

Intervertebral Disc

Disc Disease and facet osteoarthritis

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The functional spinal unit is comprised of the intervertebral disc, the adjacent vertebral bodies, and a pair of posterior spinal (facet) joints. Compromise of any one element of this complex will result in abnormal movement of the segment of the spine and a loss of the normal ability to efficiently support physical loads. The mechanical properties of the facet joints are significantly influenced by the mechanical behavior of the intervertebral disc. Spinal (facet) joint integrity helps protect the intervertebral disc from being exposed to abnormal stress.

Injury to the spine as well as advanced age results in degenerative disc changes and a loss of vertical height of the disc. The loss of disc volume contributes to a loss of the normal spinal joint spacing (facet interspace). This results in abnormal relationships between spinal joint surfaces and stretching of pain sensitive joint lining (joint capsule). This type of spinal degeneration is called rostrocaudal subluxation. The loss of vertical height of the disc reduces the size of the openings along the side of the spine (neuroforamen). The spinal nerves exit the spinal canal through these openings.

Studies have concluded that normal lumbar facet joints normally carry approximately 3% to 25% of the weight bearing load. When the spine is biomechanically compromised, as much as 47% to 50% of the weight bearing load on the spine is shifted to the spinal facet joints. This places abnormal pressure on the facet joints, accelerating the development of osteoarthritis.