



**ASRM Scientific Paper Presentations: Breast**  
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### **3. A Novel Text Messaging Alert System Used with Continuous Tissue Oximetry Monitoring to Improve Free Flap Outcomes**

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**Introduction:** The time to detection of flap compromise is a significant predictor of flap salvage outcomes and earlier detection of vascular compromise of a free flap allows for earlier exploration and improved opportunity for salvage. Near-infrared tissue oximetry is an objective, quantitative method of detecting flap vascular compromise and has been shown to allow earlier detection and higher salvage than clinical assessment alone. To further improve the effectiveness of such devices, we describe the use of a novel programming of these devices to send text message alerts directly to surgeons, notifying them instantly of a change in oximetry levels.

**Materials & Methods:** All consecutive microsurgical free flaps for breast reconstruction at a single institution from February 2004 to October 2015 were reviewed. Continuous near-infrared tissue oximetry (Vioptix; Freemont, CA) was utilized to detect failing free flaps and patients were divided based on whether text message alerts were employed or not. A novel text messaging system was programmed to send alert messages when the tissue oximetry readings suggested potential flap compromise. The program was based on previous thresholds of an absolute value less than 30% or a 20% drop in tissue oxygenation over a one hour period. Rates of re-exploration and flap salvage were compared.

**Results:** A total of 614 flaps (68.2%) received Vioptix monitoring, and 286 flaps (31.8%) received additional text messaging alerts. There was no difference in the groups with respect to the rates of complete or partial flap loss, return to the operating room or other complications. However, on average, unplanned returns to the operating room were observed to occur sooner in the text message alert group compared to the standard group (18 hours postop vs. 27 hours postop).

**Conclusions:** Although, no statistically significant difference was observed between the groups with respect to complications, the inclusion of text message alerts used in conjunction with continuous tissue oximetry in the postoperative monitoring protocol of microsurgical free tissue transfer for breast reconstruction hold promise for an even greater improvement in flap salvage rates as failing flaps can be identified sooner.

#### 4. The Lateral Thigh Perforator (LTP) Flap for Autologous Breast Reconstruction: Our First 103 Cases

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**Background:** Major advances have been made in the field of autologous breast reconstruction. The deep inferior epigastric artery perforator flap has remained the first choice. However, the abdomen is not suitable as a donor site in every patient and alternative flaps are required. A wide variety of perforator flaps have been described in the literature. The aims of this study were to analyze the complication rate and to present our surgical refinements of the lateral thigh perforator (LTP) flap using the upper thigh as the donor site.

**Methods:** This prospective study presents the outcomes of the first 103 consecutive LTP flaps in 65 patients that were performed between September 2012 and February 2016. All patients had preoperative imaging by means of magnetic resonance angiography. A septocutaneous perforator of the lateral femoral cutaneous artery was dissected in the dorsal septum of the tensor fasciae latae muscle and subsequently anastomosed to the internal mammary vessels. Complications were categorized into recipient-site and donor-site complications. The surgical technique was gradually refined by reducing the flap width, liposuction and lipofilling of the donor site, and by placing quilting sutures.

**Results:** In 103 LTP flaps, only few recipient-site complications were observed. One total flap loss (1.0%) was recorded and eight flaps (7.8%) required a re-exploration, which resulted in viable flaps. Four of these flaps were successfully reanastomosed. Fat necrosis was observed in three flaps (2.9%). Donor-site complications – in particular wound dehiscence, seroma and infection – occurred more frequently. However, the surgical refinements drastically reduced the prevalence of wound dehiscence (from 28.3% to 4.7%), seroma (from 21.7% to 18.6%), and infection (21.7% to 9.3%) of the donor site. Quilting sutures reduced the dead space, relieved the tension on the wound edges and minimized contour defects. Patients are satisfied with the donor site and the scars can be hidden fairly well. In addition, three unilateral stacked LTP flap breast reconstructions were performed with satisfying results.

**Conclusions:** The LTP flap is a reliable flap with minimal recipient-site complications. After the introduction of several refinements in the technique, the prevalence of donor-site complications has significantly decreased, making the LTP flap our second-choice flap for autologous breast reconstruction.

## **5. Implementation of an Enhanced Recovery after Surgery Pathway for Microsurgical Autologous Breast Reconstruction Promotes Successful Early Recovery**

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**PURPOSE:** The aim of this study was to develop, implement, and evaluate an enhanced recovery after surgery (ERAS) pathway in microsurgical autologous breast reconstruction using abdominal tissue.

**METHODS:** An ERAS pathway was developed with key features including: shortened preoperative fasting, judicious fluids, multimodal analgesics, early oral nutrition, early Foley catheter removal, and early ambulation. Consecutive cases from all breast reconstruction surgeons at a single institution were included. There were three cohorts of women: 1. traditional recovery after surgery (TRAS) historical control (January 2009- December 2012), 2. transition group (TG) with partial implementation (January 2013- February 2014), and 3. ERAS (March 2015- April 2016). Characteristics including narcotic use, patient reported pain scores, antiemetic use, time to regular diet, time to first walk, hospital length of stay, and thirty day postoperative complications were assessed and compared between the TRAS, TG, and ERAS groups.

**RESULTS:** There were 169 patients in the TRAS, 89 in the TG, and 60 in the ERAS cohort. After implementation of the ERAS pathway, the use of parenteral narcotics was reduced by 95% (TRAS 105mg, TG 63mg, ERAS 5mg,  $p < 0.0001$ ). Similarly, total narcotics required were significantly less in the ERAS group (TRAS 157mg, TG 84mg, ERAS 50mg,  $p < 0.0001$ ), with no consequent increase in patient reported pain over the first three postoperative days (TRAS 2.68/10, TG 2.50/10, ERAS 2.44/10,  $p > 0.05$ ). Patients in the ERAS cohort used significantly less antiemetics postoperatively (TRAS 6 doses, TG 4 doses, ERAS 2 doses,  $p < 0.05$ ), returned to normal diet 29 hours earlier (TRAS 44 hours, TG 39 hours, ERAS 15 hours,  $p < 0.0001$ ), and walked 24 hours sooner (TRAS 76 hours, TG 65 hours, ERAS 52 hours,  $p < 0.0001$ ). Overall, length of hospital stay was reduced by 2 days in the ERAS cohort (TRAS 6.6 days, TG 5.6 days, ERAS 4.7 days,  $p < 0.0001$ ). Finally, rates of major complications thirty days postoperatively were not different between the groups (TRAS 7.7%, TG 7.9%, ERAS 5.0%,  $p > 0.05$ ).

### **CONCLUSIONS:**

Patients in the ERAS group used significantly less narcotics without an increase in patient reported pain. In addition, ERAS patients had less postoperative nausea, returned to normal diet earlier, and walked sooner. Finally, patients in the ERAS cohort had a significantly shorter length of hospital stay without an increase in the rate of major complications thirty days postoperatively. This data supports that an ERAS pathway in microsurgical breast reconstruction promotes successful early recovery.

## **6. Deepithelialized Wise-Pattern Skin Reduction Preserves Skin and Nipple Perfusion in Immediate Reconstruction of Large and Ptotic Breasts**

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**Background:** Immediate reconstruction following mastectomy is challenging in patients with macromastia and ptosis due to high rates skin and nipple necrosis. This same risk applies to preservation of the nipple-areolar complex (NAC) with nipple-sparing mastectomy (NSM), which has been previously contraindicated in such high risk patients despite increased demand due to superior cosmetic outcomes. We report a novel technique involving deepithelialized Wise-pattern skin reduction to simultaneously reduce the skin envelope and preserve the nipple in immediate breast reconstruction.

**Methods:** We reviewed cases of NSM and skin-sparing mastectomy (SSM) with immediate autologous and implant-based reconstruction using a deepithelialized Wise-pattern skin reduction by a single plastic surgeon from 2013 to 2016. Patients undergoing NSM had devascularization of the NAC 1-2 months prior to surgery to promote adaptive circulatory change. Vertical limbs of Wise-pattern markings were 4-5 cm longer than standard markings. Mastectomies were performed using the vertical or horizontal limb of the Wise pattern for NSM, and the circumareolar skin incision for SSM. The remaining Wise-pattern markings were incised, deepithelialized, and infolded over the tissue expander or free flap (Figure 1). In NSM, the nipple was advanced superiorly and redirected through a keyhole area of deepithelialized skin flap.

**Results:** Patients had an average age of 44.1 years and BMI of 27.8. A total of 31 breasts in 17 patients (14 bilateral, 3 unilateral) underwent deepithelialized Wise-pattern skin reduction. There were 14 NSM and 17 SSM. Reconstructions consisted of 8 tissue expanders exchanged to implants and 23 free flaps with muscle-sparing transverse rectus abdominis myocutaneous (n=19), deep inferior epigastric perforator (n=3), or superficial inferior epigastric artery (n=1) flaps. Three patients underwent devascularization of the NAC prior to NSM. Four breasts (13%), all in patients who underwent SSM, had partial flap necrosis at the inverted-T point that healed by delayed primary (n=1) or secondary (n=3) intention. Two nipples (14%) suffered epidermolysis that healed by secondary intention and one nipple (7%) had partial thickness loss, all in patients without prior NAC devascularization.

**Conclusion:** Wise-pattern skin reduction with deepithelialization and tissue infolding preserves dermal plexus perfusion in immediate implant-based or autologous breast reconstruction following SSM and NSM. Despite historical concerns about wound healing and nipple loss, this technique is safe for NSM and may be performed in conjunction with NAC devascularization to further promote nipple perfusion.



**Figure 1.** Nipple-sparing mastectomy and immediate reconstruction with free autologous tissue transfer (*top row*) and tissue expanders (*bottom row*), with deepithelialized Wise-pattern skin reduction (*left*) and resulting breast and nipple lift (*right*).

## **7. Delineation of a Central Under-flap Pocket (D-CUP) with Acellular Dermal Matrix Technique Allows Safe and Effective Implant Augmentation of Perforator Flap Breast Reconstruction**

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**Background:** When a single perforator flap does not provide adequate volume or projection for satisfactory breast reconstruction the addition of an implant may be considered at the time of second stage revisions. Dissection of an implant pocket beneath the flap may lead to the inadvertent injury of the flap pedicle as the tissue planes have been obscured by tissue ingrowth. The authors present a technique, the D-CUP, or Delineation of a Central Under-flap Pocket technique, in which the boundaries of the implant pocket are predetermined at the time of flap inset using an acellular dermal matrix (ADM) construct. This allows an implant to be safely inserted at the second stage and positioned as medially as possible creating maximum projection with greater ease of dissection and minimal risk to the flap pedicle.

**Methods:** The outcomes of 30 patients (60 perforator flap breast reconstructions) treated with the D-CUP technique in anticipation of subsequent sub flap implant augmentation within a 12-month period were assessed retrospectively. Data on patient demographics, flap characteristics, implant characteristics, and flap complications were collected.

**Results:** 30 patients underwent 60 breast reconstructions with 42 DIEP, 12 APEX and 6 SGAP flaps. The internal mammary vessels served as recipients in all cases. Flap weights ranged from 180-440 grams. There were no flap losses. 2 flaps (3.3 percent) developed clinically significant fat necrosis requiring excision of the areas of concern. All patients went on to receive secondary augmentation with silicone implants ranging in size from 120-280 grams. The undersurface of the ADM was readily identified and its medial most extent safely determined allowing the expeditious recreation of the pre-delineated central under-flap implant pocket. No flap pedicles were injured during the process and the implants were placed in a favorable position providing maximum projection to the reconstruction. No subsequent development of fat necrosis was identified after augmentation.

**Conclusion:** The D-CUP technique is a useful adjunct to perforator flap breast reconstruction when secondary implant augmentation is considered likely. The pre-delineated pocket allows for effective implant augmentation with greater ease and more precise implant placement, all with minimal risk to the flap pedicle.

## **8. Striving Towards Optimal Timing in Free Flap Breast Reconstruction: A Single Institution Experience**

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**Background:** Deep inferior epigastric perforator (DIEP), superficial inferior epigastric artery (SIEA), and profunda artery perforator (PAP) flaps are acceptable options for autologous breast reconstruction. This study comprehensively evaluates the differences in outcomes between patients receiving immediate, delayed/immediate (staged with the use of tissue expanders), and delayed breast reconstructions (without the use of tissue expanders).

**Methods:** 547 free flaps (DIEP, SIEA, or PAP) on 331 patients were performed by two attending surgeons at a university hospital from 2010-2016. Patients were grouped based on reconstruction timing: immediate (n=175 flaps), delayed-immediate (n=247 flaps), and delayed (n= 125 flaps). Comorbidities, preoperative radiation, neoadjuvant/postoperative chemotherapy, length of hospital stay, number of subsequent revision surgeries, and breast and donor site complications were analyzed among the groups.

**Results:** Immediate reconstructions, when compared to delayed-immediate reconstructions, encountered more infections (p=0.008), more wound occurrences (p = <0.001), longer lengths of stay (p = <0.001, 5.2 versus 4.1 days), longer procedure times (p = <0.001), and larger number of revision surgeries (p = <0.001, 2.4 vs 1.4 revisions) in patients receiving a single unilateral flap. Between outcomes of single flap immediate and delayed reconstructions, immediate reconstruction resulted in longer lengths of stay (p = <0.001, 5.2 vs 4.0 days), longer procedure time (p = <0.001), larger number of revision surgeries (p = 0.002, 2.4 vs 1.7 revisions), and higher chance of wound necrosis (p = <0.001).

In patients receiving 2 free flaps (bilateral or double-pedicle unilateral reconstruction), immediate reconstructions encountered larger numbers of subsequent revision surgeries (p<0.02, 1.7 versus 1.1 revisions) and no other significant differences compared to delayed-immediate reconstructions. There were no significant differences between delayed and delayed-immediate reconstructions.

**Conclusion:** Immediate, delayed-immediate, and delayed reconstructions are all reasonably safe options for breast reconstruction. However, higher rates of complications among immediate reconstructions imply delayed-immediate and delayed reconstructions may be superior options to immediate reconstructions, not only in bilateral reconstructions, but especially in single free flap reconstructions. These results should be considered between the surgeon and patient when deciding an appropriate reconstruction plan based on the risks, benefits, and potential costs associated with different breast reconstruction timings. Based on this data, we have made institutional adjustments to our practice focusing on more delayed-immediate reconstructions.

## 9. Pre-operative DIEAP Imaging Using Perforator Phase Contrast Angiography (pPCA)

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**Purpose:** In recent years, computed tomography angiography (CTA) has become a commonly used pre-operative imaging method for various types of flaps. The use of ionizing radiation and the lack of venous flow information, however, are still considered major drawbacks of this technique. We developed a radiation-free, venous-flow-sensitive MRI perforator imaging technique called perforator phase contrast angiography (pPCA). The purpose of this study was to compare pPCA with CTA in DIEAP flap breast reconstruction.

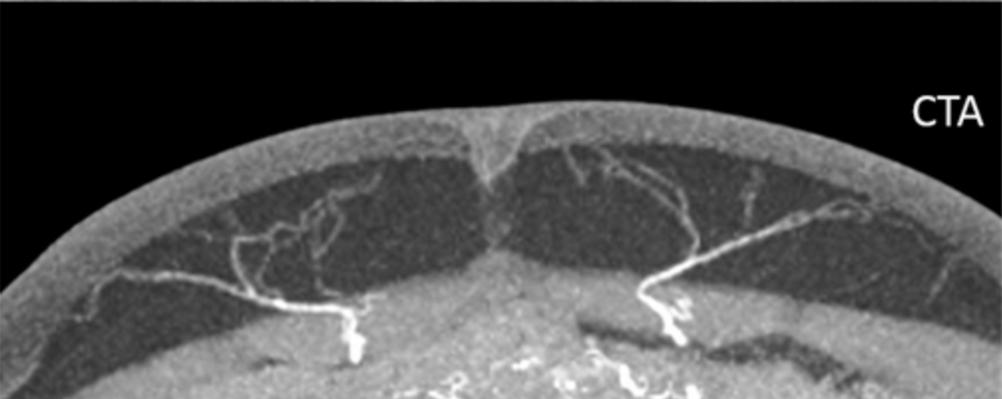
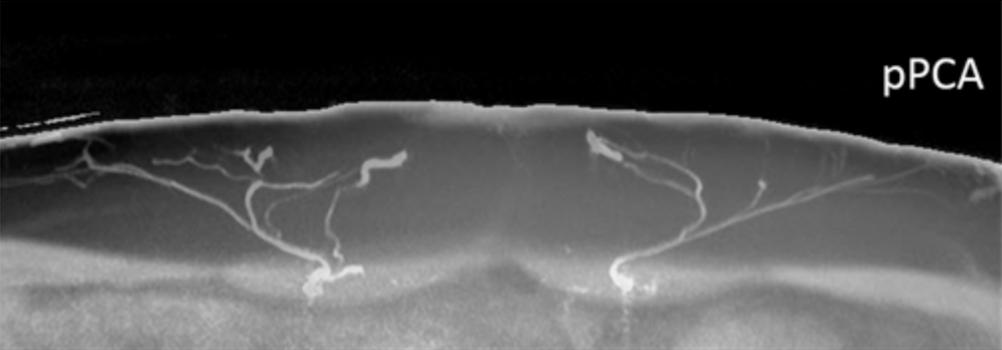
**Methods:** A prospective study was performed of 10 patients undergoing DIEAP flap breast reconstruction. All patients underwent pPCA and CTA preoperatively. The pPCA images were obtained by fusing high resolution (0.5x0.5x1.5 mm) phase contrast angiography with grayscale-reversed T2-weighted anatomical data. The pPCA and routine DIEA CTA (0.75 mm reconstruction) data were independently assessed by two plastic surgeons. Perforator size, intramuscular course, vessel continuity (Continuous/Discontinuous), and the clinical value of the imaging data (NH/SH/VH: Not/Somewhat/Very Helpful) were evaluated.

**Results:** Detailed perforator maps were successfully obtained with the pPCA technique for all patients without using any ionizing radiation or exogenous contrast medium. Image quality of pPCA was comparable or superior to that of routine DIEA CTA with identical slice thickness (Figure 1). The pPCA technique was also capable of visualizing both arterial and venous flow.

The two reviewers achieved good (Kappa=0.625) and moderate (Kappa=0.429) agreement on their assessments of vessel continuity and clinical value. Both of them rated pPCA as having better continuity (100% continuous by both reviewers) and higher clinical value (Reviewer 1: 0%/40%/60% NH/SH/VH; Reviewer 2: 0%/20%/80% NH/SH/VH) than CTA (Reviewer 1: 40% continuous, 0%/60%/40% NH/SH/VH; Reviewer 2: 50% continuous, 10%/40%/50% NH/SH/VH).

Among the ten patients, 14 perforators were identified as the most favorable for use in DIEAP flap breast reconstruction in both pPCA and CTA images. Perforator diameters measured on pPCA were  $0.8 \pm 0.3$  mm smaller than corresponding measurements from CTA ( $P < 0.001$ ), which is consistent with existing literature finding that CTA overestimates perforator size by  $0.54 \pm 0.30$  to  $1.18 \pm 0.35$  mm compared with intraoperative measurements. The intramuscular course measurements were not significantly different ( $0.2 \pm 0.8$  cm,  $P = 0.415$ ) between these two imaging techniques.

**Conclusions:** Our preliminary experience demonstrates that the new pPCA technique provides better visualization of DIEAP flap perforators and possibly more accurate measurements of their sizes than CTA. This technique has the potential of becoming a favorable alternative to CTA for pre-operative imaging of DIEAP and other perforator flaps.



## 10. External Breast Expander-Assisted Fat Grafting to the Autologous Reconstructed Breast

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**(Introduction)** In the results of autologous breast reconstruction, we sometimes need to correct the breast deformities. Autologous fat grafting has become a common technique for managing secondary contour breast deformities, but in case of the severe deformities such as large-volume deficiency, we need for repeated injections because large volume fat grafting result in graft survival loss and fat necrosis. An external breast expansion device such as Brava, perioperatively increases the volume and vascularity of the recipient site, reduces interstitial fluid pressure, and facilitate large volume fat transfer. In this series, we report our method of External Breast Expander-assisted fat grafting for improvement in relatively severe deformities following autologous breast reconstruction.

**(Method)** From March 2012 to January 2016, 22 patients with relatively severe deformities after autologous breast reconstruction were selected for this case series. The patients were asked to wear the Brava device for 10 hours per day for 4 weeks perioperatively. The adipose tissue was injected into the defect area using Coleman technique.

**(Results)**The type of reconstruction included deep inferior epigastric perforator flap reconstruction (n=7), posterior medial thigh perforator flap (n=6), bilateral inferior gluteal artery perforator flap (n=3), single inferior gluteal artery perforator flap (n=1), superior gluteal artery perforator flap (n=2), latissimus dorsi flap (n=1), transverse rectus abdominis myocutaneous flap (n=1). The mean injected volume of fat was 248mL (range, 110-377mL). One patient required 3 fat grafting sessions, 3 patients required 2 sessions, and 18 patients required single session. The reasons for severe deformity were initial flap we have chosen was small, limitation of initial flap setting due to its short pedicle, partial flap necrosis, fat necrosis, muscular atrophy, and postoperative body weight loss. The most common complication is contact dermatitis from wearing Brava device. No complications were recorded with the fat injections.

**(Conclusions)** External Breast Expander-assisted fat grafting is safe and effective tool to improve aesthetic outcomes in secondary autologous breast reconstruction especially when the volume-deficiency was large.

## 11. Beauty is in the Eye of the Beholder: What Influences Patient – Physician Disparity in Breast Reconstruction Aesthetic Outcomes?

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**Purpose** - Disagreement over the outcome of breast reconstruction can frustrate the patient and surgeon alike. This study aims to identify factors associated with disparity in the perceived final result by comparing patient satisfaction with their completed breast reconstruction and aesthetic outcomes as judged by physicians.

**Methods** - Patients with completed breast reconstructions of all types from 2009 through 2011 answered the post-operative BreastQ questionnaire. Photos corresponding to the timepoint at which the questionnaire was answered were graded by a six member panel using a multiparameter breast reconstruction-specific aesthetic scale. Scores found on the “satisfaction with breasts” domain of the BreastQ were compared with the photo-based aesthetic outcome grades. Patients were categorized according to the agreement between their BreastQ score and the panel’s evaluation. Group 1 represents patients who graded their satisfaction higher than the aesthetic grade assigned by the panel. Group 2 represents patient and panel agreement. In Group 3, patients were less satisfied than the panel. Patients’ demographic information, additional BreastQ domain scores, and surgical data were used in the comparative analysis.

**Results** – Of 820 patients, 261 answered BreastQ questionnaires and 147 had photos graded. Satisfaction with breasts was positively correlated with the photo based aesthetic grades (Pearson correlation 0.32,  $p < 0.001$ ). Group 1 demonstrated significantly higher ( $p \leq 0.05$ ) psychosocial, physical and sexual well-being assessed by the BreastQ compared with Groups 2 & 3. Group 1 also was found to exhibit a higher number of two stage tissue expander/implant-based breast reconstructions. Group 3 showed more patients reconstructed using Latissimus dorsi or Gracilis flaps, and significantly more direct to implant and immediate autologous reconstruction patients. The following factors did not influence associations between patient reported breast satisfaction and provider graded outcomes ( $p \geq 0.05$ ): BMI, history of depression, radiation, post-operative surgical complications, number of reoperations due to complications, secondary reconstructions, and reconstructions initiated in other institutions.

**Conclusions** – Patient satisfaction with breast reconstruction aesthetic outcomes is positively influenced by QOL domains and surgical factors not directly related to breast aesthetics which may predispose patients to grade their results higher than their surgeon does. Tissue expander/implant based breast reconstructions were associated with higher patient aesthetic satisfaction than aesthetic outcomes graded by medical professionals. Immediate autologous

breast reconstruction, and the use of non abdominally based flaps were associated with a lack of agreement between patients and physicians, with patient less satisfied than physicians.

## **12. Long-Term Satisfaction Comparing Unilateral and Bilateral Autologous and Implant-Based Reconstruction: A 9-year Breast-Q Analysis**

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### **Background**

There are various reconstruction options available to patients with breast cancer and those who request prophylactic procedures. Previous studies have analyzed short-term satisfaction and outcome, yet there is still debate on how patient satisfaction evolves after reconstruction. The purpose of this study was to quantify overall patient satisfaction with unilateral and bilateral autologous compared to implant-based reconstruction over time.

### **Methods**

Five-hundred-twenty-five Breast-Qs were emailed to breast reconstruction patients over a 9-year period (4/2006-6/2015). Outcome data was collected and analyzed using STATA to determine statistical significance.

### **Results**

Two-hundred-thirty patients (44% response rate) were separated into unilateral FF (uni-FF), bilateral FF (bil-FF), unilateral implant (uni-implant) and bilateral implant (bil-implant). Seven patients were removed due to combination reconstructions. Implant-based reconstruction had a higher average number of revisions (bil-implant 1.6;  $p=0.005$ ), superficial skin infection rate (bil-implant 7(16%), uni-implant 1(25%);  $p=0.049$ ), implant loss (bil-implant 4(9%);  $p=0.012$ ), and capsular contracture (4(9%);  $p=0.002$ ). Compared to the autologous cohort that had a significantly higher rates of mastectomy flap necrosis (uni-FF 15(25%), bil-FF 15(13%);  $p=0.001$ ) and delayed wound healing (uni-FF 24(40%), bil-FF 32(28%);  $p=0.002$ ). Satisfaction with breasts, outcome, and psychosocial/sexual/physical (chest) well-being was not statistically significant between groups, yet satisfaction with nipples was significantly higher in the free flap groups (bil-FF 61, uni-FF 68, bil-implant 39;  $p=0.008$ ) and abdomen was higher in implant patients (bil-implant 88, bil-FF 69;  $p=0.0272$ ).

### **Conclusions**

Based on outcomes, autologous reconstruction has fewer long-term complications. Previous studies suggest patients are more satisfied with free flaps, yet our long-term satisfaction data reveals minimal differences between the autologous and implant cohorts. This suggests there is not a reconstruction type that makes patients more satisfied and the recommended option should be catered to the individual patient.

	Uni-FF N=60	Uni- Implant N=4	Bil-FF N=113	Bil- Implant N=45	p-value
Average # of revisions	1.1	0.5	1.1	1.6	<b>0.005</b>
Delayed healing	24(40%)	0	32(28%)	4(9%)	<b>0.002</b>
Capsular contracture	1(2%)	0	0	4(9%)	<b>0.012</b>
Mastectomy flap necrosis	15(25%)	0	15(13%)	0(2%)	<b>0.001</b>
Hematoma	0	0	4(4%)	1(2%)	0.461
Seroma	3(5%)	0	2(2%)	3(7%)	0.345
30-day reoperation	0	0	5(4%)	2(4%)	0.324
Implant loss	1(2%)	0	0	4(9%)	<b>0.012</b>
Wound dehiscence	5(8%)	0	10(9%)	2(4%)	0.818
SSI	4(7%)	1(25%)	5(4%)	7(16%)	<b>0.049</b>
Satisfaction with:					
Breasts	67±21	70±15	69±21	61±24	0.2014
Outcome	70±28	75±30	71±23	68±24	0.8318
Psychosocial well-being	76±23	82±21	77±21	71±23	0.4351
Sexual well-being	55±27	61±27	55±22	45±23	0.1201
Chest	76±15	90±13	76±18	73±20	0.2972
Abdomen	78±18	-	69±23	88±21	<b>0.0272</b>
Nipples	68±28	-	61±30	39±35	<b>0.008</b>