Supplementary Material

## Table 1. List of excluded papers with reasons.

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| **Article** | **Reason for exclusion** |
| Tovar-Bazaga M, Pérez-Cuesta Llaneras M, Badia A. Reconstruction of delayed distal biceps ruptures with a dermal matrix. Hand Surg Rehabil. 2023 Jun;42(3):243-249. doi: 10.1016/j.hansur.2023.03.004. Epub 2023 Mar 31. PMID: 37004984. | Clinical study |
| Castells-Sala C, Pérez ML, López-Chicón P, Lopez-Puerto L, Martinez JIR, Ruiz-Ponsell L, Aiti A, Madariaga SE, Sastre S, Fariñas O, Vilarrodona A. Development of a full-thickness acellular dermal graft from human skin: Case report of first patient rotator cuff patch augmentation repair. Transpl Immunol. 2023 Jun;78:101825. doi: 10.1016/j.trim.2023.101825. Epub 2023 Mar 18. PMID: 36934900. | No preclinical models |
| Lee S, Koh KH, Shin SJ. Superior Capsule Reconstruction Using an Acellular Dermal Matrix Allograft Combined With Remnant Tendon Augmentation for Irreparable Rotator Cuff Tear. Arthrosc Tech. 2023 Jan 31;12(2):e241-e246. doi: 10.1016/j.eats.2022.10.013. PMID: 36879872; PMCID: PMC9984778. | Technical note |
| Mihata T. Editorial Commentary: Superior Capsule Reconstruction: Acellular Allograft at 45° of Glenohumeral Abduction Improves Glenohumeral Stability, but Fascia Lata Autograft Remains Superior. Arthroscopy. 2023 Apr;39(4):931-934. doi: 10.1016/j.arthro.2022.12.020. PMID: 36872033. | Editorial commentary |
| Jackson GR, Tuthill T, Schundler SF, Condon JJ, Salazar LM, Nwiloh M, Kaplan DJ, Brusalis CM, Khan ZA, Knapik DM, Chahla J, Cole BJ, Verma NN. Acellular Dermal Allograft and Tensor Fascia Lata Autograft Show Similar Patient Outcome Improvement and High Rates of Complications and Failures at a Minimum 2-Year Follow-Up: A Systematic Review. Arthroscopy. 2023 May;39(5):1310-1319.e2. doi: 10.1016/j.arthro.2023.01.003. Epub 2023 Jan 16. PMID: 36657648. | Review |
| Suri M, Parry S, Dham M, Verma A. Arthroscopic Biologic Tuberoplasty for Irreparable Rotator Cuff Tears: An Expedited Technique. Arthrosc Tech. 2022 Nov 17;11(12):e2265-e2270. doi: 10.1016/j.eats.2022.08.035. PMID: 36632403; PMCID: PMC9827058. | Technical note |
| Perry NPJ, Farina EM, Wang C, Price MD, Mazzocca AD. Editorial Commentary: Fascia Lata Allograft for Shoulder Superior Capsular Reconstruction: In the Fight Over Optimal Graft Choice for Irreparable Rotator Cuff Tears, Superior Capsular Reconstruction Proponents May Be Changing Their Gloves. Arthroscopy. 2023 Jan;39(1):29-31. doi: 10.1016/j.arthro.2022.09.019. PMID: 36543419. | Editorial commentary |
| Morgan CN, Bonner KF, Griffin JW. Augmentation of Arthroscopic Rotator Cuff Repair: Biologics and Grafts. Clin Sports Med. 2023 Jan;42(1):95-107. doi: 10.1016/j.csm.2022.08.010. PMID: 36375873. | Review |
| Altintas B, Storaci HW, Lacheta L, Dornan GJ, Krob JJ, Aman ZS, Anderson N, Rosenberg SI, Millett PJ. Superior Capsule Reconstruction Using Acellular Dermal Allograft Secured at 45° of Glenohumeral Abduction Improves the Superior Stability of the Glenohumeral Joint in Irreparable Massive Posterosuperior Rotator Cuff Tears. Arthroscopy. 2023 Apr;39(4):922-930. doi: 10.1016/j.arthro.2022.10.037. Epub 2022 Nov 4. PMID: 36343768. | Cadaveric study (No preclinical models)  |
| Bai L, Han Q, Meng Z, Chen B, Qu X, Xu M, Su Y, Qiu Z, Xue Y, He J, Zhang J, Yin Z. Bioprinted living tissue constructs with layer-specific, growth factor-loaded microspheres for improved enthesis healing of a rotator cuff. Acta Biomater. 2022 Dec;154:275-289. doi: 10.1016/j.actbio.2022.10.058. Epub 2022 Nov 1. Erratum in: Acta Biomater. 2023 Mar 15;159:423. PMID: 36328126. | No decellularized patches |
| Ankem HK. Editorial Commentary: Allogenic Dermal Fibroblasts in Collagen Matrix Scaffold Enhance Rotator Cuff Repair in an Animal Model. Arthroscopy. 2022 Jul;38(7):2129-2130. doi: 10.1016/j.arthro.2022.01.030. PMID: 35809975. | Editorial commentary |
| O'Neil S, Marvil S, Lakehomer H, Tipton CC, Dobrich J, Gilmer BB, Guttmann D. Modified Technique for Arthroscopic Bursal Acromial Reconstruction Utilizing Acellular Dermal Allograft. Arthrosc Tech. 2022 Feb 13;11(3):e301-e306. doi: 10.1016/j.eats.2021.10.022. PMID: 35256967; PMCID: PMC8897560. | Technical note |
| Tauro TM, Wagner KR, DeFroda SF, Muth S, Bodendorfer BM, Verma NN, Cole BJ. Technical Note: Arthroscopic Rotator Cuff Repair with Patch Augmentation with Acellular Dermal Allograft. Arthrosc Tech. 2022 Jan 6;11(2):e121-e125. doi: 10.1016/j.eats.2021.09.011. PMID: 35155102; PMCID: PMC8820992. | Technical note |
| Scardina L, DI Leone A, Sanchez AM, D'Archi S, Biondi E, Franco A, Mason EJ, Magno S, Terribile D, Barone-Adesi L, Visconti G, Salgarello M, Masetti R, Franceschini G. Nipple sparing mastectomy with prepectoral immediate prosthetic reconstruction without acellular dermal matrices: a single center experience. Minerva Surg. 2021 Dec;76(6):498-505. doi: 10.23736/S2724-5691.21.08998-X. PMID: 34935320. | No rotator cuff |
| Forlizzi JM, Sylvia SM, Pettit RJ, Saini SS, MacAskill M, Ross G, Shah SS. Surgical Technique for Superior Capsule Reconstruction With 6-mm Acellular Dermal Allograft and Knotless Glenoid Anchors. Arthrosc Tech. 2021 Jun 19;10(7):e1821-e1827. doi: 10.1016/j.eats.2021.04.001. PMID: 34336581; PMCID: PMC8322625. | Technical note |
| Berthold DP, Ravenscroft M, Bell R, Obopilwe E, Cote MP, Kane Z, Morgan BW, Mühlenfeld N, Mazzocca AD, Muench LN. Bursal Acromial Reconstruction (BAR) Using an Acellular Dermal Allograft for Massive, Irreparable Posterosuperior Rotator Cuff Tears: A Dynamic Biomechanical Investigation. Arthroscopy. 2022 Feb;38(2):297-306.e2. doi: 10.1016/j.arthro.2021.07.021. Epub 2021 Jul 28. PMID: 34329702. | Cadaveric study (no preclinical models) |
| Tomarchio A, Meccariello L, Ghargozloo D, Pasquino A, Leonardi E. Relapses of traumatic peroneal tendons subluxation already treated surgically: a new surgical approach. Med Glas (Zenica). 2021 Aug 1;18(2):487-492. doi: 10.17392/1354-21. PMID: 34308618. | Clinical study |
| Condron NB, Kester BS, Tokish JM, Zumstein MA, Gobezie R, Scheibel M, Cole BJ. Nonoperative and Operative Soft-Tissue, Cartilage, and Bony Regeneration and Orthopaedic Biologics of the Shoulder: An Orthoregeneration Network (ON) Foundation Review. Arthroscopy. 2021 Oct;37(10):3200-3218. doi: 10.1016/j.arthro.2021.06.033. Epub 2021 Jul 20. PMID: 34293441. | Review |
| Ezagüi Bentolila L. Surgical Technique for Arthroscopic Rotator Cuff Augmentation With Human Acellular Dermal Matrix. Arthrosc Tech. 2021 Mar 8;10(4):e1025-e1032. doi: 10.1016/j.eats.2020.12.002. PMID: 33981546; PMCID: PMC8085310. | Technical note |
| Haque A, Modi A. Interposition grafting for irreparable rotator cuff tears: Systematic review and specialist practice report. J Clin Orthop Trauma. 2021 Mar 13;17:218-222. doi: 10.1016/j.jcot.2021.02.022. PMID: 33868918; PMCID: PMC8047223. | Review |
| Lee SJ, Rabinovich RV, Kim A. Proximal Row Carpectomy Using Decellularized Dermal Allograft: Preliminary Results. J Wrist Surg. 2021 Apr;10(2):116-122. doi: 10.1055/s-0040-1718912. Epub 2020 Oct 29. PMID: 33815946; PMCID: PMC8012091. | No rotator cuff |
| Ravenscroft M, Barnes MW, Muench LN, Mazzocca AD, Berthold DP. Bursal Acromial Reconstruction (BAR) Using an Acellular Dermal Allograft as a Surgical Solution for the Treatment of Massive Irreparable Rotator Cuff Tears. Arthrosc Tech. 2021 Feb 22;10(3):e877-e885. doi: 10.1016/j.eats.2020.11.002. PMID: 33738228; PMCID: PMC7953327. | Technical note |
| Lee JS, Park E, Lee JH, Lee J, Park HY, Yang JD, Jung TD. A prospective comparison study of early functional outcomes after implant-based breast reconstruction: subpectoral versus prepectoral technique. Ann Palliat Med. 2021 Mar;10(3):2520-2529. doi: 10.21037/apm-20-1550. Epub 2021 Feb 26. PMID: 33691448. | No rotator cuff |
| Mirzayan R, Otarodifard KA, Singh A. Arthroscopic Superior Capsule Reconstruction with a Doubled-Over (6 mm) Dermal Allograft. Arthrosc Tech. 2021 Jan 21;10(2):e525-e530. doi: 10.1016/j.eats.2020.10.035. PMID: 33680787; PMCID: PMC7917301. | Technical note |
| Franceschini G, Scardina L, Di Leone A, Terribile DA, Sanchez AM, Magno S, D'Archi S, Franco A, Mason EJ, Carnassale B, Murando F, Orlandi A, Barone Adesi L, Visconti G, Salgarello M, Masetti R. Immediate Prosthetic Breast Reconstruction after Nipple-Sparing Mastectomy: Traditional Subpectoral Technique versus Direct-to-Implant Prepectoral Reconstruction without Acellular Dermal Matrix. J Pers Med. 2021 Feb 22;11(2):153. doi: 10.3390/jpm11020153. PMID: 33671712; PMCID: PMC7926428. | No rotator cuff |
| Shi Q, Chen C, Li M, Chen Y, Xu Y, Hu J, Liu J, Lu H. Characterization of the distributions of collagen and PGs content in the decellularized book-shaped enthesis scaffolds by SR-FTIR. BMC Musculoskelet Disord. 2021 Mar 1;22(1):235. doi: 10.1186/s12891-021-04106-x. PMID: 33648475; PMCID: PMC7923620. | No preclinical model |
| Smith TJ, Gowd AK, Kunkel J, Kaplin L, Hubbard JB, Coates KE, Graves BR, Waterman BR. Clinical Outcomes of Superior Capsular Reconstruction for Massive, Irreparable Rotator Cuff Tears: A Systematic Review Comparing Acellular Dermal Allograft and Autograft Fascia Lata. Arthrosc Sports Med Rehabil. 2020 Dec 27;3(1):e257-e268. doi: 10.1016/j.asmr.2020.09.002. PMID: 33615273; PMCID: PMC7879184. | Review |
| Chen W, Sun Y, Gu X, Cai J, Liu X, Zhang X, Chen J, Hao Y, Chen S. Conditioned medium of human bone marrow-derived stem cells promotes tendon-bone healing of the rotator cuff in a rat model. Biomaterials. 2021 Apr;271:120714. doi: 10.1016/j.biomaterials.2021.120714. Epub 2021 Feb 11. PMID: 33610048. | No decellularized patches |
| Wattoo G, Nayak S, Khan S, Morgan J, Hocking H, MacInnes E, Kolar KM, Rogers C, Olubowale O, Rigby K, Kazzazi NH, Wyld L. Long-term outcomes of latissimus dorsi flap breast reconstructions: A single-centre observational cohort study with up to 12 years of follow up. J Plast Reconstr Aesthet Surg. 2021 Sep;74(9):2202-2209. doi: 10.1016/j.bjps.2020.12.058. Epub 2020 Dec 26. PMID: 33451948. | No rotator cuff |
| Shah SS, Kontaxis A, Jahandar A, Bachner E, Gulotta LV, Dines DM, Warren RF, Dines JS, Taylor SA. Superior capsule reconstruction using a single 6-mm-thick acellular dermal allograft for massive rotator cuff tears: a biomechanical cadaveric comparison to fascia lata allograft. J Shoulder Elbow Surg. 2021 Sep;30(9):2166-2176. doi: 10.1016/j.jse.2020.11.015. Epub 2021 Jan 5. PMID: 33418091. | *In vitro* study |
| Shi Q, Chen Y, Li M, Zhang T, Ding S, Xu Y, Hu J, Chen C, Lu H. Designing a novel vacuum aspiration system to decellularize large-size enthesis with preservation of physicochemical and biological properties. Ann Transl Med. 2020 Nov;8(21):1364. doi: 10.21037/atm-20-3661. PMID: 33313109; PMCID: PMC7723548. | No rotator cuff |
| Hirahara AM, Andersen WJ, Dooney T. Arthroscopic Knotless Rotator Cuff Repair With Decellularized Dermal Allograft Augmentation: The "Canopy" Technique. Arthrosc Tech. 2020 Oct 21;9(11):e1797-e1803. doi: 10.1016/j.eats.2020.08.003. PMID: 33294343; PMCID: PMC7695626. | Technical note |
| Chae S, Sun Y, Choi YJ, Ha DH, Jeon I, Cho DW. 3D cell-printing of tendon-bone interface using tissue-derived extracellular matrix bioinks for chronic rotator cuff repair. Biofabrication. 2021 Apr 2;13(3). doi: 10.1088/1758-5090/abd159. PMID: 33285539. | No decellularized patches |
| Gao I, Sochacki KR, Freehill MT, Sherman SL, Abrams GD. Superior Capsular Reconstruction: A Systematic Review of Surgical Techniques and Clinical Outcomes. Arthroscopy. 2021 Feb;37(2):720-746. doi: 10.1016/j.arthro.2020.09.016. Epub 2020 Nov 20. PMID: 33227320. | Review |
| Dyrna F, Berthold DP, Muench LN, Beitzel K, Kia C, Obopilwe E, Pauzenberger L, Adams CR, Cote MP, Scheiderer B, Mazzocca AD. Graft Tensioning in Superior Capsular Reconstruction Improves Glenohumeral Joint Kinematics in Massive Irreparable Rotator Cuff Tears: A Biomechanical Study of the Influence of Superior Capsular Reconstruction on Dynamic Shoulder Abduction. Orthop J Sports Med. 2020 Oct 6;8(10):2325967120957424. doi: 10.1177/2325967120957424. PMID: 33088839; PMCID: PMC7543188. | Cadaveric study (no preclinical models) |
| Wang Z, Long Z, Amadio PC, Gingery A, Moran SL, Steinmann SP, Zhao C. Biomechanical Comparison of Augmentation of Engineered Tendon-Fibrocartilage-Bone Composite With Acellular Dermal Graft Using Double Rip-Stop Technique for Canine Rotator Cuff Repair. Orthop J Sports Med. 2020 Sep 2;8(9):2325967120939001. doi: 10.1177/2325967120939001. PMID: 32953920; PMCID: PMC7476351. | No preclinical models |
| Chalmers PN, Tashjian RZ. Patch Augmentation in Rotator Cuff Repair. Curr Rev Musculoskelet Med. 2020 Oct;13(5):561-571. doi: 10.1007/s12178-020-09658-4. PMID: 32720101; PMCID: PMC7474721. | Review |
| Prokuski V, Strohl A. Soft Tissue Coverage for Severe Infections. Hand Clin. 2020 Aug;36(3):369-379. doi: 10.1016/j.hcl.2020.03.011. PMID: 32586464. | Review |
| Stone AV, Luo TD, Sharma A, Danelson KA, De Gregorio M, Freehill MT. Optimizing the Double-Row Construct: An Untied Medial Row Demonstrates Equivalent Mean Contact Pressures in a Rotator Cuff Model. Orthop J Sports Med. 2020 Apr 27;8(4):2325967120914932. doi: 10.1177/2325967120914932. PMID: 32426405; PMCID: PMC7218996. | No preclinical models |
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| Lee TQ. Editorial Commentary: Biomechanical Investigation of Superior Capsule Reconstruction Requires Meticulous Methods. Arthroscopy. 2020 Feb;36(2):365-366. doi: 10.1016/j.arthro.2019.10.037. PMID: 32014170. | Editorial commentary |
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| Adams CR, Comer B, Scheiderer B, Imhoff FB, Morikawa D, Kia C, Muench LN, Baldino JB, Mazzocca AD. The Effect of Glenohumeral Fixation Angle on Deltoid Function During Superior Capsule Reconstruction: A Biomechanical Investigation. Arthroscopy. 2020 Feb;36(2):400-408. doi: 10.1016/j.arthro.2019.09.011. Epub 2020 Jan 2. PMID: 31902546. | Cadaveric study (no preclinical models) |
| Pascual-Garrido C, Schwabe MT, Chahla J, Haneda M. Surgical Treatment of Gluteus Medius Tears Augmented With Allograft Human Dermis. Arthrosc Tech. 2019 Oct 25;8(11):e1379-e1387. doi: 10.1016/j.eats.2019.07.014. PMID: 31890511; PMCID: PMC6926308. | No rotator cuff |
| Mirzayan R, Andelman SM, Sethi PM, Baldino JB, Comer BJ, Obopilwe E, Morikawa D, Otto A, Mehl J, Murphy M, Mazzocca AD. Acellular dermal matrix augmentation significantly increases ultimate load to failure of pectoralis major tendon repair: a biomechanical study. J Shoulder Elbow Surg. 2020 Apr;29(4):728-735. doi: 10.1016/j.jse.2019.09.020. Epub 2019 Dec 16. PMID: 31859037. | Cadaveric study (no preclinical models) |
| Scheiderer B, Kia C, Obopilwe E, Johnson JD, Cote MP, Imhoff FB, Dyrna F, Beitzel K, Imhoff AB, Adams CR, Mazzocca AD, Morikawa D. Biomechanical Effect of Superior Capsule Reconstruction Using a 3-mm and 6-mm Thick Acellular Dermal Allograft in a Dynamic Shoulder Model. Arthroscopy. 2020 Feb;36(2):355-364. doi: 10.1016/j.arthro.2019.08.026. Epub 2019 Nov 29. PMID: 31791890. | Cadaveric study (no preclinical models) |
| Curtis DM, Lee CS, Qin C, Edgington J, Parekh A, Miller J, Tokish JM, Amirouche F, Athiviraham A. Superior Capsule Reconstruction With Subacromial Allograft Spacer: Biomechanical Cadaveric Study of Subacromial Contact Pressure and Superior Humeral Head Translation. Arthroscopy. 2020 Mar;36(3):680-686. doi: 10.1016/j.arthro.2019.09.047. Epub 2019 Nov 29. PMID: 31791889. | Cadaveric study (no preclinical models) |
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| Li L, He WT, Qin BG, Liu XL, Yang JT, Gu LQ. Comparison between direct repair and human acellular nerve allografting during contralateral C7 transfer to the upper trunk for restoration of shoulder abduction and elbow flexion. Neural Regen Res. 2019 Dec;14(12):2132-2140. doi: 10.4103/1673-5374.262600. PMID: 31397352; PMCID: PMC6788224. | No rotator cuff |
| Mihata T. Editorial Commentary: Superior Capsule Reconstruction: Grafts for Superior Capsular Reconstruction Must Be Thick and Stiff. Arthroscopy. 2019 Aug;35(8):2535-2536. doi: 10.1016/j.arthro.2019.04.019. PMID: 31395197. | Editorial commentary |
| Zastrow RK, London DA, Parsons BO, Cagle PJ. Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears: A Systematic Review. Arthroscopy. 2019 Aug;35(8):2525-2534.e1. doi: 10.1016/j.arthro.2019.02.053. PMID: 31395196. | Review |
| Li L, Yang J, Qin B, Wang H, Yang Y, Fang J, Chen G, Liu X, Tu Z, Gu L. Analysis of human acellular nerve allograft combined with contralateral C7 nerve root transfer for restoration of shoulder abduction and elbow flexion in brachial plexus injury: a mean 4-year follow-up. J Neurosurg. 2019 Apr 26;132(6):1914-1924. doi: 10.3171/2019.2.JNS182620. PMID: 31026835. | No rotator cuff |
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| Narvani AA. Regarding "Arthroscopic Superior Capsular Reconstruction With Acellular Dermal Allograft for the Treatment of Massive Irreparable Rotator Cuff Tears". Arthroscopy. 2019 Jan;35(1):10-11. doi: 10.1016/j.arthro.2018.09.002. PMID: 30611334. | Letter to editor |
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| Liu Q, Yu Y, Reisdorf RL, Qi J, Lu CK, Berglund LJ, Amadio PC, Moran SL, Steinmann SP, An KN, Gingery A, Zhao C. Engineered tendon-fibrocartilage-bone composite and bone marrow-derived mesenchymal stem cell sheet augmentation promotes rotator cuff healing in a non-weight-bearing canine model. Biomaterials. 2019 Feb;192:189-198. doi: 10.1016/j.biomaterials.2018.10.037. Epub 2018 Oct 29. PMID: 30453215. | No decellularized patches |
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| Distal Biceps Repair With Acellular Dermal Graft Augmentation, Operative Techniques in Sports Medicine, Volume 26, Issue 2, 2018, Pages 130-135, ISSN 1060-1872,* https://doi.org/10.1053/j.otsm.2018.02.013.
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**Table 2.** Raw data of SYRCLE’s risk of bias

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y**: Yes (Low risk of bias). -**U**: (Unclear). -**N:** (High risk of bias). |  |  |  |  |  |  |  |  |
|  | **ITEMS** |
|  | **Sequence generation** | **Baseline characteristics**  | **Allocation concealment** | **Random housing** | **Blinding** **(Performance)** | **Random outcome assessment** | **Blinding****(Detection)** | **Incomplete outcome data** | **Selective outcome reporting** | **Other sources of bias** |
| Thangarajah 2018 | **N** | **U** | **N** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** |
| Shim 2022 | **N** | **Y** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** | **Y** |
| Chen 2020 | **N** | **Y** | **N** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** |
| Ide 2018 | **N** | **Y** | **N** | **N** | **N** | **N** | **Y** | **U** | **Y** | **Y** |
| De Lima Santos 2020 | **N** | **Y** | **N** | **N** | **N** | **N** | **U** | **Y** | **Y** | **Y** |
| De Lima Santos 2021 | **N** | **U** | **N** | **N** | **U** | **N** | **N** | **Y** | **Y** | **Y** |
| He 2021 | **N** | **Y** | **Y** | **N** | **N** | **N** | **N** | **U** | **Y** | **Y** |
| Yildiz 2018 | **N** | **U** | **N** | **N** | **N** | **N** | **Y** | **U** | **Y** | **Y** |
| Yuan 2022 | **N** | **Y** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** | **Y** |
| Yuan 2022 | **N** | **U** | **N** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** |
| Credille 2023 | **N** | **Y** | **N** | **N** | **N** | **N** | **U** | **Y** | **Y** | **U** |
| Smith 2020 | **N** | **Y** | **N** | **N** | **N** | **N** | **Y** | **Y** | **Y** | **U** |
| Chen 2022 | **N** | **Y** | **N** | **N** | **N** | **U** | **U** | **Y** | **Y** | **Y** |