



ASRM Scientific Paper Presentations: Breast
Monday, January 16, 2017, 12:00pm – 1:00pm

68. Transversus Abdominis Plane Block and Free Flap Abdominal Tissue Breast Reconstruction: Is There a True Reduction in Postoperative Narcotic Use?

Stanford University, Palo Alto, 194, USA

Cedric Hunter, MD¹; Gordon K. Lee, MD, FACS²; Dung H Nguyen, MD, PharmD³; Afaaf Shakir, BS²; Anna Luan, MD, MS¹; Arash Momeni, MD⁴; (1)Plastic Surgery, Stanford University, Stanford, CA, (2)Stanford University, Stanford, CA, (3)Department of Surgery/Division of Plastic Surgery, Stanford University, Stanford, CA, (4)Plastic and Reconstructive Surgery, Stanford University, Stanford, CA

Abstract

Introduction: The use of the transversus abdominis plane (TAP) block is increasing in abdominally based autologous tissue breast reconstruction as a method to provide postoperative donor site analgesia. The purpose of this study was to evaluate the efficacy of the TAP block in the immediate postoperative period.

Methods: A retrospective analysis of all patients who underwent autologous microsurgical breast reconstruction over a 2-year period (2013 – 2015) was conducted. Only patients with an abdominal donor-site were included. Patients were grouped based on the presence or absence of TAP blocks. Primary endpoints included patient-reported pain score, daily and total narcotic use during the hospitalization, anti-emetic use, as well as complications.

Results: We identified 40 patients that had undergone abdominal based free flap breast reconstruction and TAP block catheter placement for postoperative analgesia that met inclusion criteria. This group was then compared to a matched cohort of 40 patients without TAP blocks. There were no complications associated with using the TAP catheters. There was no statistically significant difference in postoperative pain scores, daily or total narcotic use during the hospitalization, or anti-emetic use between the 2 groups. While not statistically significant linear regression analysis identified trends of improved donor site analgesia in select groups such as unilateral immediate reconstructions, BMI > 30 kg/m², and those without abdominal mesh placed at the time of donor site closure in the TAP block group.

Conclusion: Constant delivery of local anesthetic through the TAP block appears to be safe; however, it did not reduce narcotic requirements, or postoperative pain scores in patients undergoing abdominal based free flap breast reconstruction.

46. Health-Related Quality of Life Throughout the Breast Reconstruction Process: A Prospective Cohort of 300 Patients with Long-Term Follow-Up

The Johns Hopkins University School of Medicine, Baltimore, 210, USA

Gedge D. Rosson, MD¹; Ricardo J. Bello, MD, MPH²; Chris Devulapalli, MD³; Mohamad E. Sebai, MBBS²; Jeff Aston, BS⁴; Eric L. Wan, BS⁵; Charalampos Siotos, MD⁴; Rika Ohkuma, MD⁶; Pablo A Baltodano, MD⁷; David Cui, NA⁴; Sethly Davis, N/A⁴; Julie Lee, N/A⁴; Michele A. Manahan, MD²; Justin M Sacks, MD, MBA⁸; Carisa M. Cooney, MPH¹; (1)Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine, Baltimore, MD, (2)Department of Plastic and Reconstructive Surgery, Johns Hopkins University, Baltimore, MD, (3)Plastic and Reconstructive Surgery, John's Hopkins University, Baltimore, MD, (4)Johns Hopkins University, Baltimore, MD, (5)Johns Hopkins University School of Medicine, Baltimore, MD, (6)Plastic and Reconstructive Surgery, Johns Hopkins Hospital, Baltimore, MD, (7)Albany Medical Center, Albany, NY, (8)Plastic and Reconstructive Surgery, The Johns Hopkins Hospital, Baltimore, MD

Background: With rising breast reconstruction rates, questions remain on the impact of shifting modalities of reconstruction and concurrent treatments on quality-of-life (QoL). This study aimed to track QoL in breast reconstruction patients according to reconstructive modality and PMRT.

Methods: We prospectively followed patients undergoing breast reconstruction from 2010-2015 using Breast-Q[®] and RAND-36 preoperatively, after tissue expander placement, and 6 and 12 months after final reconstruction. We used Wilcoxon signed-rank test, ANOVA, and multiple linear regression to estimate associations between QoL, reconstruction type and timing, and post-mastectomy radiotherapy (PMRT).

Results: Of 300 patients followed, 124 underwent implant-based, 151 autologous, 10 mixed implant and autologous, and 15 pure fat grafting reconstructions. Forty-four were immediate, 202 staged, and 54 delayed. Seventy-seven patients received PMRT. Postoperatively, QoL increased for Satisfaction with Breasts, Psychosocial Wellbeing, and RAND-36 Summary Mental Health ($p < 0.01$), whereas Physical Wellbeing of Abdomen decreased in autologous reconstruction patients ($p < 0.001$). Autologous reconstruction was associated with higher Satisfaction with Breasts ($p < 0.001$) and trended toward higher Psychosocial Wellbeing ($p = 0.095$) and RAND-36 Physical Health Summary Score ($p = 0.074$). Delayed reconstruction was associated with higher Satisfaction with Breasts ($p = 0.003$), Psychosocial Wellbeing ($p = 0.044$), and Sexual Wellbeing ($p = 0.018$). After adjusting for confounding, PMRT was associated with lower Sexual Wellbeing ($p = 0.021$) and trended toward lower Psychosocial Wellbeing ($p = 0.081$) and Physical Wellbeing of Chest ($p = 0.081$). PMRT showed interaction with type of reconstruction, wherein autologous reconstruction significantly mitigated the negative impact of PMRT on Physical Wellbeing of Chest ($p = 0.006$) and showed a trend for Satisfaction with Breasts ($p = 0.081$).

Conclusions: Autologous and delayed reconstruction are associated with greater increases in QoL. Autologous reconstruction may mitigate negative effects associated with PMRT. These findings are important in an economic environment driving trends towards implant-based and immediate breast reconstruction.

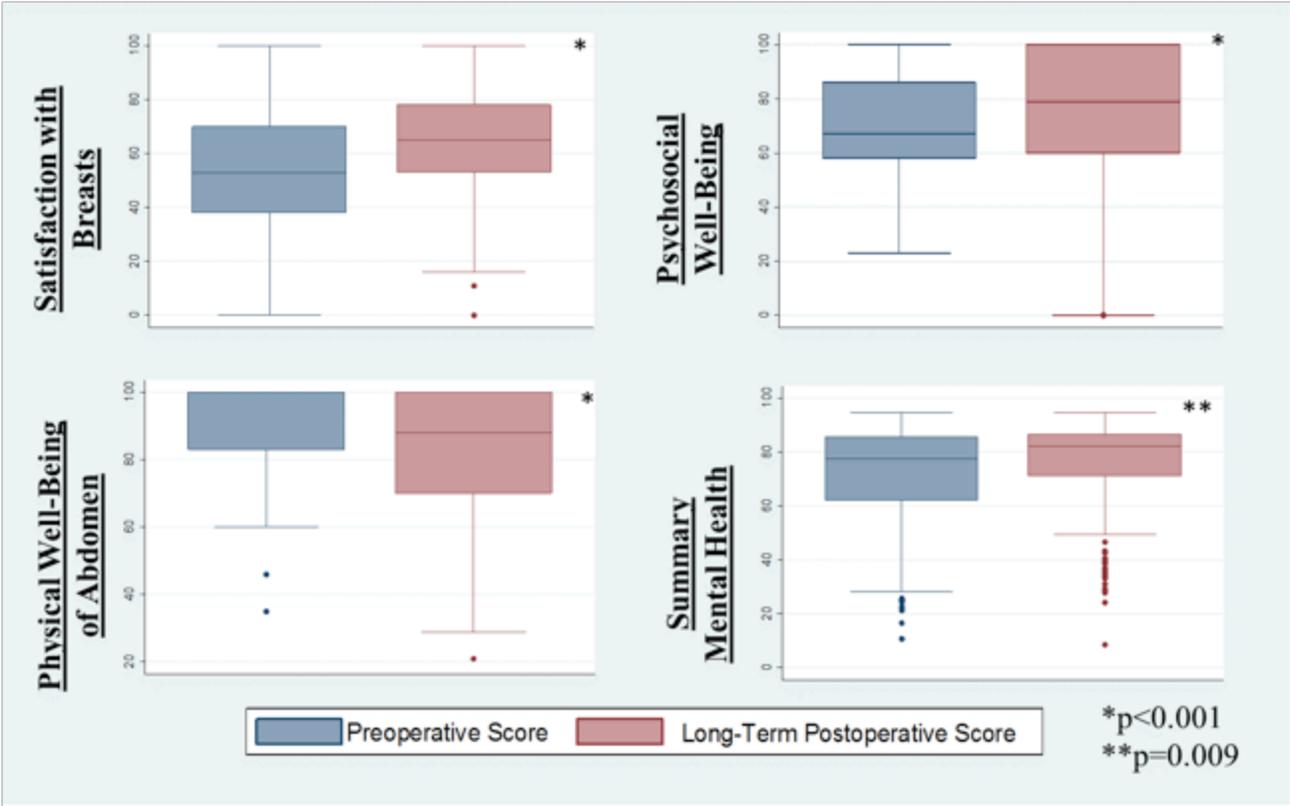


Figure 1: Changes in Health-Related Quality of Life from Preoperative Baseline to Long-Term Postoperative Follow-Up after Breast Reconstruction in a Cohort of 300 Patients. Estimates are presented as box plots including all patients in the cohort. P-values calculated using paired-t test.

70. Evaluation of Opportunistic Internal Mammary Lymph Node Sampling During Microsurgical Breast Reconstruction: An Analysis of 548 Consecutive Patients

Northwell Health, Hofstra Northwell School of Medicine, Manhasset, 221, USA

Irena Karanetz, MD¹; Michael Jin, BS²; Matthew Delmauro, MD¹; Khang T Nguyen, MD¹; Armen Kasabian, MD¹; Tanna Neil, MD, MBA¹; (1)Northwell Health, Hofstra Northwell School of Medicine, Lake Success, NY, (2)Hofstra Northwell School of Medicine, Hempstead, NY

INTRODUCTION

Clinical significance of incidental internal mammary lymph node sampling during microvascular free flap breast reconstruction remains controversial. With routine use of internal mammary vessels as recipient vessels, internal mammary lymph nodes that are easily identified during dissection can be removed. The authors report their experience with opportunistic harvest of internal mammary lymph nodes during microsurgical breast reconstruction.

METHODS

The authors reviewed all consecutive patients who underwent immediate or delayed microsurgical breast reconstruction during a four-year period (January 2010 to December 2013). Patient demographic data, disease staging, axillary node status, flap details, pathology reports and adjuvant treatment were evaluated. All internal mammary lymph node harvests were correlated to patient and tumor characteristics.

RESULTS

During the study period, 960 microvascular free flap breast reconstructions were performed in 548 patients (869 immediate and 91 delayed). The mean age of patients was 56 (SD 8.7). The majority of patients underwent reconstruction with either deep inferior epigastric perforator (n=799) or free transverse rectus abdominal muscle flap (n=87), followed by transverse upper gracilis and superficial inferior epigastric perforator flap (n=42 and n=32, respectively). A total of 166 internal mammary lymph nodes were biopsied in 159 patients without any additional morbidity. A single node was removed in 100 patients, while the remaining 33 patients had two nodes harvested. Among the patients with unilateral malignancy, right sided and left sided malignancies led to similar rates of internal mammary lymph node biopsy (28.5% vs. 23.7%, respectively; $p = 0.3017$). Histologic analysis demonstrated presence of Internal mammary lymph node metastasis in 11 patients (6.6%). Six of these patients demonstrated no axillary lymph node involvement, which resulted in subsequent disease upstaging and alteration of adjuvant treatment. All eleven patients were offered chemotherapy and three out of eleven (27%) received radiotherapy to the internal mammary lymph node chain.

CONCLUSION

Opportunistic internal mammary lymph node sampling during microvascular breast reconstruction can be performed with minimal morbidity and has significant impact on the disease staging and adjuvant treatment. The data herewith suggest that internal mammary lymph node biopsy should be considered routine practice in microsurgical breast reconstruction.

71. The Influence of Pfannenstiel Scar on Venous Anatomy of Lower Abdominal Wall and Implication for Deep Inferior Epigastric Artery Perforator (DIEP) Flap Breast Reconstruction

Samsung Medical Center , Seoul , 256, Korea, The Republic of

So Young Kim, MD; Kyeong-Tae Lee, MD; Goo-Hyun Mun, MD, PhD; Samsung Medical Center, Seoul, Korea, The Republic of

Abstract

Background: A Pfannenstiel incision usually involves dividing the bilateral superficial epigastric vessels. This results in obstruction of superficial venous pathways and functional diversion of flow through alternative pathways and adjacent vessels. This study investigated the effect of a prior Pfannenstiel incision on venous anatomy of lower abdominal wall, specifically the superficial inferior epigastric vein (SIEV), using computed tomographic angiography (CTA).

Methods: A case-control study was performed with 50 patients with Pfannenstiel scars and 50 age-matched, BMI-matched controls without Pfannenstiel scars. We compared the number of *direct/indirect* and *total* communication between SIEV and deep inferior epigastric artery perforator (DIEP) venae comitantes, midline crossover, and other SIEV related anatomical changes by using CTA.(Figure 1 and 2) Flap related clinical outcomes and donor related complications were also assessed for each group.

Result: The median number of *direct* and *total* communication between the SIEV and DIEP venae comitantes in the study group was greater than that in the control.(Table 2) The percentage of SIEVs having more than two branching patterns per hemi-abdomen was significantly higher in the study group than in the control group. (Table 3)The study group also showed a significantly lower rate of fat necrosis compared to the control group ($p = 0.03$). The rate of donor site seroma was significantly higher in study group.(Table 5)

Conclusion: This study suggests that the presence of a Pfannenstiel scar may promote the development of the *direct* and *total* communication between SIEV and DIEP venae comitantes in the lower abdominal wall, which may influence clinical outcomes of DIEP flap breast reconstruction.

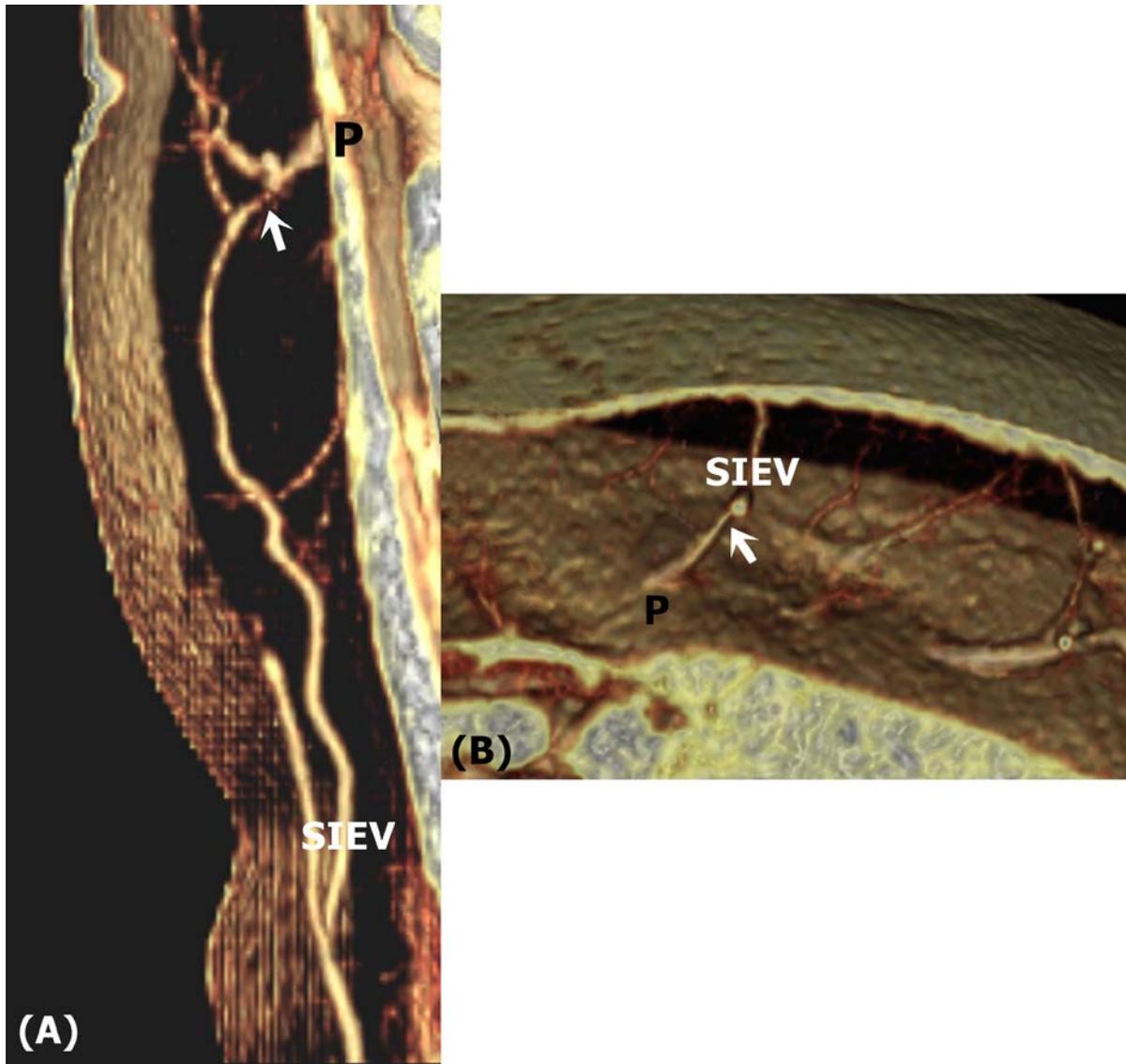


Fig. 2. Volume-rendered technique reformatted images showing *indirect* communication (A) and (B). P =DIEP venae comitantes, SIEV = superficial inferior epigastric vein. White arrow = *indirect* communication

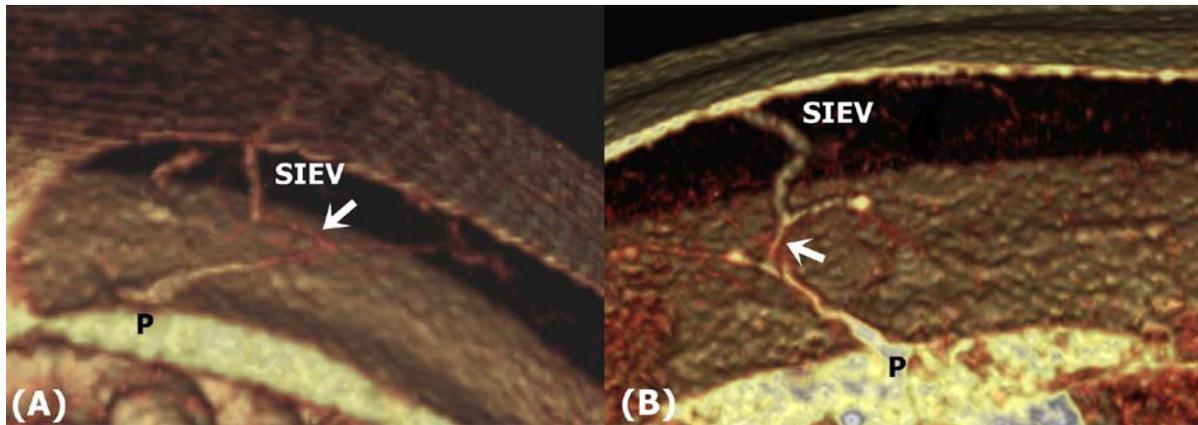


Table 2. Anatomic Differences of Venous Communication Between SIEV and DIEP Vena Comitantes in Lower Hemi-Abdominal Walls

	Study group (n = 100)	Control group (n = 100)	p-value
Median no. (IQR) of <i>direct</i> communication	2(1-3)	1(0-2)	0.00*
Median no. (IQR) of <i>indirect</i> communication	3(1-4)	2(1.75-3.0)	0.25*
Median no. (IQR) of <i>total</i> communication	5(3-6.25)	3(2-4.25)	0.00*

*analyzed with Mann-Whitney U test

Table 3. Anatomic Differences of SIEV Branching Pattern and SIEV Diameter in Hemi-abdomen

	Study group (n = 100)	Control group (n = 100)	p-value
No. of bifurcating and more branches (%)	75 (75%)	61 (61%)	0.04*
Mean SIEV diameter with SD(mm)	1.91 (0.47)	2.32(1.59)	0.01†

*analyzed with Fisher's exact test

†analyzed with two sample t-test

SD = standard deviation

Table 5. Comparison of Flap and Donor Site Related Complications

Variable	Study group (n = 50)	Control group (n = 50)	p-value
Fat necrosis in reconstructed breast (%)	3(6%)	10(20%)	0.03*
Abdominal donor site complication	13(26%)	5(10%)	0.06†
Wound healing delay (%)	7 (14%)	5 (10%)	0.76†
Fat necrosis (%)	3 (6%)	1(2%)	0.61†
Seroma (%)	7 (14%)	0(0%)	0.01†

*analyzed with Pearson's chi-squared test

† analyzed with Fisher's exact test

72. Standardizing the Role of a Co-Surgeon Team in Breast Reconstructive Microsurgery: An Ideal Setting in an Academic Institution

University of Texas Southwestern Medical Center, Dallas, 232, USA

Nicholas T. Haddock, MD; Samar Kayfan, BA; Andrew A. Gassman, MD; Jenny Wang, BS; Michael Zhou, BA; Sumeet S. Teotia, MD; University of Texas Southwestern Medical Center, Dallas, TX

Introduction: Current research within other surgical specialties suggests that a co-surgeon approach may reduce operative times and complications associated with complex bilateral procedures, possibly leading to improved patient and surgical outcomes.¹⁻⁴ We sought to evaluate the role of the co-surgery team and its development in an academic institution in free flap breast reconstruction.

Methods: A retrospective review of free-flap breast reconstruction only at an university hospital from 2010-2016 was conducted. From the database, we analyzed 128 patients who only underwent bilateral-DIEP breast reconstruction (256 flaps). We analyzed three surgical groups for two breast micro-surgeons: single-surgeon reconstruction (SSR), Co-Surgery where both surgeons are present for entire reconstruction (CSR-I), and Co-Surgery reconstruction where co-surgeons appropriately assist in two concurrent or staggered cases (CSR-II). Efficiency data collected: OR time (plastic surgery start-to-end), patient length-of-stay (LOS). For surgical outcomes, we compared rate of flap-failure, return to operating room, timing of surgery (immediate vs delayed-immediate), rates of infection, wound breakdown, seroma, hematoma and tissue necrosis for abdominal donor, breast recipient, and umbilical sites. For patient outcomes, we examined rates of PE/DVT and additional required wound care. Outcome data was analyzed via unpaired two-tailed student's t-test and Chi-square analysis for patient demographic data (statistical significance $P < 0.05$).

Results: Single-surgeon reconstruction had significantly longer average OR time (678minutes vs 485minutes), average LOS (5days vs 3.9days), higher wound occurrences of the donor site that required surgical correction (23% vs 12%) and higher umbilical wound infection (6% vs 0%) compared to CSR-I. Similarly, SSR had significantly longer average OR time (678minutes vs 527minutes), average LOS (5days vs 4days) when compared to CSR-II. There were no total increased patient related complications associated with co-surgery (CSR- I or II). These efficiency benefits occurred despite both co-surgery groups having increased comorbidities such as significantly higher average BMI values.

Conclusion: The addition of a Co-surgeon, even with concurrent surgery, reduces operative time, average patient LOS, and post-operative complications. This work lends a strong credence that Co-surgery model is associated with increased operative efficiency for bilateral DIEP breast reconstruction. Co-surgery utilization in complex breast microsurgery remains true to the academic spirit where resident and fellow team members can thrive with enhanced technical supervision and teaching. The co-surgery model responsibly increases graduated teaching across all resident member levels without increase in complications all the while preserving efficiency and reduction in operative time and patient LOS.

73. Technical Innovation in Maximizing SIEA Flap Survivability: An Algorithmic Approach and Attempting to Salvage the Doomed SIEA Flap

University of Texas Southwestern Medical Center, Dallas, 232, USA

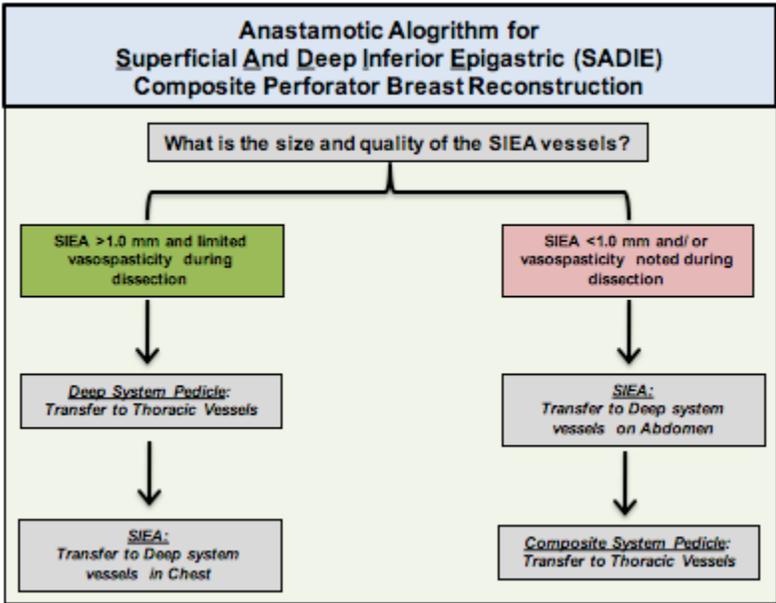
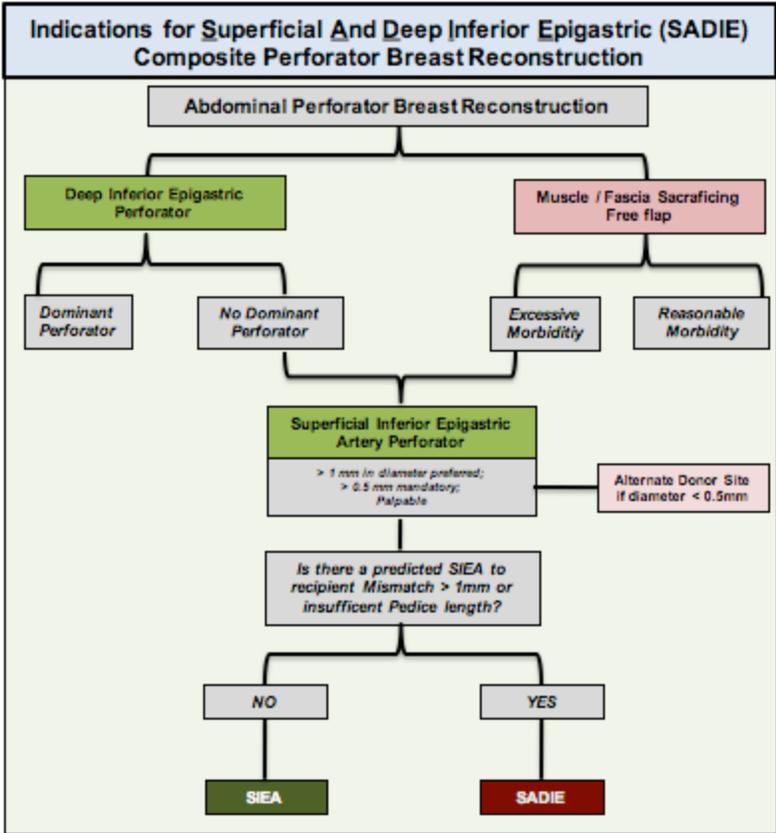
Andrew A. Gassman, MD; Samar Kayfan, BA; Nicholas T. Haddock, MD; Sumeet S. Teotia, MD; University of Texas Southwestern Medical Center, Dallas, TX

Introduction: Technical challenges in making SIEA flaps more predictable include end-to-side anastomosis, femoral vessel cuff harvest, and use of vein grafts. Skilled microsurgeons still accept higher rates of SIEA flap loss and reoperation. Disadvantages include shorter pedicle length, arterial revisions due to vessel mismatch, and limitation in freedom of flap inset. We sought to include the strengths of the deep inferior epigastric artery system to enhance survivability of SIEA flap

Methods: At our institution, the cumulative flap experience of 2 breast reconstructive microsurgeons in their early career from 2009-2016 include: DIEP (561/714 = 79%, flap loss 1.6%), PAP (101/714 = 13.5%, flap loss 1.9%), and SIEA (40/714 = 5.6%, flap loss 2.5%). With increased experience, our desire to use non-ideal SIEA flap was balanced by the cautious nature of selecting the right patient with SIEA. We demonstrate the formation of a composite flap based on the pedicle of retro-rectus DIE-vessels and SIE-vessels. We developed a simplified algorithm to address the SIEA flap anastomosis mismatch challenge by bypassing the SIE-system entirely into the DIE-system.

Results: Total of 7 such Superficial And Deep Inferior Epigastric (SADIE) composite perforator flaps on 4 patients were performed. Individually, we wouldn't consider these SIEA flaps independently due to severe mismatch. Average SIEA diameter was 1 mm, with average IMA 2.5 mm. Average SIEV was 2 mm and IMV 3 mm. In 4 patients, we used a side branch of DIEA and in 3 patients we used end of DIEA/V. Average pedicle length of SIEA 8 cm, and DIEA/V graft was 6 cm, with resulting pedicle length of SADIE flap as 14 cm. There were no flap complications or fat necrosis.

Conclusion: The SADIE flap is a new composite perforator flap comprised of superficial and deep inferior epigastric perforator system, with DIEA/V serving as a graft. The flap is designed around the concept of improving laminar flow from recipient to perforator vessel, with no mismatches or need for end-to-side anastomosis. We consider this as a secondary option for abdominal based free flap reconstruction who are not candidates for DIEP, muscle sacrificing procedures, or SIEA flaps. We present an algorithm that incorporates the use of this unique flap.



**Anastamotic Algorithm for
Superficial And Deep Inferior Epigastric (SADIE)
Composite Perforator Breast Reconstruction**

Where should the SIEA vessels connect to the
Deep system?

SIEA > 1.0 mm

Deep System Pedicle:
as it enters the
Rectus Abdominus muscle

SIEA < 1.0 mm

Deep System Side Branch:
4-5 mm off the Deep pedicle
into the
Rectus Abdominus muscle

All configurations performed via End-to-End anastomosis

74. Long-term Patient Reported Outcomes following Unilateral Implant Breast Reconstruction with a Contralateral Symmetry Procedure

Memorial Sloan Kettering Cancer Center, New York, 221, USA

Shantanu N Razdan, MD, MSPH; Andrea L Pusic, MD, MHS; Hinaben Panchal, MD; Babak J Mehrara, MD; Joseph J Disa, MD; Robert J Allen, Jr., MD; Joseph H Dayan, MD; Colleen M McCarthy, MD, MS; Peter G Cordeiro, MD; Evan Matros, MD MPH; Memorial Sloan Kettering Cancer Center, New York, NY

Background: A principal aim of postmastectomy unilateral breast reconstruction is to achieve symmetry with the contralateral breast. Unilateral implant reconstruction is often performed in conjunction with symmetry procedures; however, health related quality of life (HRQOL) associated with available techniques is lacking. The study aim is to describe patient reported outcomes following contralateral symmetry procedures. The hypothesis is that symmetry procedures are associated with improved HRQOL.

Methods: BREAST-Q scores for patients that underwent immediate unilateral implant breast reconstruction with or without a simultaneous contralateral symmetry procedure at the time of expander placement were reviewed between 2011 and 2015. Patients that had revisionary procedures performed prior to their BREAST-Q assessment were excluded. Minimum follow-up time was 6 months following the symmetry procedure. Patients were placed into four cohorts: augmentation, reduction, mastopexy and no symmetry procedure. Socio-demographic and clinical variables were recorded. Each symmetry procedure group was compared to the no symmetry group separately. Multiple linear regression was used to adjust BREAST-Q scores based on socio-demographic and clinical covariates.

Results: The total number of patients that met inclusion criteria was 596. Contralateral augmentation, reduction and mastopexy were performed in 68, 95 and 76 patients respectively whereas 355 patients did not undergo a symmetry procedure. Mean duration between augmentation, reduction, mastopexy, no symmetry and BREAST-Q assessment was 52, 50, 50 and 48 months respectively ($p=0.81$). Scores for each of the six BREAST-Q domains are presented in Table 1. Pair-wise comparison showed that satisfaction with breast and satisfaction with outcomes scores were higher in patients that underwent a contralateral augmentation compared to no symmetry procedure ($p<0.05$). Physical well-being scores were lower in patients that underwent either a contralateral reduction or mastopexy compared to the no symmetry group ($p<0.01$). There was no difference in psychological and sexual well-being scores between any of the groups. On regression analysis, contralateral breast augmentation was a significant predictor of satisfaction with breasts after adjusting for baseline covariates ($p<0.05$).

Conclusions: Patients that underwent contralateral breast augmentation to improve symmetry with a unilateral implant reconstruction reported significantly greater satisfaction with breasts and outcomes compared to those that did not undergo a symmetry procedure. In contrast, breast reduction and mastopexy procedures demonstrated no improvement in satisfaction with breasts and were associated with lower physical well being scores. Such information will improve the shared decision-making process between patients and plastic surgeons about the HRQOL gains associated with contralateral symmetry procedures.

Table 1. Comparison of BREAST-Q Scores following unilateral implant based breast reconstruction based on contralateral symmetry status.

BREAST-Q Domain	Augmentation (n = 68)	Reduction (n = 98)	Mastopexy (n = 75)	No Symmetry (n = 355)
Satisfaction with Breasts	66.50*	59.58	57.56	60.04
Satisfaction with Outcomes	78.45*	67.82	67.24	71.02
Psychosocial Well-being	77.47	73.39	72.17	76.90
Sexual Well-being	59.04	54.5	54.36	55.18
Physical Well-being	77.75	71.55*	72.71*	77.12

* p values are significant (<0.05) when compared with no symmetry group on a pair wise comparison.

75. National Breast Reconstruction Trends in the Setting of Postmastectomy Radiotherapy

Memorial Sloan Kettering Cancer Center, New York, 221, USA

Claudia R Albornoz, MD¹; Shantanu N Razdan, MD, MSPH¹; Peter G Cordeiro, MD¹; Hinaben Panchal, MD¹; Babak J Mehrara, MD¹; Joseph J Disa, MD¹; Robert J Allen, Jr., MD¹; Joseph H Dayan, MD¹; Colleen M McCarthy, MD, MS¹; Andrea L Pusic, MD, MHS¹; Adeyiza O Momoh, MD²; Alice Y Ho, MD¹; Evan Matros, MD MPH¹; (1)Memorial Sloan Kettering Cancer Center, New York, NY, (2)Plastic Surgery, University of Michigan, Ann Arbor, MI

Background: Immediate breast reconstruction (IBR) is often deferred in the setting of postmastectomy radiotherapy (PMRT) due to increased complication rates; however, patients and physicians are increasingly aware of improved health related quality of life associated with reconstruction so may be accepting of tradeoffs. No national study has measured utilization of IBR in patients undergoing PMRT compared to a control group. Such information is imperative for understanding practice patterns at a broader level and for creating an ideal reconstruction algorithm for radiated patients. The study aim is to analyze trends in rates and methods of IBR in the setting of PMRT using the National Cancer Data Base (NCDB). The hypothesis is that radiation is a diminishing relative contraindication to IBR.

Methods: NCDB was queried from 2004 to 2013 for women that underwent mastectomy with and without IBR. Socio-demographic and oncological covariates were tabulated. Patients were divided into groups based upon whether or not they received PMRT. Trend analyses were done for rate and method of IBR using poisson regression to determine incidence rate ratios (IRR). Logistic regression was used to calculate the odds of undergoing IBR with PMRT after adjusting for covariates.

Results: The increase in rate of IBR was greater in radiated compared to non-radiated patients (IRR: 1.12 versus 1.09). After adjusting for covariates, radiated patients were significantly less likely to receive breast reconstruction (Odds Ratio: 0.70). Rates of implant and autologous reconstruction increased significantly from 2004 to 2013 (Fig. 1 and 2). For both methods, the rate increase was significantly greater in those receiving PMRT compared to non-radiated patients (implants: IRR 1.15 versus 1.11 and autologous: IRR 1.08 versus 1.06 respectively). In 2004 and 2005 autologous methods were the preferred reconstructive technique in the setting of PMRT ($p < 0.05$). Thereafter, PMRT was not associated with a specific reconstructive method.

Conclusions: IBR rates are increasing in the US in both radiated as well as non-radiated patients, but to a greater extent in radiated patients. PMRT remains a perceived relative contraindication albeit to a lesser degree over time. The method of IBR performed in the setting of PMRT did not differ significantly after 2005. Implants have surpassed autologous tissue as the most common method of reconstruction both in radiated and non-radiated patients.

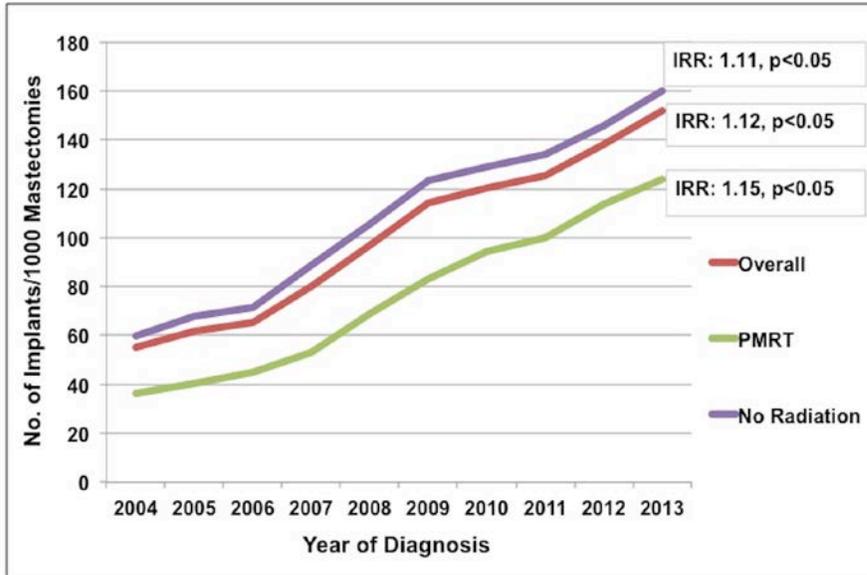


Figure 1. Rate of implants based breast reconstructions from 2004 – 2013.

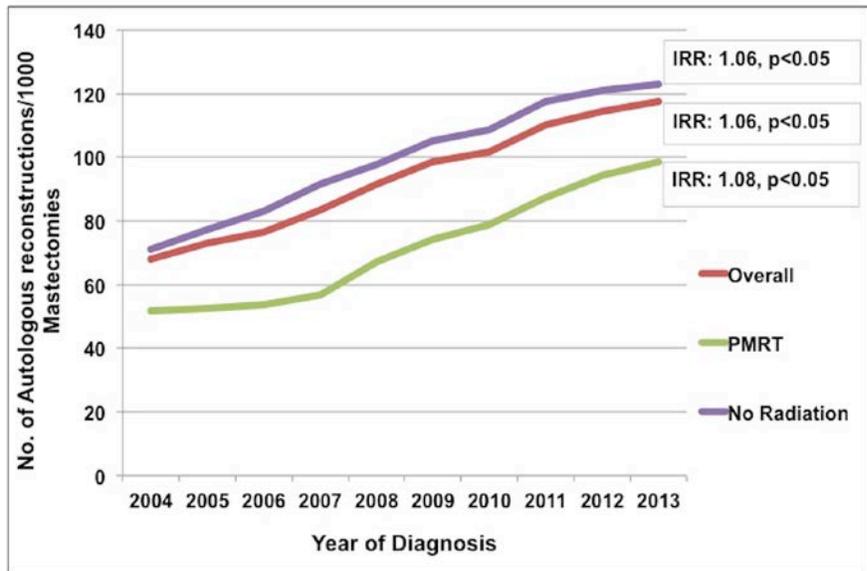


Figure 2. Rate of autologous breast reconstructions from 2004 – 2013.

76. Health-Related Quality of Life and Patient Satisfaction After Nipple-Sparing Mastectomy and Breast Reconstruction: Results from a Prospective Cohort of 300 Patients with Long-Term Follow-Up

Johns Hopkins University School of Medicine, Baltimore, 210, USA

Ricardo J. Bello, MD, MPH¹; Mohamad E. Sebai, MBBS¹; Eric L. Wan, BS²; Charalampos Siotos, MD³; Jeff Aston, BS³; Sethly Davis, N/A³; David Cui, NA³; Julie Lee, N/A³; Michele A. Manahan, MD¹; Justin M Sacks, MD, MBA⁴; Carisa M. Cooney, MPH⁵; Gedge D. Rosson, MD⁵; (1)Department of Plastic and Reconstructive Surgery, Johns Hopkins University, Baltimore, MD, (2)Johns Hopkins University School of Medicine, Baltimore, MD, (3)Johns Hopkins University, Baltimore, MD, (4)Plastic and Reconstructive Surgery, The Johns Hopkins Hospital, Baltimore, MD, (5)Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine, Baltimore, MD

Background: Nipple-sparing mastectomy (NSM) is oncologically safe for select patients. By preserving the nipple-areola complex, this procedure may provide superior cosmetic results and improved breast sensation recovery compared to other types of mastectomy. However, patient-reported evidence on these benefits remains to be established in prospective, longitudinal studies. Such evidence may help clinicians and patients choose among mastectomy options in patients eligible for NSM. This study aimed to estimate differences in quality of life (QoL) and patient satisfaction among breast reconstruction patients comparing NSM to other types of mastectomies.

Methods: We prospectively followed patients undergoing breast reconstruction from 2010-2015 using the Breast-Q[®] and RAND-36 preoperatively, after tissue expander placement, and 6 and 12 months after final reconstruction. We used simple and multiple linear regression to estimate associations between QoL and receipt of NSM compared to other types of mastectomy.

Results: Of 300 patients, 67 underwent NSM (22.33%), 185 skin-sparing mastectomy (61.67%), and 48 modified radical mastectomy (16.05%). Of 67 NSMs, 45 were bilateral (68.18%) and 42 were prophylactic (63.64%). Most NSMs were performed within staged reconstruction (73.13%), followed by immediate (13.42%), and delayed reconstruction (13.42%). Forty NSMs were followed with implant-based reconstruction (59.70%), 22 with abdominally-based autologous flap reconstructions (32.83%), and 5 with pure fat grafting (7.46%). At long-term follow-up, median Satisfaction with Breasts for NSM patients (64.5 points, inter-quartile range [IQR]: 50-75.5) was not significantly different compared to other types of mastectomy (65, IQR: 53-78, $p=0.525$). In multivariable adjusted analysis, mean change in Satisfaction with Breasts was 5.96 points lower among NSM patients (95% confidence interval [CI]: -2.42 to 14.35 points lower) which was still not statistically significant ($p=0.163$). NSM was not associated with benefits in Psychosocial Wellbeing, Sexual Wellbeing, Physical Wellbeing: Chest, Physical Wellbeing: Abdomen, Summary Physical Health, or Summary Mental Health (table 1); however, it was associated with higher odds of postoperative complications after mastectomy (OR: 1.31; 95% CI: 1.03-1.68; $p=0.027$).

Conclusions: Despite current evidence on the safety and benefits of NSM, our QoL outcomes do not support NSM over other types of mastectomy. This is perhaps due to patient selection and alternatives available at our institution, such as nipple reconstruction and tattooing. These

findings should stimulate researchers and clinicians to explore other benefits of NSM and to improve metrics to evaluate NSM effectiveness to better inform patients in deciding among current mastectomy options.

Table 1: Quality of Life, Patient Satisfaction, and Clinical Outcomes in a Cohort of 300 Breast Reconstruction Patients According to Receipt of Nipple-Sparing Mastectomy (NSM).

Continuous Outcomes	Group	Unadjusted Analysis		Adjusted Analysis		
		Median (IQR)	p-value	Mean difference*	95% CI	P-value
Satisfaction with Breasts	NSM	64.5 (50-75.5)	0.525	-5.96	-14.35 to 2.42	0.163
	Non-NSM	65 (53-78)				
Psychosocial Wellbeing	NSM	76 (56.5-92)	0.507	-1.60	-8.64 to 5.44	0.655
	Non-NSM	79 (60-100)				
Sexual Wellbeing	NSM	60 (47-81.5)	0.165	0.61	-7.81 to 9.04	0.886
	Non-NSM	54 (44-67)				
Physical Wellbeing of Chest	NSM	77 (68-91)	0.600	-2.77	-7.76 to 2.22	0.276
	Non-NSM	81 (66-91)				
Physical Wellbeing of Abdomen	NSM	89 (70-100)	0.434	-1.46	-12.69 to 9.76	0.796
	Non-NSM	89 (70-100)				
RAND-36 Physical Health Summary Score	NSM	99.8 (72.5-96.3)	0.552	4.57	-4.69 to 13.83	0.332
	Non-NSM	88.8 (68.8-95)				
RAND-36 Mental Health Summary Score	NSM	84.4 (68.5-87.5)	0.311	-0.45	-9 to 8.10	0.917
	Non-NSM	82 (71-86.5)				
Categorical Outcomes	Group	N (%)	p-value	Odds Ratio*	95% CI	P-value
Postoperative complications - immediate**	NSM	18 (27.27%)	0.026	1.31	1.03 to 1.68	0.027
	Non-NSM	36 (15.38%)				
Postoperative complications - delayed**	NSM	18 (27.27%)	0.458	1.09	0.9 to 1.34	0.361
	Non-NSM	75 (32.05%)				

NSM: Nipple-sparing mastectomy. IQR: Interquartile Range. CI: Confidence Interval.

*Mean differences and Odds Ratios use non-NSM as baseline, hence positive values favor NSM and negative values favor non-NSM.

**Postoperative complications are presented as those recorded after mastectomy and immediate breast reconstruction (or first stage of a staged reconstruction with tissue expanders) and those recorded after delayed reconstruction (or second stage for staged reconstructions).

77. A Longitudinal (10 Year) Assessment of Abdominal Wall Strength and Health after Autologous Breast Reconstruction

University of Pennsylvania, Philadelphia, 227, USA

Jonas A. Nelson, MD¹; Michael G. Tecce, DO²; Michael A. Lanni, BS³; Jesse C. Selber, MD, MPH⁴; Liza C. Wu, MD⁵; Joseph M. Serletti, MD FACS²; (1)Plastic Surgery, University of Pennsylvania, Philadelphia, PA, (2)Division of Plastic Surgery, University of Pennsylvania, Philadelphia, PA, (3)Department of Surgery/Division of Plastic Surgery, University of Pennsylvania, Philadelphia, PA, (4)Plastic Surgery, MD Anderson Cancer Center, Houston, TX, (5)Division of Plastic Surgery, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA

A Longitudinal Assessment of Abdominal Wall Strength and Health after Autologous Breast Reconstruction

Nelson, Tecce, Lanni, Selber, Wu, Serletti

Background: The purpose of this study is to provide long term, subjective and objective functional data on patients undergoing autologous breast reconstruction using abdominal tissue and to assess factors impacting functional differences.

Methods: Patients participated in this prospective study between 2005-2015, completing preoperative, early and late subjective and objective evaluations. Objective examination included an assessment of upper (UA) and lower (LA) abdominal strength and functional independence (FIM). Patient reported outcomes (PROs) included the Short Form 36(SF36) and the Breast Q. Scores were compared by laterality and flap type, and a logistic regression was performed to determine factors influencing function.

Results: Fifty-five patients completed long-term follow-up (mean 6.9 (range 5-10) years.) Bilateral patients constituted 61% of the cohort, and 30% of patients were obese. Overall, 78.8% of patients had stable or improved scores across the UA, LA and FIM, with no significant differences based upon laterality or flap types (see table). Subjectively, 85% demonstrated improvement in SF36 physical health component. Obesity and comorbid conditions were risk factors for scoring in the lowest third of SF36 physical health component scores ($p < .012$). Further, obesity was determined to directly impact both the mental ($p < .005$) and the physical ($p < .001$) components as well as change in mental health score ($p < .026$).

Conclusion: Abdominally based autologous breast reconstruction does not appear to cause long term strength or functional impairment. However, obese patients may be at risk for long term subjective physical health impairment.

Table 1: Statistical analysis results (p-values) for comparisons of abdominal wall function

Comparison*	Unilateral vs. Bilateral	Unilateral flap type	Bilateral flap type	Obese vs. Non-obese
Δ Upper Abdominal Strength	0.098	0.94	0.23	0.07
Δ Lower Abdominal Strength	0.19	0.87	0.59	0.11
SF36 Physical Health	0.90	0.47	0.17	0.0009
Change in Physical Health	0.50	0.41	0.23	0.002
SF36 Mental Health	0.75	0.89	0.24	0.005
Change in Mental Health	0.34	0.36	0.33	0.03
Breast Q abd wellbeing	0.49	0.23	0.53	0.15
* all values are P value to demonstrate statistical evaluation of the comparison groups.				