Clinique Dallas
PLASTIC SURGERY

Institute for Cosmetic & Reconstructive Breast Surgery

Body of Courage

BABC
USA

A Guide for Options in
Breast Reconstruction

Beautiful After Breast Cancer

John W. Antonetti, M.D.
J. Faridy Cocco, M.D.

This book is a testament to the courage of our breast cancer patients in their treatment and continuation of life. It is meant as a guide for women with breast cancer who desire information and understanding of breast reconstruction.

We ask our patients to read this book in addition to other material before surgery so they can make an educated decision. Women need to ask their doctors questions and understand their condition because it is their body and life choices.

Reconstruction involves multiple stages and time to complete. The breast cancer patient should understand the alternatives available as thoroughly as possible in order to make an informed decision.

It is our hope that this book will impart a better understanding of breast cancer and reconstruction options, as well as improve breast cancer awareness. Awareness is a constant struggle to protect those who will be faced with this challenge in the years to come.

Women should understand their options, know that they are not alone, and that there is life after breast cancer.

Dr. John W. Antonetti
Dr. J. Faridy Cocco

John W. Antonetti, M.D.
Plastic and Reconstructive Surgeon

Dr. Antonetti is certified by the American Board of Plastic Surgery. Dr. Antonetti practices in the Dallas and North Texas area performing cosmetic and reconstructive procedures of the breast, body, and face.

Dr. Antonetti graduated from Texas A&M University, and obtained his medical degree from The University of Texas Medical Branch Galveston. Dr. Antonetti completed his Residency in Plastic Surgery at the University of Texas Medical Branch. After completing training in plastic surgery, Dr. Antonetti traveled to Ghent Belgium where he completed Fellowship training for Microsurgery, Perforator Flaps, and Advanced Breast Reconstructive techniques.

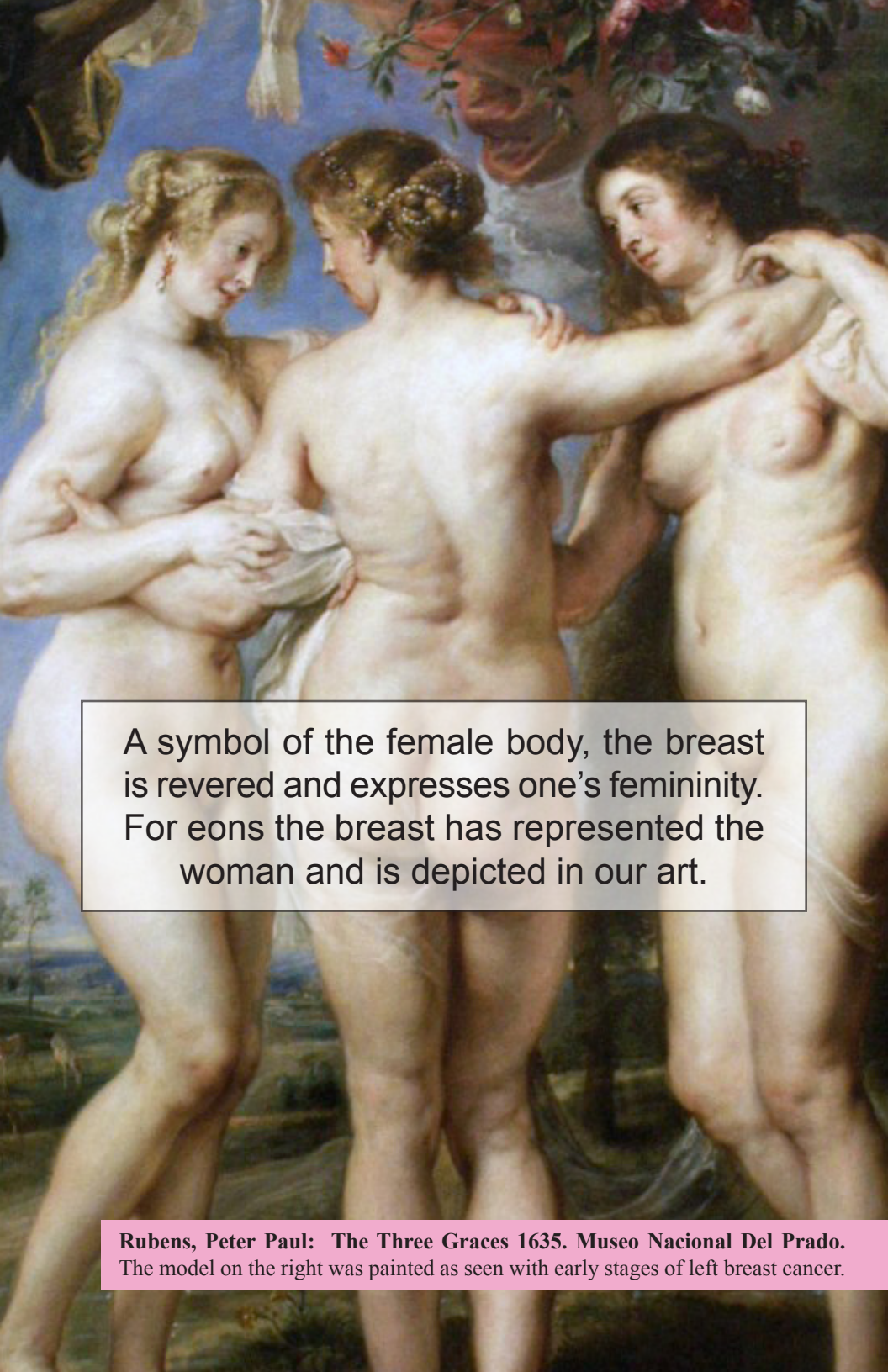
Dr. Antonetti has published articles on topics including facial reconstruction, microsurgery, and cosmetic surgery. Additionally Dr. Antonetti has presented research on topics in microsurgery and presented at national plastic surgery meetings.

Jennyfer Faridy Cocco, M.D.
Plastic and Reconstructive Surgeon

Dr. Jennyfer Faridy Cocco is a Board-Certified Plastic and Reconstructive Surgeon practicing in Dallas and the North Texas areas. She is certified by the American Board of Plastic Surgery. Dr. Cocco performs both cosmetic and reconstructive procedures of the breast, body, and face.

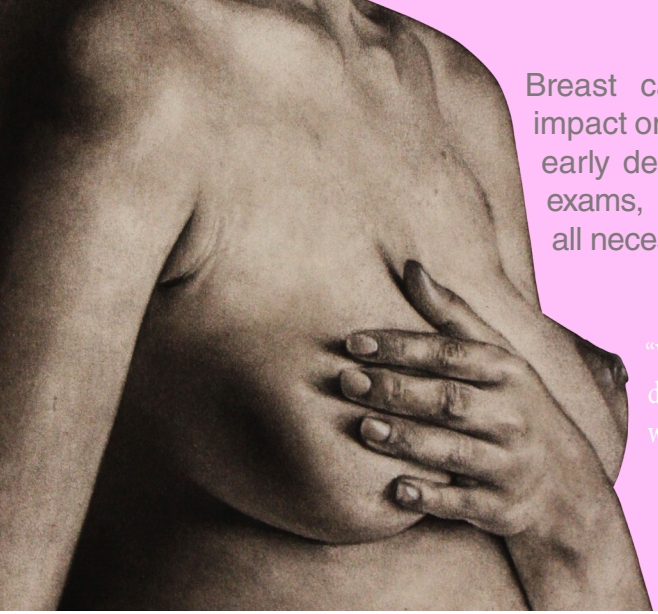
She received her Medical degree from the University of Arizona, College of Medicine. Dr. Cocco completed her plastic surgery residency at the University of Texas Medical Branch. Dr. Cocco obtained additional training in reconstructive breast microsurgery. She traveled to Switzerland and Belgium to refine her surgical skills using DIEP perforator flaps for breast reconstruction.

Dr. Cocco is fluent in Spanish and her staff at Clinique Dallas is bilingual and fully capable of assisting patients choose the best possible option for them.



A symbol of the female body, the breast is revered and expresses one's femininity. For eons the breast has represented the woman and is depicted in our art.

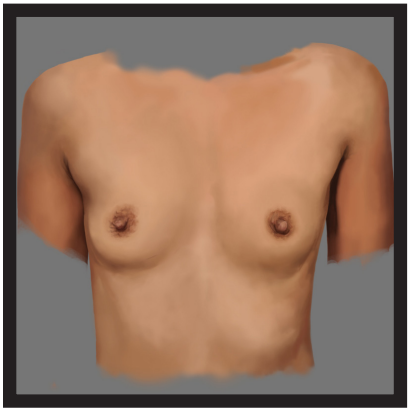
Rubens, Peter Paul: The Three Graces 1635. Museo Nacional Del Prado.
The model on the right was painted as seen with early stages of left breast cancer.



Breast cancer imposes a direct impact on a woman's life. Therefore early detection, routine screening exams, and prompt treatment are all necessary for best outcome.

"When I found the lump, I tried to deny what happened to my mother was happening to me....." PAM

Breasts come in a variety of sizes and shapes. Reconstructive options will vary depending on a patient's anatomy, cancer stage and clinical circumstances.



By 80 years of age, one in eight women will be diagnosed with breast cancer. Because of such high incidence it is not uncommon to have a family member or close friend who has been afflicted with the disease. For those recently diagnosed, currently receiving treatment, or continuing life after breast cancer, the impact could not be more direct.

What is Breast Cancer?

Cancer is when a group of cells in the body grows out of control to form lumps of tissue called *tumors* or *masses*. In the breast, most of these tumors are harmless or *benign*. However, there are some tumors which are *malignant* or *cancerous.* A cancerous tumor not only grows in size to become palpable, it will eventually invade into the normal breast tissue and travel to the lymph nodes. Once it reaches the lymph nodes, it will further travel to other parts of the body such as the brain and lungs to cause problems with normal function.

Breast Cancer Statistics

Incidence: 250,000 new cases diagnosed yearly in the U.S.
Mortality: 50,000 deaths each year,
Ranks as most common cancer among women

Chances of getting breast cancer

By age 30….1 out of 2,525
By age 40….1 out of 217
By age 50….1 out of 50
By age 60….1 out of 24
By age 70….1 out of 14
By age 80….1 out of 8

The Cause of Breast Cancer

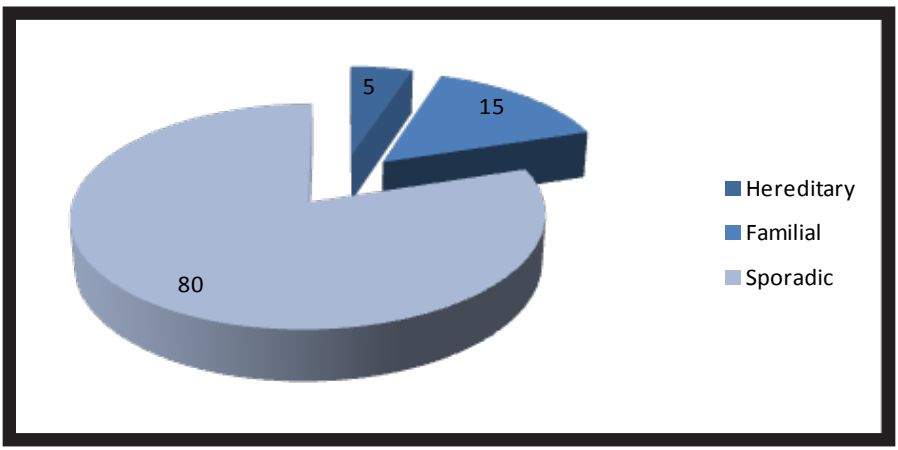
Unfortunately, there is not one single cause of breast cancer. Most cases occur sporadically, meaning at random. There have been many scientific studies comparing a large number women with and without breast cancer that have tried to identify common denominators. The vast majority of cases result of a combination of the following identified risk factors :

- Female gender, increasing age
- Obesity, sedentary lifestyle
- Older age at birth of first child
- Long exposure to estrogen (early menses and late menopause)
- Both alcohol and tobacco

Additionally, there are a few forms of hereditary cancer.

- Uncommon genetic cancer predispositions:
- BRCA1 and BRCA2 (Tumor suppressor genes)
- Li-Fraumeni syndrome (p53 gene)
- Cowden's disease (PTEN gene)
- Muir syndrome (MSH2 and MLH1)
- Others

Patterns of Breast Cancer Incidence



A new diagnosis of breast cancer can come from various events such as noting a mass in the breast, changes in the skin or nipple, or an abnormality on seen on a yearly mammogram.

Diagnostics

Self Breast Exam
Yearly Physical
Mass, pain, skin change, nipple discharge
Mammogram or ultrasound
Incidental finding

"We need to urge women to actually do montly self exams and maintain regular screening with mammogram and physical exams." JFC

Patients are often referred by their primary care physician or gynecologist to a breast surgeon (also known as an oncologic breast surgeon) who will perform biopsy of the tumor. Additional imaging (MRI, Petscan, CT scan) or blood tests may be obtained to direct what type of treatment is required.

Breast Cancer Treatment

The treatment of breast cancer generally includes a combination of surgery, chemotherapy and radiotherapy. Every patient is unique and treatment will depend on tumor size, location, possible spread, and patient medical conditions.

Surgery- Surgically removes the primary tumor via lumpectomy or mastectomy, and samples local lymph nodes for local spread of cancer cells. The term *lumpectomy* refers to partial removal of the breast (the lump), aiming to remove the entire tumor and a margin of surrounding healthy breast tissue. The term *mastectomy* refers to total removal of the breast tissue with the tumor contained. The nipple and/or part of the underlying muscle may be removed based on the type and location of tumor.

Chemotherapy- Refers to the use of medications that are injected into the veins or taken orally over a period of time. It is a treatment that aims to kill cancer cells throughout the entire body as the drugs circulate in the bloodstream. Chemotherapy may also be used to reduce a tumor size before surgery.

Radiotherapy- Delivers high dose of radiation to areas with potential cancer cells. The radiation breaks the cancer cells' DNA to prevent the cancer cell from dividing and spreading. The general area of the tumor as well as possible areas of spread are treated.

The breast oncology surgeon develops and coordinates a treatment plan along with medical and radiation oncologists who direct chemotherapy and radiation respectively. The entire process can be quite complex and requires the expertise of different types of doctors focused on breast health.

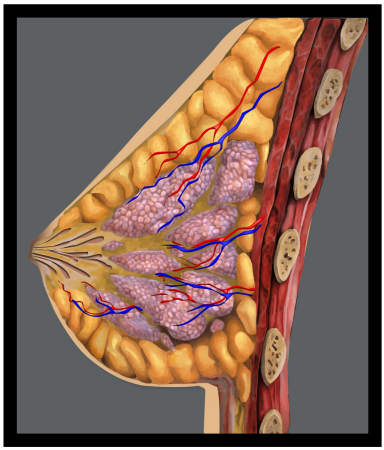
Main Treatment Team

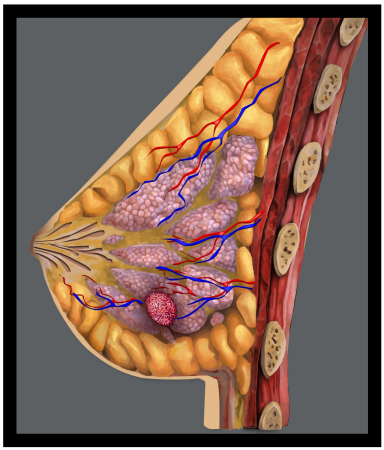
Surgical Breast Oncologist/ General Surgeon- Removes the tumor
Medical Oncologist- Chemotherapy
Radiation Oncologist- Radiation Therapy
Primary Care Physician- General Surveillance

Ancillary Team

Plastic Surgeon- Reconstructs Breast
Breast Radiologist- Monitors mammograms/sonograms
Pathologist- Examines biopsied tissue microscopically
Genetic and Psychiatric Counselors

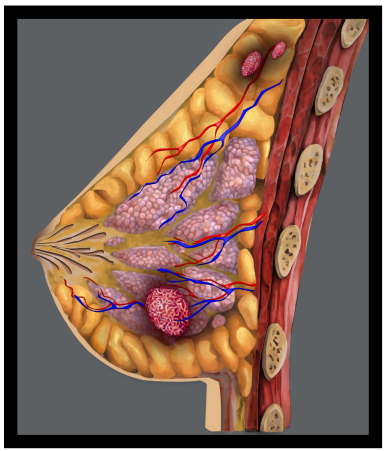
Normal breast anatomy consists of the skin, subcutaneous tissue, and breast glandular tissue overlying the pectoralis muscle. The breast tissue contains a network of ducts and lobules which converge towards the nipple.

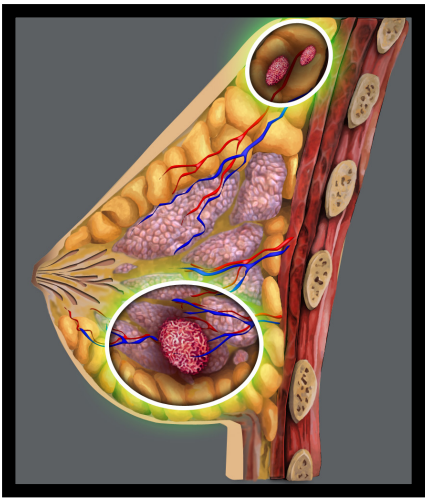




Breast cancer originates from within breast tissue. The tumor is an abnormal growth of cells within the ductal or lobular tissue of the breast.

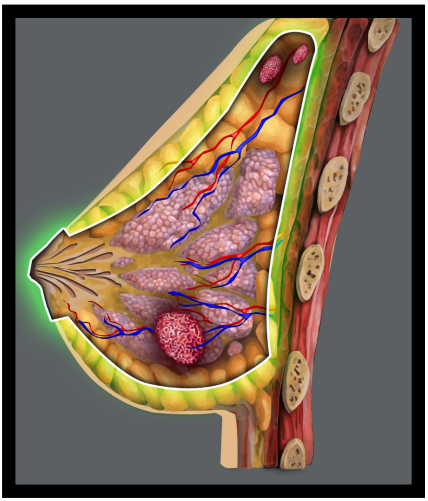
As breast cancer increases in tumor size the cancer is more likely to spread to surrounding organs and lymph nodes.





Lumpectomy

Removes a segment of the breast and requires radiation therapy. Selected lymph nodes are also taken to evaluate for spread of cancer. Nipple and breast architecture are mostly preserved. Radiation can result in contraction of breast.

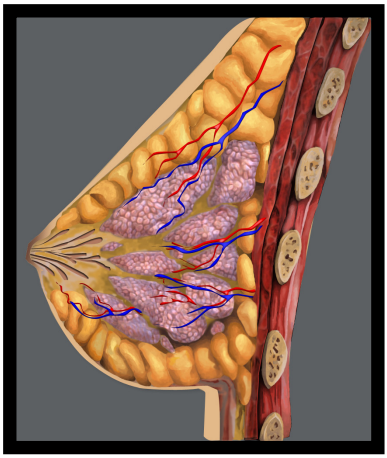


Mastectomy

Removes most breast tissue, nipple, areola, and skin from the breast. In addition to removing breast tissue, lymph nodes from the axilla are usually sampled to evaluate for spread of cancer. For some patients part or all of the nipple may be preserved.

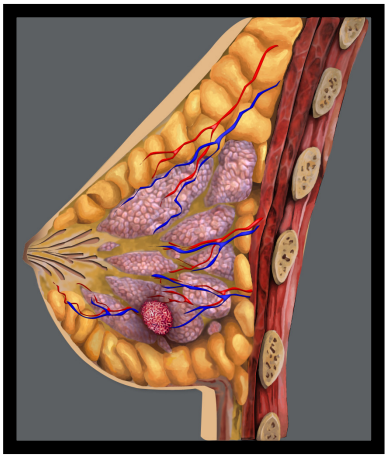
Stage 0 (in situ cancer)

In situ ductal or lobular carcinoma represents early breast cancer that has not become invasive through the breast ducts and lobules.



Stage I

Breast cancer with tumor size two centimeters or smaller. The tumor involves surrounding tissue but has not spread beyond breast.

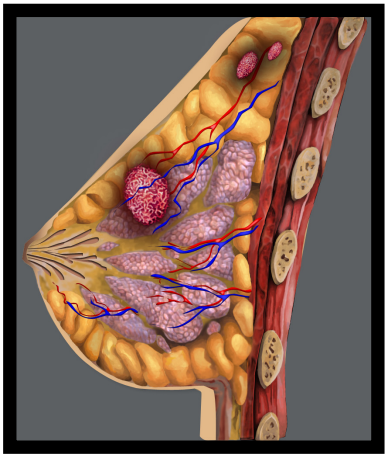


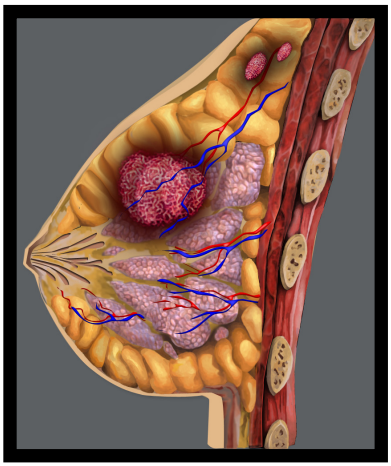
Stage IIA

Tumor that has spread to axillary lymph nodes but less than two centimeters.

Stage IIB

Tumor is larger than 2 but no larger than 5 centimeters and has spread to the axillary lymph nodes, OR tumor is larger than 5 centimeters but has not spread to the axillary lymph nodes.



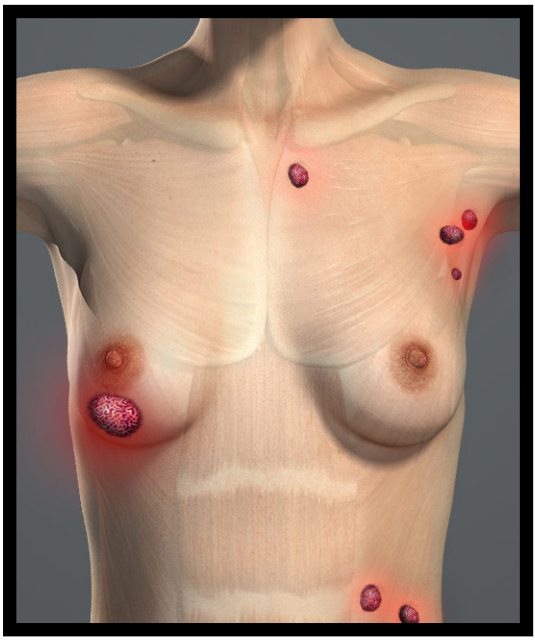


Stage IIIA / Stage IIIB

Advanced breast cancer with spread to axilla with adherent lymph nodes or tumors greater than 5 centimeters and lymph node involvement. Spread of tumor to surrounding structures like skin, muscle and chest wall.

Stage IV

Distant spread of cancer to other organs of the body including lungs, liver, bones, and brain.



Reference: National Cancer Institute. Breast Cancer Treatment
http://www.cancer.gov/cancertopics/types/breast

Many of our patients ask "*what is going on these days for so many women to get breast cancer and why is it so common?*" Well we've included a time line for the history of breast cancer and breast reconstruction to show that breast cancer has afflicted women through the ages and is depicted in our writings, artwork, and historic accounts for over three thousand years! However, it has only been the past hundred years that we have gained a better understanding of how breast cancer occurs, and only the past thirty years that we have developed better options for reconstruction of the breast. *JWA*

History of Breast Cancer

Egyptian papyrus: First description of breast cancer in 1600 BC.
Galen's theory: Successor to Hippocrates, Galen believed breast cancer resulted from coagulum of black bile within the breast. He described medical treatment for breast cancer, but surgery was not considered an option. 200 AD
Virchow's idea in the 1800's: Virchow believed tumor cells invaded locally and then centrifugally in all directions.
Halsted: The father of modern surgery, William Halsted described breast cancer to remain localized before spreading in an orderly manner to regional and then distant targets. He performed first radical mastectomy in 1889 as an aggressive therapeutic approach to control the disease.

History of Breast Reconstruction

1800's- Radical mastectomy, no reconstruction
1906- Tansini, first Latissimus Dorsi breast reconstruction
Early 1900's- Tubed "Waltzed" flaps
1960's- Silicone gel filled breast implants
1976- Radovan, Tissue Expander used for breast reconstruction
1977- Schneider rediscovers Latissimus dorsi flap
1982- Hartrampf's TRAM flap reconstruction
1990's- Perforator Flaps, DIEP flap, Skin-Sparing Mastectomy
2000+ Nipple-Sparing Mastectomy gains greater acceptance

Breast Cancer, the role of the plastic surgeon

The plastic surgeon is consulted to provide options for reconstruction of the breast after lumpectomy or mastectomy. The plastic surgeon aims to *"restore, rebuild and make whole those parts which nature hath given but which fortune has taken away; not so much that it may delight the eye, but that it might buoy up the spirit, and help the mind of the afflicted."* - Gaspar Tagliacozzi (1545-1599) (Plastic Surgery Pioneer)

Breast Reconstruction, the plastic surgeon's objective

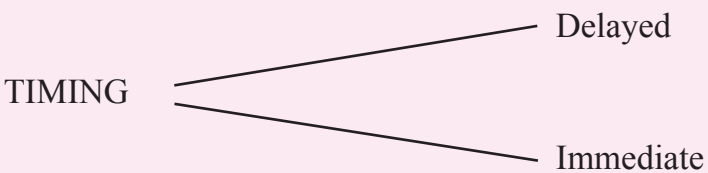
- Reconstruct the skin envelope.
- Create a natural appearing breast mound.
- Reconstruct the nipple-areolar complex.
- Achieve breast symmetry as best possible.

Following mastectomy, the main goal of breast reconstruction is to restore breast volume and projection, and reconstruct the nipple and areola.
Secondary goals are to provide breast symmetry

"The reconstructed breast will not look exactly what we were born with, but it is the next best thing." -P.M.

Timing of Breast Reconstruction

The timing of breast reconstruction is always a choice. Patients do not have to have immediate breast reconstruction. One may choose to have delayed reconstruction following the mastectomy or may prefer to live with the results following mastectomy. The word *immediate* means that the process of reconstruction starts at the time of mastectomy.



Breast reconstruction usually requires two to three operations and may take four to twelve months, or more, to complete. There may be a temporary delay during the process due to chemotherapy or radiation therapy if needed. Also, during the time between breast reconstructive operations, the patient may have greater breast asymmetry. Lastly, there may be additional operations required years after the original reconstruction.

Breast reconstruction is provided in a variety of different procedures. A patient's reconstructive options will be unique to her anatomy and medical condition. No matter what method of breast reconstruction is performed, there is always the risk of failure or need for further procedures.

Photo shows preoperative view before treatment of breast cancer with bilateral mastectomy.

Above, photo shows second stage after bilateral breast reconstruction with DIEP flaps and nipple reconstruction.

Tattoo of the nipple and areola may be needed to return pigmentation.

** See page 36 for details on DIEP Flap breast reconstruction.*

Breast Reconstruction, the patient's objective

The realistic goals of breast reconstruction are to appear normal and symmetric with a bra and clothing on. Without clothing, it will usually be apparent that a reconstructed breast had surgery.

Alternatives to Breast Reconstruction

A patient may use an external breast prosthesis following mastectomy to improve breast symmetry with clothing on. They may also undergo delayed breast reconstruction at a future date following their mastectomy.

The photo above shows bilateral breast prosthesis worn under clothing.

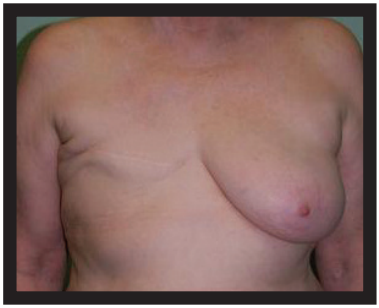
Wearing a breast prosthesis can be similar to wearing a bra.

Advantages

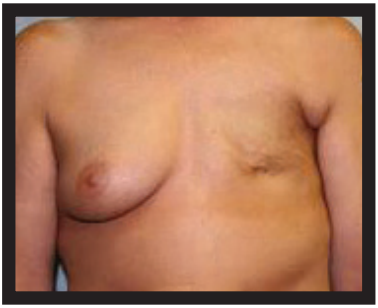
- No further surgery needed
- Shorter surgery time/hospital stay
- Symmetry restored with prosthesis
- May consider reconstruction in future
- Can concentrate on chemotherapy and radiation therapy

Disadvantages

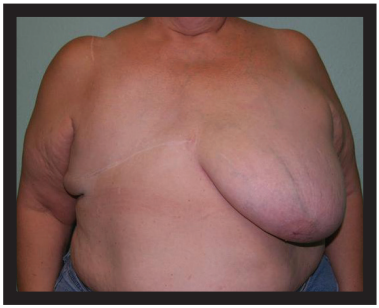
- Added cost of prosthesis/replacements
- External prosthesis can dislodge
- Asymmetry in and out of clothing-
- Impaired self image



Mastectomy alone results in a horizontal scar across the chest.



Patients may undergo radiation therapy before reconstruction.



Some patients prefer not to undergo immediate reconstruction because they want to minimize recovery time.

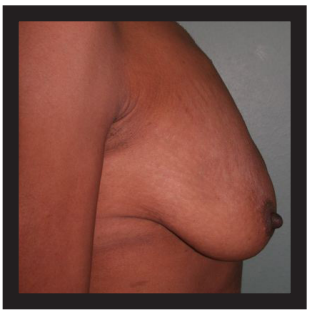
"Despite the disadvantages of the mastectomy scar, this is nothing to be ashamed of. While the breast represents a symbol of femininity, the breast does not define the woman. Life is of greater importance than the deficit of treating our cancer. Early diagnosis and treatment results in improved outcomes. Awareness, early detection, and treatment are a constant pursuit for improving outcome for women with breast cancer."

Advantages

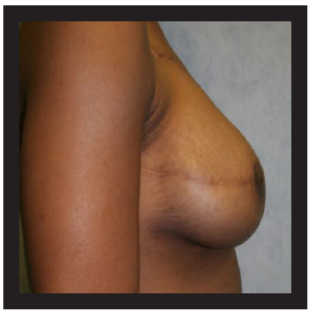
• Most patients with stage I and II disease are considered good candidates for immediate reconstruction
• Often achieves superior cosmetic results
• Less emotional trauma as the patient wakes up with a mound

Disadvantages

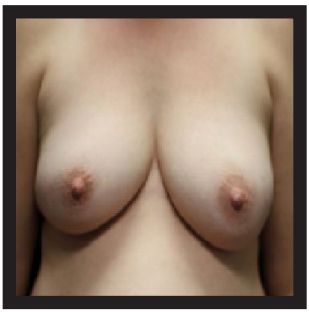
• Longer hospitalization/recovery
• Possible additional scars and donor sites
• Mastectomy skin envelope sometimes inadequate with potential wound healing complications.
• Radiation may negatively affect the aesthetic outcome.



Preop photo shows breast sagging in a patient prior to bilateral mastectomy.



Final outcome following tissue expansion, placement of silicone implants, and nipple/areolar reconstruction.



Preop view in woman diagnosed with left breast cancer.

Postoperative view following left DIEP flap reconstruction, Nipple sparing protocol.

Advantages

• Shorter hospital stay/shorter recovery
• Adjuvant therapy, such as radiation can be performed without harm to a flap reconstruction.
• Allows patient extra time to consider reconstructive options

Disadvantages

• Mastectomy scar on chest wall
• Requires additional surgery and recovery time
• The patient lives with asymmetry that can be improved by wearing an external breast prosthesis.

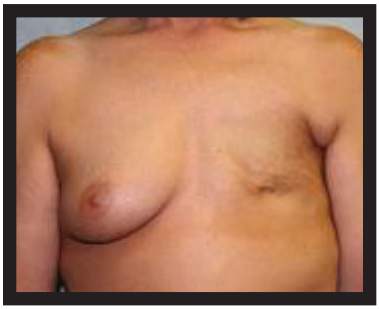
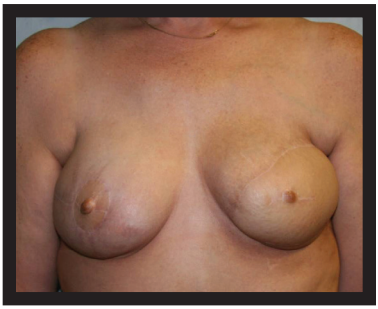


Photo above shows view of patient with left mastectomy defect who requires a prophylactic right mastectomy.



Simultaneous breast reconstruction with bilateral DIEP flaps. Immediate after mastectomy on the right breast and delayed on the left breast.

Patient pictured has a history of right breast cancer treated with mastectomy and no reconstruction. She will require a left breast reduction at the time of delayed right breast reconstruction.

Delayed reconstruction of right breast with DIEP flap. Left breast reduction performed to improve symmetry.

Implant vs. Autologous Breast Reconstruction

Implant Reconstruction

• Usually requires the use of temporary tissue expanders to increase the skin envelope of the breast.

• Uses either silicone gel or saline filled breast implants to restore breast volume following mastectomy.

• May be associated with rippling of the implants depending on the thickness of the overlying skin and fat.

• May develop *capsular contracture*, which is a condition where a scar forms around the breast implant constricting it. This results in firmness and possible shape deformity of the breast.

• Radiation therapy is associated with high incidence of capsular contracture (47.5% of the time).

• May require further unanticipated surgery or revisions in the future for problems related to the implants

• Cosmetic results tend to degrade in appearance, shape, and feel over time.

Autologous Tissue Reconstruction (DIEP Flap)

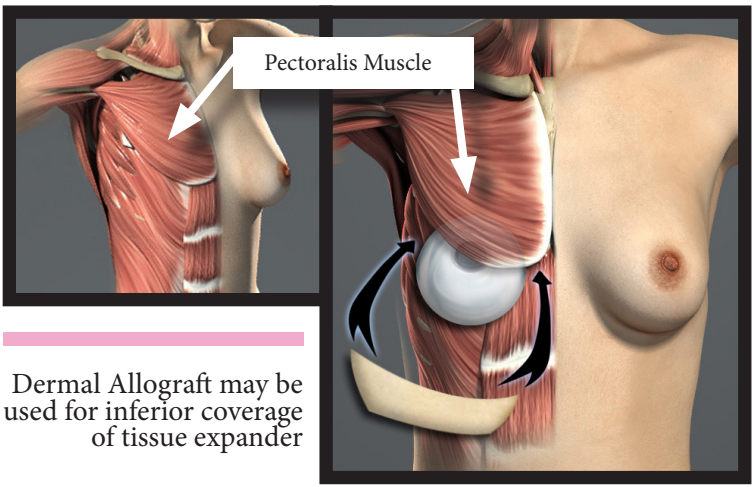
• Autologous tissue is defined as that which has it origin within an individual, which often comes from excess skin and fat.

• The Deep Inferior Epigastric Artery Perforator Flap comes from the lower abdominal skin and fat.

• Generally superior cosmetic results, which are longer lasting.

• Tissue expanders may be placed at the time of mastectomy and then replaced with Autologous tissue at the second stage of breast reconstruction.

A tissue expander is a temporary inflatable prosthetic implant that expands the skin after mastectomy. It is placed beneath the chest muscles to provide coverage over the implant. Sometimes there is need for additional coverage beneath the pectoralis muscle, which may be achieved by using allograft. An allograft is a skin dermis graft of cadaveric origin that has been processed to remove all the living cells. Eventually living cells from the body replace it.



Dermal Allograft may be used for inferior coverage of tissue expander

Tissue expander is placed beneath the pectoralis muscle to provide coverage over the implant.

Preop photo shows view before bilateral mastectomy.

Postop photo following bilateral tissue expander placement for first stage of reconstruction.

Two to three weeks after the tissue expander is placed the expansion begins. Over the next 3-4 months, the patient will have weekly injections of saline into the expander until the desired size. The tissue expander is finally replaced in the operating room with an implant. The entire process normally takes about 6 months, unless the patient requires radiation which delays the replacement for one year.

Tissue expander is initially placed beneath the skin and pectoralis muscle with minimal volume.

The tissue expander is slowly filled during clinic visits to stretch the overlying skin and increase volume of the reconstructed breast.

Photo after exchange of tissue expander for silicone implant. Nipple has been reconstructed with surrounding skin.

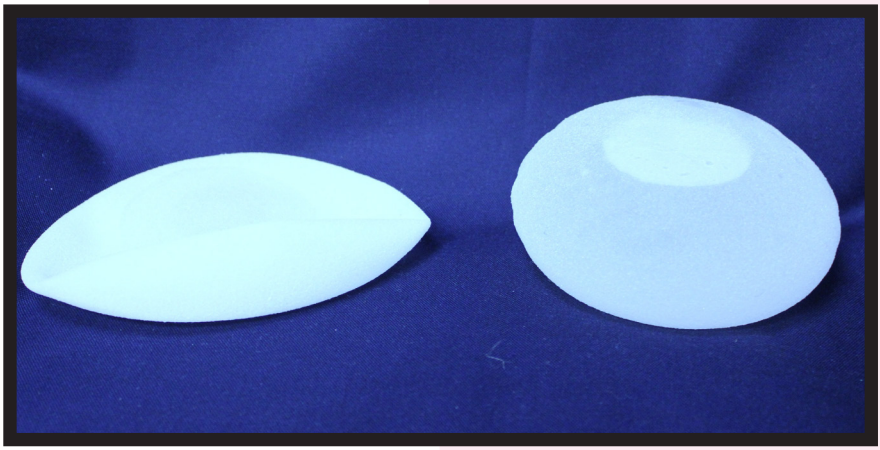
Final stage of reconstruction one year following mastectomy has been achieved with nipple/areola tattoo.

Advantages

- Obviates the need to wear a daily external breast prosthesis
- No additional scarring away from breast
- Restores a naturally appearing breast mound in clothing
- Shorter procedure, hospital stay, and recovery time

Disadvantages

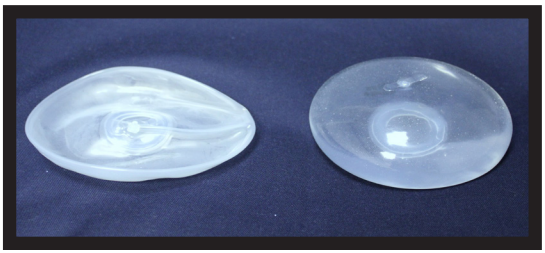
- An implant is a foreign body with risk of rupture or failure.
- Implants are not permanent and may need exchange or removal.
- Problems with the implant may include deformities such as visible rippling, or capsular contracture (scarring around the implant).
- High incidence of post-radiation capsular contracture
- Implants generally degrade over time in cosmetic appearance.
- Higher risk of future unanticipated surgery for revision
- Possible asymmetry with normal breast



Tissue expanders pictured above are placed with minimal volume seen in the expander on the left. An inflow port on the expander allows for additional saline to be injected into the expander during postoperative clinic visits thereby increasing the size of the tissue expander as seen on the right.

Saline Breast Implant

Saline breast implants consist of a silicone shell filled with saline water. They can be used to replace the lost breast volume following mastectomy. Saline implants have a high safety history as rupture of an implant would release saline water which is simply absorbed by the body. A leak is often identified by the patient as a rapid reduction in breast volume. A ruptured saline implant would require replacement to restore breast symmetry.



Saline implants pictured above come deflated as seen on left and are filled with saline water as seen on the right.

Silicone Gel Breast Implant

Silicone breast implants consist of a silicone shell filled with silicone gel. It is believed that silicone gel implants have a more natural feel than saline water filled breast implants as they are lighter and less dense. Silicone gel implants have been deemed safe by the FDA for use in breast reconstruction and cosmetic breast augmentation, with specific recommendations for monitoring for rupture. All women should review risks and benefits in order to make an informed decision.

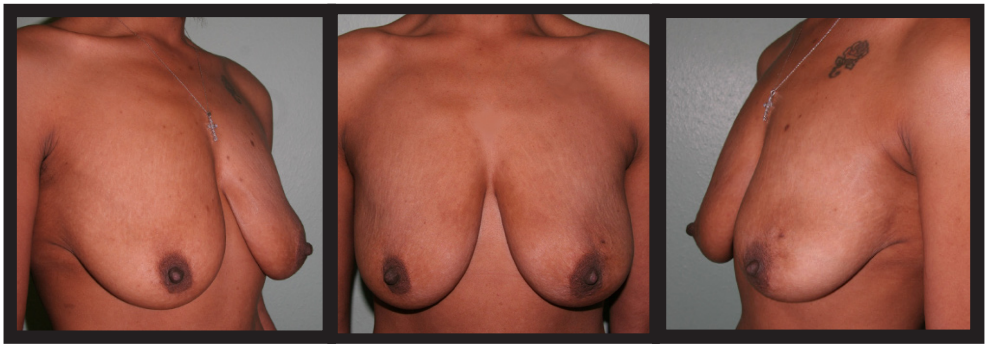
Silicone gel implants seen here come pre-filled in a variety of shapes and sizes.

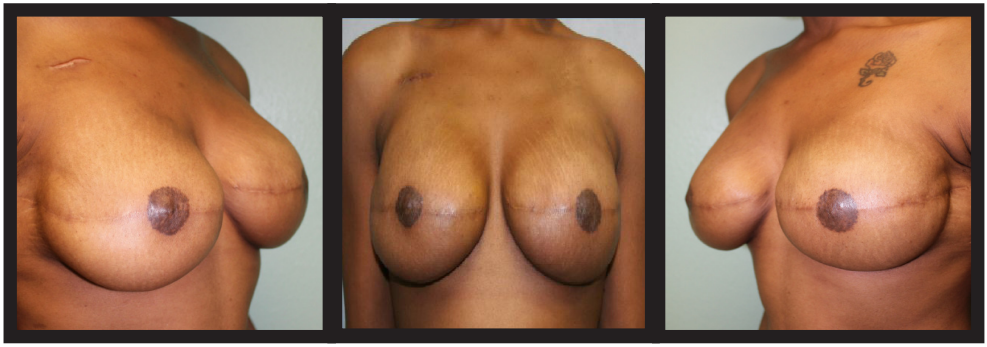
Bilateral Reconstruction with tissue expander and implant

Laura was diagnosed with left breast cancer after she felt a suspicious lump. Due to her young age she was advised to undergo bilateral mastectomy to treat her current cancer and prevent cancer in her other breast. Laura's preferred choice for breast reconstruction was tissue expanders and implants.

Laura made routine postoperative visits every one to two weeks for filling of the tissue expanders. After two months, the tissue expander filling was completed based on her desired breast size. Exact breast size is variable and some degree of asymmetry should be expected. Laura considered both saline and silicone implants to replace the tissue expanders. Ultimately she chose silicone implants because of their soft feel.

* Bilateral Mastectomy (Skin-sparing)
* Immediate placement of tissue expanders
* Replacement with silicone implants
* Fat grafting
* Nipple reconstruction & tattoo



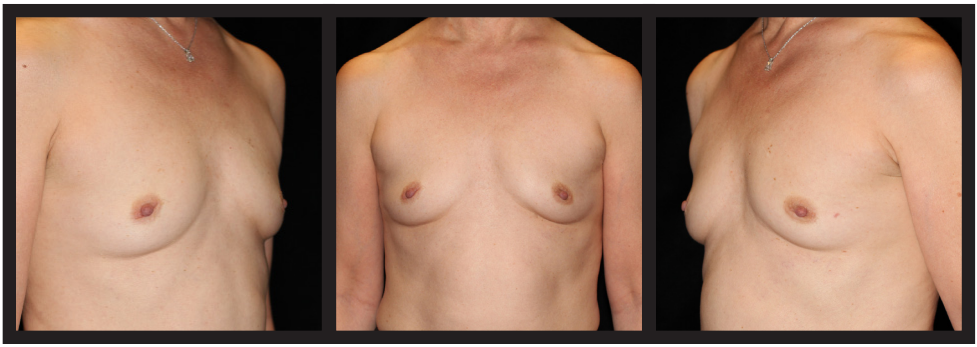


Bilateral Reconstruction with tissue expander and implant

Following diagnosis of left breast cancer Melanie was advised to undergo bilateral mastectomy for treatment of left breast cancer and to reduce her risk of getting cancer in her right breast.

Tissue expanders followed by placement of silicone implants were placed in addition to performing injections of fat around the breast. Fat grafting provided additional soft-tissue coverage over the implant, thus creating a more smooth contour and natural look.

Due to the early stage at diagnosis and location of tumor away from the nipple Melanie was a candidate for nipple preserving mastectomy.

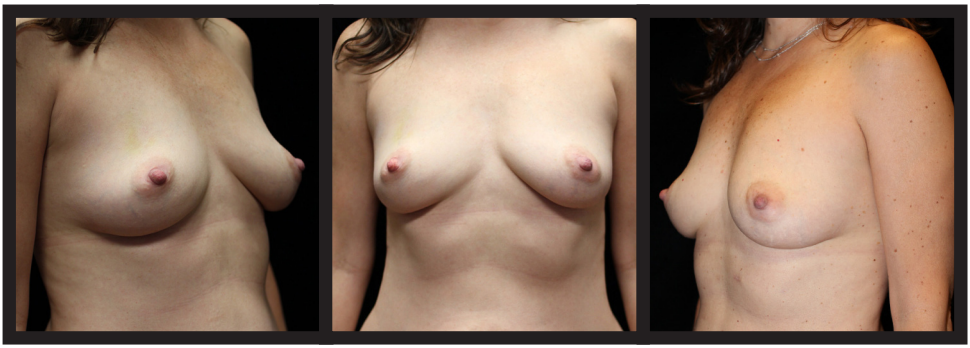


Preop photo before bilateral mastectomy and placement of tissue expanders and *Alloderm* graft. Left breast cancer.

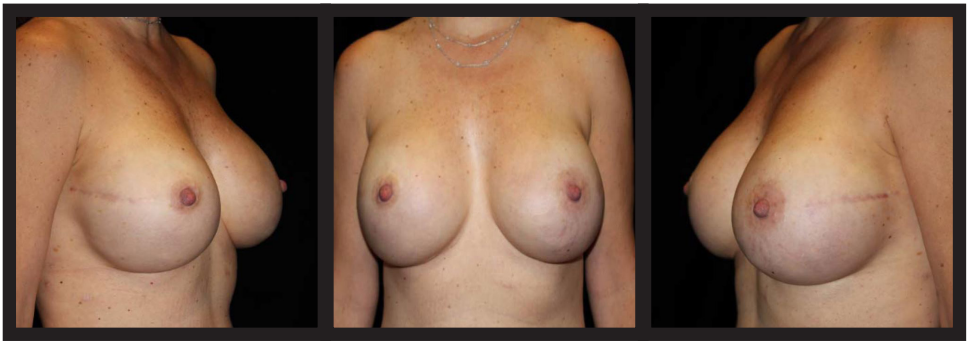
Postop view following bilateral mastectomy, tissue expansion, replacement with silicone implants, and fat grafting to breast. (Nipple preserving mastectomy)

Nipple Sparing Mastectomy

Roxy was thirty-nine years old when she began experiencing right breast pain. After seeing her gynecologist regarding her pain in the breast she was sent for a mammogram which showed calcifications concerning for breast cancer. A biopsy was next performed that confirmed the diagnosis of early stage breast cancer, ductal carcinoma in situ. The cancer was not located near the nipple so she was a candidate for nipple preserving mastectomy. During mastectomy a biopsy was performed which showed no nipple involvement. She underwent two surgical procedures to complete her reconstruction consisting of initial placement of tissue expanders followed by removal of the tissue expanders and replacement with silicone implants combined with fat grafting.



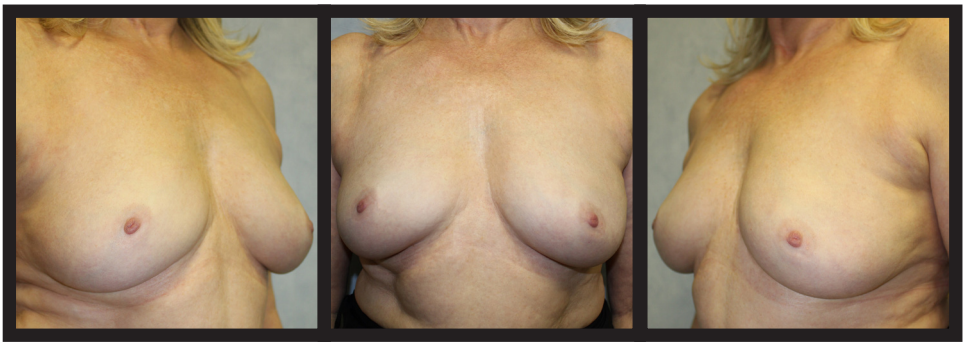
Preop view of patient with left breast cancer



Postop view of bilateral breast reconstruction using nipple sparing mastectomy

Nipple Sparing Mastectomy

For Carol, bilateral breast cancer was a surprise. She had been receiving regular mammograms when her yearly report returned abnormal. With early stage cancer she was a candidate for nipple preservation. She underwent bilateral nipple preserving mastectomy. Unfortunately, her final pathology evaluation returned with positive margins on her left nipple. Two weeks later removal of her left nipple was performed to treat her cancer, but her areola was spared and remained in place to give her a natural appearance to the breast. When attempting to preserve the nipples there is always the possibility that tumor may involve the nipple when evaluated by pathology and there is a need to have an additional procedure to remove the nipple. Nipple viability will also depend on breast anatomy and ability to preserve blood flow to the nipple following mastectomy.



Preop view of patient with left breast cancer

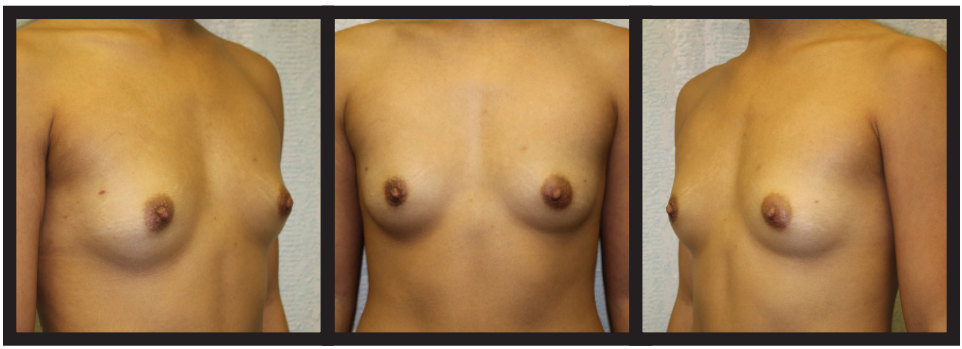
Postop view following bilateral tissue expander and silicone implant reconstruction

Nipple Sparing Mastectomy

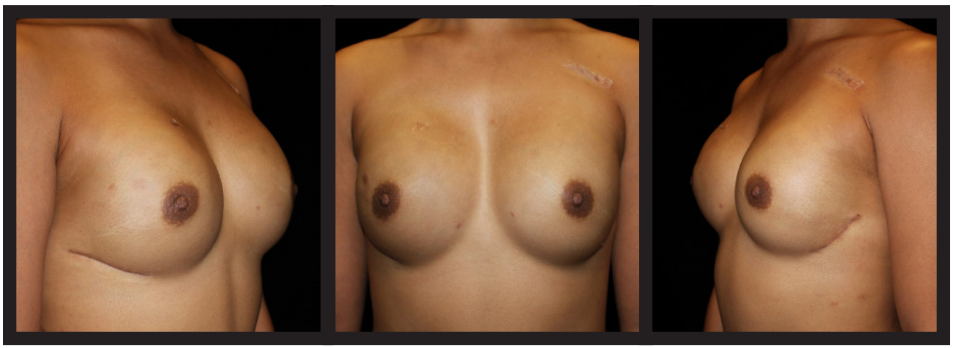
Following diagnosis of right breast cancer Samantha was advised to undergo bilateral nipple-sparing mastectomy to reduce her risk of getting cancer in her left breast.

Tissue expanders followed by placement of silicone implants were placed in addition to performing injections of fat around the breast. Fat grafting provided additional coverage over the implant, thus creating a more smooth contour and natural look.

Ideal anatomy and localized tumor location allowed for preservation of the entire breast skin envelope.



Preop photo before bilateral mastectomy and subpectoral placement of tissue expanders. Right breast cancer

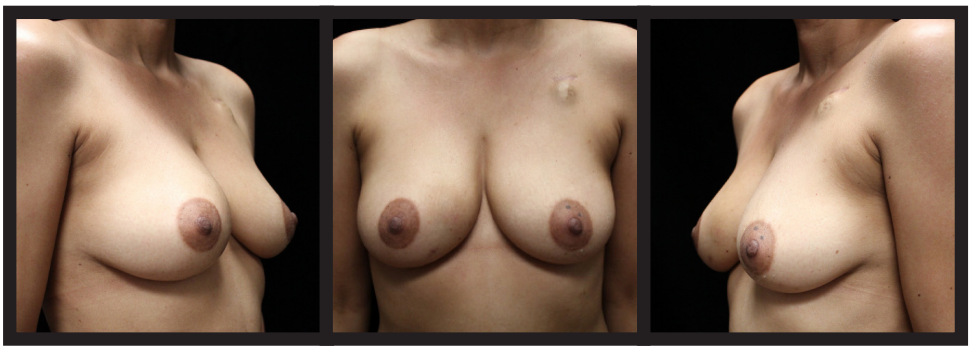


Postop view following tissue expansion, replacement with silicone implants, and fat grafting to breast. (Nipple preserving mastectomy)

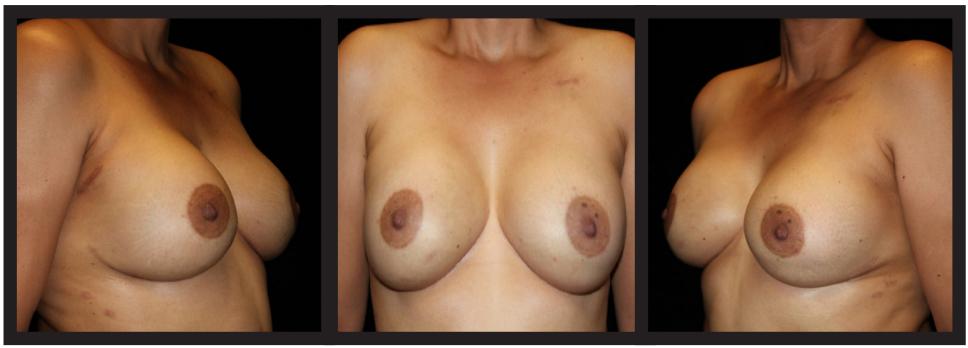
Nipple Sparing Mastectomy

Following diagnosis of right breast cancer Emily was advised to undergo right mastectomy, and to reduce her risk of getting cancer in her left breast a prophylactic mastectomy was performed.

Fortunately, her nipples were located in an ideal position on the breast, so she was a good candidate for nipple-preserving mastectomy via an inframammary incision. In general, final cosmetic outcomes are affected by initial anatomy, tumor location, tumor size, how well the patient heals from each of the procedures, and will vary from patient to patient as well as from side to side. However, it is important to always remember the primary goal of breast cancer treatment, which is to be free from cancer.



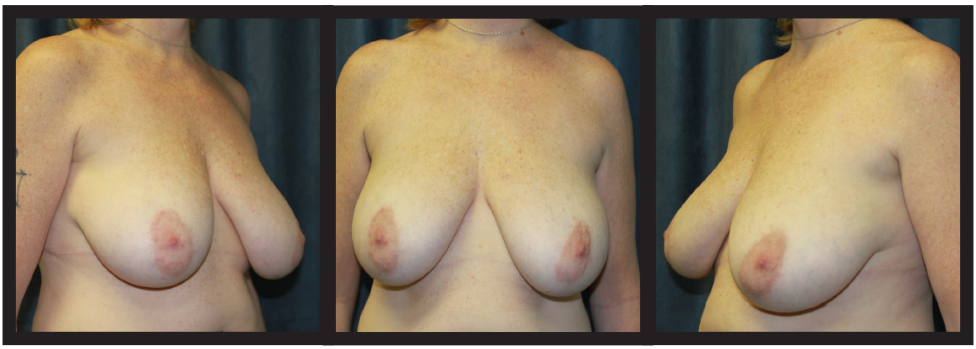
Preop photo before bilateral mastectomy, placement of tissue expanders, and *Alloderm* graft. Right breast cancer



Postop view following tissue expansion, replacement with silicone implants, and fat grafting to breast. (Nipple preserving mastectomy)

Bilateral Tissue Expander Breast Reconstruction and Nipple Preservation with Nipple Banking

Sheryl was found to have an abnormal mammogram on routine screening. Biopsy of the right breast proved to be breast cancer and due to the size and location of the lesion she was advised to undergo a mastectomy. She also had abnormalities in the left breast and opted to undergo a prophylactic left mastectomy. She desired to preserve her nipples but due to her breast anatomy she was not a good candidate for nipple preserving mastectomy. She was offered a nipple banking procedure where the nipples would be grafted to her groin, and then later returned to the breast for the final stage of reconstruction. This is a unique procedure that some patients may be interested in when breast anatomy does not allow for standard nipple preserving mastectomy techniques.



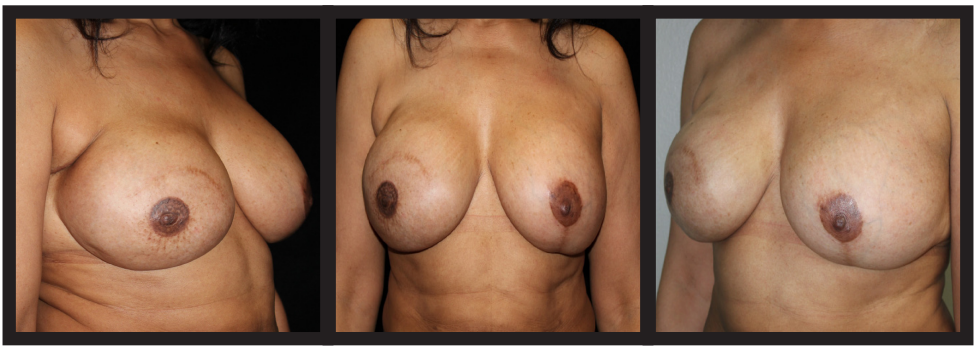
Preop view right breast cancer.

Postop view of patient reconstructed with tissue expanders, implants, and nipple banking.

Right Breast Reconstruction with tissue expander and implant combined with left breast augmentation mastopexy

Following diagnosis of right breast cancer Melanie was advised to undergo right nipple-sparing mastectomy to treat her breast cancer.
Following mastectomy a tissue expander was placed and later replaced with a silicone implant. Autologous fat grafting was performed to improve shape of the right reconstructed breast. On the left breast, the nipple was raised to a more youthful position matching the level of the right breast via a breast lift. Additionally, a silicone implant was placed on the left breast to restore upper pole fullness and improve breast symmetry with the reconstructed right breast.

Preop view in woman diagnosed with right breast cancer



Postoperative view following right breast reconstruction with implant, and left breast lift with implant to improve breast symmetry

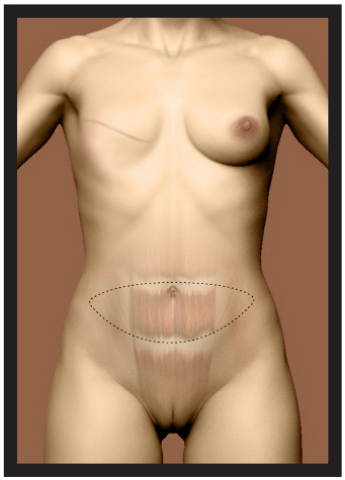
Deep Inferior Epigastric Artery Perforator *DIEP Flap*

The Deep Inferior Epigastric Artery Perforator Flap is a modification of the Transverse Rectus Abdominis Myocutaneous Flap, also known as TRAM Flap. The DIEP flap has improvements over the traditional TRAM flap in that it does not require taking the abdominal muscles (the rectus abdominis muscle). Therefore, there is less risk for development of a postoperative hernia or weakness of abdominal musculature.

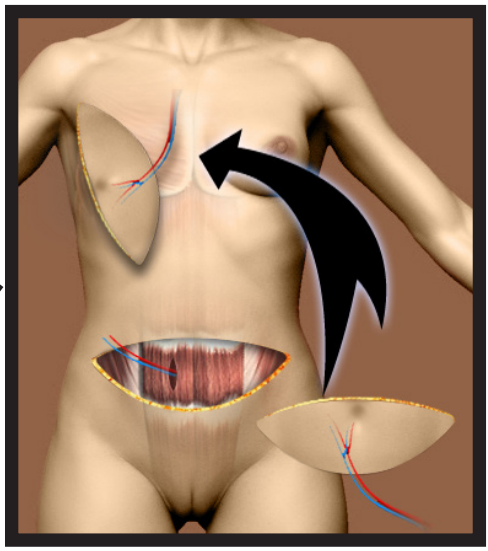
Similar to the TRAM flap, the DIEP flap takes only self-derived tissue (autologous), which provides the most natural look and feel. However, since it takes only skin and fat from the lower abdomen, this form of breast reconstruction replaces breast tissue removed during mastectomy with skin and fatty tissue, replacing "like with like."

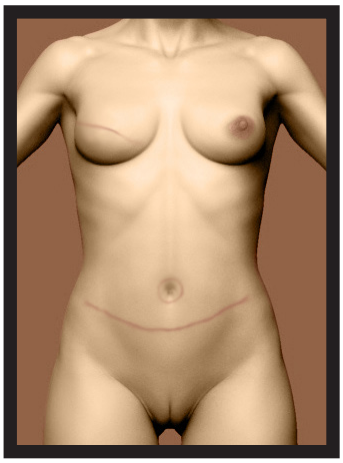
The benefits of autologous reconstruction are many. The cosmetic results are generally superior, more natural, and last longer than using implants, which are often not permanent. This translates into less future unanticipated operations. Also, when compared to implant-based reconstruction, the DIEP flaps are less prone to infection. This is because using one's own tissue which carries its own blood supply brings immune cells that fight infection.

Breast reconstruction with the DIEP requires the patient to have some excess skin and fatty tissue at the lower abdomen. It is a form of microsurgery requiring free tissue transfer and longer operative time and recovery than other forms of breast reconstruction. Therefore, patients with little abdominal tissue or significant medical problems may not be candidates for DIEP flap reconstruction.



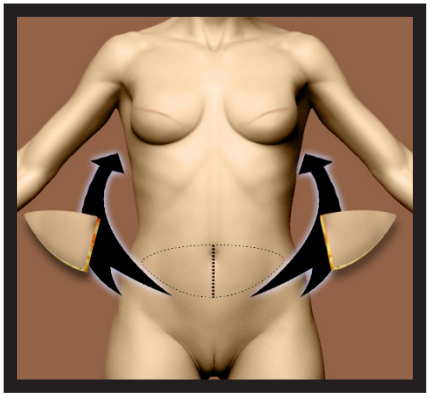
The DIEP flap consists of harvesting the lower abdominal skin and fat with their supplying blood vessels, or *perforators,* without taking the underlying rectus abdominis muscle.





The skin and fat harvested from the lower abdomen with its perforators is then transplanted to the chest. This requires use of an operating microscope.

For some patients bilateral breast reconstruction can be performed using each half of the lower abdomen for both the right and left breast.



Advantages

- Natural breast shape, behavior, and consistency
- No foreign body associated risks like capsular contracture
- Abdominal scar is similar to a “Tummy-Tuck” and spares the abdominal muscles

Disadvantages

- Longer surgical procedure, hospitalization, and recovery
- Additional scarring and complications with donor site

The DIEP flap can reconstruct bilateral breast replacing both skin and volume. Photos above show preoperative view on left and postoperative view on right following bilateral mastectomy, DIEP flap reconstruction, and nipple reconstruction.

The DIEP flap uses redundant lower abdominal skin and fat to reconstruct the breast. Photos above show patient before surgery on left and after breast reconstruction on right.

Ideal DIEP Flap candidate

- Healthy
- Non-smoker
- No plans of radiotherapy
- Compliant patient with realistic expectations

Contraindications

- Extreme obesity
- Uncontrolled cancer
- Significant medical problems
- Certain previous abdominal surgery

Preop view before bilateral mastectomy to treat left breast cancer.

Postop photo shows final breast and nipple reconstruction after bilateral DIEP flaps.

Secondary Procedures

Some patients require removal of the nipple to treat their cancer. In these situations skin from the DIEP flap is used for nipple and areola reconstruction. Secondary procedures include:

- Breast mound reshaping
- Nipple reconstruction
- Nipple areolar tattoo or *micropigmentation*

Advantages of DIEP Flap

• Minimal to no muscle taken with the flap, reducing the potential for functional impairment postoperatively.
• A better shape of the new breast can be achieved (without fullness across the chest from the tunneled muscle, which is *pedicled*).
• Less risk for developing hernias or muscle weakness.

Preop view before bilateral mastectomy.

Postop view after DIEP flap to reconstruct bilateral mastectomy defect.

Effects of Smoking, Tobacco, and Nicotine Products

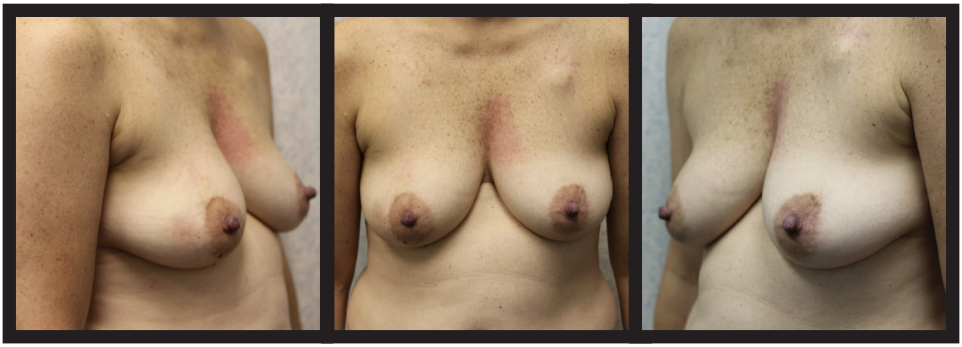
The use of tobacco and nicotine products has negative effects following any kind of operation, especially breast reconstruction. Smokers experience increased wound healing problems like slowed healing or no healing at all when compared to non-smokers. To decrease risk of wound healing problems the active smoker should stop smoking five weeks before the first stage operation and well after she's completely healed or consider delayed reconstruction.

The days before surgery, a urine test may be performed to assure nicotine blood levels have returned to normal.

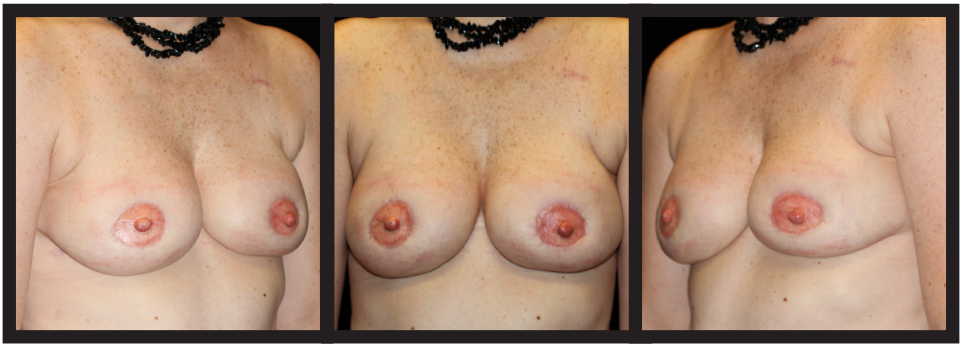
Bilateral Reconstruction with DIEP Flaps

After feeling a lump in her right breast, Janie made an appointment to see her gynecologist who ordered a mammogram. The mass was found to be breast cancer. Due to her young age at diagnosis, it was recommended she get tested for BRCA, which was also positive. At this point, she was advised to undergo bilateral mastectomy to decrease chances of developing a second tumor in her opposite breast. Given the location of the tumor, it was decided that mastectomy should include the nipple and areola.

Being in an early stage, Janie chose bilateral DIEP flap breast reconstruction to replace the tissue lost during mastectomy. The nipples were reconstructed with surrounding extra skin from the DIEP flaps and the process was completed with tattooing of the nipples and areolas.



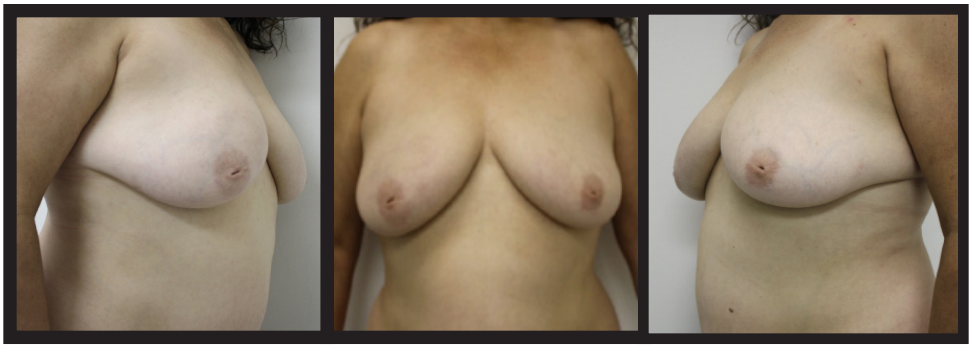
Preop view before bilateral mastectomy for right breast cancer and BRCA.



Postop view following final stage of breast reconstruction using bilateral DIEP flaps and nipple reconstruction.

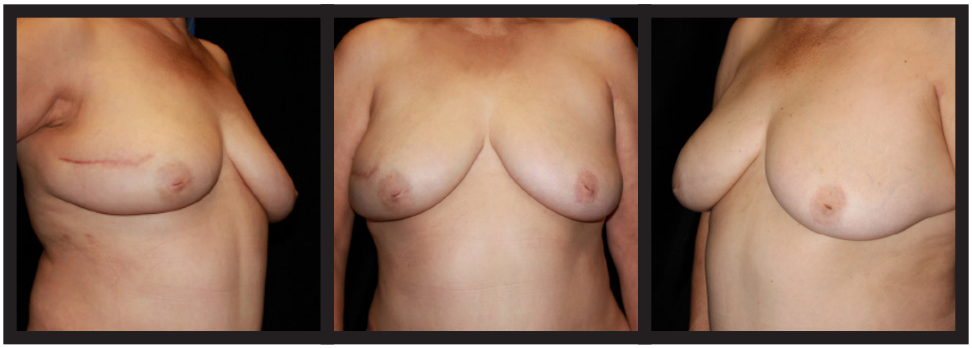
Right Breast Unilateral Reconstruction with DIEP Flaps

Kelly was advised to undergo mastectomy due to the location of the tumor. She desired immediate reconstruction of her breast with own tissue using a DIEP flap from her lower abdomen. Since the tumor was diagnosed in the early stage she was a candidate for nipple preserving mastectomy.



Preop view in woman diagnosed with right breast cancer.

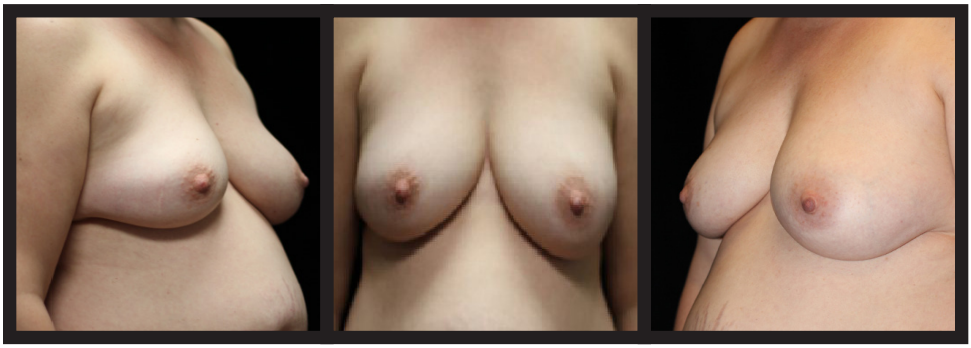
After the first operation, a skin paddle from the abdomen is left for monitoring the flap.



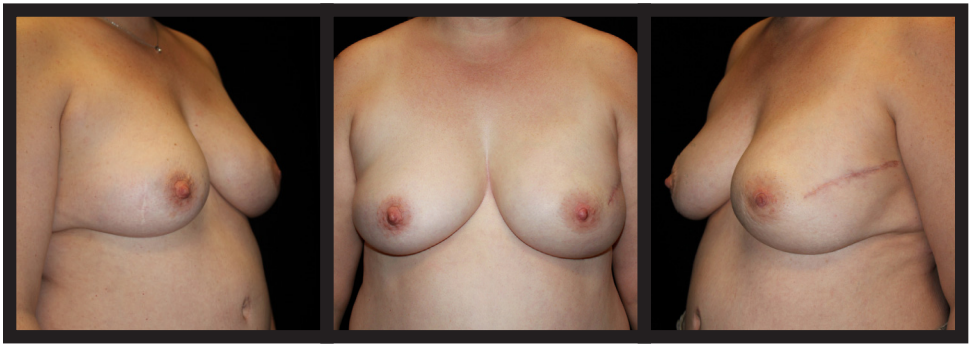
Final postoperative view following right DIEP flap reconstruction, after the skin paddle has been removed. Nipple sparing protocol.

Left Breast Unilateral Reconstruction with DIEP Flap

Amy desired reconstruction using her own tissue from the abdomen. With good initial anatomy (nipples at a youthful position), and small tumor located away from her nipple, she was a candidate for left nipple preserving mastectomy.



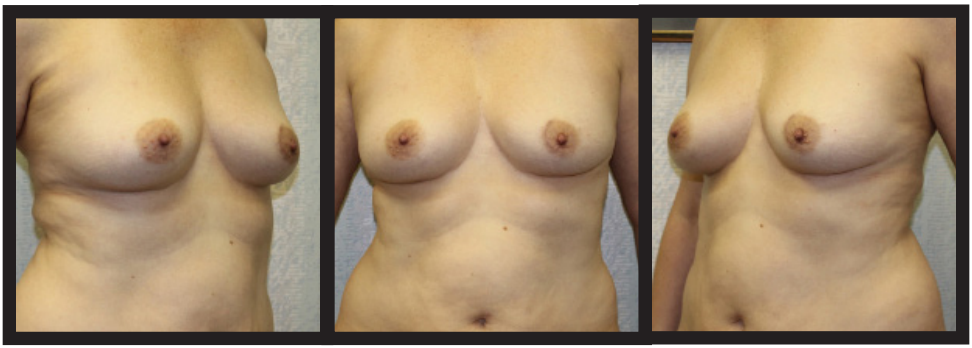
Preop view in woman diagnosed with left breast cancer



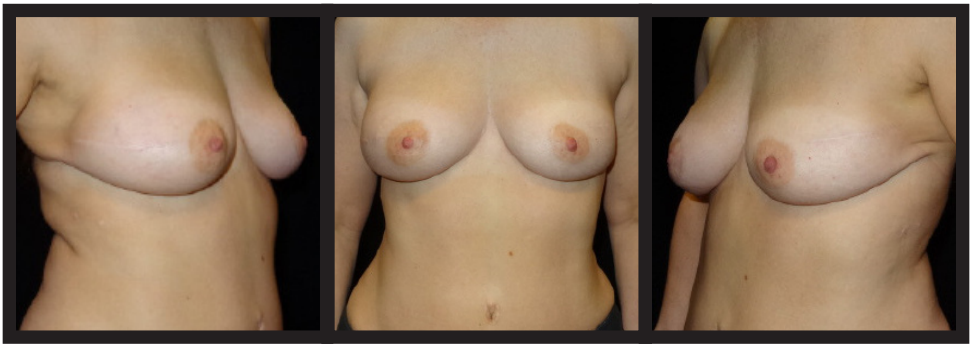
Postoperative view following left DIEP flap reconstruction, Nipple sparing protocol.

Bilateral Reconstruction with DIEP Flaps (Nipple Sparing)

Meagan was no stranger to breast cancer as she had seen her mother and grandmother diagnosed and treated for breast cancer. At the age of forty-two she received her regular annual mammograms which showed an abnormality in the left breast which proved to be an early stage cancer. She decided to treat the left breast cancer with mastectomy and prophylactic mastectomy of the right breast.



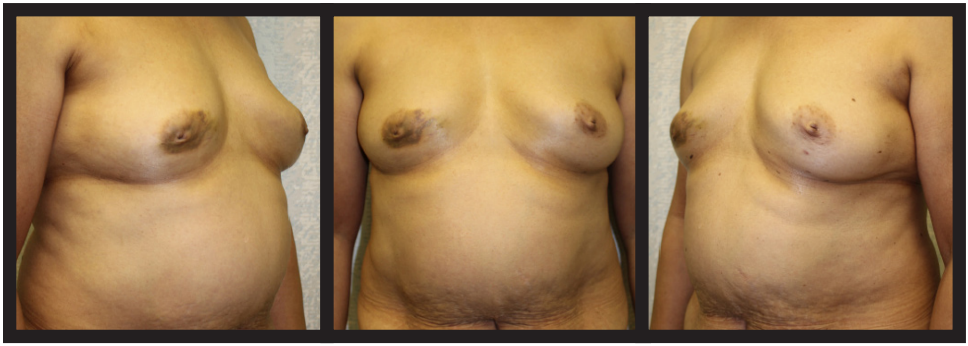
Preop view in woman diagnosed with left breast cancer.



Postoperative view following bilateral DIEP flap reconstruction, Nipple sparing protocol.

Bilateral Reconstruction with DIEP Flaps (Areola Sparing)

Cathy noticed a lump in her left breast while showering which prompted her to seek evaluation by her primary care physician. Due to the location of her breast cancer she was advised to undergo mastectomy for treatment. She wanted to have a prophylactic right mastectomy to reduce the risk of cancer in the right breast. She underwent bilateral mastectomy followed by bilateral DIEP flap reconstruction and nipple reconstruction.

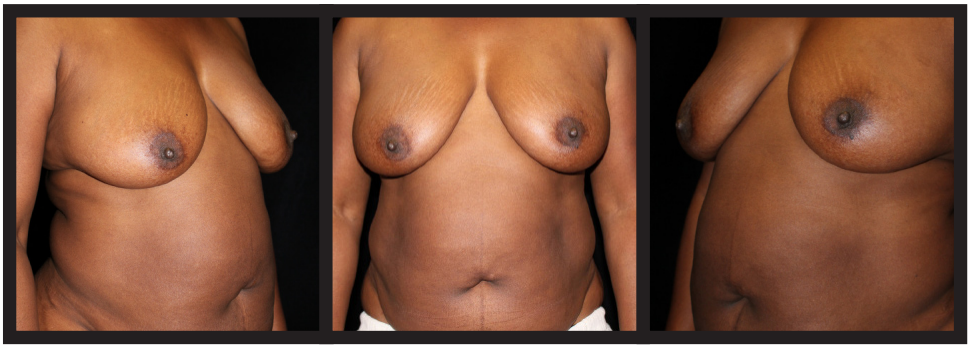


Preop view in woman diagnosed with left breast cancer

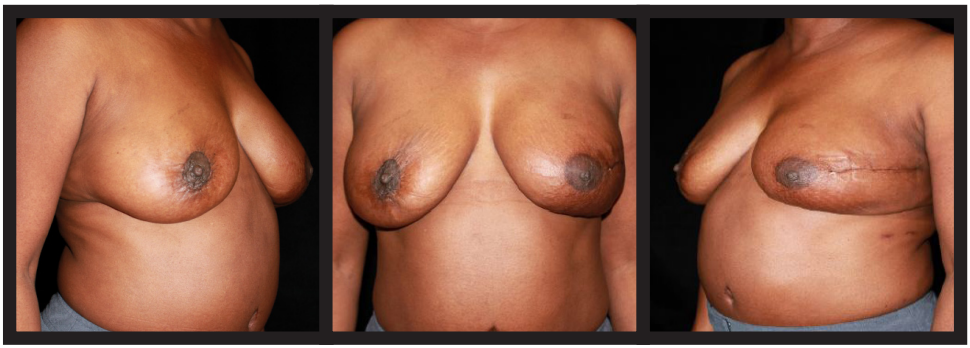
Postoperative view following bilateral DIEP flap reconstruction and bilateral nipple reconstruction. Areola-Sparing Protocol.

Unilateral Reconstruction with DIEP Flaps

Julie noticed a small lump in the left breast during a self breast exam. Following a mammogram this proved to be an early stage left breast cancer. She was treated with left mastectomy to remove the breast tumor followed by immediate reconstruction with DIEP flap. A right periareolar breast lift was performed to help improve nipple symmetry following reconstruction.



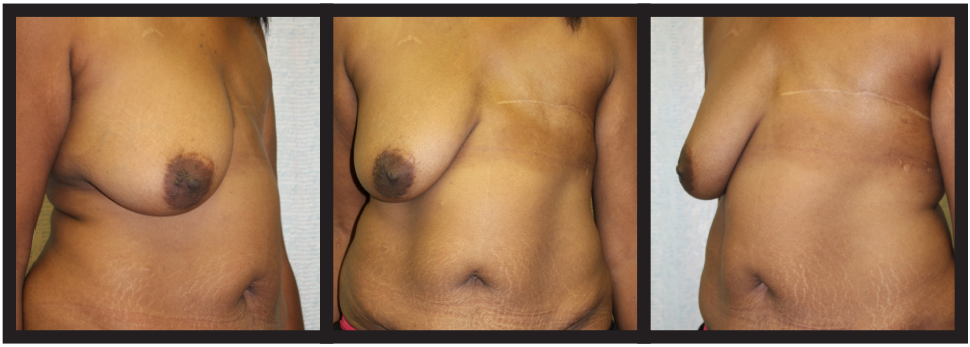
Preop view in woman diagnosed with left breast cancer



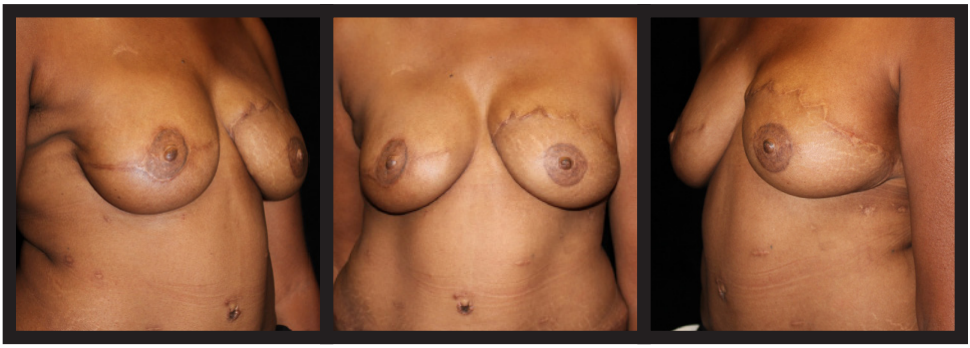
Postoperative view following left mastectomy, DIEP flap reconstruction, and right mastopexy to improve symmetry

Bilateral Reconstruction with DIEP Flaps

Candice was treated four years earlier for an advanced stage left breast cancer with chemotherapy, mastectomy, and radiation. Due to the advanced cancer stage she did not undergo reconstructive surgery. She was later diagnosed with BRCA genetic risk for breast cancer and desired to undergo prophylactic right mastectomy. Reconstruction was achieved with bilateral DIEP flap breast reconstruction.



Preop view in woman treated for left breast cancer with left mastectomy and radiation therapy



Postoperative view following bilateral mastectomy, DIEP flap breast reconstruction and nipple reconstuction

Women diagnosed with early stage breast cancer are good candidates for lumpectomy with radiation. Lumpectomy is considered "Breast Conservation" therapy, where the goal is to remove only the tumor while sparing the remaining healthy breast tissue.
Unfortunately, the risks of lumpectomy include unexpected scarring and breast asymmetry. These risks are mainly due to the effects of the required radiation.

Alma was diagnosed with right breast cancer. She desired breast conservation and chose treatment with lumpectomy and radiation. Given the central location of the tumor, this required excision of the nipple and areola. Lumpectomy in her case, resulted in a slightly smaller breast without a nipple. However, months after radiation, she gradually began to experience further shrinking of her right breast.

Although she was happy that she remained cancer-free, she had a minor complaint that she had trouble finding appropriately fitting bras. She also experienced a visible size difference, even in clothing.

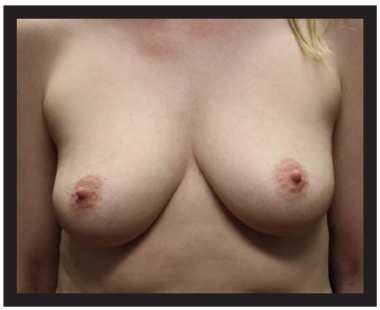
To improve breast symmetry, she underwent right nipple reconstruction combined with left breast lifting in an outpatient surgery center. The right nipple and areola tattoo was performed in the office under local anesthetic.

Photo above shows asymmetry following right lumpectomy and radiation to treat right breast cancer which removed the right nipple.

Postop view of right nipple reconstruction and correction of asymmetry with left breast lift to match the right breast.

Contour Deformity: Autologous Fat Grafting

Following mastectomy or lumpectomy, a contour deformity can occur. For some patients contour irregularity and deformity can be improved with fat grafting. Fat cells harvested by liposuction can be processed and injected into contour deformities and scars to improve defects. Sometimes multiple sessions of fat grafting are required to achieve desired results.



Preop view in woman treated for left breast cancer with bilateral mastectomy.

Postop view following mastectomy shows a significant contour deformity.

Contour deformity has been improved with fat grafting.

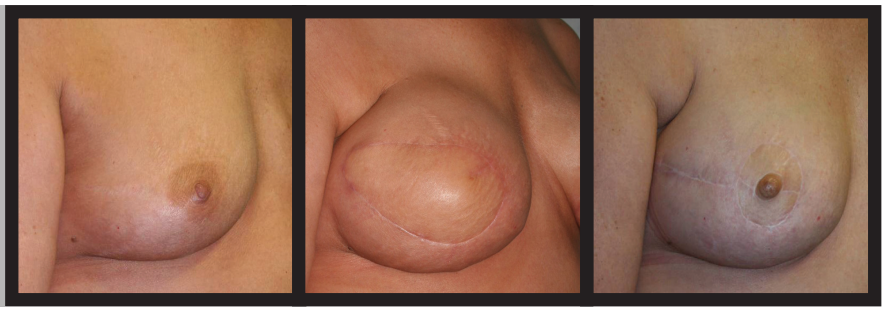
Final postop view of bilateral breast reconstruction with tissue expander, serial fat grafting, and placement of silicone implants.

Under many circumstances, the nipple and areola are removed during mastectomy for treatment of breast cancer. This is because most breast tumors have risen out of ductal tissue and the nipple represents the ends of these ducts.

During breast reconstruction, it is best to wait until the end of the process to finalize the location and size of the nipple, especially when trying to match to the opposite breast. The main reason being that as the reconstructed breast mound heals, it takes a few months to achieve its final shape.

The new nipple location is marked and the nipple is created using skin contained within the breast. If a flap has been used for reconstruction of the breast mound, then there is surrounding extra skin to build a nipple along with surrounding areola.

Case Example 1



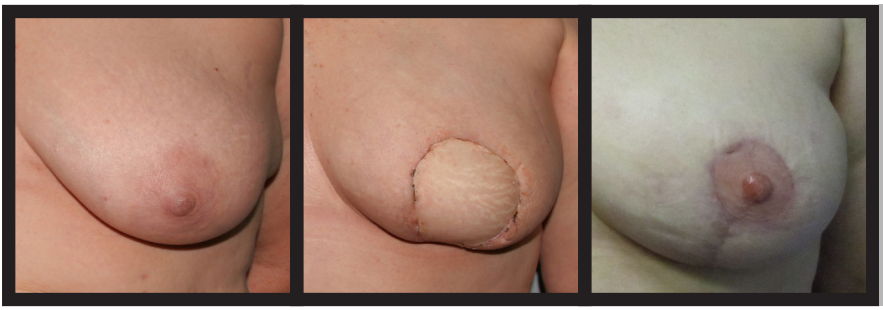
Preop view before mastectomy with removal of nipple and areola to reduce the risk of recurrence of cancer

Intermediate view of breast mound reconstructed with flap. Note excess skin which is kept and can later be used for nipple reconstruction

Postop view after the nipple and areola have been reconstructed, all extra skin is removed in order to minimize visible

Following reconstruction of the nipple patients may decide to undergo tattooing of the areola to provide pigmentation and further reconstruct features of the breast following mastectomy.

Case Example 2



Preop view before reconstruction with SIEP flap.

Intermediate view shows nipple replaced with SIEP flap.

Postop photo shows tattoo of nipple/areola reconstruction.

Case Example 3

Preop view before bilateral DIEP breast reconstruction.

Intermediate view shows areola sparing right mastectomy and skin paddle from DIEP flap.

Postop photo shows right nipple reconstruction.

Case Example 4

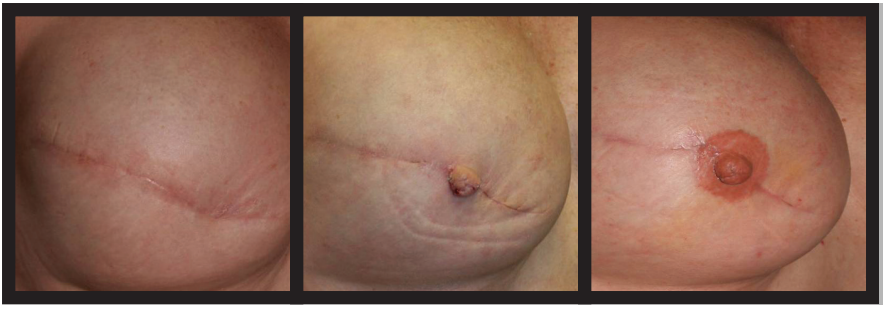


Photo shows reconstructed breast with implant.

Intermediate view shows reconstructed nipple.

Nipple/areola tatto represents the final stage.

The nipple and areola are traditionally removed during mastectomy due to the concern of possible involvement of cancer within the nipple, which could result in recurrence of cancer following mastectomy.

In efforts to preserve as much of the native breast as possible and provide better reconstructive outcomes additional research performed over the past decade has found there is a select group of patients with breast cancer that can receive nipple sparing mastectomy with reasonable safety when certain selection criteria are met.

This allows for selected patients to undergo mastectomy and keep their native nipple and areola, thereby requiring less overall reconstructive procedures and better opportunity for a more natural appearing reconstruction.

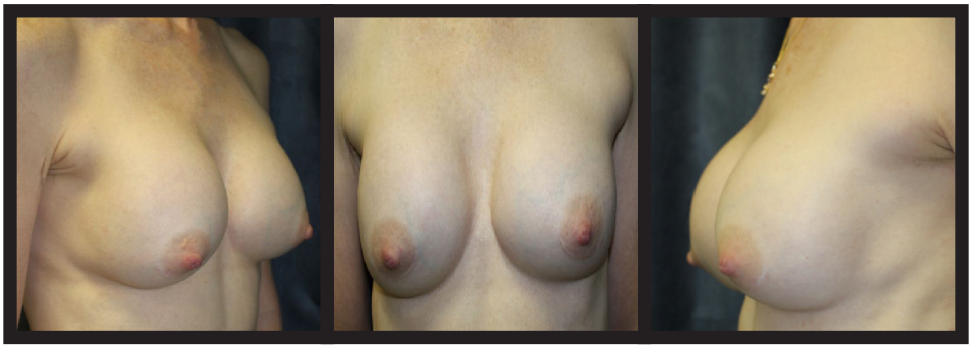
Nipple sparing mastectomy can be safe when cautiously applied in patients with tumor located away from the nipple and nipple involvement is unlikely. Other considerations for determining nipple preservation would be nipple location. For example, a breast with high degree of ptosis, where the nipple is located at the inferior aspect of the breast would not be an ideal candidate for preservation of the nipple. Decisions on whether or not to have nipple sparing mastectomy can not be made solely on the patients desire to preserve her nipple but are determined on the overall safety and efficacy of nipple preservation. Nipple viability will also depend on the ability of the nipple to maintain blood flow following mastectomy.

Benefits of nipple preservation include maximal preservation of the native breast and likely best outcome regarding reconstruction. Risk would include recurrence of cancer at the nipple but this is generally considered a low risk due to selection criteria. It is important to remember that there is always a risk of cancer recurrence with any type of mastectomy. With attempting nipple preservation there is possibility of partial or total nipple loss.

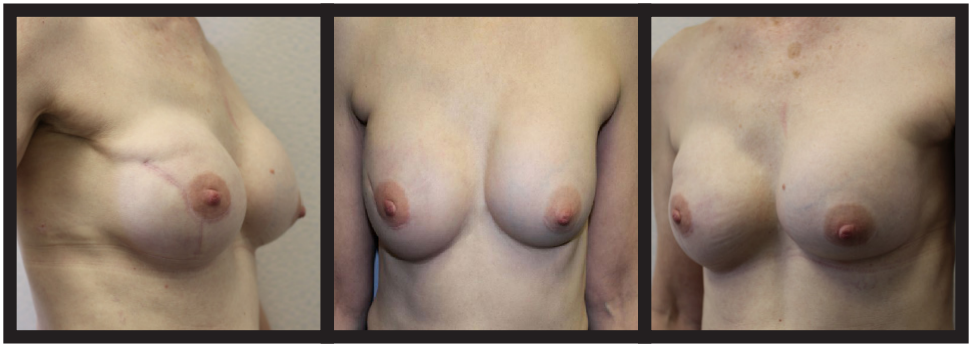
Nipple Sparing Mastectomy

For select patients, nipple sparing mastectomy can allow for the benefits of mastectomy while preserving breast anatomy and maximizing reconstructive outcomes.

After being diagnosed with right breast cancer Betty was advised to treat her condition with mastectomy. She desired immediate reconstruction and due to her thin body figure her best option for reconstruction would be implant based. Due to tumor location, tumor size, and breast anatomy; nipple sparing mastectomy was offered to Betty as a method to preserve as much of the native breast as possible. She underwent a two stage reconstruction first consisting of tissue expander placement followed by placement of silicone breast implant and autologous fat grafting to the breast.



Preop view of patient with right breast cancer



Postop view of right breast reconstruction using nipple sparing mastectomy

Unfortunately, not all types of breast reconstruction are long lasting. Changes may occur over time that result in asymmetry or deformity of the reconstructed breast. This could be a result of aging, fluctuations in body weight, progressive scarring, and sometimes for no reason at all.

It is important for patients to know that revision is an option that can be very rewarding with minimal discomfort. Correction of these problems are usually performed as day surgery with a relatively fast recovery.

Eight years following reconstruction of her left breast with tissue expander and implant as well as right breast lift, Julia developed capsular contracture of her left breast and sagging of the right breast. Breast symmetry was improved with right breast lifting (*mastopexy*) and revision of the left breast by taking out the scar tissue which was building up around the implant and deforming it. The implant was then replaced for a new one. Although perfect symmetry cannot be achieved, she is happy with her revision, which has provided a softer feel to the reconstructed breast.

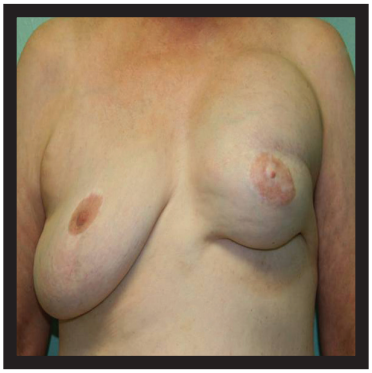


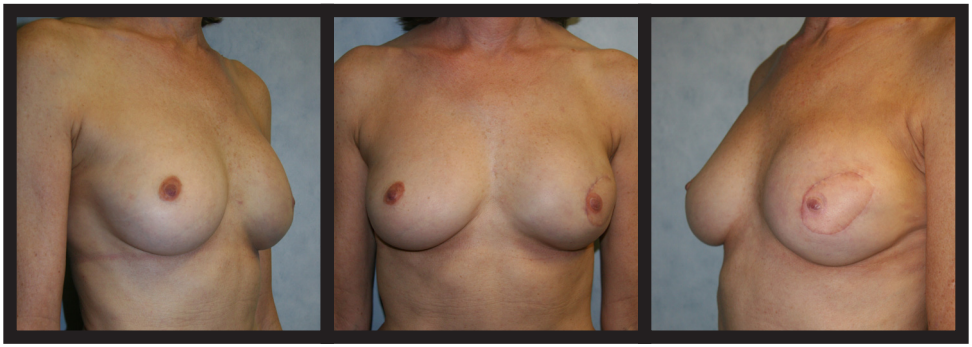
Photo shows previously reduced right breast which developed bottoming deformity. Left reconstructed breast has severe capsular contracture resulting in constriction and deformity

Postop view after revision of left breast reconstruction with removal of scar tissue and replacement of implant. The right breast has been lifted.

Ruby presented five years after undergoing left breast reconstruction with latissimus dorsi flap and implant. She developed a condition in which muscle spasm of the latissimus dorsi resulted in contraction and deformation of the left breast implant. She also was unhappy that her left breast reconstruction had become tight feeling over time.

Revision of the left breast reconstruction was performed correcting three things. First the scar tissue was removed and an implant placed lower to match the right breast. Then, the nerve to the latissimus dorsi muscle was cut to decrease unwanted muscle twitches. Lastly, she underwent one session of fat grafting to create a smooth contour. This was all done as an outpatient.

Preop view of left breast capsular contracture



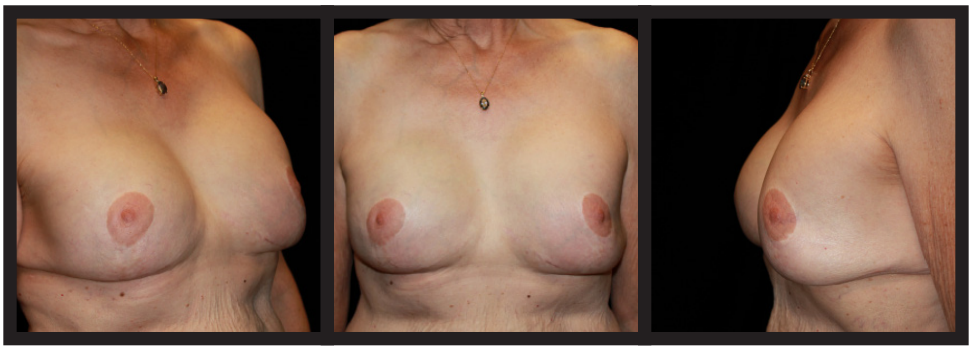
Postop view of improved symmetry when compared to the normal right breast

Revision of Reconstructed Breast: Capsular Contracture

Susan was treated for right breast cancer thirty years ago with mastectomy and implant based reconstruction. Over the years, she experienced increasing tightness and deformity of the right breast known as capsular contracture.

Revision of her breast reconstruction was performed with capsulectomy and exchange of implant as an outpatient procedure. Revision of breast reconstruction improved breast symmetry and relieve contracture of the right breast.

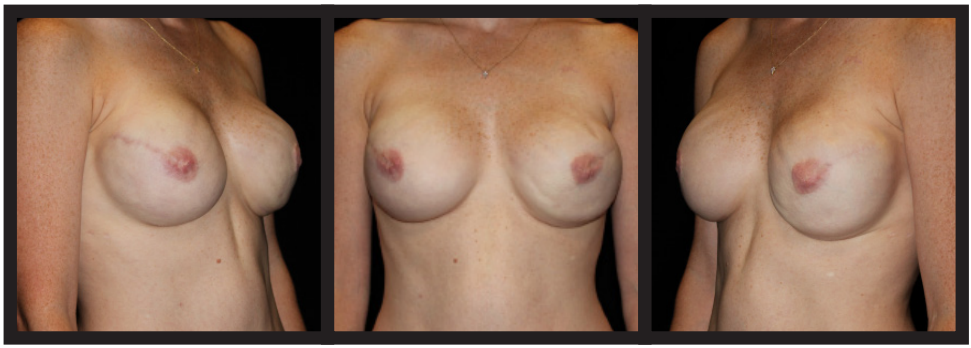
Preop view of asymmetry caused by right breast implant contracture



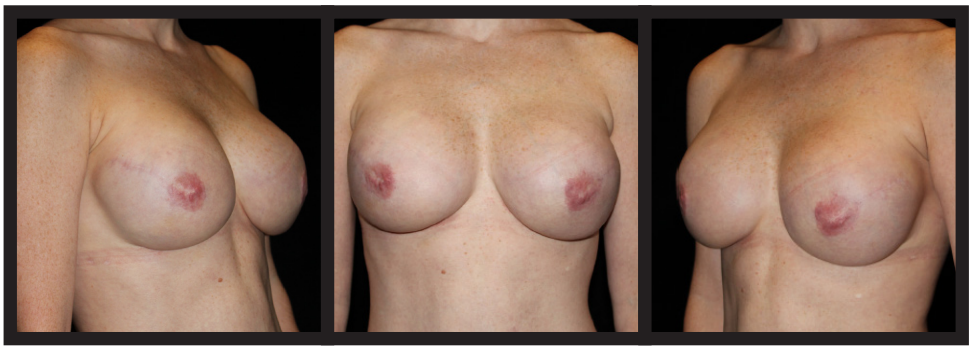
Postop view: Contracture treated with right capsulecotmy and implant exchange

Revision of Reconstructed Breast: Ripple Deformity

Following bilateral mastectomy and breast reconstruction Megan's breast skin was thin and ripples from the underlying breast implants could be seen. To minimize the contour irregularity in her breast skin and provide for a more natural reconstruction she was treated with autlogous fat grafts to provide thicker skin and reduce the amount of rippling in her reconstructed breast.



Preop view of contour irregularity and ripple deformity



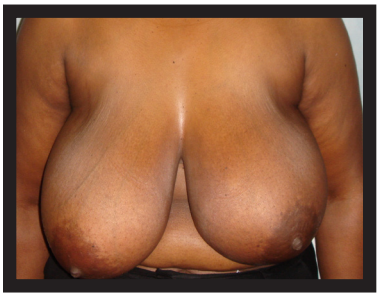
Postop view following revision of reconstructed breasts

Oncoplastic surgery simply refers to the combination of plastic surgery techniques at the same time of tumor removal by lumpectomy. Take for example, a patient with a cancerous tumor which she chooses to have removed in a lumpectomy. The defect, depending on its location, may be reconstructed immediately using plastic surgery principles that reshape the breast. Radiation therapy is performed following lumpectomy and reconstruction as part of cancer treatment.

Both patients below diagnosed with left breast cancer. Both women had larger breasts and preferred breast conservation therapy and therefore chose lumpectomy with radiation. Given that the tumors were located lower in the breast, oncoplastic techniques allowed them to preserve much of the native breast anatomy and architecture.

Preop view of patient with left breast cancer and enlarged breasts.

Postop view after left breast oncoplastic surgery and radiation. Right breast has been reduced.



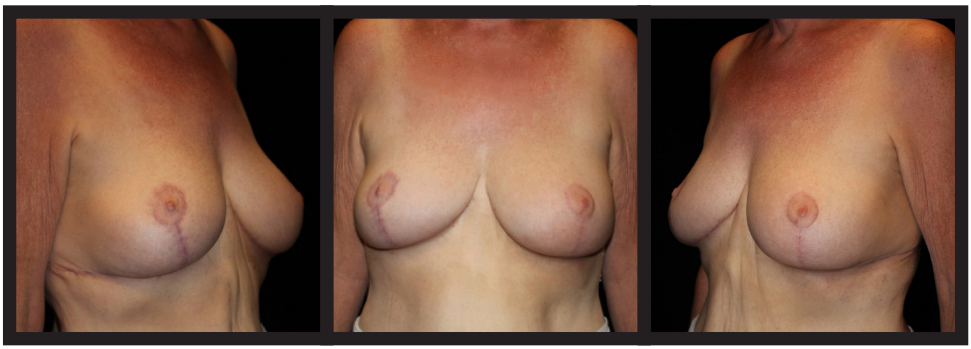
Preop view before removal of left breast tumor and reconstruction with oncoplastic surgery.

Postop view following treatment of left breast cancer using techniques of breast reduction to reshape the breast while removing the cancer.

Carrie was diagnosed with left breast cancer after screening mammogram and biopsy. Due to early diagnosis and small tumor size she was a candidate for lumpectomy. Lumpectomy alone would likely result in deformation of the breast so lumpectomy was combined with breast lift to both remove the breast tumor and provide for reconstruction of the breast. The right breast was also lifted to provide breast symmetry. Following lumpectomy and reconstruction, radiation therapy is required for treatment of the cancer. Radiation can result in changes to breast volume and shape. This approach provides preservation of breast anatomy and architecture.

Occasionally lumpectomy may have positive margins and the patient will need to proceed with mastectomy. Under this circumstance she will have the benefit of reshaping her breast skin envelope before mastectomy.

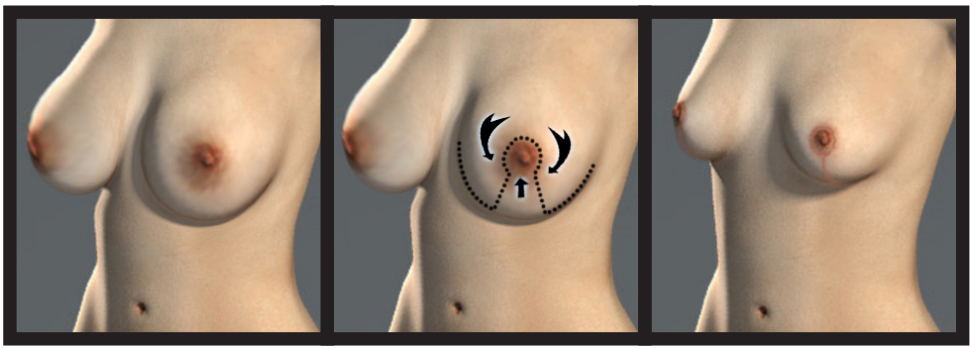
Preop view of left breast cancer treated with oncoplastic surgery

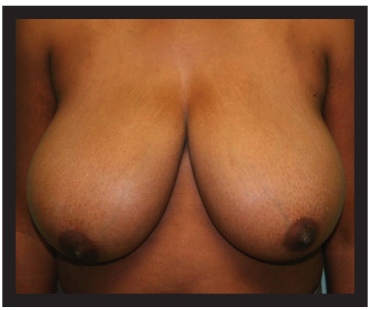


Postop view following oncoplastic treatment left breast cancer

Breast reduction removes excess breast skin and tissue to reduce the weight of the breast. Women who have large breasts may experience a variety of problems from the weight and size of their breasts such as back, neck, shoulder pain, and skin irritation. Breast reduction is usually performed for relief of these symptoms rather than to enhance the appearance of the breasts. The procedure may be covered by some health insurance policies, if strict criteria are met.

The best candidates are those who understand the procedure and have realistic expectations about the results, as there are both risks and complications associated with the operation. There are a variety of different surgical techniques used to reduce and reshape the female breast.



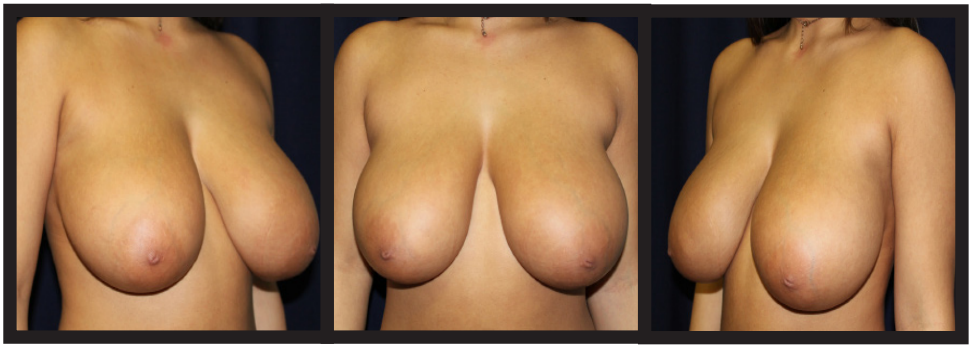


Preoperative photo of woman with bilateral breast enlargement causing neck and back pain.

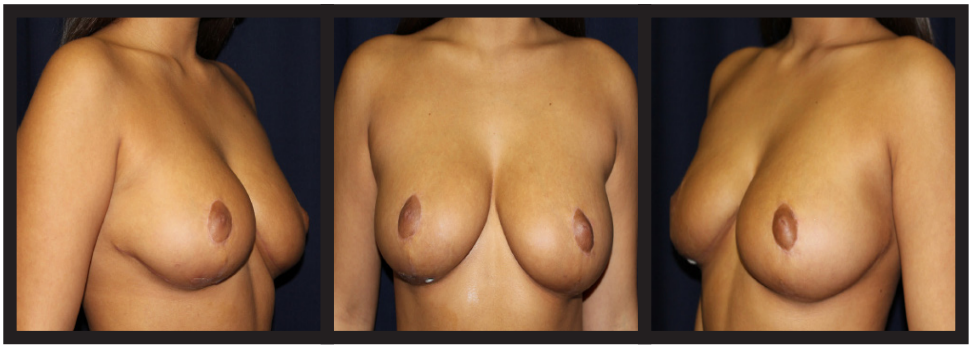
Postoperative photo show breast reduction which relieved neck and back pain.

Breast reduction is often performed during the process of breast reconstruction. For women with larger breasts, the goal is to reconstruct a smaller breast and perform a breast reduction of the opposite side. This method is preferred over reconstructing a larger breast as there are limitations to size and shape that can be achieved with breast reconstruction.

Lisa fist noticed enlargement of her breast as a teenager. The larger size of her breast limited her physical activities and resulted in neck and upper back pain. Notice the more youthful appearance of the breast by the higher location of the nipples.



Preop view: Macromastia



Postop view: Bilateral breast reduction

Left breast reconstruction with tissue expander, silicone implant, and fat grafting. Right breast reduction for symmetry.

At age 64, Janice was diagnosed with left breast cancer after she found a suspicious lump during a self breast exam. Fortunately, this was found at an early stage, so she was a good candidate for immediate breast reconstruction.

Janice underwent left breast reconstruction with tissue expander and breast implant followed by nipple reconstruction and areola tattoo. She required reduction of her right breast to improve breast symmetry.

Preop view: Left Breast Cancer

Postop lateral view: Left breast implant-based reconstruction and right breast reduction.

Left breast reconstruction with DIEP flap. Right breast reduction for symmetry.

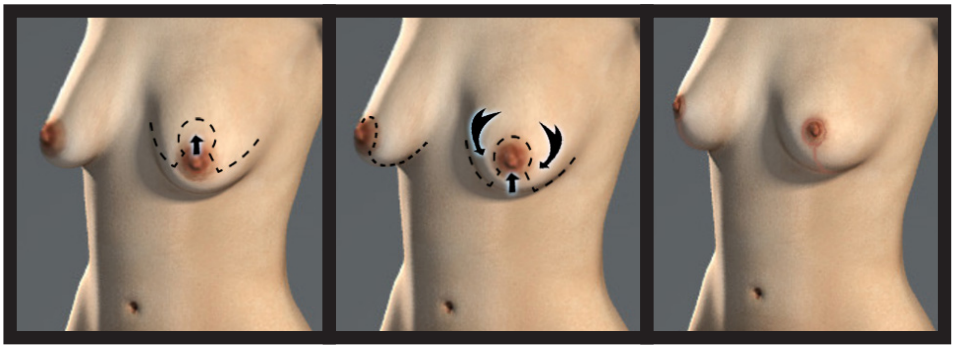
Cindy was diagnosed with stage two left breast cancer. She chose immediate breast reconstruction with the DIEP flap on the left only. On the opposite right, she underwent a standard breast reduction.

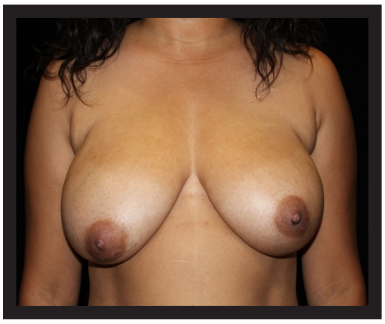
Although the scars on each breast are slightly different, Cindy is very happy that she achieved better symmetry in size and nipple location.

Preop view: Left Breast Cancer

Postop view following left breast reconstruction with DIEP flap and reduction of the right breast.

Breast lift, or mastopexy is a surgical procedure to raise and reshape sagging or *ptotic* breasts. Factors such as pregnancy, nursing, weight change, aging, and gravity produce changes in the appearance of a woman's breasts. As the skin loses its elasticity, the breasts often lose their shape and begin to sag. Breast lift, or mastopexy is a procedure performed by plastic surgeons to reshape sagging breasts and raise the nipple. This operation can also reduce the size of the areola (the darker skin around the nipple). Sometimes, if breasts are small or have lost volume after pregnancy, breast implants may be inserted in conjunction with mastopexy to increase both firmness and size. The best candidates for mastopexy are healthy, emotionally stable women who have realistic expectations about what this type of surgery can accomplish.

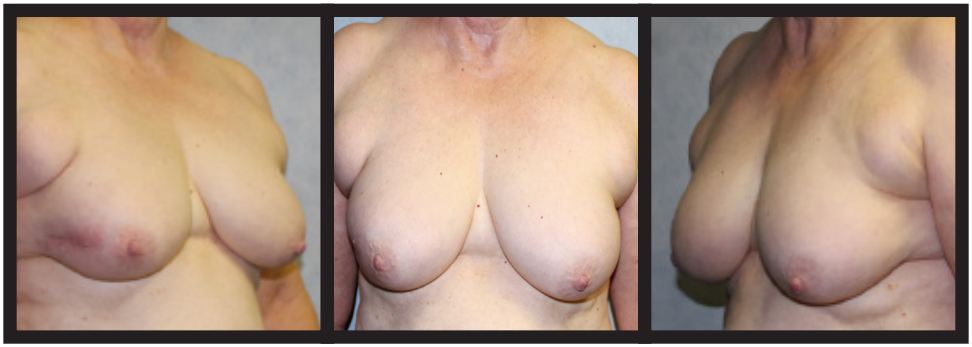




Preop view: Patient has breast deflation and sagging with enlarged areolas following child birth/nursing.

Postop photo shows breast lift.

Meredith was diagnosed with right breast cancer. She required left breast lift following mastectomy and reconstruction of the right breast with tissue expander. The right nipple was reconstructed after she healed from the implant exchange so as to match the left breast as best possible. The right nipple and areola were later pigmented as a minor office procedure. Even though the reconstructed nipple can never perfectly match the color, or location of a native breast, the overall symmetry can be greatly improved while providing a more youthful appearance of the breasts.

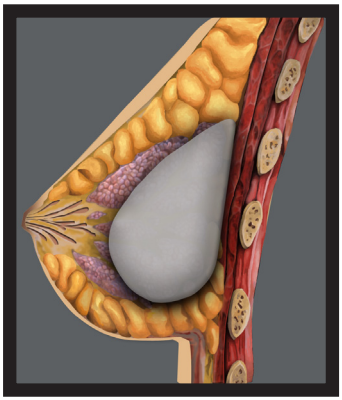


Preop view: Right Breast Cancer

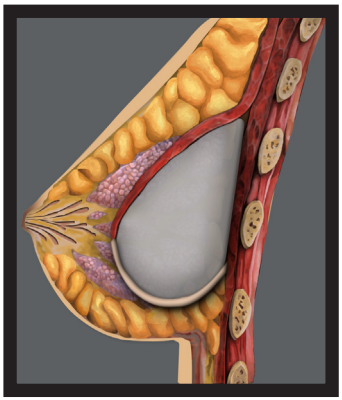
Postop view: Right breast implant-based reconstruction and left breast lift

Breast

Augmentation is a procedure performed to enlarge the size of the breasts and sometimes to correct asymmetries by inserting a breast implant either behind the breast tissue, or partially or completely under the chest muscles. Incisions are made to keep scars as inconspicuous as possible. The method of implant selection and size, along with surgical approach for inserting and positioning breast implants, will depend on patient preferences, anatomy, and the plastic surgeon's recommendation.



Subglandular placement of the implant overlies the pectoralis major muscle. Some patients with ample skin and breast tissue may be candidates for subglandular breast implant placement.



Breast implants are often placed beneath the pectoralis major muscle. Implants placed beneath the muscle are often less palpable, less visible, and may have less capsular contracture.

Preoperative photo of woman desiring improved breast shape and augmentation.

Postoperative photo following saline breast augmentation.

Left breast implant-based reconstruction combined with right breast augmentation

For some women, a reconstructed breast will result in a larger breast than the opposite non-cancer breast. These women may choose to have the opposite breast augmented to better match the reconstructed breast. Following diagnosis of left breast cancer Judy was advised to undergo mastectomy with no need for radiation. She chose to reconstruct her left breast with a tissue expander and implant because of her small body frame.

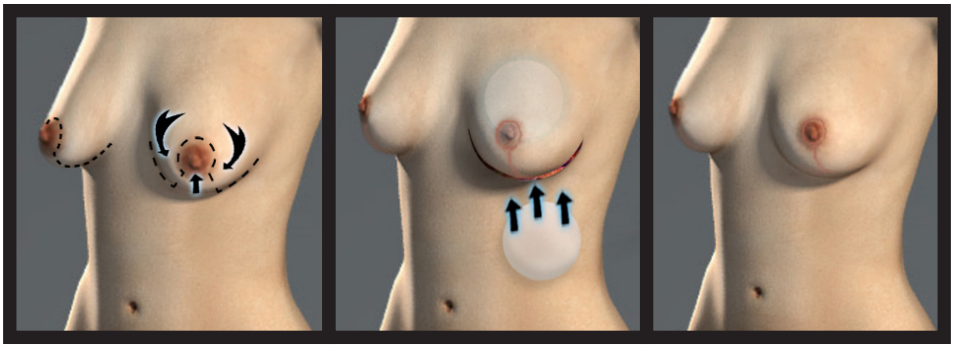
To achieve better symmetry and increase her breast size she opted for right breast augmentation. Since the augmentation was not done until the second operation, at the time of implant exchange, she had plenty of time to research her options in which type of implant. She chose silicone implants because of their safety in being approved by the FDA, as well as their more natural feel and lighter weight.

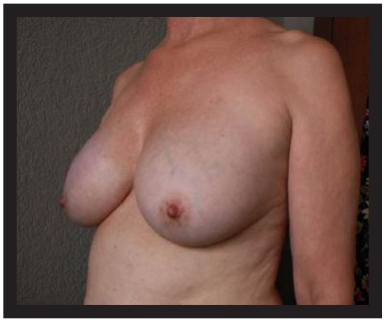
The process was completed once she underwent reconstruction and tattooing of the left nipple and areola. Judy is now happy with her reconstruction and remains an active breast awareness advocate at her local women's center.

Preop view of left breast cancer before undergoing left sided mastectomy.

Postop photo shows reconstructed left breast with better symmetry following right breast augmentation.

Breast augmentation-mastopexy, or combined lift and implant augmentation is a surgical procedure to raise and reshape sagging or *ptotic* breasts while also adding an implant to increase the volume of the breast. This procedure also brings a component of firmness and added volume to the upper pole of the breast. Depending on the patient's anatomy and/or quality of the tissues, there are times where better results are obtained if these operations are performed in separate or staged manner.



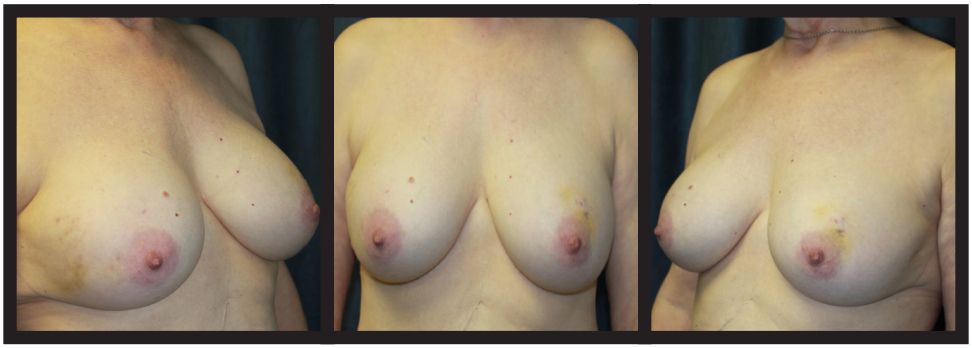


Preop view: Patient has breast deflation and sagging with enlarged areolas following child birth/nursing.

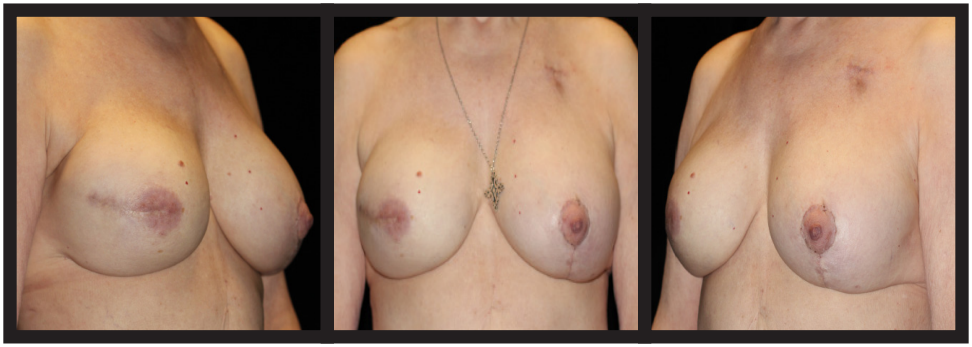
Postop photo shows cosmetic breast lift combined with augmentation.

Implant-based reconstruction combined with breast lift.

At age 68 Mary found a right breast lump on self exam which was found to be infiltrating ductal carcinoma. She was fortunate to have been a good candidate for areola-sparing mastectomy. She underwent immediate reconstruction with an expander. During implant exchange for silicone on the right, she underwent simultaneous left breast lift and implant placement to have better symmetry with her reconstructed right breast. At this point, Mary did not wish to undergo nipple reconstruction as she is satisfied with her current results. She understands that the scars will continue to mature over time.



Preop lateral view: Right Breast Cancer



Postop view: Right breast implant-based reconstruction and left breast lift

BRCA is in a class of genes in our DNA known as a tumor suppressor gene. Commonly tested genes for breast cancer include BRCA1 and BRCA2. Mutations in these genes are associated with increased rates of hereditary ovarian and breast cancer. Other genetic forms of breast cancer include ATM gene, p53, CHEK2, CDH1, and PTEN but these are more rare and less tested for.

Men and Women who carry these genes are at high risk of developing breast cancer. With a strong family history of breast or ovarian cancer a person may consider genetic counseling to determine if gene testing should be performed and to better understand their risk.

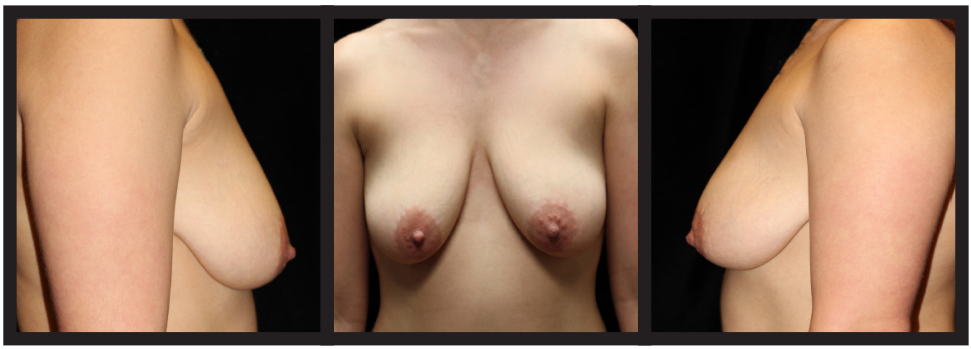
It is believed that 50% to 85% of women who carry BRCA will develop breast cancer during their life. While the risk for developing breast cancer are greatly elevated for those who carry a positive BRCA gene, not every woman who carries this gene mutation will develop breast cancer.

Positive gene carriers are recommended to undergo frequent breast exams by a breast specialist, and imaging is often begun by age 25 to 30 with breast ultrasound and/or MRI. Consultation with medical and surgical oncologist is recommended so appropriate decisions can be made.

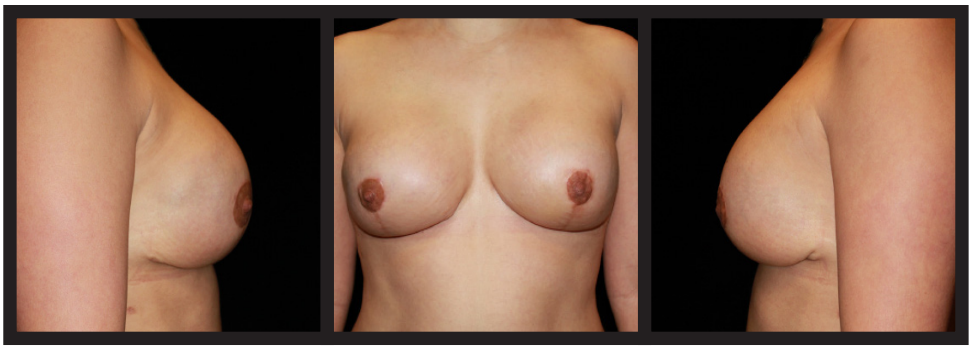
The decision to undergo prophylactic mastectomy is personal and has significant implications. Following mastectomy the breast will never be exactly like what we are born with. The changes and risks associated with mastectomy and reconstruction are weighed against the risk of developing breast cancer.

Bilateral Implant-Based Reconstruction

Karisa's mother, grand mother, and great grandmother all had breast cancer diagnosed at a young age as well as her maternal aunts. After counseling with an oncologist she was told she had a high risk for developing cancer at a young age. She decided to proceed with bilateral prophylactic mastectomy and opted for implant-based reconstruction done in stages.



Preop view: Prophylactic mastectomy



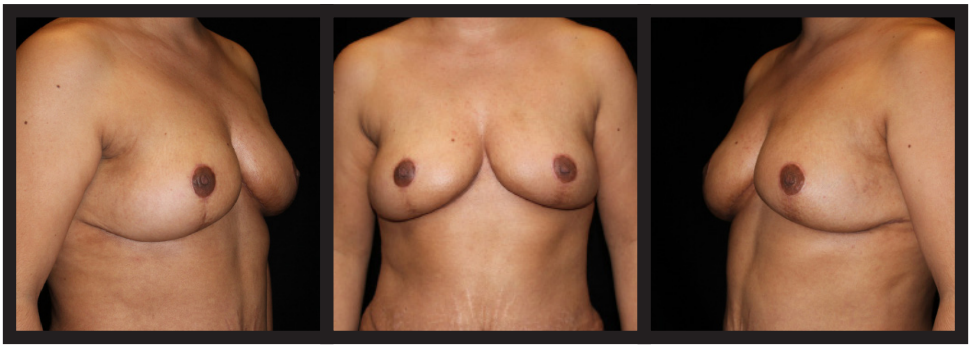
Postop view of bilateral prophylactic mastectomy. Reconstruction with TE and implant.

Prophylactic Mastectomy

Bilateral Reconstruction with DIEP Flaps (Nipple Sparing)

Claudia was not a stranger to the effects of breast cancer. Her mother and three aunts were diagnosed and treated with breast cancer at an early age. She was counseled and found to high risk for developing breast cancer after gene testing found her to be BRCA positive.

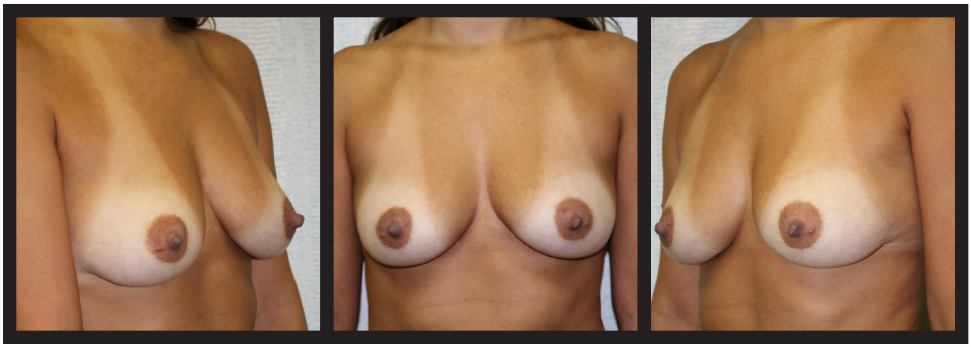
Preop view in woman diagnosed with BRCA gene susceptibility to breast cancer



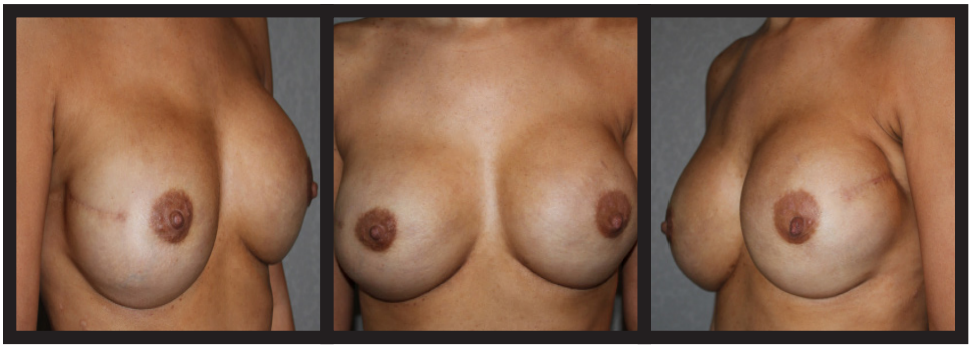
Postop view following bilateral DIEP flap reconstruction, Nipple sparing protocol.

Bilateral Implant-Based Reconstruction

Katty had a strong history of cancer in her family including her mother, grandmother, aunts, and sister who was diagnosed with breast cancer at a young age. After being referred to an oncologist she was found to carry the BRCA gene. She opted for bilateral prophylactic mastectomy which was performed with the Nipple-sparing protocol.

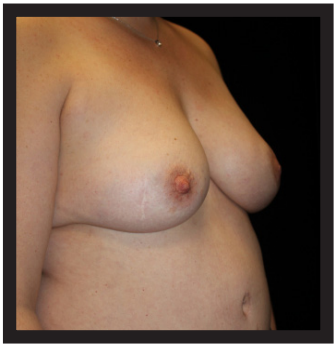


Preop view: Prophylactic mastectomy

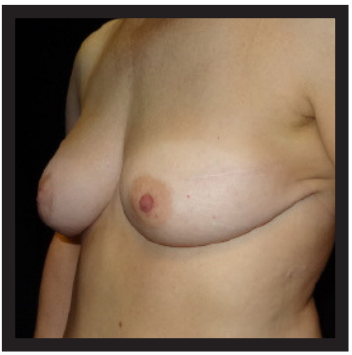


Postop view bilateral prophylactic mastectomy with tissue expander reconstruction combined with autologous fat grafting

Many fears fill your mind after being diagnosed with breast cancer.

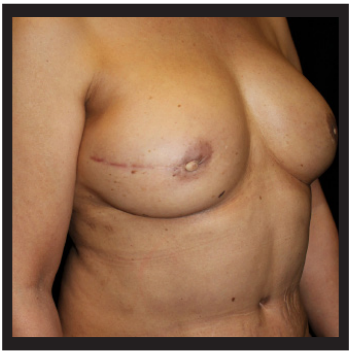


Breast cancer treated with left mastectomy, reconstructed with left DIEP flap, nipple sparing.

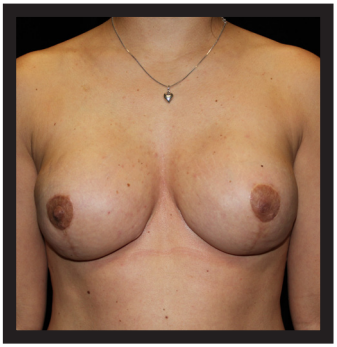


Bilateral breast reconstruction with DIEP flaps. Nipple sparing protocol.

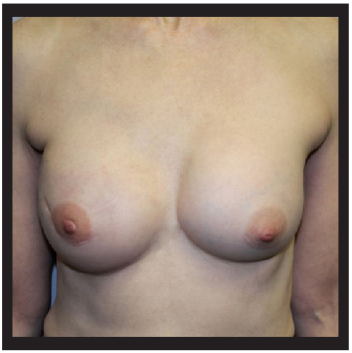
Bilateral breast reconstruction with DIEP flaps.



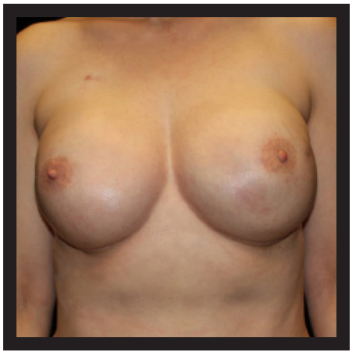
Bilateral breast reconstruction DIEP flaps.



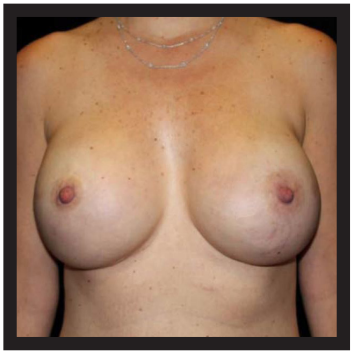
Bilateral breast cancer treated with bilateral mastectomy and implant-based breast reconstruction. Structural fat grafting (injections) performed to provide smooth contour over breast.



Implant-based right breast reconstruction with temporary tissue expander and subsequent implant. Right nipple sparring mastectomy performed.



Bilateral breast reconstruction with tissue expander and implants.



Bilateral breast reconstruction with tissue expanders and implant. Fat grafting around the breast is performed to improve breast contour.

Awareness, detection and treatment allow us to regain control of our life.

This is well written, easy to read, and explains so that the woman can understand what to expect. Back in 1979 doctors did not explain anything to me, even chemo, which I handled on my own. Women need to read this before surgery so they can make an educated decision. Women need to ask their doctors questions because it is their body and life choices.

I was a "Reach to Recovery" volunteer through the American Cancer Society for about five years. I visited most patients while they were still in the hospital. This book would have been most helpful in answering their questions."

-Patti

Contact our office today to schedule a consultation or referral.

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