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The Back Pain Revolution, Part Three: Treatment

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In the first two parts of this four-part series, the biomechanical and biopsychosocial aspects of the low back problem and a new low back functional assessment were introduced. This paper discusses three key aspects of functional treatment of neuromusculoskeletal disorders: advice, manipulation, and exercise.

Treatment

Treatment begins with a report of findings to the patient. A chief reason why chiropractors receive higher customer satisfaction ratings than medical doctors for back pain is that we take the time to give a rational explanation of what we are planning. Between 20-25% of patients are dissatisfied with their care for back and neck pain.¹ A crucial step is identifying what you can and can't do to help the patient.

Establishing short and long-term goals is critical. Examples include decreasing pain; reducing activity limitations such as in activities of daily living (sitting, standing, walking intolerances) or job demands; and returning to work.

Advice

Giving advice to avoid mechanical irritation (activity modification advice) is a crucial beginning point in reassuring an acute pain patient. Biomechanical advice starts with teaching the patient how to avoid further injury or irritation.

According to Morgan, "The patient must first learn to recognize the functional limits of his or her low-back and then be trained to control the spine so as to stay within those limits."² Key activity modification advice includes limiting prolonged unsupported sitting.³

Psychosocial advice focuses on keeping the patient active and preventing them from taking on a "sick" role. There is good evidence that simple advice to continue or resume normal activities is therapeutic for acute

low back pain. A recent study found that advice to continue normal activities as tolerated resulted in better outcomes than patients resting two days or performing back mobilization exercises.⁴

Early identification of the patient who is fearful is a key in psychosocial management. Troup explains, "If fear of pain persists, unless it is specifically recognized and treated, it leads inexorably to pain avoidance and thence to disuse."⁵

Manipulation

All clinicians are faced with the problem of identifying what area to treat first. Treatment of the site of pain may provide relief of pain, but it is often temporary. The art of treatment of locomotor system disorders consists of seeing the mechanical linkage system and its underlying neurologic control and finding patterns of dysfunction responsible for the eventual (or inevitable!) onset of pain.

Examination of stereotypical movement patterns is the quickest way to identify areas of increased strain. This will also enable the clinician to see patterns of compensation and thus determine the "key link" by contrasting primary dysfunctions from secondary compensation. Examples include evaluation of Janda's movement patterns or an individual's job or recreational activities.⁶

Once we have identified a faulty movement pattern, we can see the holistic picture of dysfunction for our patient. We can then avoid treating an area of "relative" hypermobility (i.e., repetitive joint-end range-loading) simply because it is painful. Instead, we can treat the cause of hypermobility in the kinetic chain.

Local lesions have widespread effects throughout the locomotor system. Foot dysfunction effects the lower extremity kinetic chain and pelvis. Cervical dysfunction effects the upper quarter and pelvis. Treating muscles effects joints and vice versa. Lower extremity inflexibility may be an important cause of poor neutral lumbar spine control. There is a systematic approach -- a continuum of care for addressing this functional pathology of the locomotor system (see **Table I**).

Table I: Continuum of Care

1. advice on how to reduce repetitive strain;
2. manipulation of the stiff joints and areas of adverse tension;
3. exercise of the "weak link";

4. reprogramming of movement patterns subcortically.

The most difficult area is facilitation of the weak link. This requires compliance, motivation, concentration and effort. A shortcut is sensory-motor training since it requires very little cortical effort.

Exercise

Offering advice on how to perform movements (exercise) which reduce pain and/or restore function is crucial in teaching patients how to perform self-treatment and preventive maintenance procedures.

However, teaching patients appropriate exercises is fraught with difficulty. A key is to have realistic goals and begin with simple "idiot proof" exercises. Despite the inherent challenges of exercise prescription, it is well worth the effort put in. According to Lewit, "Disturbed movement patterns are the most important cause of blockage, and remedial exercise is the therapy of choice."⁷

Patients tend to make many mistakes in performing exercises. Typically, tense muscles are overactivated and a "weak link" may not be isolated as trick or substitution movement synergies are utilized. As Lewit says, "The inventiveness of patients to make mistakes with exercise has no bounds!" It would be an error to teach ideal movement patterns. Lewit says, "remedial exercise is always time consuming, and time should not be wasted ... We should not attempt to teach patients ideal locomotor patterns, but only correct the fault that is causing the trouble."

According to McGill, a safe back approach is to teach awareness of neutral lumbar posture first, then give simple exercises, then progress the exercises by increasing the complexity and instability, and finally check that job or recreational activities are being performed with appropriate biomechanics.⁸

Morgan explains that the appropriate lumbar posture must be customized to both the patient and the demand. "There is no particular lumbospinal posture or position that is best for all patients and for all activities. Simply, the functional position is the most stable and asymptomatic position of the spine for the task at hand." Frequent repetitions are required to make it involuntary for the patient to stabilize their spine. Morgan continues, "After the patient has learned the limits of his or her functional range, conditioning and training for activities of daily living can safely begin ... The patient must develop the coordination to control and feel the back position. Such coordination must become second nature so that the habit is maintained during all activities ..."

The Functional Range Is the Painless Range Which Is Appropriate for the Task at Hand

Motivating patients to stay in their painless range is easy. When the patient is in acute pain, they should avoid what hurts them. Hurt and harm go hand in hand. Motivating patients to perform exercises appropriately (biomechanically correct) is not so easy. Pain is not a sufficient guide. Patients often use "trick" movement patterns to increase resistance or repetitions, but only reinforce dysfunction: excessive hip flexion, lower cervical flexion or cervicocranial extension during sit-ups.

An important question concerns the appropriate intensity, frequency, and duration of a rehabilitation exercise program. Intensity of training should be less than 50% of the patient's maximum voluntary contraction (MVC) ability when endurance training is the goal. In contrast, if strength training is the goal, training intensity should be at least 90% of the patient's MVC. The frequency should be daily for endurance training and three times a week for strength training. The duration may need to be as long as three times a week for a chronic low back pain patient to make significant improvement in their strength and endurance.⁹

Summary

This paper presented a summary of three key aspects to conservative treatment of neuromusculoskeletal disorders -- advice, manipulation and exercise. Many clinicians are confused about how to integrate rehabilitation into their practices. First, it is essential to see how the three fundamental strategies are different and then employ them strategically to help achieve our goals. Activity modification advice to avoid further biomechanical strain in our external environment is obviously a first step. Manipulation can then be used as a catalyst to enable the locomotor system to begin functioning better almost immediately. Finally, exercise is then essential to improve the individual's intrinsic physical capacity to handle biomechanical stress and thus prevent reinjury. Together, these three treatment strategies help foster an internal locus of control for patients, so that they do not take on the "sick role" associated with chronicity.

The final paper in this series will offer specific examples of how to blend advice, manipulation and exercise together for identifiable clinical scenarios. Each rehabilitation prescription will be linked to specific test indications.

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