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| **Histological Grading Scale(**[**1**](#_ENREF_1)**)** |
| **I. Cellularity of the anulus fibrosus**Grade:1. Fibroblasts comprise more than 75% of the cells2. Neither fibroblasts nor chondrocytes comprise more than 75% of thecells3. Chondrocytes comprise more than 75% of the cells**II. Morphology of the anulus fibrosus**Grade:1. Well-organized collagen lamellae without ruptured or serpentinefibers2. Inward bulging, ruptured or serpentine fibers in less than one third ofthe annulus3. Inward bulging, ruptured or serpentine fibers in more than one thirdof the annulus**III. Border between the anulus fibrosus and nucleus pulposus**Grade:1. Normal, without any interruption2. Minimal interruption3. Moderate or severe interruption**IV. Cellularity of the nucleus pulposus**Grade:1. Normal cellularity with stellar shaped nuclear cells evenly distributedthroughout the nucleus2. Slight decrease in the no. of cells with some clustering3. Moderate or severe decrease (\_50%) in the number of cells with allthe remaining cells clustered and separated by dense areas ofproteoglycans**V. Morphology of the nucleus pulposus**Grade:1. Round, comprising at least half of the disc area in midsagittalsections2. Rounded or irregularly shaped, comprising one quarter to half of thedisc area in midsagittal sections3. Irregularly shaped, comprising less than one quarter of the disc areain midsagittal sections |
| The scale is based on 5 categories of degenerative changes with scores ranging from 5 points (1 in each category) for a normal disc to 15 points (3 in each category) for a severely degenerated disc. |

Reference

1. Han B, Zhu K, Li FC, Xiao YX, Feng J, Shi ZL, Lin M, Wang J, Chen QX. A simple disc degeneration model induced by percutaneous needle puncture in the rat tail. Spine. 2008 Aug 15;33(18):1925-34. PubMed PMID: 18708924.