

Factors affecting RTW following acute low-back pain

Low-back pain is a leading cause of work absenteeism in Canada and other industrialized countries. Although most workers with acute low-back pain (i.e. pain for up to six weeks) return to work following a relatively straightforward path, some do not.

Studies show that anywhere from one in five to one in three workers with acute low-back pain become chronic (i.e. pain for longer than three months), resulting in a potentially lengthy delay before returning to work. This can bring personal anxiety and hardship to injured workers, workplace disruptions and productivity losses to employers, and high compensation and treatment costs to workers' compensation and public health systems.

To prevent the personal suffering and costs resulting from long-term sick leave and disability due to low-back pain, we need to know what factors affect the length of time it takes before returning to work—especially those factors that can be changed in some way to improve outcomes. With this information, we can potentially identify which workers with acute low-back pain are at high risk of long-term work absences and what can be done before they reach this point to help them recover and return to work sooner.

This systematic review set out to help find this information. In short, its goal was to answer this question:

What factors affect the time until return to work among workers who are at the beginning of a sick leave related to low-back pain?

How was the review conducted?

The review team included four researchers from the Institute for Work & Health (IWH) and a fifth from a university in The Netherlands. The review team

KEY MESSAGES

There is strong evidence that the following factors predict the likelihood and timing of return to work among workers with acute low-back pain:

- workers' recovery expectations
- interactions with health-care providers (e.g. type of provider and nature of care)
- workers' self-reported pain and functional limitations
- presence of radiating pain
- work-related factors, including physical demands of the job, job satisfaction and the offer of modified work.

These factors can be included in screening and assessment tools to help identify those workers with acute low-back pain who are at high risk of long work absences and, therefore, in need of extra attention to help them recover and return to work more quickly.

came together to update a previous systematic review published in 2005 by the lead researcher of this current review. The earlier review searched the research literature up until December 2003.

The researchers involved in the recent review looked for articles related to prognosis, back pain and return to work in three databases, published up to April 2011. To ensure consistency with the previous review, they looked for studies on sick leave due to low-back pain for more than one day, but less than six weeks. They also looked for studies that assessed at least one predictive factor and used return to work as an outcome.

Table 1: Criteria used in this review to determine quality of single article

Each article was given a point score based on an assessment of each of the following:

Criteria	Maximum point score
Description of the study population	5 points
Description of response	2 points
Extent and length of follow-up	3 points
Explicit definition of time to return to work	1 point
Number of predictive factors measured	3 points
Quality of data presentation	5 points

Adding up all items resulted in an overall quality score for an article, with a maximum score of 19. Studies were then classified as follows:

Quality level	Quality score
High quality	12 to 19 points
Moderate quality	9 to 11 points
Low quality	Less than 9 points

Table 2: Criteria used in this review to describe level of evidence across articles

Level of evidence	Criteria
Strong	Consistent findings in multiple high quality studies
Moderate	Consistent findings in one high quality study and one or more lower quality studies, or in multiple lower quality studies
Insufficient evidence	Only one study available, or inconsistent findings in multiple studies

The significant effect of a factor in one study and a non-significant effect in another study were still considered to be consistent findings. A negative effect of a factor in one study and a positive effect of this factor in another study were considered to be inconsistent findings. Evidence could concern both the presence and the absence of an effect.

The initial search yielded 4,449 research papers. In the end, 30 papers from 25 different studies were considered relevant to the systematic review question. The quality of each of these studies was then assessed using a rating system (see Table 1). Five studies were rated as high quality, 13 as moderate quality and seven as lower quality.

The researchers then extracted the key findings from these studies and looked across them for evidence on the impact of factors related to the worker, the job and the psychosocial work environment on return to work. The evidence was rated as strong, moderate or insufficient (see Table 2).

What were the main findings?

There was **strong evidence** showing that the following factors **influence RTW** among those with acute low-back pain:

- workers' recovery expectations (i.e. their predictions about how likely it is they will return to work and/or how long it will be before they are able to return);
- workers' interactions with health-care providers (i.e. type of health-care provider seen and nature of care received);
- workers' self-reported pain and functional limitations;
- presence of radiating pain (an indication of the severity of the injury); and
- work-related factors, including physical demands of the job, job satisfaction and the offer of modified work.

There was **strong evidence** that the following factors **do not influence RTW** among those with acute low-back pain:

- lifestyle (e.g. smoking, drinking);
- pain catastrophizing (e.g. an individual's description of pain as awful, horrible and unbearable); and
- level of education.

There was **moderate evidence** that the following factors **influence RTW** among those with acute low-back pain:

- workplace psychosocial environment (i.e. factors related to work pace, control and social support);
- claim-related issues (i.e. type, timeliness and perceived fairness of claims for disability benefits);

- job tenure;
- prior claim or injury; and
- treatment-related issues (e.g. health-care provider response to patient pain).

There was **moderate evidence** that the following factors **do not influence RTW** among those with acute low-back pain:

- findings from clinical examinations; and
- depression.

There was **insufficient evidence** due to too few studies to show the effect of the following factors:

- language barriers;
- work-relatedness of low-back injury; and
- supervisor response.

There was also **inconsistent evidence** due to different findings in multiple studies to reach conclusions about the following factors:

- age;
- sex;
- fear avoidance beliefs;
- pain medication; and
- mental health other than depression.

What do these findings mean?

Workers' recovery expectations are the strongest predictor of return to work, being supported by the most high quality studies. That is, those who expect to recover and return to work more quickly, do so. Therefore, a simple question asking about recovery expectations during the screening or assessment of workers in the early stages of acute low-back pain could help identify those at high risk of long work absences and, therefore, in need of extra attention to help them recover and return to work more quickly.

The next factor supported by strong evidence is the **nature of treatment care** workers receive for their acute low-back pain. In other words, the type of health-care provider (and, thus, the type of care provided) matters. For example, some studies show that seeking care from a chiropractor results in shorter time on disability.

There is strong evidence to show workers' reports about their **pain intensity** and **functional limitations** are

What is a systematic review?

A systematic review is a type of research study. It aims to find an answer to a specific research question using existing scientific studies. Reviewers assess many studies, select relevant, quality studies, and analyze the results. The review normally includes the following steps:

- determine the review question
- develop a search strategy and search the research literature
- select studies that are relevant to the review question
- assess the quality of the methods in these studies and select studies of sufficient quality
- systematically extract and summarize key elements of the studies
- describe results from individual studies
- combine results and report on the evidence

The Institute for Work & Health has established a dedicated group to conduct systematic reviews in workplace injury and illness prevention. Our team monitors developments in the international research literature in this field. We rely on feedback from non-research audiences to select timely, relevant topics for review, to help shape the research question and frame our findings.

predictive of return to work: the greater the self-reported pain and physical limitations, the slower the return to work. Since both can be easily measured in several ways with well-validated questionnaires, they should be included in assessments to determine those at high risk of long-duration absences.

There is strong evidence to show that the presence of **radiating pain** is associated with longer periods off work. However, radiating pain—often used as a measure of injury severity—is usually considered to be a “red flag” during clinical assessments, an indication of potential neurological problems that warrant further medical investigation. For that reason, some people view this more as a screening factor for more specific, less benign low-back pain.

A few work-related factors are supported by strong evidence as being predictive of return to work.

Physical job demands, as determined by occupation, is one of them. That is, workers with acute low-back pain who work in more physically demanding jobs, such as construction or manufacturing, are slower to return to work.

Job satisfaction is another work-related factor shown to be predictive of RTW; the higher the satisfaction, the more likely the return. Although job satisfaction is probably related to any number of factors at work, a simple question asking about job satisfaction can be used at the very start of a work disability process to identify those at high risk and in need of extra attention.

The offer or availability of **modified duties** or workplace accommodations is another work factor associated with improved RTW outcomes. Interestingly, it seems the offer of modified work, not its actual implementation, predicts the likelihood of return to work.

The evidence did not point to depression as a factor affecting RTW following acute low-back pain. Neither did it point to pain catastrophizing. It could be that both are not predictive of return to work until back pain becomes chronic (long-term).

Finally, opioid use for pain management has been a factor of great interest recently. However, it had not yet been studied enough to show up as a predictive factor in this systematic review.

Conclusions

The research evidence to date shows certain factors can be used to identify workers with acute low-back pain who are at high risk of poor outcomes. The factors identified in this review—such as recovery expectations, interactions with health-care providers, self-reported pain and physical limitations, and physical demands of the job—could be used to screen those workers at high risk of long-term or permanent disability.

Reference and acknowledgement

These findings are based on the report *Systematic review of prognostic factors for workers' time away from work due to acute low-back pain: An update of a systematic review* by Ivan Steenstra, Linda de Bruin, Emma Irvin, Martijn Heymans, Quenby Mahood and Sheilah Hogg-Johnson.

The full report is available at: www.iwh.on.ca/sys-reviews/acute-low-back-pain-rtw-prognostic-factors

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We appreciate the support of the **Workplace Research and Innovation Program** of the **Workers Compensation Board of Manitoba** for funding this review.



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

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