

# One and two-year clinical outcomes for a polyethylene glenoid with a fluted peg: one thousand two hundred seventy individual patient from eleven centers

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For patients with good rotator cuff function and glenohumeral arthritis, total shoulder arthroplasty (TSA) is a widely used surgical treatment. Of potential TSA complications, glenoid loosening is considered to be a large cause of mechanical failure. According to Bohsali et. al., up to 38% of all total shoulder complications are due to glenoid loosening.<sup>1</sup> With new designs and various features for glenoid components being released, baseline functional performance has yet to be established to measure effectiveness of new features. The authors utilized pre and postoperative records to compare validated functional outcomes at one and or two years post-op. They then assessed the clinical scores by utilizing the minimal clinically important difference (MCID) and maximal possible improvement for each individual patient. Because of the variability of surgeon approaches to patient selection, preoperative management surgical technique and outcome evaluations, the authors suggest the combined data is a basis for comparison for future glenoid component outcomes.

This multicenter retrospective observational study included 1270 patients from 11 centers who had utilized two all-polyethylene glenoid components, [Stryker's Tornier Perform Anatomic Glenoid] Cortiloc and DePuy's Anchor Peg, for their TSA procedures. The similar glenoid components feature cemented peripheral pegs and a uncemented fluted central peg implanted according to prescribed surgical techniques.

## Key takeaways

- This collation of data represented a variety of practice preferences of the participating surgeons using similar glenoid components with no attempt to standardize patient evaluations and management except for glenoid component design.
- Functional outcome tests included the Simple Shoulder Test (SST), American Shoulder and Elbow Score (ASES), Constant Score (CS), or Penn Score.
- Functional improvements improved from preoperative scores of SST  $3 \pm 2$ , ASES  $37 \pm 15$ , Constant score  $36 \pm 16$ , and Penn score  $30 \pm 19$  to SST  $10 \pm 2$ , ASES  $90 \pm 12$ , Constant  $76 \pm 13$ , and Penn  $80 \pm 24$  ( $p < 0.001$  for each).
- The Minimal Clinically Important Difference (MCID) was determined from published literature for the SST, Constant Score, the ASES score and the Penn Score. The maximal possible improvement is the difference between the maximal possible value for the outcome scale and the patient's preoperative score.

(continued)

### Key takeaways (continued)

To obtain the percent of maximal possible improvement, the total improvement is divided by the maximal possible improvement. An improvement of at least 30% of the maximal possible improvement was determined to be clinically significant.

- For shoulders with Walch type B glenoids, 41% of the preoperative classified glenoids, there were no functional outcome differences results compared to Walch type A glenoids. Additionally, there were no functional outcome differences for the 30% of total preoperative glenoids with greater than 15° of retroversion. The outcomes for shoulders with Retroverted or type B glenoids were not inferior to those with neutral version or type A glenoids.
- When assessing outcomes by generally accepted functional outcome tests, average improvement in both comfort and function, surpassed published values for the minimal clinically important difference and the maximum possible improvement of 30% was exceeded.
- In conclusion, a large cohort of individual patients from 11 international centers having total shoulder arthroplasty obtained significant clinical outcomes and one or two years has provided a comparison for early outcomes of new designs and whether new features provide any additional clinical benefit.

### Reference

1 Bohsali KI, Bois AJ, Wirth MA. (2017) Complications of shoulder arthroplasty. *J Bone Joint Surg AM* 99(3): 256-269.

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