



DBC GLOBAL

**The DBC Treatment Approach and Supporting Evidence –
A DBC Global Position Paper**

The Back and Neck pain industry is awash in opinions, methods, treatments, and experts; many of which are claiming that “they are” or “they possess” the key solution to addressing Back and /or Neck Pain. DBC Global has been operating in the international Back and Neck Pain treatment community for 20 years and we do not claim to have an absolute answer to Back and Neck pain - the single one absolute answer for all persons Back or Neck pain does not exist.

The DBC claim is that we can provide exceptionally good clinical treatment outcomes, showing that 90% of patients gain benefits after completing a DBC Active Treatment program; treatment programs that are applicable for most lumbar and cervical spine disorders. DBC Active Treatment protocols were conceived and continue to be supported using relevant scientific research and real clinical experience, with the effectiveness of the clinical outcome quality being maintained through systematic Quality Assurance monitoring. The appropriate application of DBC systems will achieve the goal of strong clinical outcomes at a superior cost effectiveness compared to traditional treatment approaches.

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DBC Approach and Evidence

Spine related disorders are multifactorial bio-psycho-social related problems; prolonged pain tends to develop into a combination of physical, psychological and social disabilities, which potentially lead to absence from the workplace and early retirement due to disability. The traditional approach is to look for a single explicit reason (diagnosis) for musculoskeletal disorders, but this is challenging with most spinal patients. 'Abnormal' findings of the spine in MRI or CT imaging are almost as frequent among back-healthy controls as among lower back pain patients. Likewise, there are severely disabled back and neck pain sufferers among whom we cannot find structural abnormalities regardless of the level of advancement in the diagnostic tools. Recently, studies have shown that it can even be detrimental for the prognosis of the patient, and the success of treatment, for the patient to know the outcome of imaging results.

Regardless of its origin, pain can disturb both voluntary and non-voluntary movement control, potentially inducing conscious or unconscious fear of movement in the patient. This fear of movement and changes in movement patterns may lead to cumulative microtraumas, overloading, muscle fatigue, and movement avoidance behavior; The subsequent outcome is a vicious cycle with a gradual decrease in physical conditioning leading to more pain and suffering. Moreover, numerous 'psychological' factors are involved in mediating the relationships between physical impairment, pain, and disability. Fear-avoidance beliefs about work and physical activity; catastrophizing; the lack of belief in one's own ability to manage pain, cope, and function; and self-efficacy beliefs, are all significantly related with disability in chronic pain patients. In other words, instead of a single 'injury', most chronic pain patients suffer from a combination of functional (physical and/or psychological) problems.

The DBC Approach

Scientific knowledge of the functional problems has always been implemented into a clinical application, this is the foundation of the DBC Treatment Approach; the aim being to address the functional problems with functional restoration. The term "functional restoration" in the context of the DBC approach means the combination of physical and behavioral (psychological) interventions.

The DBC Functional Restoration program aims to:

- Restore range of motion
- Restore muscle coordination and movement control
- Improve muscular endurance
- Improve general conditioning
- Re-educate patients in the difference between normal physical loading and pain
- Reduce fear and avoidance behavior
- Address the psychological/social/occupational obstacles of return-to-work

DBC Functional Restoration includes a standardized systematic quantification of both the physical function and psychological factors. These baseline findings yield a bio-psychosocial profile of the patient and help to 'drive' the therapeutic process. The profile is used in the design of an individualized treatment program and in evaluating potential prognostic factors. These initial evaluations are re-examined again later in the treatment program for indications of progress or a need to modify the treatment approach.

The individualized treatment program combines specific exercises with cognitive-behavioral influences. The exercise program progresses gradually and is carried out under close supervision of a trained Active Treatment professional. The cognitive-behavioral support that is provided in the treatment process includes individual training and "learning by doing". During the treatment program a personalized home/gym training program is developed according to the patient needs, with the primary intent of maintaining the treatment outcomes and integrating the desired movements into the patient's daily routines.

The intermittent monitoring of the baseline parameters throughout the program provides information on the progress and outcomes of the treatment; these evaluations enable for timely adjustments of the treatment program and forms the basis for long-term follow-up. Additionally, the monitoring of outcomes makes it possible to operate a Quality Assurance system for clinical outcomes. All DBC clinics provide their treatment result data into the centralized database in a pseudonymous manner for Quality Assurance purposes and clinical benchmarking. The accumulated clinical outcome data is also used for research and development purposes to maintain and improve the DBC Treatment Approach.

Evidence

Evidence-based medicine (EBM) is an approach that promotes the integration of valid and applicable clinical and research-derived evidence. The best available evidence, moderated by individual patient circumstances and preferences, is utilized in treatment to improve the quality of clinical judgments. The DBC Treatment Approach has been built on these EBM principles. The findings from a vast number of studies concerning the epidemiology, etiology and pathophysiology of spinal disorders, as well as the efficacy studies and systematic reviews on the treatment outcomes, have been considered when designing the DBC treatment contents. Moreover, continuous monitoring of the effectiveness through Quality Assurance, i.e. the ongoing analysis of treatment outcomes in DBC clinics, makes it possible to secure real-life effectiveness of the DBC Treatment Approach.

Following the principles of EBM the efficacy of a therapeutic procedure is proven in tightly controlled studies, in which well-described diagnostic and inclusion criteria are applied and well-trained professionals provide carefully standardized interventions; These studies are typically carried out by research institutes and universities. Specially selected subjects go through an "informed consent" procedure and those who fulfil the strict inclusion criteria and volunteer for randomization to different treatment options are included in the study. Often, patients who doubt some of the interventions or providers do not volunteer, therefore, the

study populations may not be representative of the real patients with complex symptoms. Due to these, and other, reasons, the true effectiveness of the interventions that are shown efficacious in randomized trials needs to be confirmed in “real-life” clinical practice.

Systematic reviews (SR) can help practitioners keep up-to-date on the medical literature by summarizing large bodies of efficacy studies and explaining the differences among studies from the same topic. As the review process is subject to bias, like any other type of research, a systematic review requires precise methods and clear reporting of the original information. This is a clear difference in comparison to the traditional ‘narrative’ reviews, which are merely expert opinions, based on selected ‘suitable’ studies. SRs are scientific investigations in themselves, with a set of original studies as their study objects; They sum up the results of multiple primary investigations, preferably randomized controlled trials, by using strategies that limit bias and random error. These strategies include a comprehensive search of all potentially relevant articles and the use of precise, reproducible criteria in the selection of articles for review. Primary research designs and methods are evaluated, data are summarized, and results are interpreted.

Systematic reviews

Systematic reviews of medical research on chronic spinal pain clearly indicate that functional restoration (the combination of physical and behavioral/psychological interventions) is effective, not only in reducing pain and disability, but also in reducing the number of absence days from work (Tables 1 and 2).

European Guidelines for the Management of Chronic Non-Specific Low Back Pain come to the following conclusions: “Cognitive behavioral therapy, supervised exercise therapy, brief educational interventions, and multidisciplinary (bio-psycho-social) treatment can each be recommended for non-specific CLBP. Back schools (for short-term improvement), and short courses of manipulation/mobilization can also be considered. The use of physical therapies (heat/cold, traction, laser, ultrasound, short wave, interferential, massage, corsets) cannot be recommended. We do not recommend TENS.”

It is noteworthy that the DBC treatment combines elements from most of the interventions that have been shown effective in systematic reviews but does not include non-effective items.

Table 1. Systematic reviews on the efficacy of conservative interventions for chronic low back disorders as of the latest update of Cochrane Database of Systematic Reviews (2018).

Evidence For	References
Functional Restoration	Schonstein et al.
Exercise Therapy	Hayden et al. , Genen et al. , Schaafsma et al. , Saragiotto et al. , Yamato et al. , Wieland et al. , Choi et al.
Behavioural Therapy	Ostelo et al. , Monticone et al. , Henschkle et al.
Education / Advice	Engers et al. , Dahm et al.
Multidisciplinary Rehabilitation	Karjalainen et al. , Marin et al. , Kamper et al.
Rehabilitation following surgery	McGregor et al.
Workplace interventions	Vilsteren et al.
NSAIDS	Roelofs et al.
No Evidence or Conflicting Evidence	References
Injection Therapy	Staal et al.
Paracetamol/Opioids/Muscle Relaxants	Saragiotto et al. , Chaparro et al. , Van Tulder et al.
Transcutaneous Electrical Nerve Stimulation (TENS)	Kahdilkar et al.
Passive treatment techniques	Ebadi et al. , Yousefi-Nooraie et al. , Furlan et al. , Rubinstein et al.(1) , Rubinstein et al.(2) , Franke et al. , Furlan et al. (2) , Wegner et al.
Back Schools	Poquet et al. , Parreira et al.

Table 2. Systematic reviews on the efficacy of conservative interventions for chronic neck disorders as of the latest update of Cochrane Database of Systematic Reviews (2018).

Evidence For	References
Exercise	Gross et al.
Cognitive-behavioural treatment	Monticone et al.
Workplace interventions for those on sick leave	Vilsteren et al.
No Evidence or Conflicting Evidence	References
Manipulation	Gross et al.
Traction	Graham et al.
Other passive therapies	Patel et al. , Kroeling et al.
Patient Education	Gross et al.
Multidisciplinary rehabilitation	Karjalainen et al.
Workplace interventions for neck pain	Wågø Aas et al.
Ergonomic interventions	Verhagen et al.
Surgery	Nikolaidis et al.

Efficacy Studies with DBC

The specific efficacy of DBC treatments has been tested in clinical trials (Table 3). The results of the clinical trials clearly indicate that the DBC treatment was effective in the reduction of pain and physical impairment; the improvement of psychological well-being; along with improved mobility, muscular endurance, and strength.

Table 3. Efficacy studies on DBC treatment in peer-reviewed medical journals.

Efficacy of DBC Treatment	References
Effectiveness of DBC Treatment in Italy	Taimela et al.
Long-term follow up of DBC results	Taimela et al.
Randomized trial of DBC efficacy on low back disorders	Kankaanpaa et al.
Randomized trial of DBC efficacy on neck disorders	Taimela et al.
Cohort study on DBC effectiveness on low back disorders	Taimela et al.

Effectiveness of DBC Treatment

Tens of thousands of patients have already been treated within the DBC network of caregivers, all over the world, without complications. Subgroup analyses indicate that patients with different types of back or neck problems obtain clinically important benefits from the DBC treatment. Some 85% of patients report reduction in pain during the treatment and more than 90% satisfaction with care; results that have been shown to last over time. Recurrences of significant back pain and absenteeism are rare, especially if the patients remain active after the DBC treatment.

Figure 1 shows the DBC treatment results on pain in over 80,000 treated patients with low back pain. The results are categorized by the type of lumbar disorder and indicate that, irrespective of the underlying type of disorder, the DBC treatment provides over 50% reduction of pain on the average.

Figure 1. The effectiveness of the DBC treatment on low back pain in 80 000 treated patients.

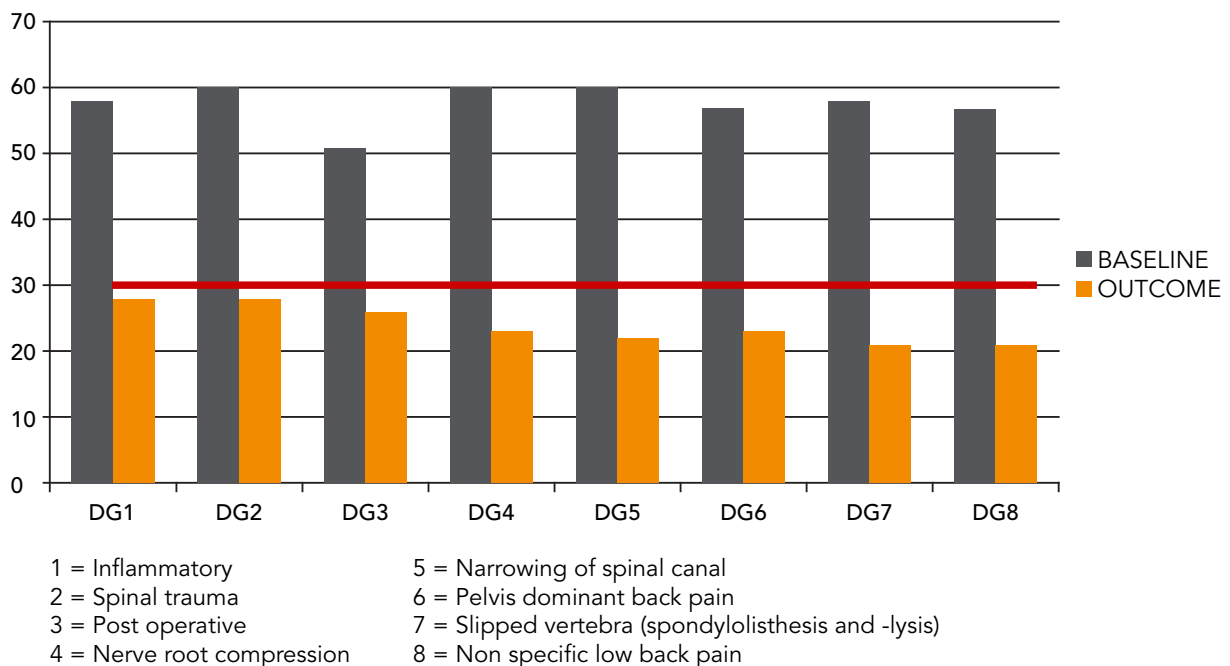
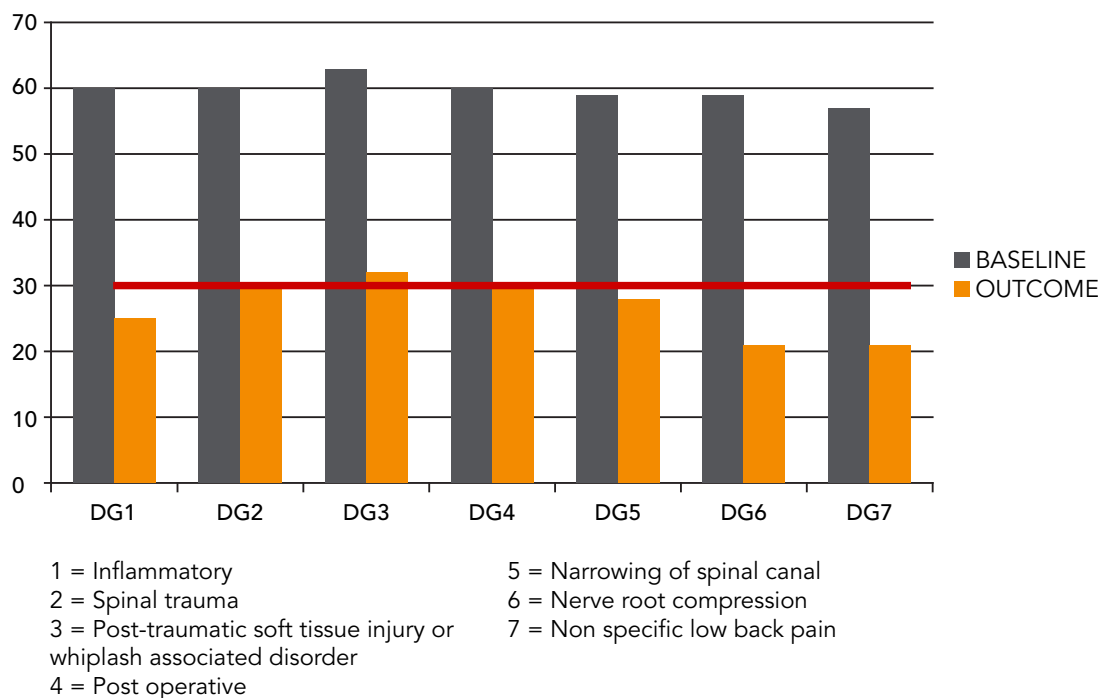


Figure 2 shows the DBC treatment results on pain in over 10 thousand treated patients with neck pain. The results are categorised by the type of cervical disorder and indicate that, irrespective of the underlying type of disorder, the DBC treatment provides over 50% reduction of pain on the average.

Figure 2. The effectiveness of the DBC treatment on neck back pain in 10 402 treated patients.



Summary of the Effectiveness Concerning DBC Treatment

Systematic reviews and latest practice guidelines provide strong evidence for the approach chosen by DBC. Efficacy studies (RCTs, long-term follow-ups) and the quality assurance data, along with over 120,000 treated patients, provide exceptional evidence for the DBC treatment efficacy. DBC treatment provides outcomes superior to “traditional physiotherapy methods”. Since the costs of DBC treatment are comparable to other forms of physiotherapy, but the outcomes are superior, DBC Active Treatment provides superior cost-effectiveness for the treatment payers (i.e. insurance or employers) as well as the treatment providers.

The goal for DBC Global is to provide this cost effective and advantageous treatment approach to a larger population of patients to assist in demonstrating the effectiveness that Active Treatment can have on the broader population.

References

- (1) The impact of choosing words carefully: an online investigation into imaging reporting strategies and best practice care for low back pain. [Karran et al.](#) Cochrane Database of Systematic Reviews, December 2017.
- (2) Is immediate imaging important in managing low back pain? [Anderson et al.](#) Cochrane Database of Systematic Reviews, January 2011.
- (3) Work conditioning, work hardening and functional restoration for workers with back and neck pain. [Schonstein et al.](#) Updated: 2010. Cochrane Database of Systematic Reviews.
- (4) Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews. [Geneen et al.](#) Cochrane Database of Systematic Reviews, April 2017.
- (5) Exercise therapy for treatment of non-specific low back pain. [Hayden et al.](#) Cochrane Database of Systematic Reviews, July 2005.
- (6) Physical conditioning as part of a return to work strategy to reduce sickness absence for workers with back pain. [Schaafsma et al.](#) Cochrane Database of Systematic Reviews, August 2013.
- (7) Motor control exercise for chronic non-specific low-back pain. [Saragiotto et al.](#) Cochrane Database of Systematic Reviews, January 2016.
- (8) Pilates for low back pain. [Yamato et al.](#) Cochrane Database of Systematic Reviews, July 2015.
- (9) Yoga treatment for chronic non-specific low back pain. [Wieland et al.](#) Cochrane Database of Systematic Reviews, January 2017.
- (10) Exercises for prevention of recurrences of low-back pain. [Choi et al.](#) Cochrane Database of Systematic Reviews, January 2010.
- (11) Behavioural treatment for chronic low-back pain. [Ostelo et al.](#) Cochrane Database of Systematic Reviews, January 2005.
- (12) Cognitive-behavioural treatment for subacute and chronic neck pain. [Monticone et al.](#) Cochrane Database of Systematic Reviews, May 2015.
- (13) Behavioural treatment for chronic low-back pain. [Henschke et al.](#) Cochrane Database of Systematic Reviews, July 2010.

- (14) Individual patient education for low back pain. [Engers et al.](#) Cochrane Database of Systematic Reviews, January 2008.
- (15) Advice to rest in bed versus advice to stay active for acute low-back pain and sciatica. [Dahm et al.](#) Cochrane Database of Systematic Reviews, June 2010.
- (16) Multidisciplinary biopsychosocial rehabilitation for subacute low back pain among working age adults. [Karjalainen et al.](#) Updated: 2017, Cochrane Database of Systematic Reviews.
- (17) Multidisciplinary biopsychosocial rehabilitation for subacute low back pain. [Marin et al.](#) Cochrane Database of Systematic Reviews, June 2017.
- (18) Multidisciplinary biopsychosocial rehabilitation for chronic low back pain. [Kamper et al.](#) Cochrane Database of Systematic Reviews, September 2014.
- (19) Rehabilitation following surgery for lumbar spinal stenosis. [McGregor et al.](#) Cochrane Database of Systematic Reviews, December 2013.
- (20) Workplace interventions to prevent work disability in workers on sick leave. [Vilsteren et al.](#) Cochrane Database of Systematic Reviews, October 2015.
- (21) Non-steroidal anti-inflammatory drugs for low back pain. [Roelofs et al.](#) Cochrane Database of Systematic Reviews, January 2008.
- (22) Injection therapy for subacute and chronic low-back pain. [Staal et al.](#) Cochrane Database of Systematic Reviews, July 2008.
- (23) Paracetamol for low back pain. [Saragiotto et al.](#) Cochrane Database of Systematic Reviews, June 2016.
- (24) Opioids compared to placebo or other treatments for chronic low-back pain. [Chaparro et al.](#) Cochrane Database of Systematic Reviews, August 2013.
- (25) Muscle relaxants for non-specific low-back pain. [Van Tulder et al.](#) Cochrane Database of Systematic Reviews, April 2003.
- (26) Transcutaneous electrical nerve stimulation (TENS) versus placebo for chronic low-back pain. [Khadilkar et al.](#) Cochrane Database of Systematic Reviews, October 2008.
- (27) Therapeutic ultrasound for chronic low-back pain. [Ebadi et al.](#) Cochrane Database of Systematic Reviews, March 2014.

- (28) Low level laser therapy for nonspecific low-back pain. [Yousefi-Nooraie et al.](#) Cochrane Database of Systematic Reviews, April 2008.
- (29) Acupuncture and dry-needling for low back pain. [Furlan et al.](#) Cochrane Database of Systematic Reviews, January 2005.
- (30) Spinal manipulative therapy for chronic low-back pain. [Rubinstein et al.\(1\)](#) Cochrane Database of Systematic Reviews, February 2011.
- (31) Spinal manipulative therapy for acute low-back pain. [Rubinstein et al.\(2\)](#) Cochrane Database of Systematic Reviews, September 2012.
- (32) Muscle energy technique for non-specific low-back pain. [Franke et al.](#) Cochrane Database of Systematic Reviews, February 2015.
- (33) Massage for low-back pain. [Furlan et al.\(2\)](#) Cochrane Database of Systematic Reviews, September 2015.
- (34) Traction for low-back pain with or without sciatica. [Wegner et al.](#) Cochrane Database of Systematic Reviews, August 2013.
- (35) Back schools for acute and subacute non-specific low-back pain. [Poquet et al.](#) Cochrane Database of Systematic Reviews, April 2016.
- (36) Back Schools for chronic non-specific low back pain. [Parreira et al.](#) Cochrane Database of Systematic Reviews, August 2017.
- (37) Exercises for mechanical neck disorders. [Gross et al.](#) Cochrane Database of Systematic Reviews, January 2015.
- (38) Cognitive-behavioural treatment for subacute and chronic neck pain. [Monticone et al.](#) Cochrane Database of Systematic Reviews, May 2015.
- (39) Workplace interventions to prevent work disability in workers on sick leave. [Vilsteren et al.](#) Cochrane Database of Systematic Reviews, October 2015.
- (40) Manipulation and mobilisation for neck pain contrasted against an inactive control or another active treatment. [Gross et al.](#) Cochrane Database of Systematic Reviews, September 2015.
- (41) Mechanical traction for neck pain with or without radiculopathy. [Graham et al.](#) Cochrane Database of Systematic Reviews, July 2008.

- (42) Massage for mechanical neck disorders. [Patel et al.](#) Cochrane Database of Systematic Reviews, September 2012.
- (43) Electrotherapy for neck pain. [Kroeling et al.](#) Cochrane Database of Systematic Reviews, August 2013.
- (44) Patient education for neck pain. [Gross et al.](#) Cochrane Database of Systematic Reviews, March 2012.
- (45) Multidisciplinary biopsychosocial rehabilitation for neck and shoulder pain among working age adults. [Karjalainen et al.](#) Cochrane Database of Systematic Reviews, April 2003.
- (46) Workplace interventions for neck pain in workers. [Wågø Aas et al.](#) Cochrane Database of Systematic Reviews, April 2011.
- (47) Conservative interventions for treating work-related complaints of the arm, neck or shoulder in adults. [Verhagen et al.](#) Cochrane Database of Systematic Reviews, December 2013.
- (48) Surgery for cervical radiculopathy or myelopathy. [Nikolaidis et al.](#) Cochrane Database of Systematic Reviews, January 2010.
- (49) Functional rehabilitation for low back disorders. [Taimela et al.](#) Europa medicophysica 40(1):29-36, 2004
- (50) The role of physical exercise and inactivity in pain recurrence and absenteeism from work after active outpatient rehabilitation for recurrent or chronic low back pain: a follow-up study. [Taimela et al.](#) Spine 25(14):1809-16, 2000.
- (51) The efficacy of active rehabilitation in chronic low back pain. Effect on pain intensity, self-experienced disability, and lumbar fatigability. [Kankaanpää et al.](#) Spine 24(10):1034-42, 1999.
- (52) Active treatment of chronic neck pain: a prospective randomized intervention. [Taimela et al.](#) Spine 25(8):1021-7, 2000.
- (53) Strength, mobility, their changes, and pain reduction in active functional restoration for chronic low back disorders. [Taimela et al.](#) Journal of Spinal Disorders 9(4):306-12, 1996.