



Launched in 2005, the Eclipse stemless shoulder prosthesis offers unique fixation that consists of a compressive cage screw placed through a trunnion for full cortical support. As the longest-running prosthesis available in the marketplace, the Eclipse stemless shoulder has a rich clinical history.

Romeo AA,
Erickson BJ,
Costouros J,
et al

To access detailed study information, click on the journal title.

Clinical Articles

[Eclipse stemless shoulder prosthesis versus Univers™ II shoulder prosthesis: a multicenter, prospective randomized controlled trial \[published online July 21, 2020\]. *J Shoulder Elbow Surg.* 2020;S1058-2746\(20\)30568-1. doi:10.1016/j.jse.2020.07.004](#)

- FDA-regulated IDE study that provides 2-year clinical and radiographic outcomes for Eclipse TSA
- Eclipse TSA showed no radiolucency, loosening or or need for implant-related revisions
- Improved Composite Clinical Success Score (CCS: functional, radiographs, complications, reoperation, and revisions) of 95.5% compared to 89.7% for Univers II prosthesis
- 4% bailout rate compared to a stemmed prosthesis due to bone quality

Takeaway: Eclipse TSA improved clinical outcomes without loosening, osteolysis, radiolucency, or implant-related revisions. Bone quality was sufficient in 96% of cases.

Magosch P,
Lichtenberg S,
Habermeyer P

[Survival of stemless humeral head replacement in anatomic shoulder arthroplasty. A prospective study \[published online October 31, 2020\]. *J Shoulder Elbow Surg.* 2020;S1058-2746\(20\)30830-2. doi.org/10.1016/j.jse.2020.09.034](#)

- Prospective study examining clinical and radiographic outcomes of the Eclipse implant for TSA and hemiarthroplasty at a mean 11-year follow-up.
- Eclipse TSA showed no loosening, osteolysis, or need for implant-related revisions
- Improved clinical outcomes from preoperative pain and function scores
- 5- and 10-year survivorship >96%

Takeaway: Long-term Eclipse TSA and hemiarthroplasty survivorship demonstrates improved clinical outcomes without loosening, osteolysis, or need for implant-related revisions at a mean follow-up of 11 years.

Alikhah A,
Imiolczyk JP,
Krukenberg A,
Scheibel M

[Screw fixation in stemless shoulder arthroplasty for the treatment of primary osteoarthritis leads to less osteolysis when compared to impaction fixation](#) [published correction appears in *BMC Musculoskelet Disord.* 2020 Jun 6;21(1):355]. *BMC Musculoskelet Disord.* 2020;21(1):295. doi:10.1186/s12891-020-03277-3

- Retrospective study examining clinical and radiographic outcomes of the Eclipse™ TSA and the Zimmer Sidus® TSA (Zimmer Biomet) procedures at a minimum of 2 years follow-up
- Eclipse TSA follow-up mean was 42.2 months; Sidus TSA follow-up mean was 30.3 months
- Eclipse TSA showed no radiographic signs of loosening or osteolysis or need for implant-related revision
- 33% Sidus TSA medial calcar osteolysis, 0% loosening, or implant-related revision
- No significant difference in clinical outcomes between Eclipse TSA and Sidus TSA

Takeaway: Eclipse TSA screw fixation prevents medial calcar osteolysis compared to Sidus impaction-type stemless TSA.

Habermeyer P,
Lichtenberg S,
Magosch P

[9-13 year results of stemless humeral head replacement. A prospective study.](#) *JSES Open Access.* 2019;3(4):P234. doi:10.1016/j.jses.2019.10.013

- 9- to 13-year clinical and radiographic outcomes of 87 Eclipse™ TSA and hemiarthroplasty procedures at a mean of 128 months
- Eclipse TSA showed no loosening, stress-shielding, or need for implant-related revisions; 7.9% had radiolucent lines that did not affect clinical outcomes
- Significant improvement in Constant Score (pain, function, ROM, and strength)

Takeaway: Eclipse TSA improved clinical outcomes without loosening or implant-related revision at a mean follow-up of 10+ years.

Moursy M,
Niks M,
Kadavkolan A,
Lehmann L

[Do the radiological changes seen at mid term follow up of stemless shoulder prosthesis affect outcome?](#) *BMC Musculoskelet Disord.* 2019;20(1):490. doi:10.1186/s12891-019-2870-z

- 6-year clinical and radiographic outcomes of 23 Eclipse TSA procedures
- Eclipse TSA implants reproduced offset, version, head angle, neck length, retroversion, and head diameter
- Eclipse TSA showed no TSA implant loosening or implant-related revisions
- Radiographic changes did not affect clinical outcomes
- Significant improvement in Constant Score and ROM (flexion, extension, and external rotation) compared to preoperative scores

Takeaway: This independent study demonstrated Eclipse TSA provides improved clinical outcomes without loosening.

Gallacher S,
Williams HLM,
King A,
Kitson J,
Smith CD,
Thomas WJ

[Clinical and radiologic outcomes following total shoulder arthroplasty using Arthrex Eclipse stemless humeral component with minimum 2 years' follow-up.](#) *J Shoulder Elbow Surg.* 2018;27(12):2191-2197. doi:10.1016/j.jse.2018.05.039

- 2-year clinical and radiographic outcomes of 100 Eclipse™ TSA procedures
- Eclipse TSA showed no loosening or need for implant-related revision
- Significant improvement in Oxford Shoulder Score and Range of Motion (elevation and external rotation)

Takeaway: This independent study demonstrated Eclipse TSA provides improved clinical outcomes and without loosening.

Heuberer PR,
Brandl G,
Pauzenberger L,
Laky B,
Kriegleder B,
Anderl W

[Radiological changes do not influence clinical mid-term outcome in stemless humeral head replacements with hollow screw fixation: a prospective radiological and clinical evaluation.](#) *BMC Musculoskelet Disord.* 2018;19(1):28. doi:10.1186/s12891-018-1945-6

- Prospective study examining clinical and radiologic outcomes of 73 Eclipse™ TSA procedures at mean follow-up of 58 months
- Significantly shorter operative time for Eclipse procedures compared to stemmed procedures (stemless HSA [73.2 min] vs stemless TSA [95.1 min]; stemmed HSA [95.7 min] vs stemmed TSA [120.7 min])
- Eclipse TSA showed no implant loosening or need for implant-related revisions
- Radiologic changes did not affect clinical outcomes
- Clinical outcomes for TSA were significantly better than hemiarthroplasty

Takeaway: Eclipse TSA improved clinical outcomes with significantly shorter operative time compared to stemmed procedures without implant-related revisions.

Hawi N,
Magosch P,
Tauber M,
Lichtenberg S,
Habermeyer P

[Nine-year outcome after anatomic stemless shoulder prosthesis: clinical and radiologic results.](#) *J Shoulder Elbow Surg.* 2017;26(9):1609-1615. doi:10.1016/j.jse.2017.02.017

- Prospective study examining clinical and radiologic outcomes of 43 Eclipse TSA procedures at a mean follow-up of 9 years
- Eclipse TSA showed no need for implant-related revisions
- 1 /43 implants demonstrated radiolucency with no effect on clinical outcomes
- Significant improvement in Constant Murley Score and ROM (flexion, abduction, and external rotation) compared to preoperative scores

Takeaway: This study demonstrated long-term Eclipse TSA survivability with improved clinical outcomes without radiologic complications or need for implant-related revision.

Uschok S,
Magosch P,
Moe M,
Lichtenberg S,
Habermeyer P

[Is the stemless humeral head replacement clinically and radiographically a secure equivalent to standard stem humeral head replacement in the long-term follow-up? A prospective randomized trial.](#) *J Shoulder Elbow Surg.* 2017;26(2):225-232. doi:10.1016/j.jse.2016.09.001

- Prospective study examining clinical and radiographic outcomes of Eclipse™ TSA procedures and 4th-generation stemmed procedures at follow-up of 2 and 5 years
- Eclipse TSA showed no loosening or need for implant-related revisions
- Significantly fewer radiolucent lines in Eclipse TSA compared to stemmed procedures
- Radiographic changes did not affect clinical outcomes
- No significant difference in clinical outcomes (Constant Score, ROM) between stemless and stemmed procedures

Takeaway: Eclipse TSA improved clinical outcomes without loosening or implant-related revision and with significantly less radiographic changes compared to stemmed procedures.

Habermeyer P,
Lichtenberg S,
Tauber M,
Magosch P

[Midterm results of stemless shoulder arthroplasty: a prospective study.](#) *J Shoulder Elbow Surg.* 2015;24(9):1463-1472. doi:10.1016/j.jse.2015.02.023

- Prospective study examining clinical and radiographic outcomes of 78 Eclipse™ TSA procedures at a mean follow-up of 6 years
- Eclipse TSA showed no loosening or need for implant-related revisions
- Significant improvement in Constant Score and ROM (flexion, abduction, and external rotation) compared to preoperative scores

Takeaway: This study demonstrated midterm Eclipse TSA survivability and improved clinical outcomes without radiologic complications or need for implant-related revisions.

Kellinghaus J,
Jamali Narisi Y,
Schneider T

International Articles

Design, biomechanics and medium-term results of a stem-free shoulder arthroplasty. The Eclipse prosthesis Design, biomechanics and medium-term results of a stem-free shoulder arthroplasty: The Eclipse-prosthesis. Prothesendesign, biomechanik und mittelfristige ergebnisse einer schaftfreien schulterprothese. die Eclipse-prothese. *OUP*. 2013;10:478-484. doi:10.3238/oup.2013.0478-0484

- Retrospective study examining the clinical and radiographic outcomes of 41 Eclipse™ hemiarthroplasty procedures with a mean follow-up of 19.4 months
- Eclipse TSA showed no loosening or need for implant-related revision
- 85% of patients experienced zero to mild pain and zero to mild limitation in activities of daily living
- Significant improvements in ROM (abduction, flexion, and external rotation)

Takeaway: This study demonstrated short-term Eclipse hemiarthroplasty survivability with improved clinical outcomes without radiologic complications or need for implant-related revision.

Magosch P,
Habermeyer P,
Bachmaier S,
Metcalfe N

Biomechanics of metaphyseal fixed humeral head replacement. Biomechanische Grundlagen des metaphysar verankereten humeruskopfersatzes. *Obere Extremität*. 2012;7:11-16. doi:10.1007/s11678-011-0150-0

- Biomechanical finite element analysis of the Eclipse implant
- Minimal migration (0.2 mm) and stress distribution mimicked normal bone when the trunnion was placed at the inferomedial edge of the humerus, supported by cortical bone

Takeaway: The combination of epiphyseal cortical support of the trunnion and metaphyseal cage-screw fixation led to minimal movement in bone-like foam blocks and resulted in load distribution similar to normal bone, theoretically mitigating implant-related bone adaptations.

Brunner UH,
Fruth M,
Rückl K,
et al

The stemless Eclipse prosthesis – indications and mid-term results. A prospective multicenter study. Die schaftfreie Eclipse-Prosthese – Indikation und mittelfristige ergebnisse eine prospective multicenterstudie. *Ober Extremität*. 2012;7:22-28. doi:10.1007/s11678-011-0152-y

- Prospective study examining clinical and radiologic outcomes of 233 Eclipse™ TSA procedures with a mean follow-up of 2 years
- 92.2% Eclipse implants showed no evidence of loosening; 7.2% showed radiolucency without clinical impact; 1/233 (0.4%) demonstrated osteolysis around the Eclipse implant with revision
- Significant improvement in Constant Murley Scores (pain and function) and ROM (abduction, flexion, and external rotation)

Takeaway: This study demonstrated short-term Eclipse TSA survivability with improved clinical outcomes and less than 0.4% implant-related revision for loosening.

Churchill RS

Other Stemless aTSA Articles

Comparison of intraoperative bone quality and bone quantity with 2-year radiographic results of the Simpliciti stemless total shoulder arthroplasty system. *J Shoulder Elbow Surg.* 2020;29(4):E166-E167. doi:10.1016/j.jse.2020.01.052

- Retrospective study examining radiographic outcomes of 53 Simpliciti™ procedures (Wright) at 2-year follow-up
- 49% of patients demonstrated proximal humerus medial calcar resorption to the collar of the implant
- Calcar resorption occurred more commonly in males who initially had better bone quality

Takeaway: Bone adaptive changes occur in approximately 50% of patients with the Simpliciti shoulder at 2-year follow-up. This is more than any study on the Eclipse™ TSA implant.

Churchill RS,
Chuinard C,
Wiater JM,
et al

Clinical and radiographic outcomes of the Simpliciti canal-sparing shoulder arthroplasty system: a prospective two-year multicenter study. *J Bone Joint Surg Am.* 2016;98(7):552-560. doi:10.2106/JBJS.15.00181

- FDA-regulated IDE study of 2-year clinical and radiographic outcomes for the Simpliciti shoulder (Wright)
- Significantly improved Constant, SST, ASES, and ROM (elevation and external rotation) outcomes
- 0% loosening, migration, and subsidence
- Clinical success rate of 89%
 - Simpliciti shoulder clinical success rate = 87%
 - Eclipse™ implant clinical success rate = 95.5%
 - Univers™ II implant clinical success rate = 89.7%

Takeaway: No implant-related revisions or loosening at 2 years. Clinical Success Score was lower than the Eclipse implant and equivalent to the Univers II implant.

Athwal GS,
Krupp RJ,
Carlson G,
Bicknell RT

A multicenter, prospective 2-year analysis of the Sidus stem-free shoulder arthroplasty system. *JSES Int.* 2019;4(1):120-126. doi:10.1016/j.jses.2019.10.005

- FDA-regulated IDE study of 2-year clinical and radiographic outcomes for the Sidus® shoulder (Zimmer Biomet)
- Significantly improved ASES pain/instability/ROM/overall, WOOS, SF-12 (physical, mental health), and ROM (elevation and external rotation) outcomes
- 0% loosening, migration, and subsidence
- 1 implant-related revision (humeral head/metaphyseal anchor disengaged)
 - 2 other implant revisions prior to 2-year visit were not included in study
 - 2 subjects did not meet radiographic success criteria and were not included
- Clinical success rate of 87%
 - Sidus shoulder clinical success rate = 89%
 - Eclipse implant clinical success rate = 95.5%
 - Univers II implant clinical success rate = 89.7%

Takeaway: No implant-related revisions or loosening at 2 years. Clinical Success Score was lower than the Eclipse implant and equivalent to the Univers II implant.