

DO MULTI-DISCIPLINARY PAIN CLINICS HELP PATIENTS WITH PERSISTENT LOW-BACK PAIN?

Transferring Research into Practice

The purpose of *Linkages* is to critically review the best available evidence in the literature in the area of soft-tissue injury and to disseminate these reviews to clinical decision makers in practice, workplace, policy and compensation settings. Articles reviewed in *Linkages* are topical English-language articles in the area of soft-tissue injuries. The findings, we believe, will be useful and relevant to our stakeholders.

Linkages No. 9
December 2001

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patients with subacute and chronic low-back pain (LBP) are commonly referred to multidisciplinary pain clinics (MPC) for diagnostic tests and/or therapeutic interventions. There is no uniformity in what these pain clinics offer or the type(s) and expertise of the professionals involved. Usually, the patient is seen by a physician who is a pain specialist and by another professional who may be a psychologist, physiotherapist, nurse, etc. Pain clinics most commonly see patients with chronic conditions such as: headaches, reflex sympathetic dystrophy, or low-back pain.

In 1990, the International Association for the Study of Pain (IASP) struck a task force to define desirable characteristics for pain treatment facilities.⁶ The task force defined the structure of these facilities as follows:

Pain-treatment facility: a generic term used to describe all forms of pain-treatment facilities, without regard to personnel involved or types of patients served. Pain unit is a synonym for pain-treatment facility.

Multidisciplinary pain centre: an organization of health-care professionals and basic scientists that includes research, teaching and patient care related to acute and chronic pain. A wide array of health-care specialists is required, such as physicians, psychologists, nurses, physiotherapist, occupational therapists, vocational counselors, social workers and other specialized health-care providers. The members of the team must communicate with each other on a regular basis, both about specific patients and about overall program development.

Multidisciplinary pain clinic: a health-care delivery facility staffed by physicians of different specialties and other non-physician health-care providers who specialize in the diagnosis and management of patients with

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chronic pain. It does not include research and teaching activities in its regular programs.

Pain clinic: a health-care delivery facility focusing on the diagnosis and management of patients with chronic pain. A pain clinic may specialize in a specific diagnosis or in pain related to a specific region of the body. A pain clinic may be large or small but it should never be a label for an isolated solo practitioner. A single physician functioning within a complex health-care institution that offers appropriate consultative and therapeutic services could qualify as a pain clinic, if patients with chronic pain were suitably assessed and managed. It differs from a multidisciplinary pain centre or clinic due to the absence of interdisciplinary assessment and management of patients.

The rationale for referring a patient with chronic pain to a MPC is to provide a multidisciplinary team that can offer simultaneous assessment and management of somatic, behavioural and psychosocial components of the pain.

Patients with non-specific and specific LBP, most commonly subacute and chronic, are frequently referred to MPCs. Non-specific LBP means that no specific aggressive agent is found such as a fracture, infection, tumor, inflammation, etc. The onset of acute non-specific LBP is usually very painful, however 80 to 90 per cent of patients will be pain-free after four weeks regardless of treatment received.⁷ The subacute phase comprises the period between four weeks and three months post-onset when the individual continues to complain of pain. This period is crucial for the course of low-back pain because there are some interventions which, when applied in this period, might reduce the pain and prevent the development of chronic pain and dysfunction. Chronic low-back pain usually is defined as continuous pain lasting more than three months. In these cases, the causes of the painful sensation are poorly understood and therefore difficult to manage.

The need for an evidence-based opinion about the effects of MPCs for non-specific LBP led two groups to conduct systematic reviews of the literature on this topic. This issue of *Linkages* reviews the two systematic reviews that were conducted under the auspices of the Cochrane Collaboration Back Review Group. The review by Karjalainen et al. focuses on the effects of multidisciplinary teams for **subacute** non-specific LBP, and the review by Guzmán et al. focuses on **chronic** non-specific LBP.

The value of systematic reviews

Six million new articles reporting results of biomedical research are published each year. For health professionals, consumers and policy-makers, it is an overwhelming task to sift through this information efficiently and to be able to make evidence-based decisions on patient care, treatment choice and health policy in a timely manner. Traditionally, research results have been summarized in non-systematic narrative reviews. However, these are open to bias as they may involve the author's subjective opinion of an article's quality. Systematic reviews offer a better alternative to these narrative reviews as they "apply scientific strategies in ways that limit bias, to the assembly, critical appraisal, and synthesis of all relevant studies that address a specific clinical question." Although systematic reviews should use methods that minimize bias and error, flaws in their methodology may contribute to invalid results. Therefore, critically reviewing systematic reviews is as important as reviewing the individual trials in these reviews.

This issue of *Linkages* summarizes two recent systematic reviews by Karjalainen et al.¹ and Guzmán et al.,² which were critically appraised by two internal Institute reviewers using standard criteria.³⁻⁵ One external clinical expert provided a commentary on the articles' relevance and applicability. We thank all those who contributed to this issue of *Linkages*.

Questions about *Linkages*?

This and previous issues of *Linkages* are available on the Institute's web site (www.iwh.on.ca) and may be downloaded in PDF format. For more information about *Linkages*, please contact Victoria Pennick at the Institute for Work & Health by phone: (416) 927-2027 ext 2158, fax: (416) 927- 4167, or by e-mail: vpennick@iwh.on.ca.

ARTICLES REVIEWED

Karjalainen K, Malmivaara A, van Tulder M, Roine R, Jauhiainen M, Hurri H, Koes B. Multidisciplinary biopsychosocial rehabilitation for subacute low-back pain among working age adults. *Cochrane Database Syst Rev* 2000; (4): CD002193 / *Spine* 2001;26(3):262-269.

Objective: To evaluate the effectiveness of multidisciplinary rehabilitation for subacute low-back pain among working-age adults.

Data sources: The authors searched Medline, PsycLIT, EMBASE, the Finnish medical database Medic and the Cochrane Controlled Trials Registry from their inception up to April 1998. They also performed a Science Citation Index search, searched reference lists of relevant articles, and consulted 24 experts in the field of rehabilitation to identify potentially relevant studies that could have been missed.

Study selection: Randomized controlled trials (RCTs) and non-randomized controlled clinical trials (CCTs) that assessed the effectiveness of multidisciplinary rehabilitation for working-age patients suffering from subacute low-back pain (more than four weeks but less than three months duration) were selected. Multidisciplinary rehabilitation program was defined as a physician's consultation plus a psychological, social, or vocational intervention, alone or in combination.

Methodological quality of the studies: Two independent reviewers, blinded to authors, journals and institutions, assessed the methodological quality of each study using the criteria list of van Tulder et al.⁸ Only items reflecting internal validity were used. Equal weights were applied to each criteria.

Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. Multidisciplinary rehabilitation for chronic low-back pain: systematic review. *BMJ* 2001, 322;(26)6:1511-1516.

Objective: To assess the effect of multidisciplinary, biopsychosocial rehabilitation on clinically-relevant outcomes in patients with **chronic** low-back pain.

Data Sources: The authors searched Medline, EMBASE, PsycLIT, CINAHL, Health Star, and the

Clinical relevance: Two experts in the field of rehabilitation assessed the clinical relevance by evaluating whether the patients, health-care settings and interventions were described well enough to allow inferences about the clinical applicability of the results and whether clinically relevant outcome measures were utilized.

Analysis: The reviewers performed a qualitative analysis using four levels of scientific evidence:

Strong evidence: generally consistent findings in multiple high-quality RCTs.

Moderate evidence: generally consistent findings in one high-quality RCT and in one or more low-quality RCTs, or generally consistent findings in multiple low-quality RCTs.

Limited evidence: one RCT (either high-or low-quality) or inconsistent or contradictory evidence in multiple RCTs.

No evidence: no RCTs.

Results: They found only two clinically-relevant studies by Lindstrom et al.⁹⁻¹¹ and Loisel et al.¹² that satisfied the inclusion criteria, however, both were considered to be RCTs of low methodological quality — scoring 4 and 2 respectively out of a possible 10. Both studies indicated a positive effect of multidisciplinary, biopsychosocial rehabilitation (a minimum of the physical dimension and one of the other dimensions – psychological or social or occupational) with either workplace visitation or more comprehensive occupational intervention, in terms of return to work, sick leave, and subjective reports of disability.

Conclusions: There is moderate evidence that multidisciplinary, biopsychosocial rehabilitation offers some benefit for adults with **subacute** low-back pain, and that work site visitation increases the effectiveness on return to work, sick leave and subjective reports of disability.

Cochrane Library from the inception of each database to June 1998, with no language restrictions. They also conducted citation tracking and consulted with content experts.

Study selection: Participants had to be adults with disabling LBP for more than three months (with or without sciatica). One group had to have received multidisciplinary, biopsychosocial rehabilitation and the other group had to have received a control treatment that did not fulfill the criteria for multidisciplinary.

Methodological quality of the studies: Study selection, data extraction and assessment of the methodological quality were done by two independent reviewers and scored from 0–10 using the same criteria list by van Tulder et al.,⁸ as described in the previous paper. Discrepancies were resolved by consensus if necessary or by a third reviewer. Masking the names of journals and authors was impractical, as reviewers were already familiar with many of the trials.

Clinical relevance: Two independent reviewers assessed the clinical relevance by evaluating whether the outcomes measured were clinically relevant. They also evaluated whether there were sufficient details for clinicians to compare study patients to their own, and replicate the study in their own setting.

Analysis: Given the heterogeneity in study settings, interventions and control groups, the authors decided not to pool effect sizes in a meta-analysis. Instead, they summarized findings by strength of evidence and nature of intervention and control treatments.⁸ The evidence was summarized using the same levels of evidence as described in the previous section.

Results: Ten studies were included in this review. The 10 studies reported on 12 randomized comparisons of multidisciplinary rehabilitation and a control condition. Overall, the methodological quality score varied from two to six points, with the Scandinavian trials judged more clinically relevant than the others. Multidisciplinary biopsychosocial rehabilitation varied in setting (inpatient or outpatient) and the time and intensity of the three components (physical, psychological, and social or occupational). Programs fell into two main categories — daily intensive programs with more than 100 hours of therapy and once or twice weekly programs with less than 30 hours of therapy. Five treatment programs



specifically described all of their components: four of these were modeled on the functional restoration approach first reported by Mayer et al.¹³ Most programs had standard duration and interventions, with limited individualization in the intensity of exercise and individual psychological or social or occupational counseling.

The reviewers concluded that for patients with **chronic** low-back pain:

1) There is strong evidence that intensive multidisciplinary biopsychosocial rehabilitation with functional restoration improves function when compared with either inpatient or outpatient non-multidisciplinary rehabilitation.

2) There is moderate evidence that intensive multidisciplinary biopsychosocial rehabilitation with functional restoration reduces pain when compared with

either outpatient non-multidisciplinary rehabilitation or usual care.

3) There is contradictory evidence regarding vocational outcomes of intensive multidisciplinary biopsychosocial rehabilitation.

4) Regarding less intensive multidisciplinary biopsychosocial rehabilitation, five trials could not show improvements in pain, function or vocational outcomes when compared with non-multidisciplinary outpatient rehabilitation or usual care.

What does this mean?

Multidisciplinary pain clinics (MPC) are effective in improving subjective disability, facilitating a quicker return to work and reducing sick leave for patients with **subacute** low-back pain (LBP) if the program includes a visit to the workplace. For **chronic** LBP, MPCs improve pain and function if an intensive program is given in conjunction with a functional restoration approach.

Conclusions: The results show that there is strong evidence that intensive (more than 100 hours of therapy) multidisciplinary rehabilitation, with a functional restoration approach, improves function for patients with chronic low-back pain and moderate evidence that these intensive programs reduce pain. Whether the gains justify the costs remains undecided.

COMMENTARIES

this issue of LINKAGES highlights two recent high-quality systematic reviews of multidisciplinary treatment (MDT) for low-back pain: one focusing on treatment for subacute pain (4–12 weeks); the other for chronic pain (>3 months). Both reviews were comprehensive and searched the literature to 1998. The review of MDTs for subacute low-back pain included only two trials (published in 1992 and 1997), whereas the chronic pain review included 10 trials (published between 1989 and 1997) in the analysis.

Karjalainen et al. defined MDT as a physician's consultation plus a psychological, social or vocational intervention either alone or in combination. Although it was not a requirement for inclusion, we note that both of the trials included in the review involved a workplace visit as one component of the intervention, and the authors concluded that the addition of the workplace component increased the effectiveness of the intervention. On the basis of the two available trials, both rated as low methodological quality, Karjalainen et al. concluded that there was "moderate evidence" that MDT was an effective treatment for this population, but higher-quality trials are needed.

In the Guzmán et al. review, only trials in which one of the groups received multidimensional biopsychosocial rehabilitation (defined as the physical dimension plus at least one of psychological, social or vocational dimensions) met the inclusion criteria. The nature of the physical dimension was not clearly defined but exercise was frequently included in the study trials. The results of the Guzmán et al. review emphasized the length and intensity of the MDT. More intensive interventions (>100 hours) with a functional restoration approach were found to be more effective in improving pain and function. Guzmán et al.'s conclusions are consistent with earlier reviews of MDT (Evans & Richards 1996; Flor 1993; Curtis 1993).

Neither the Karjalainen et al. nor the Guzmán et al. review analyzes the short- versus long-term effects of treatment, which would help to inform implementation plans for this intervention. We concur with Guzmán et al. that the cost-effectiveness of MDT needs to be studied in the future, and suggest that the

timing of the various components of the MDT should also be considered in efforts to maximize potential efficiency and cost effectiveness.

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Relevance and applicability

as a physician who has developed and worked in multidisciplinary pain programs and has seen their effectiveness firsthand, these recent systematic reviews are personally heartening. More importantly, they lend further credence to previous evidence-based reports supporting their efficacy for patients with subacute and chronic low-back pain.



In my experience, patients with pain disorders, particularly if work-related or under dispute, present as complex clinical challenges with multidimensional issues that require the combined expertise of an interdisciplinary team. Although physician input is essential (if only for reassurance that no more dangerous condition is present), other skills are of equal value. I prefer to address the psychological, myofascial and occupational issues respectively with cognitive-behavioural therapy, graduated exercise, stretching and biofeedback and worksite vis-

its to deal with ergonomic and psychosocial barriers. Although the specifics may vary, the critical

element of a comprehensive pain rehabilitation program is a multidisciplinary team communicating widely with all involved parties. The team must provide timely, individualized goal-oriented treatment that teaches pain-coping skills and attempts to overcome barriers to functional recovery.

Such multidisciplinary programs are resource-intensive and cost-effectiveness remains an unresolved legitimate concern. But failure to act has its own economic price in addition to the largely avoidable costs of human suffering. Formidable barriers to change, not the least of which are professional rivalries and financial self-interest, make it incumbent upon the payers to encourage "all players to get on side." Clinicians now have more evidence to support multidisciplinary

rehabilitation programs for low-back pain, thanks to these well-executed systematic studies.

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