

Figure S1 Sagittal and trans-axial MRI image. (A) Yellow lines show the levels evaluated in this study. (B) The MF, ES, and the intervertebral disc at the same spinal level were delineated on the transverse axial images. MRI, magnetic resonance imaging; L2/3, the L2–L3 intervertebral disc; MF, multifidus muscle; ES, erector spinae.

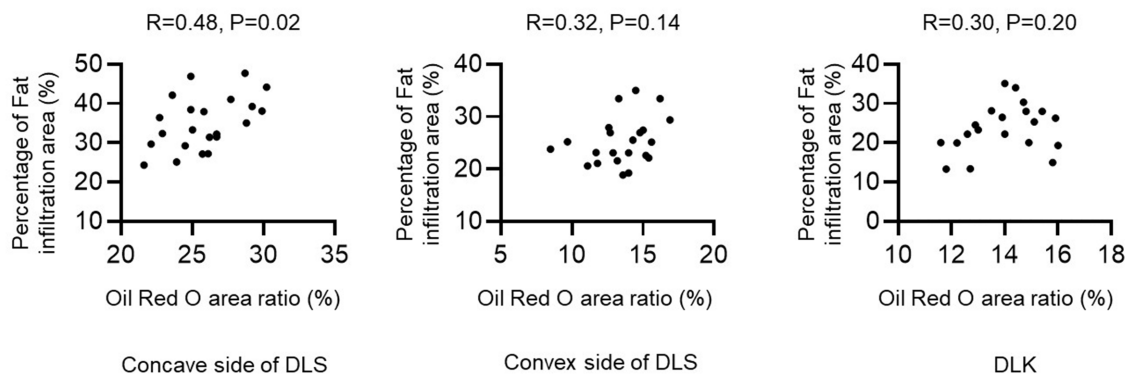


Figure S2 Correlation between histological and radiological findings. DLK, degenerative lumbar kyphosis; DLS, degenerative lumbar scoliosis.

Table S1 The intra- and inter-observer ICC for radiological, histological, and functional measurements

Parameters	Intra-rater coefficient	Inter-rater coefficient
Radiographic parameters		
Cobb angle	0.82	0.91
Regional kyphosis	0.92	0.95
Sacral slope	0.95	0.91
Pelvic tilt	0.93	0.94
Pelvic incidence	0.87	0.93
Lumbar lordosis	0.91	0.89
Thoracic kyphosis	0.88	0.92
Sagittal vertical axis	0.94	0.91
MRI parameters		
rCSA	0.94	0.97
%FIA	0.93	0.91
Functional parameters		
MVE	0.94	0.92
ET	0.91	0.95
Histological parameters		
Oil Red O	0.94	0.92
Sirius Red	0.93	0.95

ICC, intraclass correlation coefficient; MRI, magnetic resonance imaging; rCSA, relative cross-sectional area; %FIA, percentage of fat infiltration area; MVE, maximal voluntary exertion; ET, endurance time.

Table S2 Post hoc statistical power analysis of the primary histological outcomes

Outcome	sample size (n)	α level	Power
Oil Red O staining	82	0.05	>0.99
Sirius Red staining	79	0.05	>0.99