

Comparing lumbar computed tomography Hounsfield units and magnetic resonance imaging vertebral bone quality scores for diagnosing osteoporosis and osteopenia in degenerative spinal populations: a systematic review and diagnostic meta-analysis

ELECTRONIC SUPPLEMENTARY MATERIAL

Supplementary Table 1: QUADAS-2 results

Risk of Bias		Applicability concerns					
Author	Patient selection	Index test	Reference standard	Flow and timing	Patient selection	Index test	Reference standard
Aynaszyan 2022	L	L	L	H	L	L	L
Berger-Groch 2020	L	L	L	L	L	L	L
Buckens 2015	H	L	L	L	U	L	L
Chang 2025	L	U	L	L	L	L	L
Chen 2023	L	U	L	L	L	L	L
Da Zoue 2018	L	U	L	L	L	L	L
Ehresman J 2020	L	L	L	H	L	L	L
Emir 2025	H	L	L	H	L	L	L
Fluss 2024	L	U	L	U	L	L	L
Fujimoto 2024	L	L	L	L	L	L	L
Haffer 2022	L	L	L	H	L	L	L
Hiyama 2025	L	U	L	U	L	L	L
Hiyama 2024	L	L	L	L	L	L	L

Huang 2023	L	L	L	H	L	L	L
Hu 2025	H	L	L	L	L	L	L
Kadri 2022	L	U	L	H	L	L	L
Kim 2019	L	L	L	L	L	L	L
Kim 2023	L	U	L	H	L	L	L
Li 2018	H	U	L	L	L	L	L
Li 2023	L	L	L	L	L	L	L
Li 2024	H	L	L	L	H	L	L
Lin 2023	H	U	L	L	L	L	L
Liu 2023	H	H	L	L	L	L	L
Najafi 2024	H	L	L	L	L	L	L
Ozmen 2023	L	L	L	H	L	L	L
Ozturk 2024	H	U	L	L	L	L	L
Pickhardt 2013	L	L	L	L	L	L	L
Pu 2024	L	L	L	L	L	L	L
Pu 2023	L	L	L	L	L	L	L
Pu 2023	H	H	L	L	L	L	L
Roch 2023	L	H	L	H	L	L	L
Salzmann 2022	L	U	L	H	L	L	L

Wang 2020	L	U	L	L	L	L	L
Wang 2022	L	H	L	L	L	L	L
Wang 2025	H	L	L	L	L	L	L
Xu 2023	L	L	L	L	L	L	L
Xue 2024	H	L	L	L	L	L	L
Yang 2022	L	U	L	L	L	L	L
Yin 2023	L	L	L	L	L	L	L
Yurac 2025	L	U	L	L	L	L	L
Zheng 2024	H	L	L	L	H	L	L
Zeng 2025	L	U	L	L	L	L	L

Supplementary Table 2

HU studies			
Author	Measurement	Tube voltage (kVp)	Slice thickness (mm)
Berger-Groch 2020	Axial at L4	Not reported	3
Buckens 2015	Axial at L1	Not reported	Not reported
Chang 2025	3 axial slices from L1-4	120	0,63
Chen 2023	Axial L1	Not Reported	Not reported
Da Zoue 2018	Axial L1	120	Not reported
Fluss 2024	Midsagittal L1-4	Not reported	0,625
Fujimoto 2024	Volumetric L1	120	1.0–1.25
Hendrickson 2018	Axial L1-4	120	1,25
Hiyama 2025	Axial L1-4	120	Not reported
Hiyama 2024	3 axial slices from L1-4	120	3
Huang 2023	Sagittal L1-4	Not reported	Not reported
Kim 2019	Mid-axial at L1-3	120	3
Li 2018	Sagittal L1-5 average	120	Not reported
Li 2023	Mid-axial at L1-4	Not reported	Not reported
Ozturk 2024	Axial L1-4	Not reported	Not reported
Pickhardt 2013	Axial L1	Not reported	Not reported
Pu 2024	Axial T12-L2	Not reported	Not reported
Pu 2023	Axial L1	120	1,25
Wang 2020	Mid sagittal L1/ T10-L3	120	5
Wang 2025	3 axial slices from L1-4	Not reported	Not reported
Xu 2023	Mid-axial at L1-4	120	1,25
Xue 2024	Axial at T12	Not reported	Not reported
Yang 2022	Axial L1-4	120	2,5

Yurac 2025	Axial L1	Not reported	0.75–2.0
Zeng 2025	Axial L1	120	1,5
VBQ studies			
Author	Measurement/normalisation	Sequence	
Aynaszyan 2022	L1-4/L3 CSF	T1	
Chen 2023	L1-4/L3 CSF	T1	
Ehresman J 2020	L1-4/L3 CSF	T1	
Emir 2025	L1/L3 CSF	T1	
Haffer 2022	L1-4/L3 CSF	T1	
Huang 2023	L1-4/L3 CSF/S1	T1	
Hu 2025	L1-4/L3 CSF	T1	
Kadri 2022	L1-4/L3 CSF	T1	
Kim 2023	L1-4/L3 CSF	T1	
Li 2024	L1-4/L3 CSF	T1	
Lin 2023	L1-4/L1-3 CSF	T1	
Liu 2023	L1-4/L3 CSF	T1	
Najafi 2024	L1-4/L3 CSF	T1	
Ozmen 2023	L1-4/L3 CSF	T1	
Pu 2023	L1-4/L3 CSF	T1	
Roch 2023	L1-4/L3 CSF	T1	
Salzmann 2022	L1-4/L3 CSF	T1	
Wang 2022	L1-4/L1-3 CSF	T1	
Wang 2025	L1-4/L3 CSF	T1	
Xu 2023	L1-4/L1-3 CSF	T1	
Xue 2024	L1-4/L3 CSF	T1	
Yin 2023	L1-4/L1-3 CSF	T1	
Zheng 2024	L1-4/L3 CSF	T1	