

REHABILITATIVE TECHNIQUES FOR TREATING SPONDYLOLISTHESIS

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Personal Data/Medical History

A 20-year old, 5'7", 145 pound female Division III basketball/softball player reported to the athletic training room in March 2000 complaining of low back pain. The athlete completed the remainder of the softball season, but was symptomatically treated when pain and muscle spasm was present. As the season progressed, the athlete experienced pain that lasted for 2-3 days at a time. However, her playing status was minimally limited. Athlete stated a 3-year history of chronic low back pain between the segments of L2-S2.

Physical signs and symptoms

Upon examination, the athlete presented with minimal edema, no ecchymosis or obvious deformity, and palpable point tenderness over the levels of L3-S1. ROM was limited during flexion, extension, and rotation to both sides. Athlete had a positive spring test at L5/S1, pain with single leg stance with extension to both sides, pain with rotation to both sides, and pain when flexing at the waist to tie her shoes. Treatment included NSAID's, rest, massage, and electric stimulation. She was given a lumbar stabilization progression program in order to attempt to manage her low back pain. Athlete was seen by the team chiropractor and continued conservative and symptomatic treatment for remainder of season. Athlete reported limited improvement over the summer with extended rest and conservative treatment.

Differential Diagnosis

1.) Segmental instability, 2.) Facet joint dysfunction, 3.) Spondylolysis

Results of Diagnostic Imaging

Plain lateral radiograph revealed grade I spondylolisthesis at L5/S1.

Clinical Course

Rather than continue with the advanced independent lumbar stabilization program where the athlete performed all of the exercises on her own, she was instead given rhythmic stabilization proprioceptive neuromuscular facilitation (PNF) exercises to perform with the certified athletic trainer. She was first taught while in a hook-lying position, to find pelvic neutral and then slightly tilt her pelvis in a posterior direction (PPTP). The athlete performed the horizontal side support, isometric side-lying rotation, and isometric standing rotation exercises while maintaining the PPTP. The athlete performed the rehabilitation exercises for a total of 4 weeks. The treatment sessions were held 5 days a week for 2 consecutive weeks. After the first 2 weeks, the athlete reported her low back pain was diminished dramatically. During the first week, her range of motion improved during rotation movements but she was still limited during flexion and extension. After approximately 12 days of the manual therapy program, she no longer complained of pain or fatigue with long periods of sitting. She no longer had limited range of motion when bending over to tie her shoes. She also noted her back and abdominal region felt stronger and she felt more confident to play basketball more aggressively. Presently, she is participating in full practices and games with no complaints of back pain.

Deviation from the expected

This patient's case was unique because she experienced an accelerated relief of chronic back pain after initiating the PNF strengthening program. Strengthening of the multifidus and quadratus lumborum appeared to be critical for improving athletic function. This patient was able to return to sport without functional limitations. The techniques used in this case should be considered during the rehabilitation of an athlete with chronic low back pain due to spondylolisthesis.

