

ISSUE 09

ShARC BITE

GLENOID VERSION IN REVERSE TSA

Released October 2025



Mission Statement

The Shoulder Arthroplasty Research Committee (ShARC) is a forward-looking global collaboration among research-focused surgeons of which the primary goal is to advance patient care. The ShARC Patient Registry is utilized to conduct patient monitoring, inform evidence-based implant design, and allow for the integration of novel technologies into clinical practice. Supported by Arthrex, the ShARC will continue to have tremendous influence on the advancement of shoulder arthroplasty through innovative research and a commitment to improve patient outcomes.

ShARC Bites are developed through registry data analysis and processing of the committee's preferences, cross-referenced with available ShARC and non-ShARC publications, to provide recommendations on current techniques and implants.

Summary Recommendation

When planning for reverse total shoulder arthroplasty (rTSA), all ShARC surgeons assess glenoid version from a CT scan, with most relying on a 3D preoperative plan with the Virtual Implant Positioning™ (VIP™) system. The majority aim for a neutral or a slightly retroverted baseplate position in rTSA. Ninety percent of ShARC surgeons prioritize baseplate fixation over version correction. Seventy-eight percent limit corrective reaming to 15° or less, and 73% consider augments for retroversion beyond 10°. There was broad agreement among surgeons on the use of augments for retroversion angles ranging from 10° to 30°. However, there was little consensus on a numerical cut-off for custom implants, reflecting a case-by-case judgment.

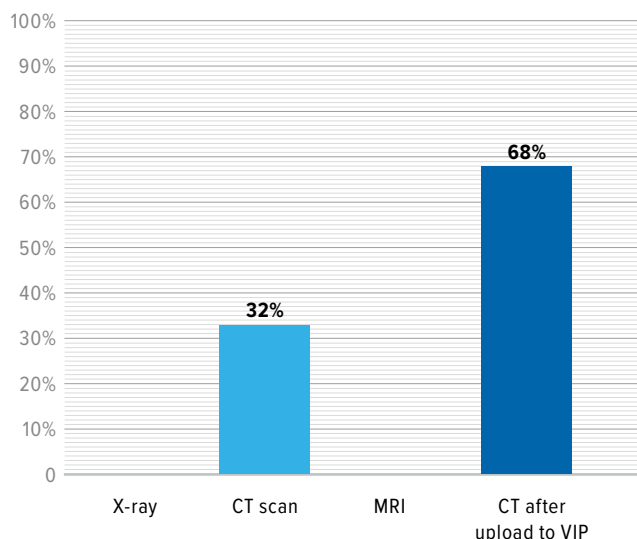
Background

While retroversion in anatomic arthroplasty has been researched extensively due to its effect on stability, there are no clear criteria for correcting retroversion in rTSA.^{1,2} Retroversion between 10° and 15° is considered acceptable, and intentional retroversion may even improve range of motion.^{3,4} The current consensus is to use augmented baseplates to correct retroversion without excessive bone removal wherever possible, reserving structural grafts and custom-made implants for cases where augmentations cannot correct the anatomy. Eccentric reaming is limited to mild deformities.⁵

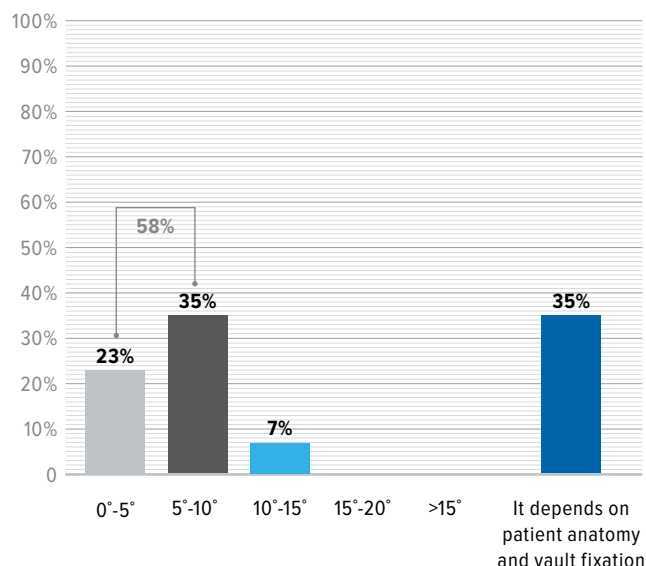
Results

A survey was conducted among 40 ShARC surgeons to determine their goals and preferences regarding glenoid component retroversion in rTSA.

How do you assess the version of the glenoid preoperatively?

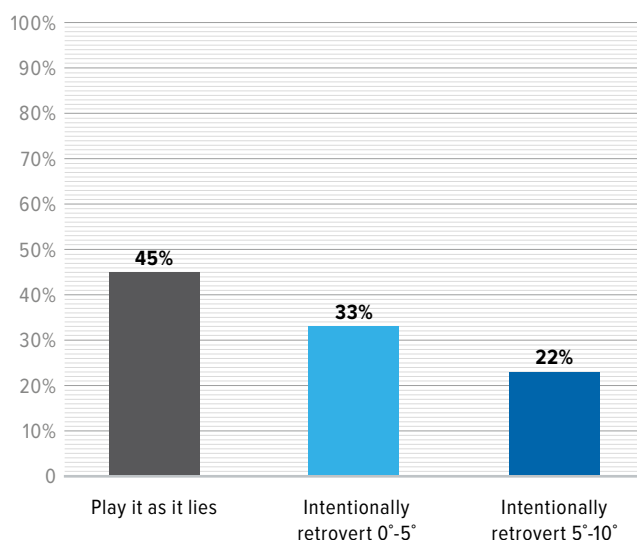


What do you believe is the optimal glenoid version for rTSA?

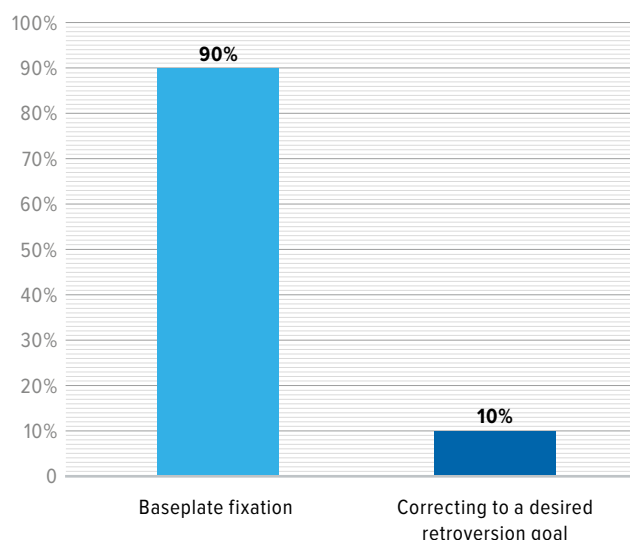


While all surgeons relied on CT scans to assess preoperative glenoid version (as opposed to plain radiographs alone), 68% preferred 3D assessment with the VIP™ system. Fifty-eight percent of surgeons believe that the optimal glenoid version for rTSA is between 0° and 10°, whereas 35% state that it depends on patient anatomy and the fixation of the baseplate into the glenoid vault. This highlights a general acceptance of retroversion in rTSA.

Assuming no glenoid deformity, what is your preferred rTSA baseplate version?

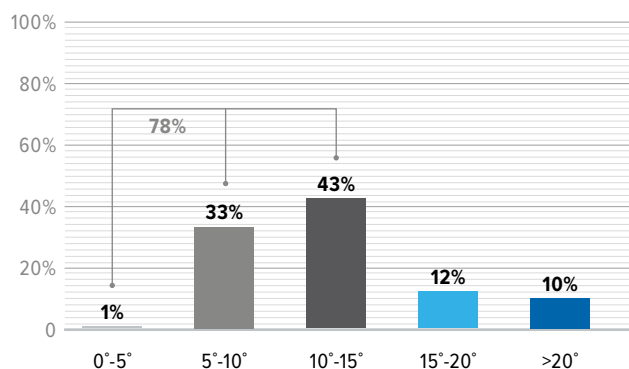


Assuming a posterior glenoid deformity, what should be the most important goal?



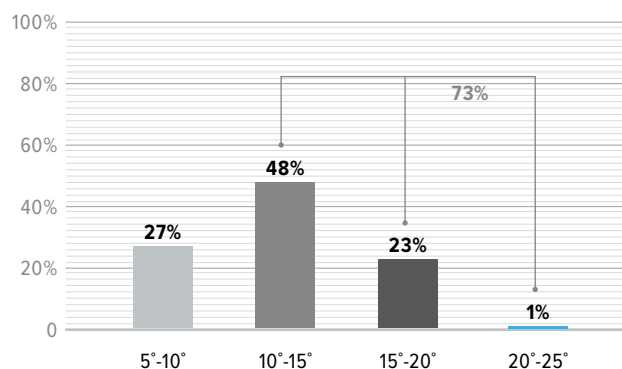
In the absence of glenoid deformity, all ShARC surgeons either “play it as it lies” or intentionally retrovert the baseplate. In the presence of a deformed glenoid, 90% of surgeons consider baseplate fixation to be more important than version correction, again demonstrating an overall acceptance of retroversion in the setting of rTSA.

What is your limit in retroversion for corrective reaming in degrees (assuming use of a non-augmented baseplate)?

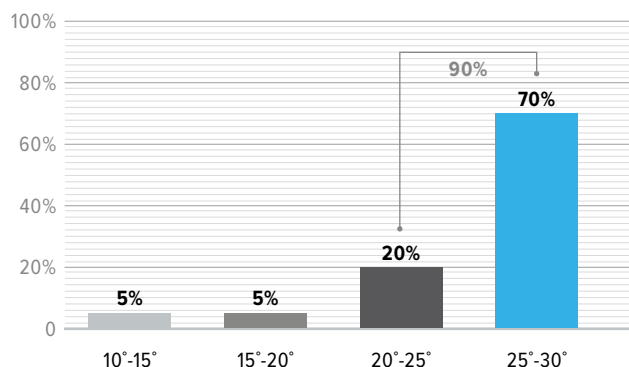


Seventy-eight percent limit corrective reaming to 15° or less, highlighting an emphasis on bone preservation. Seventy-three percent reported 10° or more as their lower limit for consideration of augmentation.

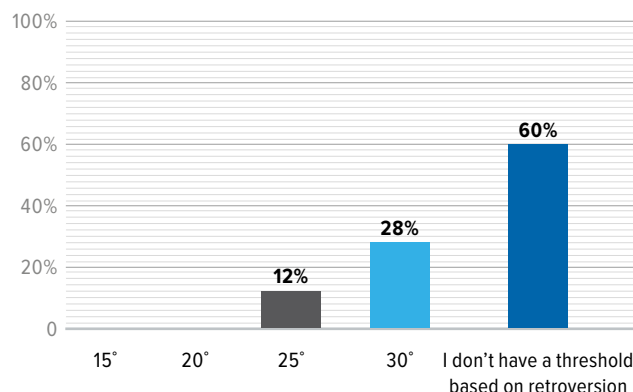
What is your lower threshold in retroversion to consider an augmented baseplate in rTSA?



What is your upper threshold in retroversion to consider an augmented baseplate in rTSA?



What is your retroversion threshold to consider a custom-made glenoid implant in rTSA?



Ninety percent of surgeons reported the upper limit of retroversion to consider augmentation was between 20° and 30°. Seventy percent of surgeons consider 25° to 30° to be the upper limit for using an augmented baseplate, while another 20% consider the limit to be 20° to 25°. When placing a custom-made implant, only 40% of surgeons have a retroversion threshold for consideration. Meanwhile, 60% of surgeons state that they do not base their decision to use a custom-made implant solely on retroversion. This demonstrates that additional factors such as inclination, medialization, and bone loss also factor into the decision-making for choosing custom implants on a case-by-case basis.

References

1. Ho JC, Sabesan VJ, Iannotti JP. Glenoid component retroversion is associated with osteolysis. *J Bone Joint Surg Am.* 2013;95(12):e82. doi:10.2106/JBJS.L.00336
2. Berhouet J, Jacquot A, Walch G, Deransart P, Favard L, Gauci MO. Preoperative planning of baseplate position in reverse shoulder arthroplasty: still no consensus on lateralization, version and inclination. *Orthop Traumatol Surg Res.* 2022;108(3):103115. doi:10.1016/j.otsr.2021.103115
3. Boileau P, Morin-Salvo N, Gauci MO, et al. Angled BIO-RSA (bony-increased offset-reverse shoulder arthroplasty): a solution for the management of glenoid bone loss and erosion. *J Shoulder Elbow Surg.* 2017;26(12):2133-2142. doi:10.1016/j.jse.2017.05.024
4. Keener JD, Patterson BM, Orvets N, Aleem AW, Chamberlain AM. Optimizing reverse shoulder arthroplasty component position in the setting of advanced arthritis with posterior glenoid erosion: a computer-enhanced range of motion analysis. *J Shoulder Elbow Surg.* 2018;27(2):339-349. doi:10.1016/j.jse.2017.09.011
5. Holt AM, Throckmorton TW. Reverse shoulder arthroplasty for B2 glenoid deformity. *J Shoulder Elb Arthroplast.* 2019;3:2471549219897661. doi:10.1177/2471549219897661



View the ShARC
Publication List

ShARC
Shoulder Arthroplasty Research Committee

© 2025-10 Arthrex, Inc. All rights reserved. DOC1-001837-en-US_A

