

Natural history of the aging spine.

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Abstract

The unrelenting changes associated with aging progressively affects all structures of the spinal units. The degenerative process starts early during the first decade of life at the disc level. Discal degeneration is associated with biochemical changes followed by macroscopic alterations including tears and fissures, which may lead to discal herniation, the main cause of radiculopathy in the young adult. Moreover, nociceptive nerve fibers have been demonstrated in degenerated discs. They may be a source of nociception and of pure low-back pain. Facet joint changes are usually secondary to discal degeneration. They include subluxation, cartilage alteration and osteophytosis. Facet hypertrophy and laxity, associated with discal degeneration, and enlargement of the ligamentum flavum progressively create narrowing of the spinal canal as well as degenerative instabilities such as spondylolisthesis and scoliosis, which are the main causes of neurogenic claudication and radiculopathy in old persons. Vertebral bodies are the static elements of the spinal unit. With advancing age, osteoporosis weakens the bony structures and facilitates bone remodeling and rotatory deformities. Finally, aging of bone, discs, facets, ligaments, and muscles may ultimately lead to rotatory scoliosis, destabilization, and rupture of equilibrium.

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