

The Standardization of Bra Cup Measurements Redefining Bra Sizing Language



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KEYWORDS

- Breast augmentation • Bra cup sizing • Breast hemicircumference • Highly cohesive gel implant
- 3-D imaging • Sister sizes • Breast measurements • Tissue-based planning
- Biodimensional planning

KEY POINTS

- Patients and plastic surgeons communicate with “bra-cup sizing language.”
- There is no standard bra cup or sizing system, so no one is speaking the same language.
- Studying ~6000 patients, bra cup sizing may be standardized with one hemicircumference measurement only.
- We can all speak the same language and have a comparison among bra manufacturers.
- This bra cup sizing system will help set patient expectations preoperatively and postoperatively.

OVERVIEW

During the process of breast augmentation after discussing the safety of implants and cost, the discussion comes down to outcome and expectations. Every patient and her plastic surgeon may know there is no uniform bra cup sizing standard but we continue to speak using “bra cup” language. The standardization of bra cup sizing, although seemingly a simple and straightforward goal, has been elusive since the bra was designed and brought into a more modern style and design in the late 1800s.¹ There are many challenges in developing a standardized bra cup system. The first and most significant is that bra cup sizes are a continuum. Bra cups are categorized as if there is a specific or ideal bra cup size, when in reality women’s breasts occur as a fluid range of shapes, sizes, and volumes. A huge conundrum, however, is created because patients and plastic surgeons use and emphasize “bra cup size” language without any specific reference point.

In addition, within the process of breast augmentation, patient education, tissue-based planning, and implant selection are the most critical aspects of the process and outcome.² In any initial breast consultation the most frequently asked questions include: “Okay, so what size will I be after surgery?” or “What size will this implant make me?” Occasionally even more uneducated misconceptions arise: “My friend had 350’s and I want her cup size and to look like her.” Most patients have specific expectations regarding bra cup size, and failure to achieve real or unrealistic expectations remains the leading cause of patient dissatisfaction. In addition, implant size change remains one of the primary causes for breast revision in most studies, often exceeding actual surgical complications. Optimizing soft tissue coverage, while still achieving a patient’s postoperative goal, is perhaps the most significant factor in breast implant surgery if one is to produce stable

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long-term results.³ Hence the challenge: implant selection, which determines the eventual bra cup size, is critical in patient education and the management of patient expectations⁴; however, this is never truly achievable until all are speaking the same bra cup language. Patient and surgeon perceptions may never be exact, although there should be some overlap of a patient's goals and what range is best to maintain soft tissue support. This in no way, however, should minimize the importance or even dissuade from establishing some guidelines and standards that are useful in bridging this gap.

METHODS

The prospective data from more than 5993 patients enrolled and measured in the Allergan Medical silicone breast implant study (Allergan Style 410 Silicone Cohesive Breast Implant Study) undergoing primary breast augmentation were analyzed and also compared with a single-surgeon primary augmentation cohort of 450 patients. Data collected in this study included the breast hemicircumference (HC). This HC is measured as the medial breast inflection point, the most medial point of the breast, across the nipple areola level to the lateral breast inflection point. This HC is measured over the maximum apex of the breast. Data at 6 months and 1 year were recorded, with the reported measurements at 1 year used for this study. There were approximately 50 investigator surgeons in the overall study contributing these measurements. Measurements would be expected to vary a few millimeters from surgeon to surgeon, but should be consistent with their own measurements. In total, breast HC was recorded in 5993 patients and 11,986 breasts having primary breast augmentation. The breast HC data obtained preoperatively were then compared with the postoperative data collected at the 1-year follow-up visit. These data were collected from the national cohort and from the largest primary augmentation, single-surgeon cohort in the United States. Reported bra cup size from patients enrolled in the study was also detailed by size and bra manufacturer, preoperatively and postoperatively at 1 year. In addition, data were collected with regard to specific patient implant volume used in augmentation.

For the purpose of this study, most measurements were performed manually. However, more recently with the advent of three-dimensional (3-D) imaging systems, some measurements were performed and recorded by computer analysis with registered landmarks. Furthermore, we have confirmed and validated our 3-D data comparing

the manual HC measurements with the Vectra 3-D computer-generated data (Canfield Scientific, Fairfield, NJ, USA). Manual HC measurements correlate to 0 to 1 mm from Vectra 3-D imaging HC measurements. Data among specific bra manufacturers were then compared to determine if there were any significant differences in bra cup sizing among manufacturers.

RESULTS

The patient's reported bra cup size and manufacturer were compared with the breast HC measured at 1 year in a large prospective study of primary breast augmentation patients. In addition, the data from the largest single-surgeon primary augmentation cohort in the United States were also evaluated separately in 450 patients to determine if there was any variability from a single surgeon versus multi-surgeon measurement methods. The data from both groups are shown (Table 1). For the national cohort, an average HC of 20.0 cm correlated to a reported bra cup size of a "B cup," 21.5 cm HC on average was a "C cup," 23.4 cm HC correlated to a "D cup," and 25.0 cm correlated to a "DD cup." In the single-surgeon cohort the data were similar with patients reporting "B cup" having a 19.3 cm HC, "C cup" 21.3 cm, "D cup" 23.5, and "DD cup" 25.3. The greatest degree of variability between the overall and single-surgeon cohorts was in the "B Cup" group, which varied by 7 mm. There was a 0- to 3-mm variance for the other cup sizes. There were a very limited number of "A Cup" patients within the large cohort, the average being 17.8 and the single-surgeon cohort 16.5 cm. The average postoperative bra cup measurements

Table 1
Postoperative hemicircumference measured across the maximum projection of the breast from the medial inflection point to the lateral inflection point where the breast creates a crease in the skin when the breast is displaced or pushed medially or laterally

Post Cup Size	Post Hemicircumference	
	Overall Data (cm)	Bengtson Cohort (cm)
B	20.0	19.3
C	21.5	21.3
D	23.4	23.5
DD	25.0	25.3

Overall data are collected, in addition to separate data from one surgeon site of the largest single-surgeon cohort.

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