- Clarity of work restrictions
- Familiarity with workplace
- Communication with workplace

WORKER FACTORS:

- Attitude of cooperation
- Job tenure & commitment
- Worker attributes

Job-Lock and Predictors of Decreasing Work Function in Older Workers

We continue our work with researchers at Keele University (UK) to investigate occupational health and safety outcomes among older workers. As part of a larger injury-outcomes study, we are investigating the long-term effects of job-lock among older workers. Job-lock is a situation in which a worker, despite significant health-related concerns, feels compelled to stay in a job because of the need for income, health insurance, or other employment-based benefits.

Building upon earlier research which found that job-lock was associated with poor post-injury outcomes among older workers, the present study examines how job-lock influences a worker's ability to perform his or her job. Ultimately, we aim to use the information gained to identify opportunities for specific interventions (e.g., job retraining, wellness programs, career counseling)

to help job-locked workers maintain employment.

Researchers analyzed survey data from a field study of more than 1,500 older workers (ages 55+) who had experienced an occupational injury. The data consisted of a baseline survey, obtained shortly after the occupational injury, and a one-year follow-up questionnaire. The questions were designed to elicit information about pre- and post-injury health, function at home and at work, and details about the return-to-work process and outcomes after the injury. Almost all of these workers continued their employment over the one-year period of observation.

The survey data indicated that both job-locked and non-job-locked respondents reported initial post-injury decreases in work limitations. This was likely due to the positive impact of temporary post-injury accommo-

dations. At the one-year followup, both groups reported significant increases in work limitations over time. Contrary to our expectations based on prior research, these increases were actually greater in the non-job-locked group. It appeared that the job-locked workers had significantly more work accommodations at the one-year point, thus mitigating the effect of their health problems on their reported ability to do all aspects of their current jobs.

These results support the observation that job accommodations are key to moderating the effects of decreased work ability, in both short-term and long-term timeframes. Many job-locked older workers may feel that they should retire, but until that option is available, they seem able to obtain the accommodations they need to stay on the job.