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Low Back Pain in the Aging Athlete

Eeric Truumees, MD

The term mature athlete carries different meanings in different contexts. For some, this term denotes a 35-year-old finishing a career in a professional team sport. For others, mature athlete refers to the 50-year-old "weekend warrior" playing golf. Finally, with increased participation among older citizens, this term can apply to active seniors in their seventies and beyond. This article concentrates on sports-related back pain seen in the second two groups.

Back pain is pervasive, but usually benign and self-limited. In older athletes, transient back problems occur in the context of nearly universal, radiographic evidence of lumbar degeneration. These radiographic findings, and the increased likelihood of "dangerous" conditions such as cord compression, osteoporosis, metastatic disease and atherosclerosis, complicate the clinical evaluation in this patient group.

The epidemiology of back pain and both known and suspected risk factors for back pain are examined. For example, the controversial relationship of sports participation in youth is addressed. The pathophysiology of back pain in this age group is related with a strategy for clinical and radiographic evaluation. For example, assessing mature athletes may require bone density or vascular testing. Finally, treatment and return-to-play issues are discussed. Standard recommendations of relative rest, graduated return to play, physical therapy and judicious use of anti-inflammatories apply in this age group. Interestingly, overall aerobic fitness and sport-specific technique should also be considered. For example, the mature golfer with low back pain may benefit more from swing mechanics instruction from a golf pro than from weeks of physical therapy.

KEYWORDS back pain, geriatrics, sports, spondylosis, return to play

Older adults are athletically more active than a generation ago. Low back pain (LBP) in the aging athlete refers to a wide range of patients presenting with a wide range of underlying disorders. In the medical literature, "older athlete" may to refer to individuals from 30 to 90 years old. "Athlete" can refer to anyone from weekend warriors to elite athletes on a senior professional tour. These athletes may exhibit typical sports injuries, but this group carries additional risk for other, specific problems as well. For example, acquired cervical stenosis confers a small, but real risk of central cord syndrome with hyperextension. Older athletes are more likely to have had previous surgery, peripheral arterial disease, and Paget's disease. As bone mass decreases, sacral insufficiency or vertebral compression fractures can manifest.

Most LBP in older athletes represents benign and self-limited mechanical dysfunction. However, "red flag" conditions, falsely attributed to sports, are more likely here than in younger athletes. Potentially, life-threatening intra-abdominal disease may manifest as back pain: posterior penetrating ulcers, pancreatitis, renal calculi, or abdominal aortic aneurysm. Older athletes may exhibit other "mimic" conditions, such as overlapping shoulder or hip disease.

These additional risks necessitate careful evaluation and decision making from the clinician. Return to activity is often more gradual. After injury, mature athletes more often return to sports at a lower participation level. In this article, relevant epidemiology, pathophysiology, evaluation, treatment, and return-to-play issues for the older athlete with LBP are discussed.

Epidemiology

The pervasiveness of LBP coupled with the near universality of radiographic degenerative changes renders the assessment of older athletes especially difficult (Table 1). Back pain is pervasive with 80% to 90% of adults reporting LBP episodes.[1,2] At least 2% to 5% have major pain episodes yearly.

Brackenridge University Hospital, and Seton Health System, Austin, TX.
Address reprint requests to Eeric Truumees, MD, Seton Spine and Scoliosis Center, 1600 W. 38th St, Suite 200, Austin, TX 78731. E-mail: etruumees@gmail.com

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Table 1 Differential Diagnosis of Low Back Pain in the Athlete

Diagnosis	Presentation
Low back strain	Belt-line or paravertebral pain with motion
Degenerative disc disease	Midline pain with sitting or loading
Lumbar transitional vertebra	Midline low back pain
Facet mediated pain	Midline and paramedian pain with extension
Spondylolisthesis	Mechanical midline and paramedian pain
Traumatic fracture	Midline pain at the level of injury
Disc herniation	Pain, numbness and weakness radiating into the leg
Lumbar spinal stenosis	Low back, buttock, and leg pain, improved with flexion
Cauda equina syndrome	Radicular symptoms with bowel and bladder dysfunction and saddle anesthesia
Spinal infection	Constant LBP with fevers, chills, night sweats, recent infection or dental procedure
Tumor	Night pain, fever, older age (>60), weight loss
Intra-abdominal or Intrapelvic processes	Boring non-mechanical pain, GI disturbance
Renal disease/stones	Colicky pain, GI disturbance
Hip pathology	Groin pain, pain with rotation or weight bearing
Sacro-iliac pathology	Buttock and posterior superior iliac spine area pain, pain with loading
Abdominal aortic aneurysm	Constant boring front to back pain

These episodes are often attributed to low-energy "trauma," such as a lifting or a sports injury.

Only a small percentage of these sports-related LBP episodes translate into true, radiographically evident trauma. Although the pars injuries seen in younger athletes do give way to vertebral compression fractures in older athletes, most typically, only degenerative changes are seen. The clinical importance of these degenerative changes is unclear as nearly everyone in this age group has radiographic degeneration. Although only 34% of 20- to 29-year-old patients have evidence on magnetic resonance imaging (MRI) of disk degeneration, these changes are seen in 93% of those 60 to 80 years of age.[3] Identification of a specific pain generator is rendered more difficult because radiographically abnormal structures may not cause symptoms.[2]

In cross-sectional studies, only 15% of LBP patients are given a specific diagnosis. In that the vast majority of LBP episodes are benign and self-limited, a "wait-and-see" attitude often is reasonable. Within the wide swath of the population that could be considered "mature athletes," the relative risk for different subgroups should be considered.[4,5] These subgroups can be stratified by sport and mechanism of loading, age and gender, or through clinical features, such as anatomic region involved or presence of radicular symptoms. Although radiographic changes worsen with age, the incidence of back pain increases to a peak at 60 years of age. Then, the incidence begins to wane.

In a cross-sectional survey of 34,902 Danish twins, aged 20-71 years, back pain was self-reported by area.[4] At least 30 days of pain in past year was reported in the low back in 12%, the neck in 10%, and in the midback in 4%. The pain was limited to 1 area in 20%, 2 areas in 13%, and all 3 areas in 8%. A subset of these patients reported radiating pain. Leg pain was the most common (22%), followed by arm and trunk symptoms in 16% and 5%, respectively.

Risk Factors

LBP is more likely in the mature female athlete. Not only are women more likely to report pain episodes, these episodes last longer and affect more areas (eg, neck and back). In women, the pain tends to be more functionally incapacitating. In one study, among those with severe back pain, women were 3 to 4 times more likely to have great difficulty with light housework, shopping, mobility tasks, and basic activities of daily living.[5,6] In one study in which the authors compared LBP with repetitive activity, women were at greater risk for LBP even though they were less often exposed to lifting and other "heavy" work.[7]

Although the relative risk conferred by age and gender is important, the relationship between the patient's symptoms and activities is of more interest to the clinician. Older athletes much more likely to injure themselves than younger athletes performing the same sport.[8] Twisting injuries more likely than falls to cause pain.[9] When older athletes experience pain, it tends to last longer. Even accounting for this increased likelihood of injury, older athletes are physically better off than age matched peers.

Other predictors for LBP in older athletes include previous surgeries, lifelong heavy work, lower functional levels, and greater body mass index.[9-11] For example, surgical menopause or inadequate rehabilitation after pelvic or abdominal surgery puts patients are greater risk for later LBP.[12] Back pain sufferers have less lumbar-extension strength and decreased range of motion. Increasing that strength, in one study through 20 sessions with a MedX lumbar extension machine, significantly decreased back pain.[13]

In cross-sectional studies, strength and fitness correlate not only with back pain but also with mood and depression. In a study of 1387 patients from 70 to 100 years of age, the relationship between LBP and physical performance, grip strength, cognitive function, and depressive symptomatology was prospectively assessed during a 2-year period.[11] Of initially LBP-free individuals, 7% experienced more than 30 days of LBP in the