

Round versus Anatomical Implants in Breast Reconstruction: A Systematic Review and Meta-Analysis

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Introduction

- The **most commonly used reconstruction technique** is **implant-based**
- Different **implant shapes** are available: **round or anatomical**
- Our aim: Review the literature to determine if there is a **difference in postoperative complications and PROs** between the two implant types

Methods

- Systematic review and meta-analysis of **PubMed, Embase, Cochrane, and Web of Science**
- **Independent review** by **two authors** (DC, GZ) with a **third author** (CMO) consulted in **case of disagreement**
- **PICOS model** used for review criteria and **PRISMA guidelines** followed

PICOS	Inclusion	Exclusion
Population	Adult female patients	Experimental or animal models, cadaver, patients below 18 years old
Intervention	Implant-based breast reconstruction after mastectomy	Other reconstruction types or indications
Comparator	Round or anatomical ("shaped") implants	
Outcomes	• Post-operative complications • Patient satisfaction • Aesthetic outcomes ◦ with BREAST-Q score	No report of complications and/or BREAST-Q scores
Studies	Comparative, prospective, retrospective	Case reports, case series, abstracts only, letters, reviews, comments

Results

- 349 studies identified; **9 studies included** in the review after selection
- **2,535 patients** divided into two groups: "**Round**" (2,525 interventions) and "**Anatomic**" (1,467 interventions)
- **No significant difference in overall complications** (OR = 0.46; 95% CI = 0.14 - 1.48; p = 0.19)
- **Similar results** observed for other complications such as **infection**, implant **rupture**, implant **asymmetry**, **capsular contracture**, **hematoma**, and **seroma**

BREAST-Q ITEM	Mean Difference [95% CI]	p value	Implant type favoured
Physical Wellbeing	-2.83 [-7.96 , 2.30]	0.28	Anatomical
Sexual Wellbeing	2.98 [-0.11 , 6.08]	0.06	Round
Psycho-social Wellbeing	4.46 [-0.27 , 9.20]	0.06	Round
Postoperative Satisfaction	6.80 [-2.56 , 16.16]	0.15	Round

Discussion

- Difficult to **analyse separately** the implant **shape** and the associated **surface texture**
 - **Round** implants were "**smooth**" while **anatomic** implants were "**textured**"
- Studies with different results (mostly regarding **infection rates**) **attributed these discrepancies to variations in patients' individual risk factors**
- **An individualised implant selection** process and thorough **patient education** are essential to optimise aesthetic outcomes and improve patient satisfaction

Limitations

- **Heterogenous study populations**
- **No patient randomisation**
- **Short follow-up time** for most studies
 - only 2 / 9 studies had 5 years of follow-up or more

Conclusion

- Oncological IBBR performed **with either round or anatomical implants** results in **comparable postoperative complication rates and PROs**.
- An **individualised, shared decision-making process** is essential for **patient satisfaction with reconstructed breasts**.