

**Table S1** Top 10 cocited articles of quantitative MRI for IDD in the WOSCC database

Rank	Author	Title	Journal	Year	Citations	Total link strength
1	Pfirrmann CWA	Magnetic resonance classification of lumbar intervertebral disc degeneration	<i>Spine</i>	2001	250	1712
2	Johannessen W	Assessment of human disc degeneration and proteoglycan content using T1rho-weighted magnetic resonance imaging	<i>Spine</i>	2006	68	751
3	Adams MA	What is intervertebral disc degeneration, and what causes it?	<i>Spine</i>	2006	63	547
4	Watanabe A	Classification of intervertebral disk degeneration with axial T2 mapping	<i>American Journal of Roentgenology</i>	2007	62	579
5	Bumenkrantz G	<i>In vivo</i> 3.0-tesla magnetic resonance T1rho and T2 relaxation mapping in subjects with intervertebral disc degeneration and clinical symptoms	<i>Magnetic Resonance in Medicine</i>	2010	60	663
6	Marinelli NL	T2 relaxation times of intervertebral disc tissue correlated with water content and proteoglycan content	<i>Spine</i>	2009	60	567
7	Antoniou J	The human lumbar intervertebral disc: evidence for changes in the biosynthesis and denaturation of the extracellular matrix with growth, maturation, ageing, and degeneration	<i>The Journal of Clinical Investigation</i>	1996	57	467
8	Perry J	The value of T2 relaxation times to characterize lumbar intervertebral disks: preliminary results	<i>American Journal of Neuroradiology</i>	2006	57	590
9	Antoniou J	Apparent diffusion coefficient of intervertebral discs related to matrix composition and integrity	<i>Magnetic Resonance Imaging</i>	2004	56	563
10	Kerttula L	Supraspinatus outlet view in the diagnosis of stages II and III impingement syndrome	<i>Acta Radiologica</i>	2001	53	560

WOSCC, Web of Science core collection; MRI, magnetic resonance imaging; IDD, intervertebral disc degeneration.

**Table S2** The keyword clustering of quantitative MRI in IDD

Cluster ID	Size	Sihouette	Year	Top terms
#0	46	0.832	2010	animal model; dgemric; rabbit; degeneration; annulus fibrosus
#1	39	0.821	2010	disability; cross sectional area; pathology; diffusion tensor MRI; magnetic resonance imaging
#2	36	0.867	2014	diffusion tensor imaging; fractional anisotropy; mean diffusivity; spinal cord;
#3	36	0.95	2006	classification; ankylosing spondylitis; manual therapy; nucleus pulposus; lumbar spinal stenosis
#4	34	0.892	2013	cerebrospinal fluid; disc herniation; cervical radiculopathy; cervical myelopathy; agreement
#5	30	0.832	2014	conservative treatment; surgery; 3.0 t; sciatica; epidural abscess
#6	29	0.893	2014	intervertebral disc degeneration; quantitative MRI; fatty infiltration; dual-tuned proton/sodium mr imaging; lumbar intervertebral disk degeneration
#7	28	0.891	2011	magnetic resonance imaging; t2 mapping; contrast media; gadolinium; vertebral body
#8	27	0.828	2011	chemical exchange saturation transfer; age related change; glycosaminoglycan; disc height index; field inhomogeneity correction
#9	26	0.888	2015	nucleus pulposus cell; intervertebral disc degeneration; subcutaneous fat; corticosteroid; adipose tissue

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**Table S3** Clinical studies in ClinicalTrials.gov

ClinicalTrials.gov identifier	Status	Title	Country	Study type	No. of patients	Conditions	Primary outcome measurement
NCT02815696	Recruiting	MRI analysis of glycosaminoglycan (GAG) modifications inside the intervertebral disk after distraction and posterior fusion	Belgium	Interventional	5	Lumbar spine instability	Gycosaminoglycan (GAG) concentration of the intervertebral disk
NCT04647279	Recruiting	New MRI sequences in spine and joint	China	Observational	300	Degeneration of spine and osteoarticular	New MRI sequences in the diagnosis of spine and joint
NCT01973257	Completed	Perfusion and diffusion mechanism of intervertebral disc-significance with age, degeneration, posture and stress loading	China	Interventional	50	Spinal cord injury, degenerative spinal disease.	Disc Perfusion

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