

This is the supplementary information of “**Comparative Image Quality of Deep Learning Reconstruction Against Conventional Reconstruction for T2-weighted Prostate Imaging: A Systematic Review and Meta-Analysis**”.

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Table S1. MeSH terms

| | |
|---------------------------|--|
| #1 Population | "Prostate"[Mesh] OR "Prostatic Neoplasms"[Mesh] |
| #2 Imaging Technique | "Magnetic Resonance Imaging"[Mesh] OR "Multiparametric Magnetic Resonance Imaging"[Mesh] OR "Diagnostic Imaging"[Mesh] |
| #3 Deep Learning/AI | "Deep Learning"[Mesh] OR "Artificial Intelligence"[Mesh] OR "Image Processing, Computer-Assisted"[Mesh] OR "Image Enhancement"[Mesh] |
| #5 Reconstruction Methods | N/A |

Table S2. tiab terms

| | |
|---------------------------|--|
| #1 Population | "prostate neoplasm"[tiab] OR "prostatic neoplasm"[tiab] OR "prostate cancer"[tiab] OR "prostate tumor"[tiab] OR "prostatic carcinoma"[tiab] |
| #2 Imaging Technique | "T2-weighted MRI"[tiab] OR "MRI"[tiab] OR "T2-weighted TSE sequence"[tiab] OR "T2 weighted turbo-spin-echo"[tiab] OR "TSE"[tiab] OR "accelerated imaging"[tiab] OR "T2WI"[tiab] OR "T2 imaging"[tiab] OR "high-resolution MRI"[tiab] |
| #3 Deep Learning/AI | "machine learning"[tiab] OR "deep learning"[tiab] OR "AI"[tiab] OR "neural network"[tiab] |
| #4 Reconstruction Methods | "DL Recon"[tiab] OR "DLR"[tiab] OR "DL reconstruction"[tiab] OR "image reconstruction"[tiab] OR "reconstructed image"[tiab] OR "reconstructed MRI"[tiab] OR "deep-learning-based reconstruction"[tiab] OR "standard reconstruction"[tiab] OR "accelerated reconstruction"[tiab] OR "high-resolution reconstruction"[tiab] OR "image reconstruction pipeline"[tiab] OR "reconstruction framework"[tiab] |

Table S3. Search strategy used for Pubmed/Medline, Scopus, Embase, and Web of Science (Date: 6.9.2025).

| Search | Query | Results |
|------------------------|---|-----------|
| Pubmed/Medline: | | |
| #1 | "Prostate"[Mesh] OR "Prostatic Neoplasms"[Mesh] OR "prostate neoplasm"[tiab] OR "prostatic neoplasm"[tiab] OR "prostate cancer"[tiab] OR "prostate tumor"[tiab] OR "prostatic carcinoma"[tiab] | 224,443 |
| #2 | "Magnetic Resonance Imaging"[Mesh] OR "Multiparametric Magnetic Resonance Imaging"[Mesh] OR "Diagnostic Imaging"[Mesh] OR "T2-weighted MRI"[tiab] OR "MRI"[tiab] OR "T2-weighted TSE sequence"[tiab] OR "T2 weighted turbo-spin-echo"[tiab] OR "TSE"[tiab] OR "accelerated imaging"[tiab] OR "T2WI"[tiab] OR "T2 imaging"[tiab] OR "high-resolution MRI"[tiab] | 3,178,936 |
| #3 | "Deep Learning"[Mesh] OR "Artificial Intelligence"[Mesh] OR "Image Processing, Computer-Assisted"[Mesh] OR "Image Enhancement"[Mesh] OR "machine learning"[tiab] OR "deep learning"[tiab] OR "AI"[tiab] OR "neural network"[tiab] | 1,218,365 |
| #4 | "DL Recon"[tiab] OR "DLR"[tiab] OR "DL reconstruction"[tiab] OR "image reconstruction"[tiab] OR "reconstructed image"[tiab] OR "reconstructed MRI"[tiab] OR "deep-learning-based reconstruction"[tiab] OR "standard reconstruction"[tiab] OR "accelerated reconstruction"[tiab] OR "high-resolution reconstruction"[tiab] OR "image reconstruction pipeline"[tiab] OR "reconstruction framework"[tiab] | 15,004 |
| #5 | #1 AND #2 AND #3 AND #4 | 86 |
| Scopus: | | |
| #1 | ((TITLE-ABS-KEY (prostate) OR TITLE-ABS-KEY (prostatic AND neoplasms) OR TITLE-ABS-KEY (prostate AND neoplasm) OR TITLE-ABS-KEY (prostatic AND neoplasm) OR TITLE-ABS-KEY (prostate AND cancer) OR TITLE-ABS-KEY (prostate AND tumor) OR TITLE-ABS-KEY (prostatic AND carcinoma))) AND ((TITLE-ABS-KEY (magnetic AND resonance AND imaging) OR TITLE-ABS-KEY (multiparametric AND magnetic AND resonance AND imaging) OR TITLE-ABS-KEY (diagnostic AND imaging) OR TITLE-ABS-KEY (t2-weighted AND mri) OR TITLE-ABS-KEY (mri) OR TITLE-ABS-KEY (t2-weighted AND tse AND sequence) OR TITLE-ABS-KEY (t2 AND weighted AND turbo-spin-echo) OR TITLE-ABS-KEY (tse) OR TITLE-ABS-KEY (| 514 |

| Search | Query | Results |
|--------|--|---------|
| | <p>accelerated AND imaging) OR TITLE-ABS-KEY (t2wi) OR TITLE-ABS-KEY (t2 AND imaging) OR TITLE-ABS-KEY (high-resolution AND mri)) AND ((TITLE-ABS-KEY (deep AND learning) OR TITLE-ABS-KEY (artificial AND intelligence) OR TITLE-ABS-KEY (image AND processing, AND computer-assisted) OR TITLE-ABS-KEY (image AND enhancement) OR TITLE-ABS-KEY (machine AND learning) OR TITLE-ABS-KEY (deep AND learning) OR TITLE-ABS-KEY (ai) OR TITLE-ABS-KEY (neural AND network))) AND ((TITLE-ABS-KEY (dl AND recon) OR TITLE-ABS-KEY (dlr) OR TITLE-ABS-KEY (dl AND reconstruction) OR TITLE-ABS-KEY (image AND reconstruction) OR TITLE-ABS-KEY (reconstructed AND image) OR TITLE-ABS-KEY (reconstructed AND mri) OR TITLE-ABS-KEY (deep-learning-based AND reconstruction) OR TITLE-ABS-KEY (standard AND reconstruction) OR TITLE-ABS-KEY (accelerated AND reconstruction) OR TITLE-ABS-KEY (high-resolution AND reconstruction) OR TITLE-ABS-KEY (image AND reconstruction AND pipeline) OR TITLE-ABS-KEY (reconstruction AND framework)))</p> | |

Embase:

| | | |
|----|---|-----|
| #1 | <p>('prostate'/exp OR 'prostate' OR 'prostate gland' OR 'prostatic gland' OR 'prostate tumor'/exp OR 'neoplasia of the prostate' OR 'neoplasm of the prostate' OR 'neoplastic prostate' OR 'neoplastic prostates' OR 'neoplastic prostatic' OR 'prostate gland tumor' OR 'prostate gland tumour' OR 'prostate neoplasia' OR 'prostate neoplasm' OR 'prostate tumor' OR 'prostate tumorigenesis' OR 'prostate tumour' OR 'prostatic neoplasia' OR 'prostatic neoplasm' OR 'prostatic neoplasms' OR 'prostatic tumor' OR 'prostatic tumorigenesis' OR 'prostatic tumour' OR 'tumor of the prostate' OR 'tumorigenesis of the prostate' OR 'tumour of the prostate' OR 'prostate carcinoma'/exp OR 'carcinoma of the prostate' OR 'carcinoma of the prostate gland' OR 'carcinoma of the prostatic gland' OR 'carcinoma, prostate' OR 'carcinomatous prostate' OR 'carcinomatous prostatic' OR 'prostate carcinoma' OR 'prostate gland carcinoma' OR 'prostatic carcinoma' OR 'prostatic carcinomatosis') AND ('nuclear magnetic resonance imaging'/exp OR 'nmr imaging' OR 'imaging, magnetization transfer' OR 'magnetic resonance tomography' OR 'magnetization transfer imaging' OR 'mr imaging' OR 'nuclear magnetic resonance imaging' OR 'multiparametric magnetic resonance imaging'/exp OR 'mpmri' OR 'multi parametric mri' OR 'multi parametric magnetic resonance imaging' OR 'multiparametric mri' OR 'multiparametric magnetic resonance imaging' OR 'diagnostic imaging'/exp OR 'diagnostic imaging' OR 'imaging, diagnostic' OR 'imaging, medical' OR 'medical imaging' OR 'ophthalmo diaphanoscopy' OR 't2 weighted imaging' OR 't2 weighted imaging (t2wi)' OR 't2-wi mri' OR 't2-weighted (t2-wi)' OR 't2-weighted (t2-wi) mri' OR 't2-weighted (t2-wi) magnetic resonance imaging (mri)' OR 't2-weighted mri' OR 't2-weighted magnetic resonance imaging' OR 't2-weighted magnetic resonance imaging (mri)' OR 't2wi mri' OR 'mri' OR 'magnetic resonance imaging' OR 't2-weighted tse sequence' OR 't2 weighted turbo spin echo'/exp OR 'tse' OR 'accelerated imaging' OR 't2 weighted imaging'/exp OR 't2 imaging' OR 'high-resolution mri') AND ('deep learning'/exp OR 'deep ml' OR 'deep learning' OR 'deep machine learning' OR 'hierarchical learning' OR 'artificial intelligence'/exp OR 'artificial intelligence' OR 'machine intelligence' OR 'image processing'/exp OR 'computer-assisted image processing' OR 'image processing' OR 'image processing, computer-assisted' OR 'processing, image' OR 'image enhancement'/exp OR 'enhancement, image' OR 'image enhancement' OR 'radiographic image enhancement' OR 'machine learning'/exp OR 'learning machine' OR 'learning machines' OR 'machine learning' OR 'artificial neural network'/exp OR 'ann (artificial neural network)' OR 'ann analysis' OR 'ann approach' OR 'ann method' OR 'ann methodology' OR 'ann methods' OR 'ann model' OR 'ann modeling' OR 'ann modelling' OR 'ann models' OR 'ann output' OR 'ann technique' OR</p> | 200 |
|----|---|-----|

| Search | Query | Results |
|--------|---|---------|
| | 'ann techniques' OR 'ann training' OR 'anns (artificial neural networks)' OR 'algorithmic neural network' OR 'artificial nn' OR 'artificial nns' OR 'artificial neural network' OR 'artificial neural networks' OR 'computational neural network' OR 'computer neural network' OR 'computer neural networks' OR 'computerized neural network' OR 'connectionist model' OR 'connectionist network' OR 'connectionist neural network' OR 'connectionist system' OR 'mathematical neural network' OR 'neural network (artificial)' OR 'neural network (computer)' OR 'neural network algorithm' OR 'neural network model' OR 'neural networks (computer)' OR 'neural networks, computer') AND ('dl recon' OR 'dlr' OR 'dl reconstruction' OR 'image reconstruction/exp OR 'image reconstruction' OR 'image restoration' OR 'reconstructed image' OR 'reconstructed mri' OR 'deep-learning-based reconstruction' OR 'standard reconstruction' OR 'accelerated reconstruction' OR 'high-resolution reconstruction' OR 'image reconstruction pipeline' OR 'reconstruction framework') | |

Web of Science*:

| | | |
|----|--|-----------|
| #1 | ((((((TS=(Prostate)) OR TS=(Prostatic Neoplasms)) OR TS=(prostate neoplasm)) OR TS=(prostatic neoplasm)) OR TS=(prostate cancer)) OR TS=(prostate tumor)) OR TS=(prostatic carcinoma) | 685,170 |
| #2 | ((((((((((TS=(Magnetic Resonance Imaging)) OR TS=(Multiparametric Magnetic Resonance Imaging)) OR TS=(Diagnostic Imaging)) OR TS=(T2-weighted MRI)) OR TS=(MRI)) OR TS=(T2-weighted TSE sequence)) OR TS=(T2 weighted turbo-spin-echo)) OR TS=(TSE)) OR TS=(accelerated imaging)) OR TS=(T2WI)) OR TS=(T2 imaging)) OR TS=(high-resolution MRI) | 3,698,615 |
| #3 | (((((((TS=(Deep Learning)) OR TS=(Artificial Intelligence)) OR TS=(Image Processing, Computer-Assisted)) OR TS=(Image Enhancement)) OR TS=(machine learning)) OR TS=(deep learning)) OR TS=(AI)) OR TS=(neural network) | 3,616,472 |
| #4 | (((((((((((TS=(DL Recon)) OR TS=(DLR)) OR TS=(DL reconstruction)) OR TS=(image reconstruction)) OR TS=(reconstructed image)) OR TS=(reconstructed MRI)) OR TS=(deep-learning-based reconstruction)) OR TS=(standard reconstruction)) OR TS=(accelerated reconstruction)) OR TS=(high-resolution reconstruction)) OR TS=(image reconstruction pipeline)) OR TS=(reconstruction framework) | 570,861 |
| #5 | #1 AND #2 AND #3 AND #4 | 955 |



Figure S1. Pooled QUADAS risk-of-bias chart



Figure S2. Study-level QUADAS chart

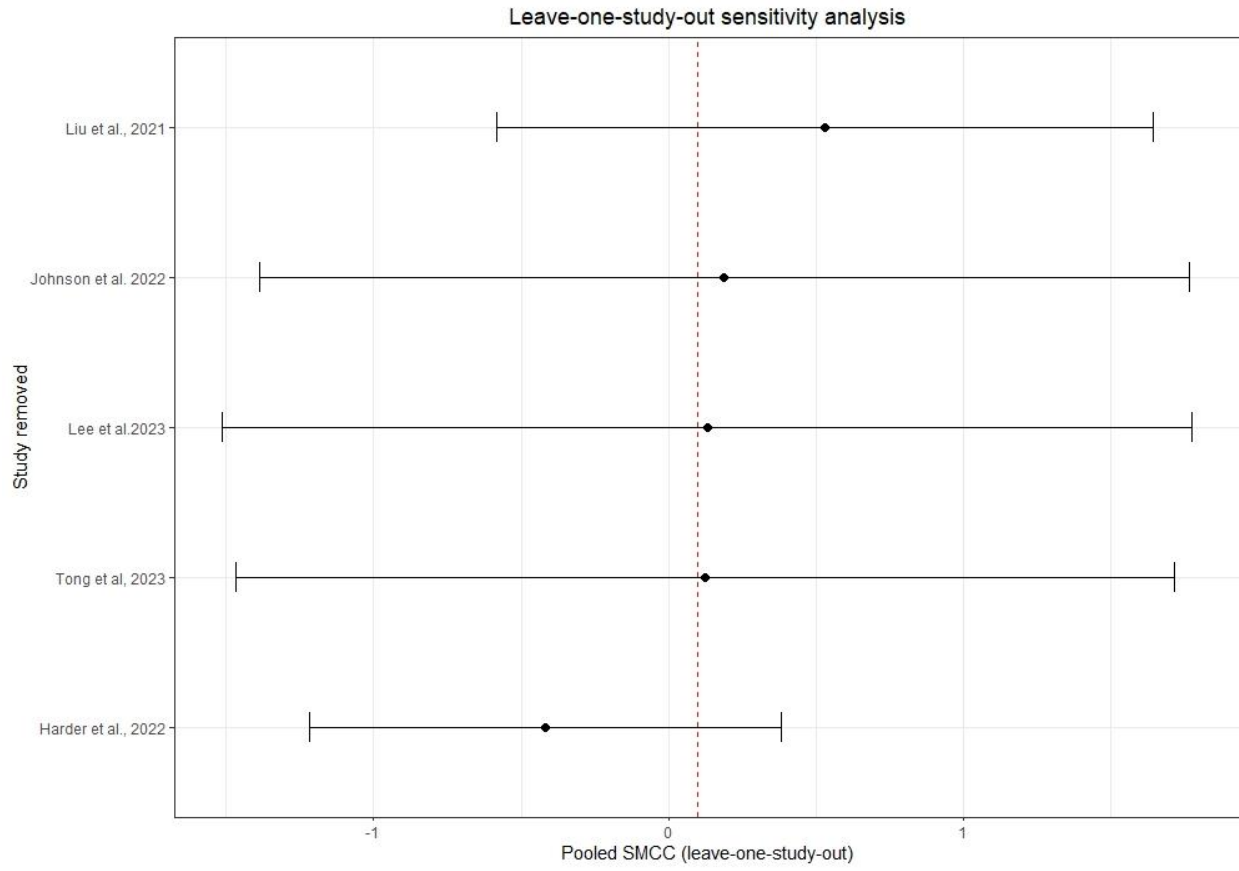


Figure S2. Leave-One-Out Analysis