Dynamic Chiropractic

REHAB / RECOVERY / PHYSIOTHERAPY

What Is Evidence-Based Rehabilitation?

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A common myth is that rehabilitation is merely strength or flexibility training.[49] Put a gym and personal trainer in your office and learn basic sports/exercise science principles, and you can do rehab. As a result, many "so-called" rehabilitation programs focus on isotonic training-programs and stretching regimes. Adding a gym to a chiropractic office can help you market your practice to a more health-conscious public. But to maximize your practice's potential, you will need to provide a more clinical approach, one that identifies a patient's directional preference, fear-avoidance beliefs and motor-control deficits. This will enable you to distinguish your services not only from other DCs and PTs, but also from various yoga or Pilates centers.

Integrating this functionally oriented, self-care paradigm of care lies at the heart of both evidence-based and patient-centered musculoskeletal medicine. Rather than focusing merely on pathology and symptoms, the emphasis is on recovery and reactivation. This requires a shift from a traditional biomedical paradigm to a biopsychosocial one. The goal is return the patient to independent functioning by focusing on the biological (impairments), psychological (illness behavior/beliefs) and social (participation limitations) aspects of disability.[49,50]

Reactivation advice to resume near-normal activities is both safe and effective for acute low back pain (LBP) patients.[35] Similarly, early activation has been found to be effective for neck pain following a whiplash injury.[44] Deconditioning normally accompanies acute LBP, and its prevention has been shown to reduce recurrence rates.[14,15] Active therapies involving such diverse exercise methods as simple reactivation advice, cognitive-behavioral graded-exposures training, stabilization exercise, and McKenzie methods have demonstrated their effectiveness for acute, subacute and chronic LBP.[11,15,21,28,36,41]

The Agency for Health Care Policy and Research (AHCPR) low back pain guidelines stated, "The main goal for treatment of back pain has shifted from treatment of pain to treatment of activity intolerances related to pain."[1] Whereas my last article, "The Clinical Audit Process and Functional Reactivation," detailed *how* to prescribe and progress rehabilitation strategies in the office, this article will provide a brief overview of the foundations of rehabilitation, including the rationale (*why*), the candidates (*who*), the indications (*when*) and the types of rehab (*what*).

Why Active Care? The Rationale

Persistent pain reinforces negative attitudes about the relationship between activity and pain, as the patient takes on the "sick" role.[34] Diagnostic tests that focus on pathoanatomy are frequently ordered to find the "cause" of the pain. Unfortunately, these tests have high false-positive rates for coincidental structural findings, such as degenerative joint disease or herniated discs, and thus reinforce the patient's self-image of having a "bad" back or needing to "learn to live with it."[22,26,48] The result is further activity avoidance and deconditioning. Unfortunately, excessive immobilization interferes with the healing, coping and recovery processes. Thus, health care professionals are

being urged by each successive international guideline on spinal disorders to first perform a diagnostic triage to rule out "red flags" of rare but serious disease, and then to reassure patients of the benign nature of their back pain and the safety and value of gradually resuming activities.[1,5,6]

Who and When? Clinical Indications Requiring Rehabilitation

Work at the University of Pittsburgh has convincingly shown that subclassification of the "nonspecific" group is possible with an evaluation consisting of a thorough history, disability questionnaires, and examination utilizing a battery of low-tech, yet reliable tests (e.g., sacroiliac, McKenzie).[9] They have shown that treatment matched to the appropriate subclassification is superior to unmatched treatments. Furthermore, a recent, randomized clinical trial (RCT) has shown that treatment driven by subclassification is superior to the "generic" treatment recommended by the AHCPR for the broad "nonspecific" category.[10] Outcomes included reduced disability and accelerated return to work. Patients were subdivided into the following treatment classifications: manipulation/mobilization; direction-preference exercise (e.g., McKenzie); and stabilization exercise groups. Here is a summary of the criteria for patient classification by treatment type:

- Directional-preference exercise - acute or chronic patents whose symptoms are aggravated by movement in one direction and improved by movement in an opposite direction.
- Manipulation - acute, uncomplicated back pain patients who do not meet the criteria for directional-preference exercise.
- Stabilization - recurrent or persistent pain patients with or without fear-avoidance beliefs who do not meet the criteria for directional-preference exercise.

What? Appropriate Goals of Rehabilitation

Most novices to rehab feel strength and flexibility training are the cornerstones of adding this to the practice. However, an evidence-based approach requires that motor control, muscle balance and cognitive-behavioral goals be our main focus.

Abnormal Motor Control. Coordination of "core" muscles has been found to be correlated to back pain. Researchers at Yale University have shown that a specific motor-control signature of delayed agonist-antagonist muscle activation predicts which asymptomatic people will later develop low back pain.[4] In particular, the researchers found longer muscle response latencies to perturbation in the "at-risk" group than in healthy control subjects. A delayed activation of the transverse abdominus muscle during arm or leg movements has been found to distinguish LBP patients from asymptomatic individuals.[17,18] A rehabilitation program designed to improve this dysfunction has been shown to be effective for chronic LBP patients.[41]

Coordination of hip flexion as in an active straight-leg raise (ASLR) test has been shown to be associated with postpartum sacroiliac (SI) pain.38 The test involves lifting one leg 5 cm up from a relaxed supine position. It has been shown that altered kinematics of the diaphragm and pelvic floor are present in those with a positive test.[42]

Balance deficits (e.g., excessive anterior to posterior body sway on an unstable surface or poor single-leg-standing balance ability) have been demonstrated to be related to LBP.[3,40,46] Poor balance also was prospectively correlated with future LBP by Takala.[46]

Craniocervical flexion (CCF) coordination can differentiate both chronic headache and chronic

neck pain post-whiplash patients from asymptomatic individuals.[23,24] Individuals with mild or moderate/severe pain and disability had significant overactivity of the superficial neck muscles (sternocleidomastoid), during CCF.[45] Treatment directed at improving CCF recently has been shown to achieve lasting results, both in terms of improved function and reduced symptoms.[25]

Muscle Balance. A reduced ratio of trunk extensor-to-flexor strength/endurance discriminates between LBP patients and control subjects. The normal ratio is approximately 1.3:1, with the extensors being stronger.[37] Decreased endurance of the trunk extensors has been shown to predict recurrences (Biering-Sorensen), as well as first-time onset of LBP in healthy individuals.[19,33]

Cognitive-Behavioral Components. Fear-avoidance beliefs (FAB) and distress have been shown to account for approximately 50 percent of the variation in self-rated disability (Oswestry Disability Index) in acute and chronic LBP patients.[12] Fritz, et al., have confirmed that initial fear-avoidance beliefs were significant predictors of subacute status at four weeks, independent of pain intensity, physical impairment, disability or therapy received.[8]

Rehabilitation

Rehabilitation is traditionally viewed as exercise. Thus, its application is usually focused on voluntary strength training. Unfortunately, voluntary exercise often perpetuates faulty movement patterns or abnormal motor control. Therefore, rehabilitation should emphasize motor control when attempting to build stability.

Reactivation Advice. Information and advice emphasizing the value of fitness and the safety of resuming activities achieved superior outcomes to advice reinforcing rest, activity restrictions and the notion that the spine was injured or damaged (arthritis, herniated disc).[2,31] Reassurance, coupled with encouraging resumption of ordinary activities, was found to be superior to medication, bed rest or mobilization exercises.[35]

McKenzie Method. The McKenzie method was shown to be at least as effective as an isotonic strengthening program in a randomized, controlled trial of subacute and chronic patients (pain duration of at least eight weeks).[43] And in a study of McKenzie's matched directional-preference exercise prescription vs. evidence-based care (EBC) for chronic LBP patients, the following results were achieved:[32]

- Fifty-six percent of the EBC group reported no improvement or worsening of symptoms.
- Forty-four percent of the EBC group reported improvement in symptoms.
- Ninety-five percent of the matched group reported improvement in symptoms.
- Only five percent of the matched group reported no improvement in symptoms.

Stabilization Exercise. Australian research has shown that if acute LBP patients perform specific spinal-stabilization exercises, multifidus muscle atrophy can be prevented.[16] The training also has a secondary preventive effect of reducing future recurrences.[15] Specific spine-stabilization exercises achieved superior outcomes to isotonic exercises in chronic patients with spondylolysthesis.[41] One study that compared McGill's "general" stabilization exercise approach to the Australian "deep" local stabilization training demonstrated that the "general" approach was superior.[27]

Graded-Exposures Training (GET). This involves exercises perceived as threatening by the patient. GET is also commonly called *quota-based exercise* because the exercises are performed for a specific duration or frequency, independent of symptoms.[7,13,29,30] Two studies found that either lay-led or professional-led instruction in self-care and worry-reduction were successful in reducing back-related worry, fear-avoidance beliefs, pain severity and activity intolerances.[39,47] A long-term follow-up study led by Indahl focused on education designed to reduce fear.[20,21] Patients were informed that light activity would not injure the disc, but instead speed recovery. The return-to-work rate was double that of the control group.

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Editor's note: To read Dr. Liebenson's previous article on rehabilitation strategies ("The Clinical Audit Process and Functional Reactivation"), visit www.chiroweb.com/archives/25/08/09.html.

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