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Supplementary File

Detection of Degenerative Changes on MR Images of the Lumbar Spine with a Convolutional Neural Network: A Feasibility Study

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Citation: Lehnen, N.C.; Haase, R.; Faber, J.; Rüber, T.; Vatter, H.; Radbruch, A.; Schmeel, F.C. Detection of Degenerative Changes on MR Images of the Lumbar Spine with a Convolutional Neural Network: A Feasibility Study. *Diagnostics* **2021**, *11*, 902. https://doi.org/10.3390/diagnostics11050902

Academic Editor: Thomas Baum; Nico Sollmann

Received: 28 April 2021
Accepted: 17 May 2021
Published: 19 May 2021

Table S1. CNN diagnostic performance at 1.5T. TP: True positive; TN: True negative; FP: False positive; FN: False negative; PPV: Positive predictive value; NPV: Negative predictive value.

Characteristic	Herniation	Extrusion	Stenosis	Bulging	Nerve Root Compression	Spondylolisthesis
n	57 (8.8%)	33 (5.1%)	27 (4.2%)	91 (14.0%)	43 (5.7%)	14 (2.2%)
TP	44	29	20	49	28	12
TN	514	523	616	444	654	560
FP	77	92	5	113	59	74
FN	13	4	7	42	15	2
Sensitivity	77.19%	87.88%	74.07%	53.85%	65.12%	85.71%
Specificity	86.97%	85.04%	99.20%	79.71%	91.73%	88.33%
Accuracy	86.11%	85.19%	98.15%	76.08%	90.21%	88.27%
PPV	36.36%	23.97%	80.00%	30.25%	32.18%	13.95%
NPV	97.53%	99.24%	98.88%	91.36%	97.76%	99.64%
p	< 0.001	< 0.001	0.77	< 0.001	< 0.001	< 0.05

Table S2. CNN diagnostic performance at 3T.

Characteristic	Herniation	Extrusion	Stenosis	Bulging	Nerve Root Compression	Spondylolisthesis
n	20 (8.3%)	13 (5.4%)	8 (3.3%)	42 (17.5%)	16 (5.7%)	6 (2.5%)
TP	14	12	7	20	14	4
TN	199	204	228	158	242	202
FP	21	92	4	40	22	32
FN	6	4	1	22	2	2
Sensitivity	70.00%	92.31%	87.50%	47.62%	87.50%	66.67%
Specificity	90.46%	89.87%	98.28%	79.80%	91.67%	86.32%
Accuracy	88.75%	90.00%	97.92%	74.17%	91.43%	85.83%
PPV	40.00%	34.29%	63.64%	33.33%	38.89%	11.11%
NPV	97.07	99.51%	99.56%	87.78%	99.18%	99.02%
p	< 0.05	< 0.05	0.37	< 0.05	< 0.001	< 0.05