The Aging Spine in Sports

Joanne Borg-Stein, MD*, Lauren Elson, MD, Erik Brand, MD, MSc

KEYWORDS

• Aging • Lumbar spine • Disc • Arthritis • Stenosis

KEY POINTS

- Masters athletes may experience low back pain from multiple sources. Masters athletes with discogenic back pain should avoid or modify sports with combined rotational and compressive forces; individuals with facet-mediated pain should avoid or modify sports with excessive extension and rotation.
- Optimization of flexibility, strength, endurance, and core control is critical. Sports-specific training, realistic goal setting, and counseling are of maximal importance.
- Overall, the health benefits of continued sports and athletic participation outweigh the potential risks of spinal degeneration in middle-aged athletes. There is little correlation between radiographic appearance of the spine and symptoms; therefore, symptoms should serve as the primary guide when determining activity modifications. Overall, masters athletes should be encouraged to remain active and fit to enhance their quality of life and reduce the risk of cardiovascular disease.

Team physicians and sports medicine physicians in general often treat active patients age 50 years and older. *Masters* is the term used to designate individuals or events that are based on age groups, generally older than 35 years and typically older than 50 years. The United States Senior Games begin at age 50. The Senior Olympics sponsors games in 50 states and involves 250,000 older adults in training, competition, and education.[1,2]

EPIDEMIOLOGY/ETIOLOGY OF LOW BACK PAIN AND THE MASTERS ATHLETE

Low back pain will affect approximately 65% of the US population during their lifetime, with 26% having low back pain at least 1 day in the last 3 months.[3,4] Muscle mass declines with age; approximately 1.25% per year after age 35 with accelerated decline after age 70. This is attributed to decreased cross-sectional area as well as sarcopenia, characterized by the replacement of muscle fibers with fat and fibrosis. Musculoskeletal reaction time, muscle endurance, tendon and cartilage structure,

Department of PM&R, Harvard Medical School, Spaulding Rehabilitation Hospital, 125 Nashua Street, Boston, MA 02114, USA
* Corresponding author.
E-mail address: jborgstein@partners.org

Clin Sports Med 31 (2012) 473–486
doi:10.1016/j.csm.2012.03.002 **sportsmed.theclinics.com**
0278-5919/12/$ – see front matter © 2012 Elsevier Inc. All rights reserved.

flexibility, and balance all decrease with aging and will effect the lumbar spine.[1] The aging spine itself is characterized by 2 parallel but independent processes: development of degenerative discogenic changes and bone mass reduction. The etiology of low back pain in the masters athlete includes degenerative disc disease with or without radiculopathy, lumbar facet osteoarthropathy, lumbar stenosis with neurogenic claudication, and osteoporosis complicated by compression fracture, deformity, and kyphosis. These topics will be covered in this review.

DEGENERATIVE DISC DISEASE IN THE MASTERS ATHLETE

Anatomy and Physiology

The lumbar disc is composed of a gel substance (nucleus pulposus) surrounded by outer collagen fibers, which are arranged in a crossed manner (annulus fibrosis). These discs are further supported by the anterior and posterior longitudinal ligaments. Together, the vertebral disc complex resists spinal compression. During axial rotation and flexion of the spine, the annular fibers are placed at a mechanical disadvantage. A common mechanism of lumbar disc herniation in athletes is combined flexion, rotation, and compression of the spine. Football, wrestling, hockey, dance, gymnastics, tennis, and golf are some of the sports in which this injury mechanism commonly occurs.[5]

Clinical Presentation

The clinical presentation of disc-related back pain is primarily divided into 3 subtypes: axial pain (back pain alone), radicular pain (leg pain alone), or axial and radicular pain. Axial discogenic low back pain often presents as severe episodes of acute pain, muscle spasm, and lost time from sport. The symptoms are exacerbated by prolonged sitting, standing, or axial loading. There are no neurologic deficits or referred pain. Athletes may also present with radicular pain without back pain. Pain is most often in the L5 or S1 distribution beginning in the buttock, thigh, or hip girdle with radiation into the lateral or posterior leg and foot. In the acute phase, the athlete may have a lumbar shift away from the side of radicular pain. This represents an involuntary reactive muscle spasm. In addition, neural tension signs, such as straight leg raising, cross straight leg raising, or slump test will reproduce leg pain. There may be associated motor or sensory deficits. Last, the athlete may have a combination of axial and radicular pain with an overlap in clinical presentation.[6]

Management

Management begins with a careful physical examination to confirm the diagnosis clinically and rule out other sources of back and leg pain, such as vascular, infectious, neoplastic, or hip. If the clinician has medical concerns in the presence of a “red flag” (fever, weight loss, history of cancer), then appropriate laboratory or radiographic evaluation is performed (refer to the article by Mautner and Huggins elsewhere in this issue). Initial management emphasizes[6–8] pain reduction with judicious use of nonsteroidal anti-inflammatory drugs or opiates and gabapentin considered for neuropathic pain and sleep. Physical therapy may include manual treatments and modalities with graded exercise and sports-specific training program. Lumbar epidural steroid injections are indicated for radicular pain that is not responding to the above measures.[9] In the case of intractable radicular pain or progressive neurologic deficit, lumbar discectomy is offered. Most younger athletes will return to sport on average 5 months after operation. No data are specifically available on masters athletes. Lumbar functional stabilization and rehabilitation will be critical[10] (refer to articles Donatelli and colleagues and d’Hemecourt and Luke elsewhere in this issue).

Download English Version:

https://daneshyari.com/en/article/4052073

Download Persian Version:

https://daneshyari.com/article/4052073

Daneshyari.com