

Breast Reconstruction



Stuart, Devon (2009). Johns Hopkins Medicine.

**Aesthetic & Reconstructive Surgical
Associates, LLC**
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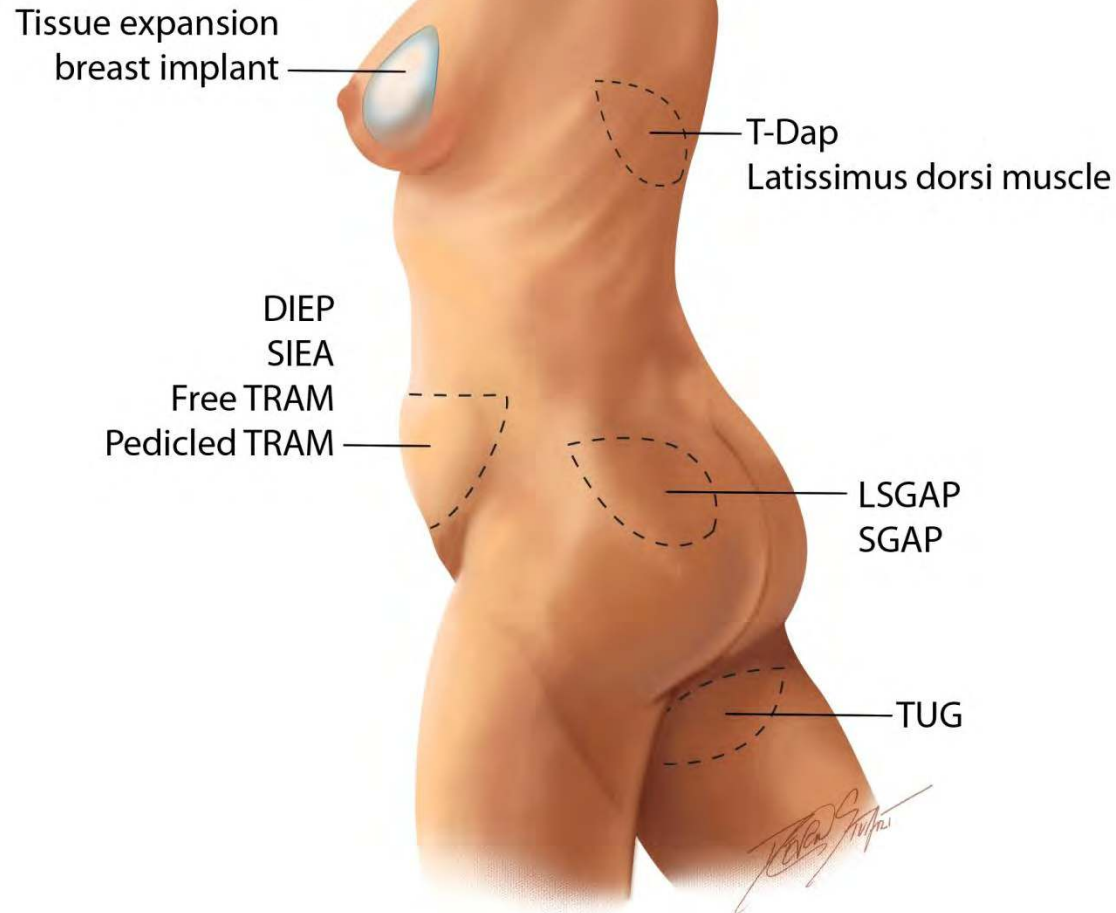


RECONSTRUCTION GOALS



Shape
Symmetry
Size
Soft
Sensual
Natural

Reconstructive Options



Mastectomy with No Reconstruction



Bilateral



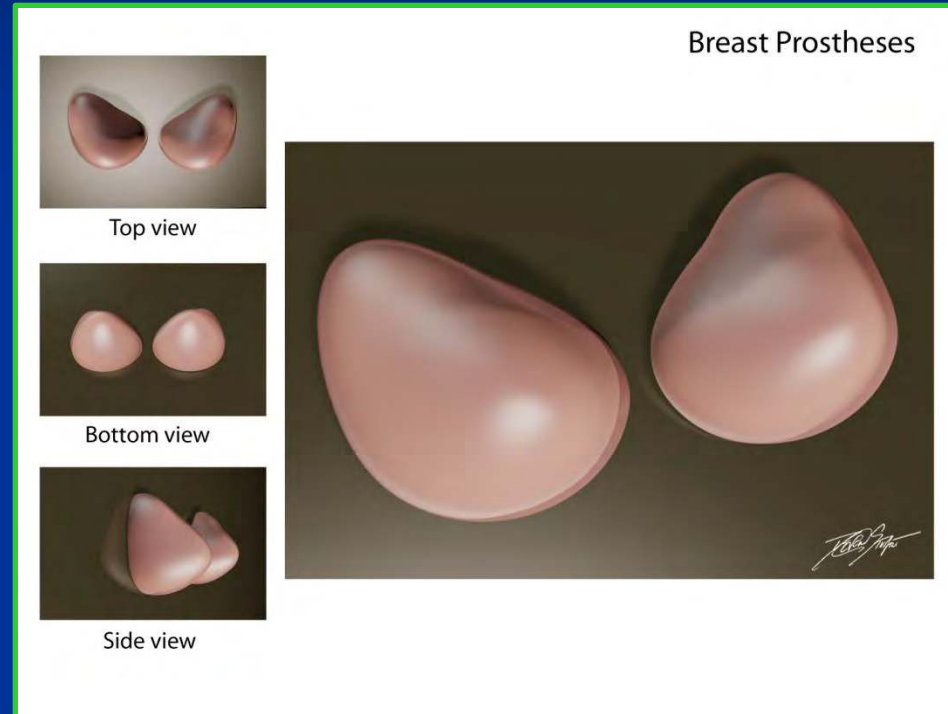
Unilateral

The ill patient

Advanced tumor

Patient choice

Alternatives: Breast Prostheses Fitted with Post-Mastectomy Brassieres



*Stuart, Devon (2009).
Johns Hopkins
Medicine.*

JHH has Image Recovery Center to assist with fittings for patients with no reconstruction and those with asymmetry during staged reconstruction. Insurance generally covers cost.

Reconstructive Options

```
graph TD; A[Reconstructive Options] --> B[Autologous Tissue  
(Your own tissue)]; A --> C[Implant]; A --> D[Combination]; B --> E[Options:  
• Abdominal tissue  
• Buttock tissue  
• Back tissue  
• Inner thigh tissue]; C --> F[Options:  
• Temporary Tissue Expander  
• Saline  
• Silicone gel]; D --> G[• Autologous tissue + Implant for increased projection];
```

Autologous Tissue
(Your own tissue)

- Options:**
- **Abdominal tissue**
 - **Buttock tissue**
 - **Back tissue**
 - **Inner thigh tissue**

Implant

- Options:**
- **Temporary Tissue Expander**
 - **Saline**
 - **Silicone gel**

Combination

- **Autologous tissue + Implant for increased projection**

Immediate, Staged, or Delayed Reconstruction

Reasons for Immediate

- Prophylactic or early stage cancer (no radiation)
- Schedule permits date in near future

Reasons for Staged

- Possible radiation
- Other medical issues complicating longer procedure
- Relative indication:
May have better results if patient has large or drooping breasts or breast asymmetry

Reasons for Delayed

- Metastatic or inflammatory breast cancer
- Other medical issues complicating immediate reconstruction
- Patient choice

Implant

```
graph TD; A{{Implant}} --> B[Tissue Expander]; A --> C[Single Stage Implant]; B --> D[Expansion in office<br/>Until desired size achieved]; D --> E[Replacement<br/>With<br/>Permanent Implant]; C --> F["• High rate of revisions<br/>• Limited in size and shape<br/>• Must have skin-sparing<br/>and better w/nipple-sparing<br/>mastectomy"]; F --> G{Satisfactory<br/>Result?}; G -- No --> E; G -- Yes --> End[ ];
```

Tissue Expander

**Expansion in office
Until desired size achieved**

**Replacement
With
Permanent Implant**

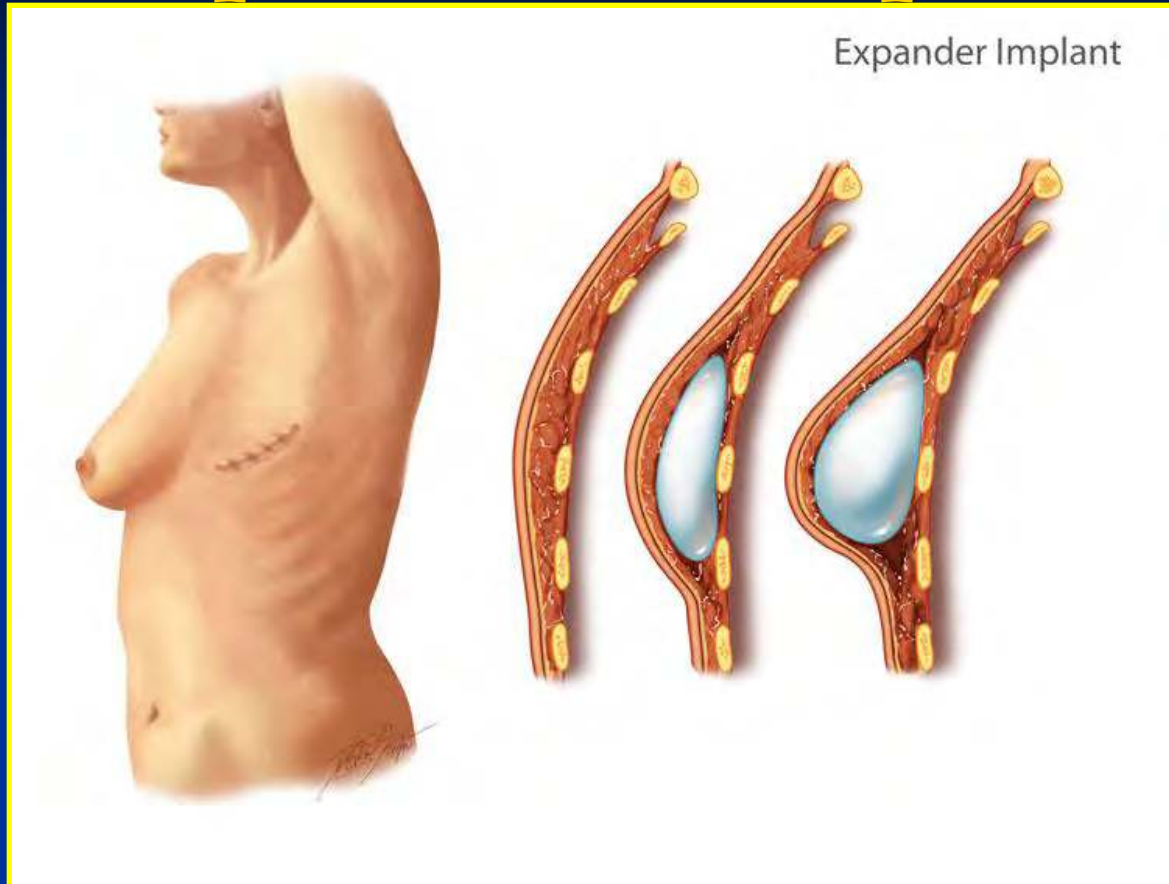
**Single Stage
Implant**

- High rate of revisions
- Limited in size and shape
- Must have skin-sparing and better w/nipple-sparing mastectomy

**Satisfactory
Result ?**

No

Expander -> Implant



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Expansions: In clinic weekly (at most)

Usually stop during chemotherapy

Always stop during radiation

Generally not painful, may have 1-2 days muscle soreness

Tissue Expanders



Stuart, Devon (2009).Johns Hopkins Medicine.

Firm, can be uncomfortable/sore initially. Improves with time and they are TEMPORARY

Functions:

- Expand muscle and skin
- Create a pocket for eventual implant or flap
- Preserve lower fold of breast



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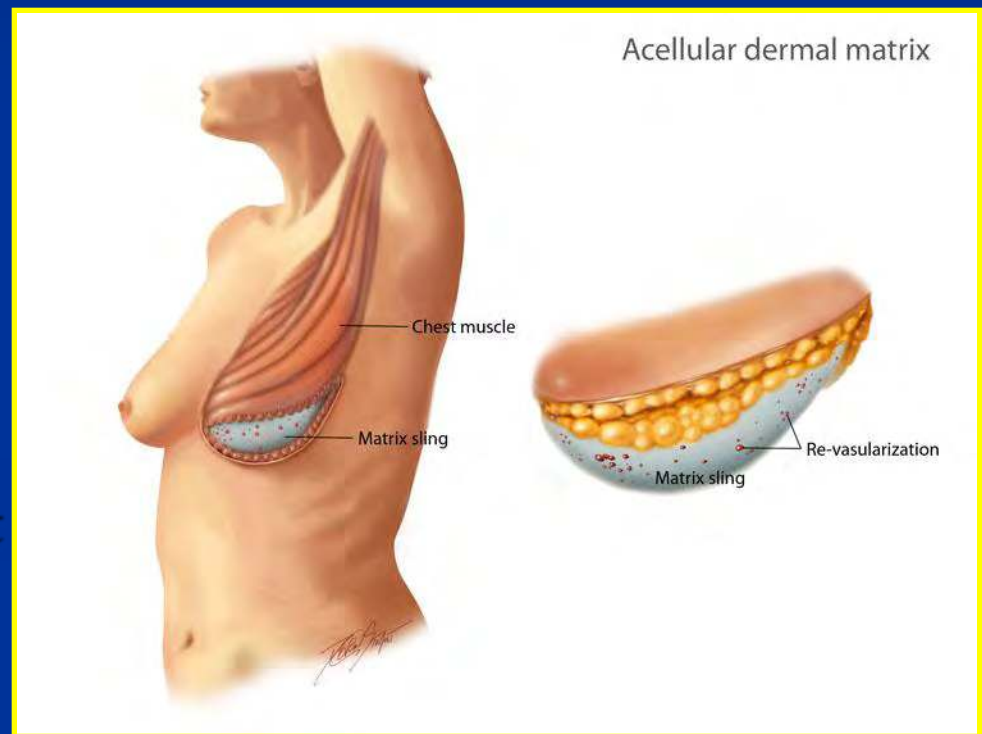
What to Expect

Initial mastectomy w/expander or implant

- One night inpatient hospital stay
 - At least one drain per breast (removed 1-2 weeks on average)
- Most able to return to work in 2-4 weeks

Tissue Regeneration Matrix

- Acellular dermal collagen **matrix** (i.e. Alloderm, Surgimend, Veritas)
- Blood vessels grow into over time
- “**Internal bra**” or sling
- Preserves fold under breast
- Complications (i.e. infection), but cannot be rejected



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What tissue expanders may look like right after surgery



Amount of fluid in expanders at time of surgery depends on blood flow to the skin

Larger amount possible with good blood flow



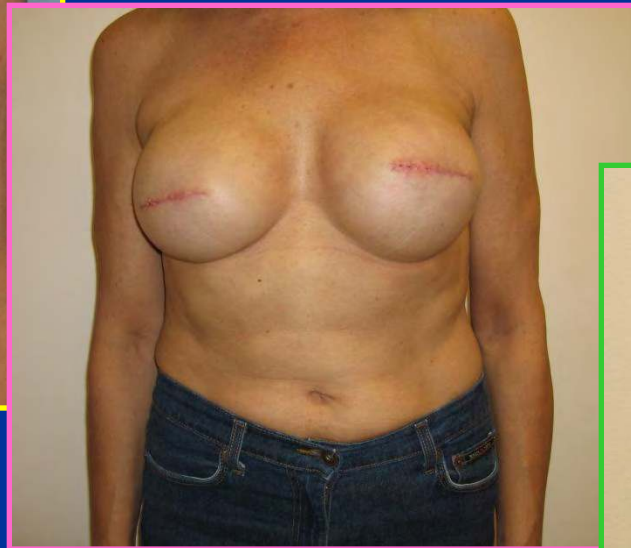
Staged Implant Reconstruction

Good Candidates:

- No history of chest wall radiation
- Will not undergo radiation therapy
- Thin patients



Before mastectomy



**1st Stage: Mastectomy
with Tissue
Expanders**



**Final Implants and Nipple
Reconstruction** (without
areolar tattoo)

Staged Implant Reconstruction with Intermediate Tissue Expanders

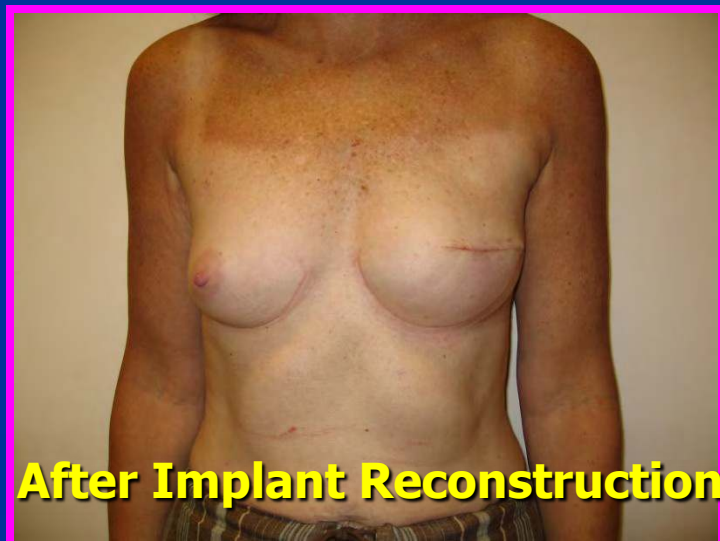




Prior to Mastectomy



Prior to Mastectomy



After Implant Reconstruction



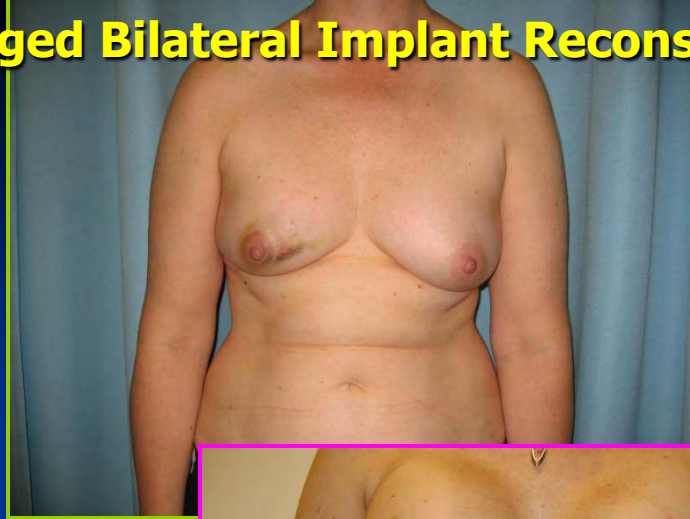
**After Implant Exchange
And Healed Nipple Reconstruction**



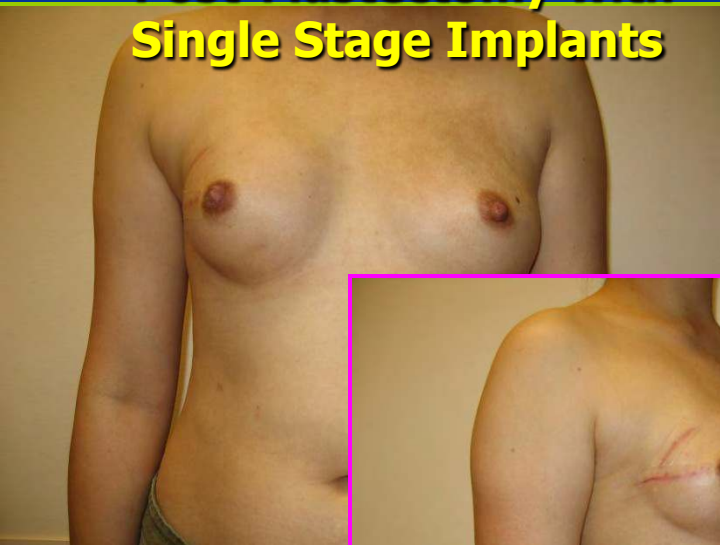
Final Result After Tattooing

Staged Bilateral Implant Reconstruction

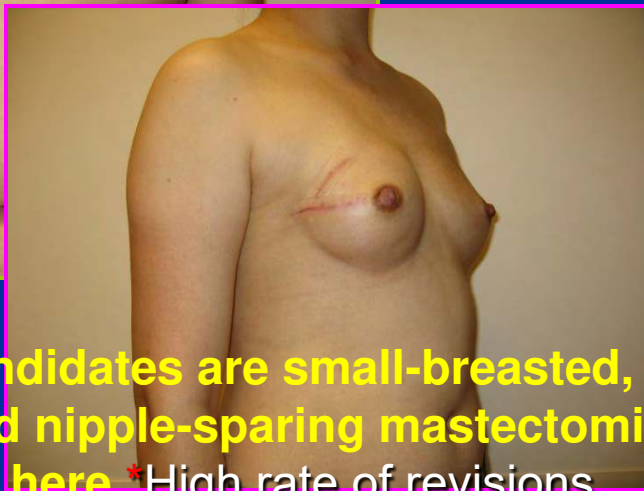
Prior to Mastectomy



**Post-Mastectomy with
Single Stage Implants**



**Better candidates are small-breasted,
with skin and nipple-sparing mastectomies
as seen here** *High rate of revisions





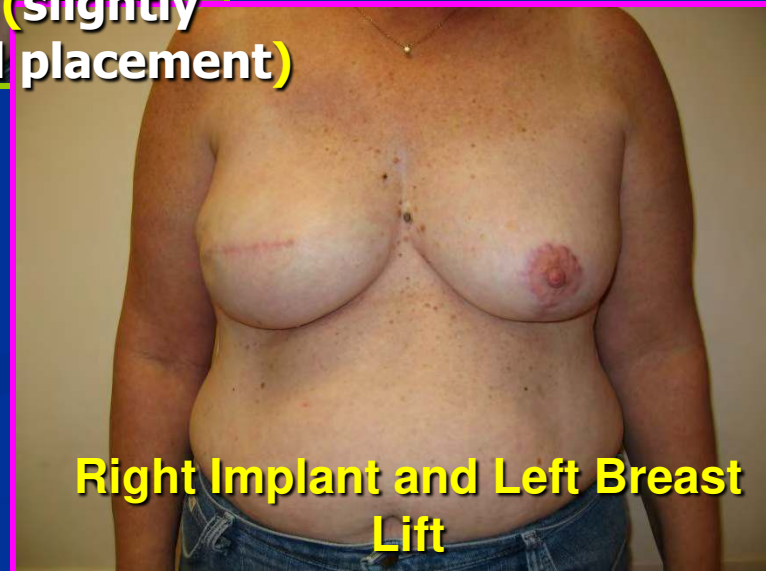
**Left tissue expander
followed by implant
reconstruction**



Staged Unilateral Implant Reconstruction



**Tissue Expander (slightly
inflated during initial placement)**



**Right Implant and Left Breast
Lift**

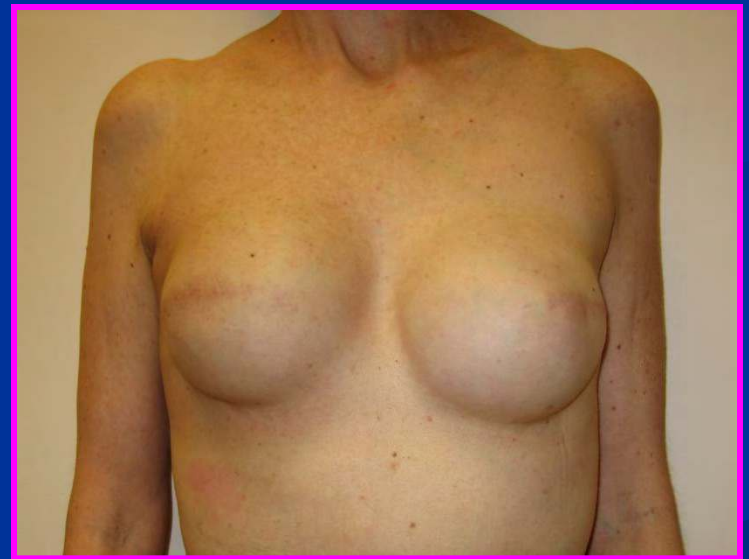
Advantages of Implants:

- Quicker reconstruction process
- Shorter outpatient surgeries
- Faster recovery
- No scarring of other areas of body



Disadvantages of Implants:

- Implants may need replacement (approx. 10% will rupture in 9 yrs)
 - Under chest muscle, can cause some tightness/discomfort
- Less natural-feeling



Ultimately **patient's preference**, but with radiation, autologous has better outcome

Delayed Implant Reconstruction with Tissue Expanders

**Previous Mastectomy with
No Reconstruction**



**Delayed Placement of
Tissue Expander**



**Final Implant Reconstruction with Right Side Breast
Reduction**

Potential Implant Complications

Following Radiation Therapy

Complications with implants & radiation:

- ❖ Unacceptable cosmetic outcome (high-riding, firm)
- ❖ Pain/tightness
- ❖ Capsular contracture
- ❖ Slowed healing
- ❖ Infection
- ❖ Exposure of implant through the skin

LIFELONG RISKS

Potential Implant Complications Following Radiation Therapy



Left Implant After Nipple-Sparing Mastectomy & Radiation, Right Breast Augmentation



Tissue expanders followed by implants after left side radiation

Pediced Latissimus Dorsi Flap



- Done less frequently, uses back muscle
- **T-dap** uses back skin and fat, spares back muscle, but not enough tissue to reconstruct entire breast
- Both often require an implant for increased projection



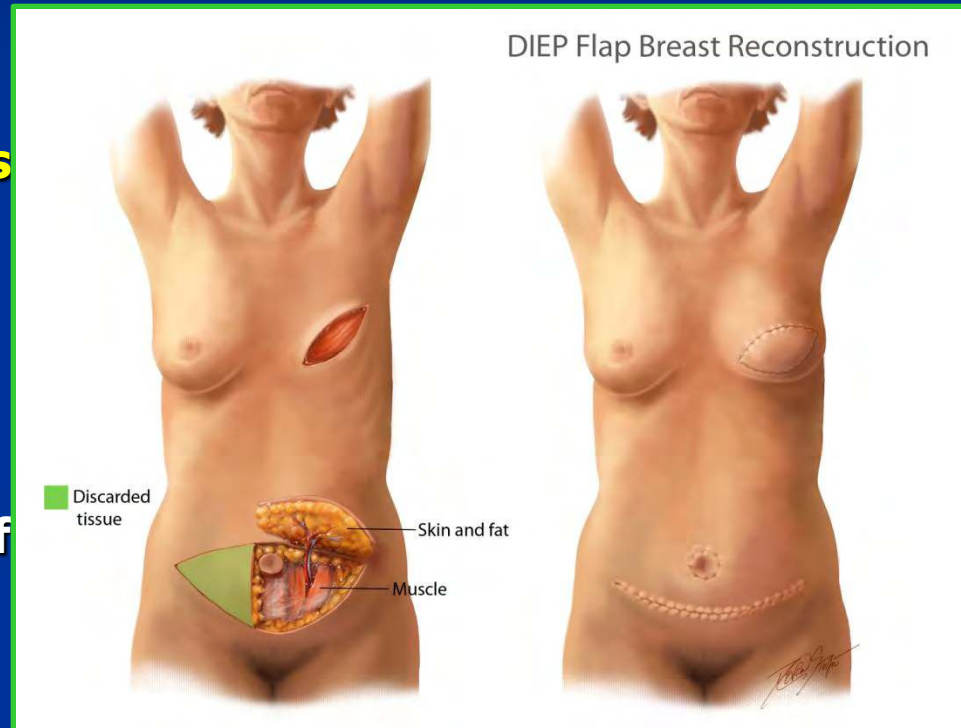
Healed Lat Flap w/Implant for Increased Projection



Healed Back Scar

DIEP Flap

- Surgery length **varies** (Generally **4-6+ hrs per side**)
- Hospital stay **3 nights**
- **Drains** in each side of abdomen and in the breast
- Return to work approx. **4-6 weeks**



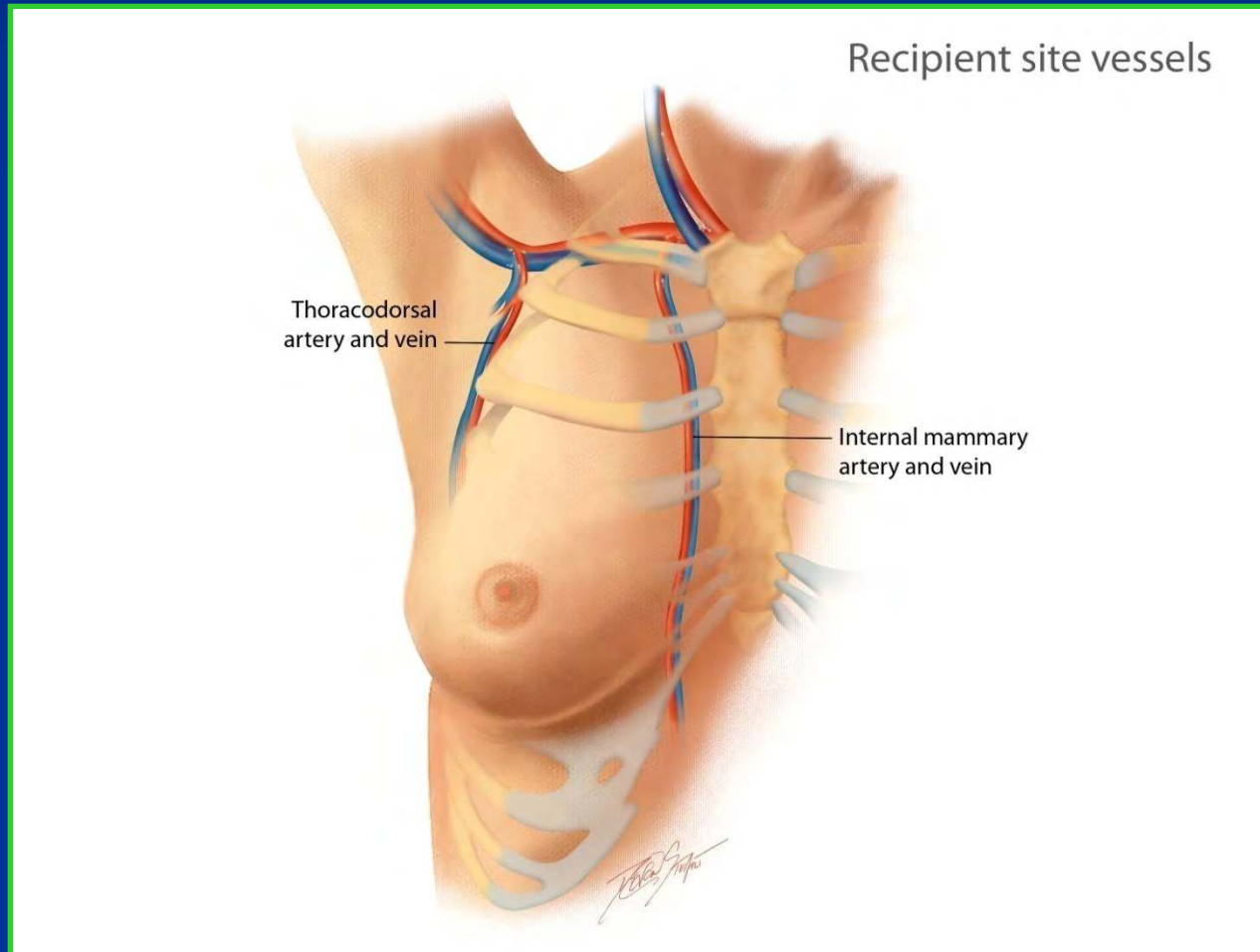
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- Skin, fat, and blood vessels taken from lower portion of abdomen
- Vessels connected under **microscope** to chest vessels
- Hip to hip scar on abdomen, around belly button, & **scar** around abdominal skin flap on breast

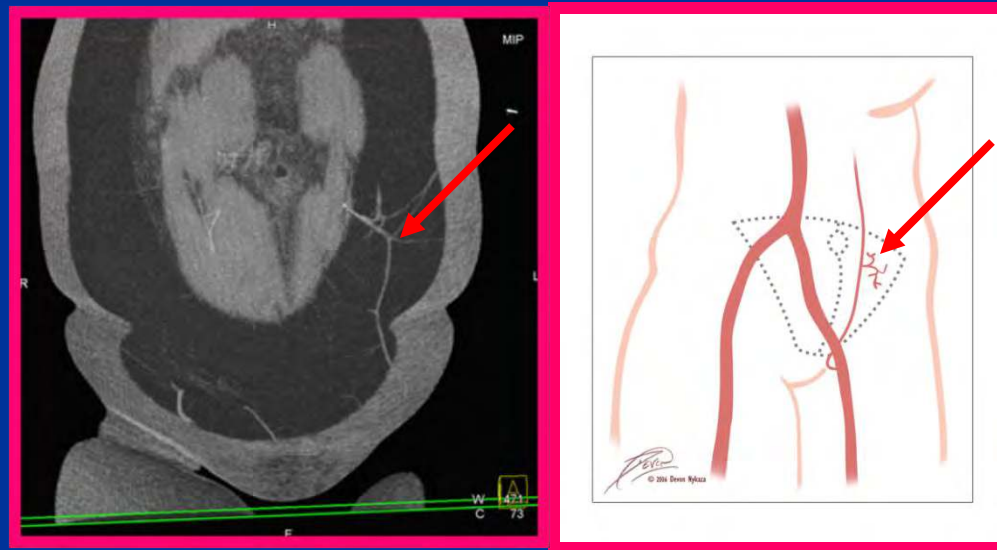
Recipient Vessels in Chest

Generally Internal Mammary Artery & Vein (IMA/IMV)

Accessed through rib resection
(removal of small piece of cartilage from end of rib)



Mapping Abdominal Perforator Vessels with 3D CT Scan



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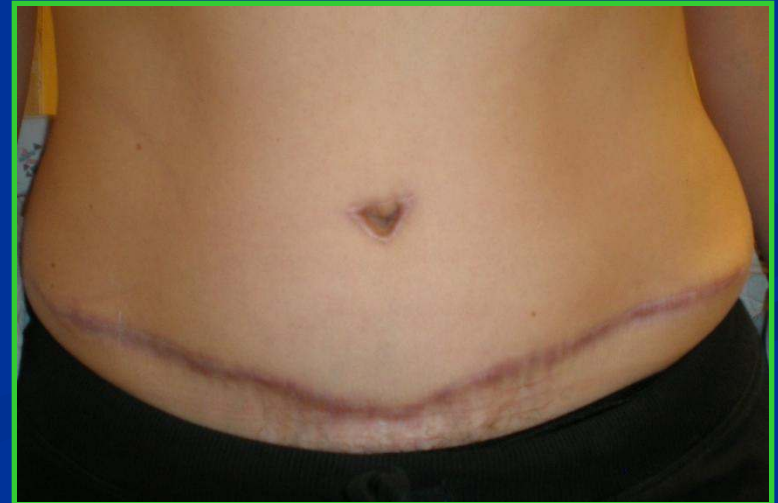
Sensate **Breast Reconstruction**

- During **unilateral autologous breast reconstruction**, this is attempted if nerves can be found in abdomen and chest
- Reconnected using nerve tube
- Hope to **gain some sensation** of skin and chest wall, but will never regenerate full sensation/nipple sensation

Staged **Bilateral DIEP Flaps**

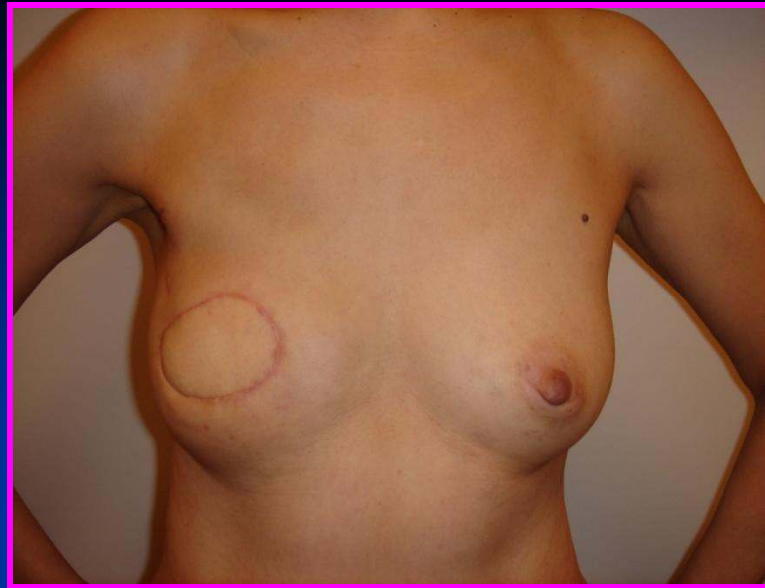


**Tissue Expanders
(left side radiation)**



Unilateral DIEP flap





**Results similar to a
"tummy tuck"**



**Abdominal scar often hidden
by most underwear/clothing**

Bilateral DIEP flap



Unilateral DIEP flap





**Prior to
mastectomy**



**Tissue Expander
after radiation**

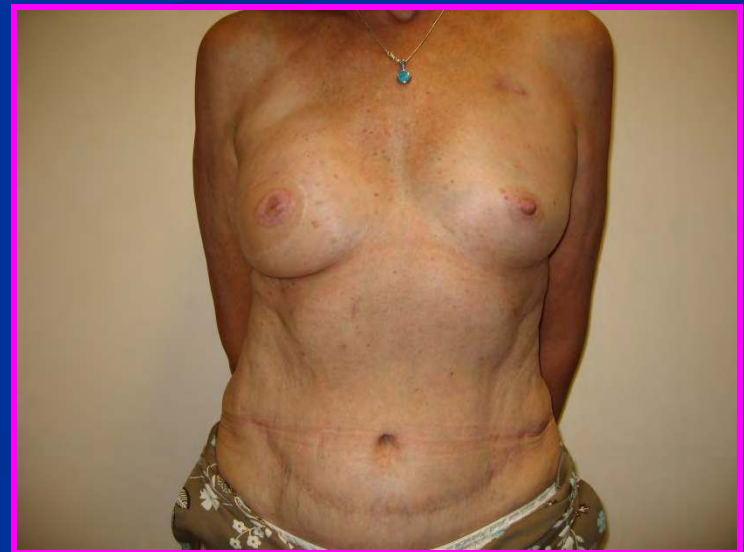


Left DIEP flap

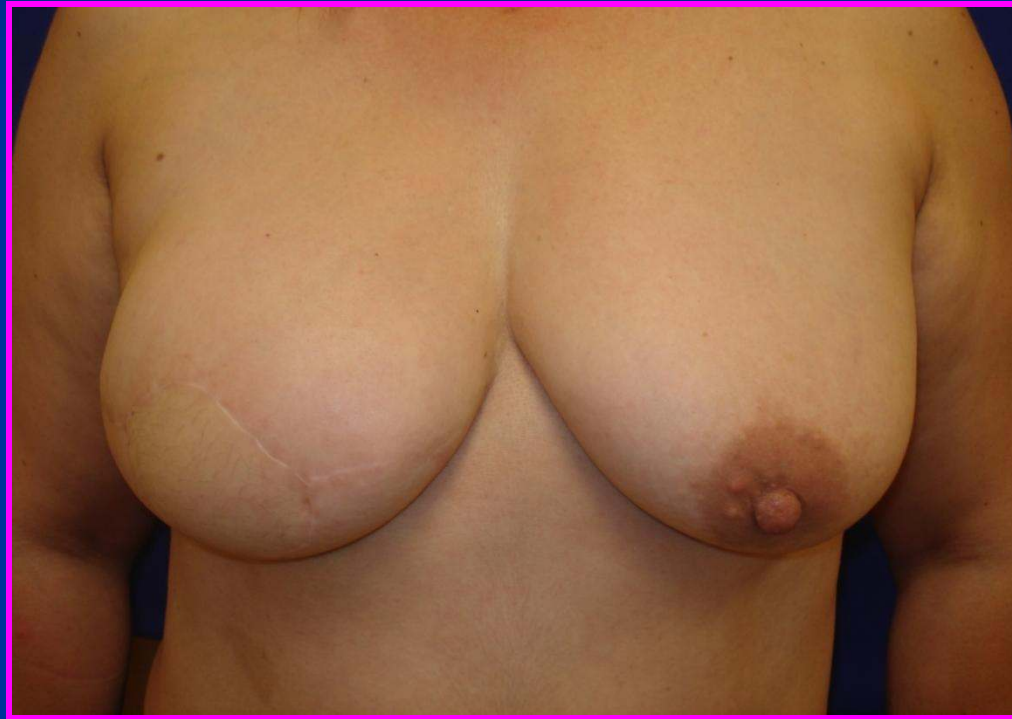


Right breast lift to match

Completed DIEP Flaps w/Nipple Reconstruction and Tattoo



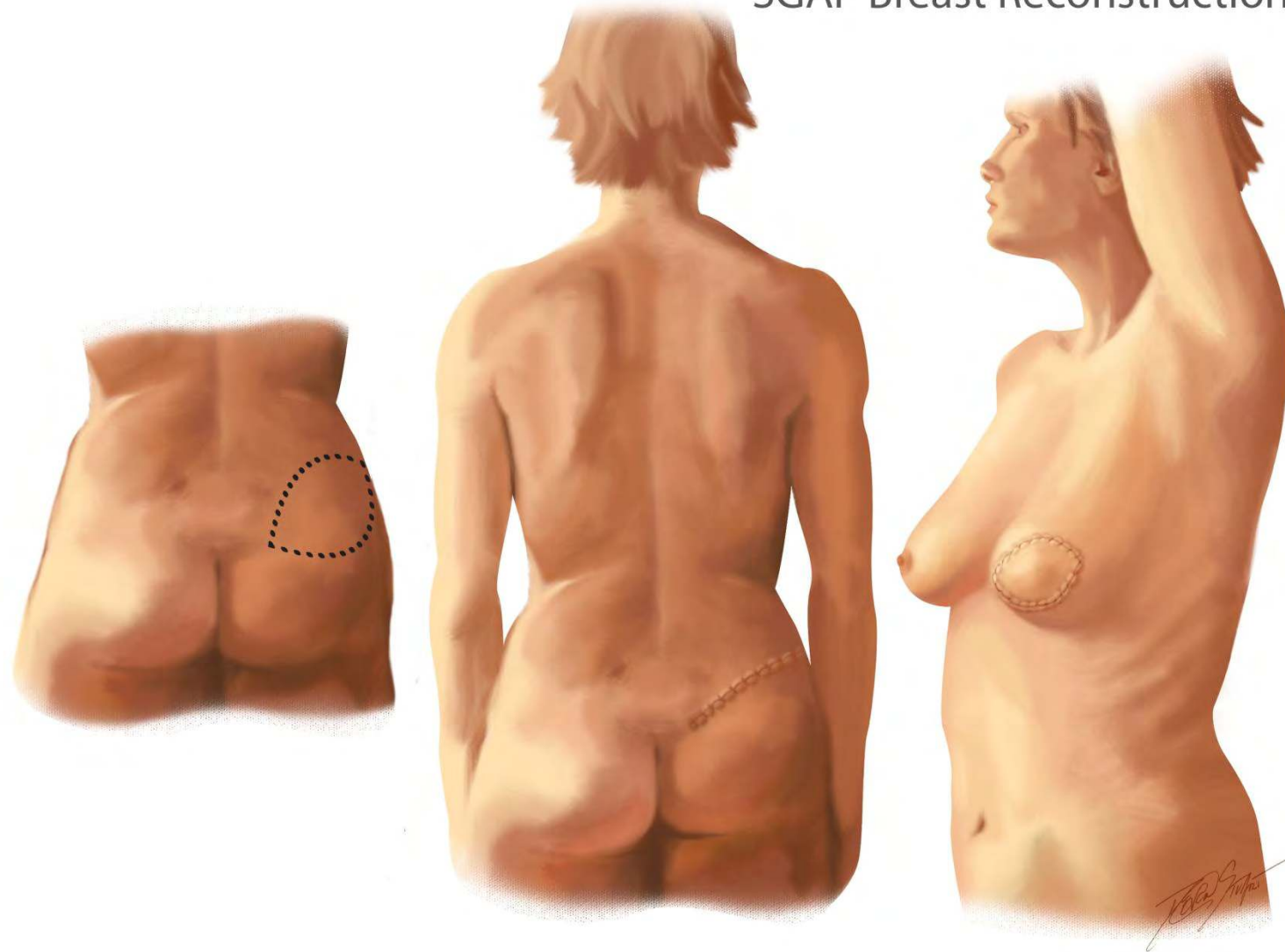
Healed Flap After 2 Years



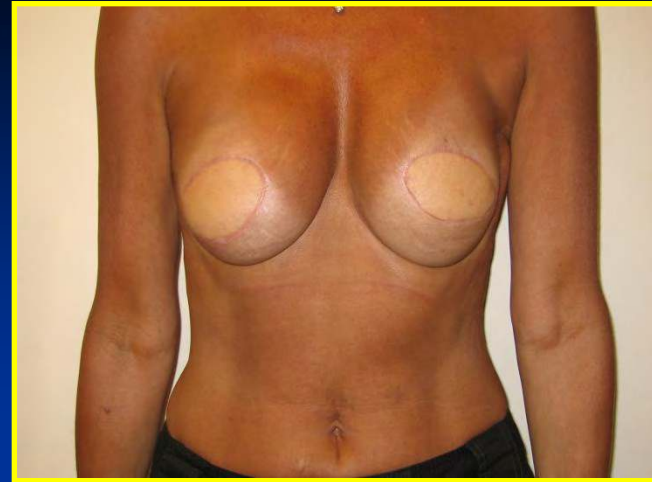
***Nipple reconstruction is patient's preference**

SGAP Flap

SGAP Breast Reconstruction



1st Stage: Tissue Expanders



Lateral SGAP (L-SGAP)



Flap taken from more lateral position of the buttock

Results in shorter, more lateral scar

Bilateral SGAP with skin paddles excised



Lateral SGAP (L-SGAP)



Flap is taken from more lateral (side) area of buttock, creating shorter scar

Unilateral SGAP



Delayed Bilateral SGAP



Markings made prior to surgery
to map blood vessels

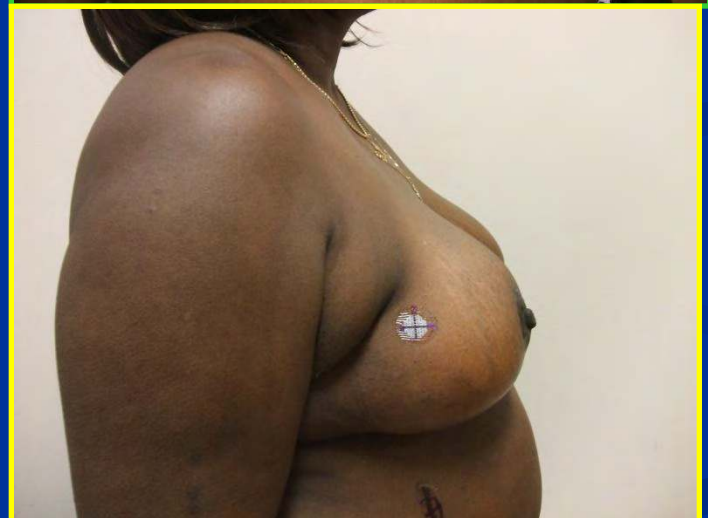
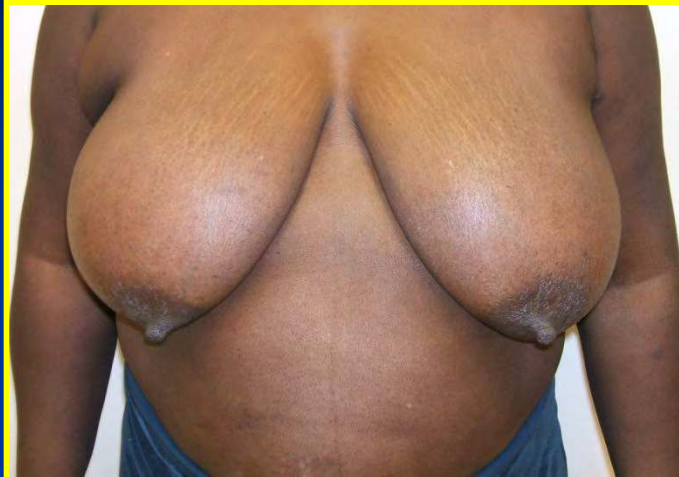
SGAP



Revisions to buttock may include fat grafting and/or liposuction of the opposite side for symmetry

Oncoplastic Breast Reduction

Breast Reduction at the Time of Lumpectomy



Good candidates are those who are eligible for breast conservation with lumpectomy and have larger breasts or desire a breast reduction

Oncoplastic Breast Reduction



Complications

```
graph TD; A[Complications] --> B[Autologous]; A --> C[Implant]; B --> D["Flap Loss  
Risk=1-3%  
(L-SGAP, S-GAP, DIEP)"]; C --> E["Unacceptable result  
With implants  
(contracture, radiation, infection, exposure)"]
```

Autologous

Flap Loss
Risk=1-3%
(L-SGAP, S-GAP, DIEP)

Implant

Unacceptable result
With implants
(contracture, radiation, infection, exposure)

COMPLICATIONS

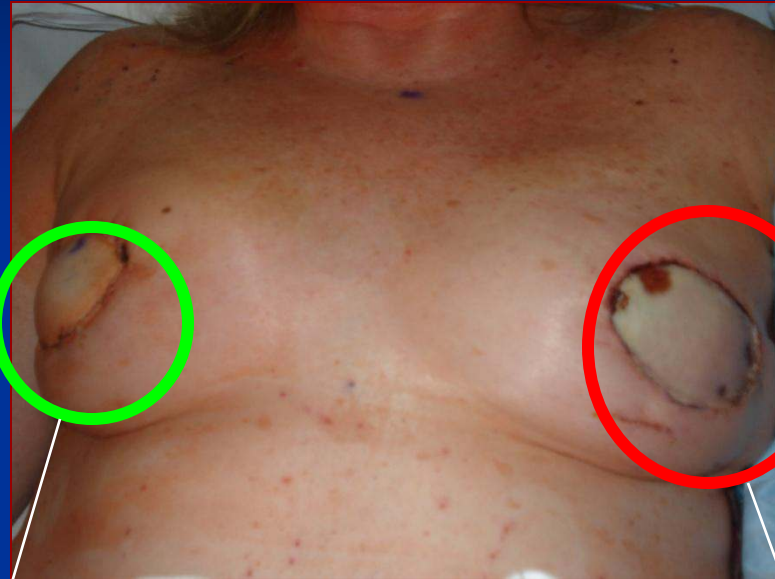


Reason for Failure:

Blood not properly flowing in and/or out of blood vessels to the flap

*** Can sometimes correct medically or surgically**

Otherwise, must remove flap and consider other options



**Healthy flap
(warm, pink)**

**Failing Flap
(cool, pale)**

*** Most likely to fail within 24-48 hours
WHILE IN HOSPITAL**

Methods to Attempt to Save a Failing Flap

Surgical:

Explore vessels for clot, kink, hematoma, etc.

Medical :

Aspirin (blocks platelets)

Heparin (blood thinner)

Viagra (dilates blood vessels)

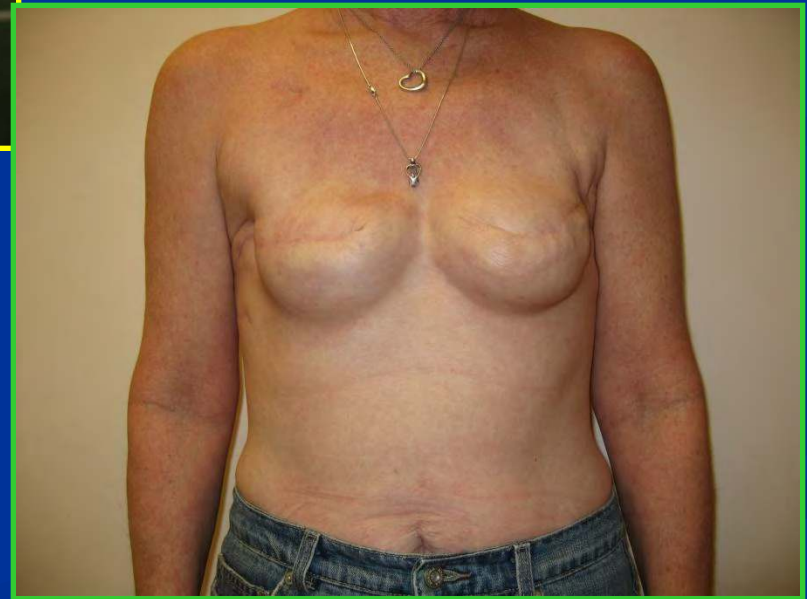
Leech therapy (secretes blood thinners)



Right DIEP Flap and Left Implant (after failed left DIEP flap)



Necrosis of Mastectomy Skin



**Healed, following operation to
remove dead skin**

Failed Left Reconstruction



Pedicle Latissimus Flap + Implant





Scarring



Everyone scars differently. Some people develop **keloid or hypertrophic scarring** as seen here.

Anticipate Asymmetry

Normal side can be adjusted to match
reconstructed breast

Opposite Breast
Reduction

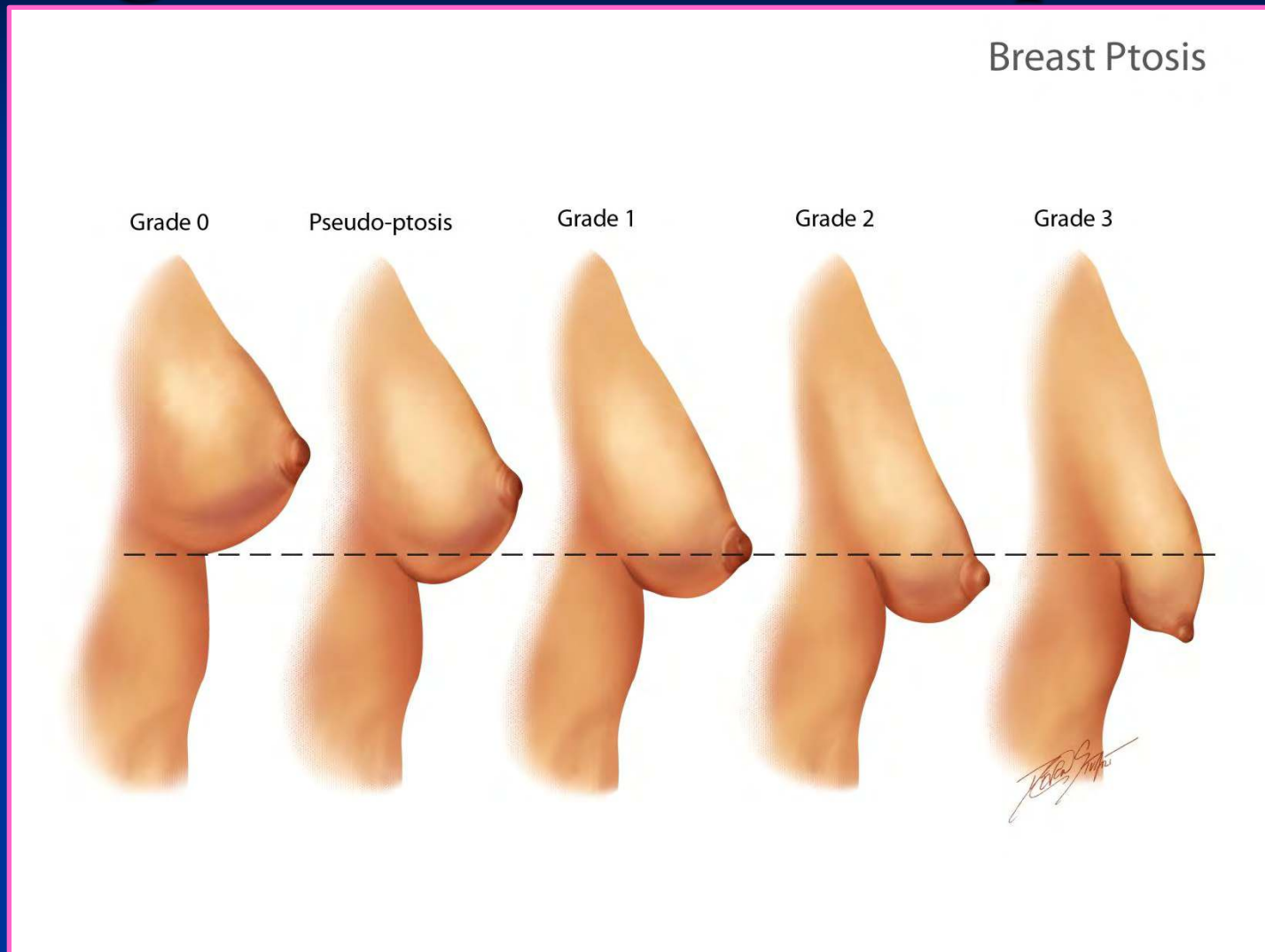
Opposite Breast
Lift

Opposite Breast
Augmentation

Opposite Breast
Lift + Augmentation

Options:
Saline or Silicone
Gel Implant

Stages of Breast Development



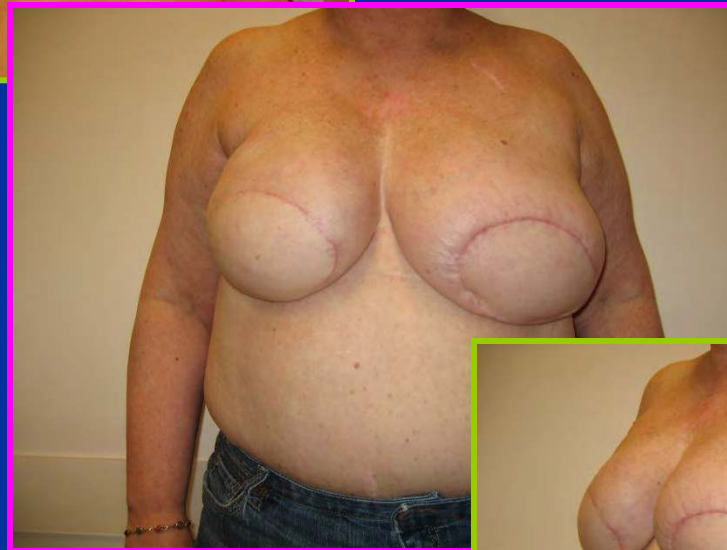
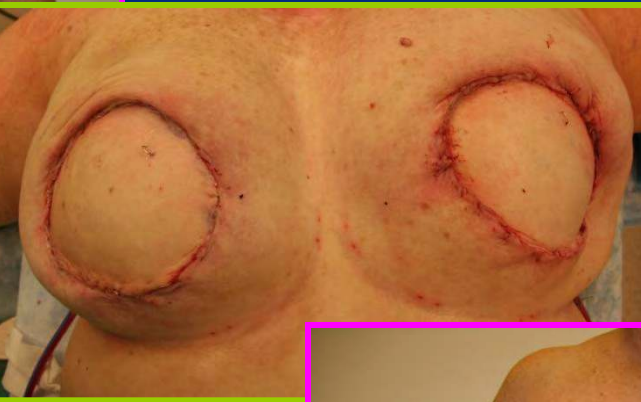
Ptosis= “sagging” of breast

Stuart, Devon (2009). Johns Hopkins Medicine .

Bilateral Immediate DIEP Flap

Although things may not look cosmetically pleasing initially...

With time and small outpatient revision surgeries...



The end result is greatly improved

Bilateral DIEP Flaps

With slight asymmetries
that can be improved
upon



Breast Mound Reconstruction Complete



Revisions



Revisions may include liposuction, direct excision, and/or fat-grafting to improve symmetry

Nipple Reconstruction



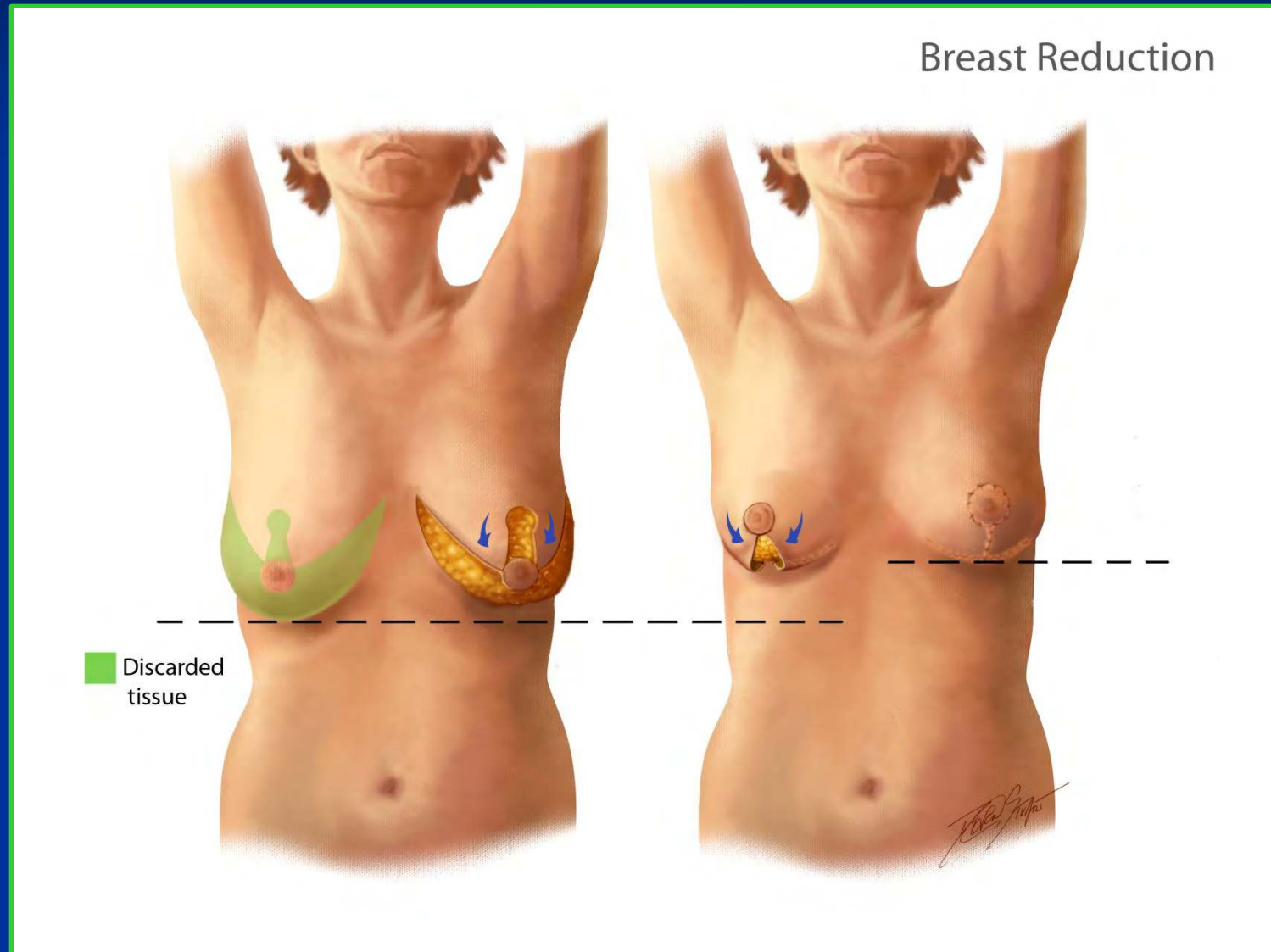
Reconstructed from tissue of the same area

Made larger initially as they flatten dramatically over first few months

The color can be tattooed 6-8 weeks following nipple reconstruction

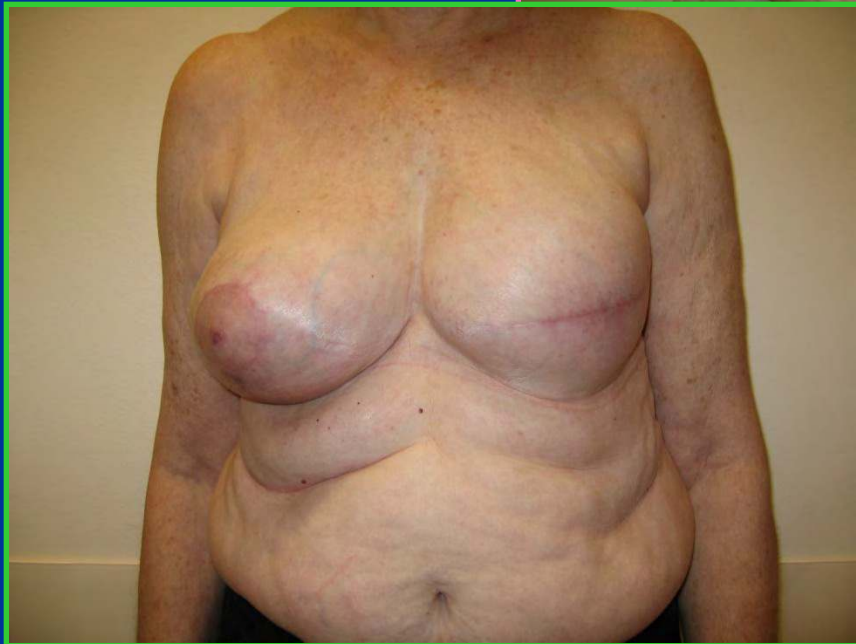
Breast Reduction

Removes excess skin and breast tissue





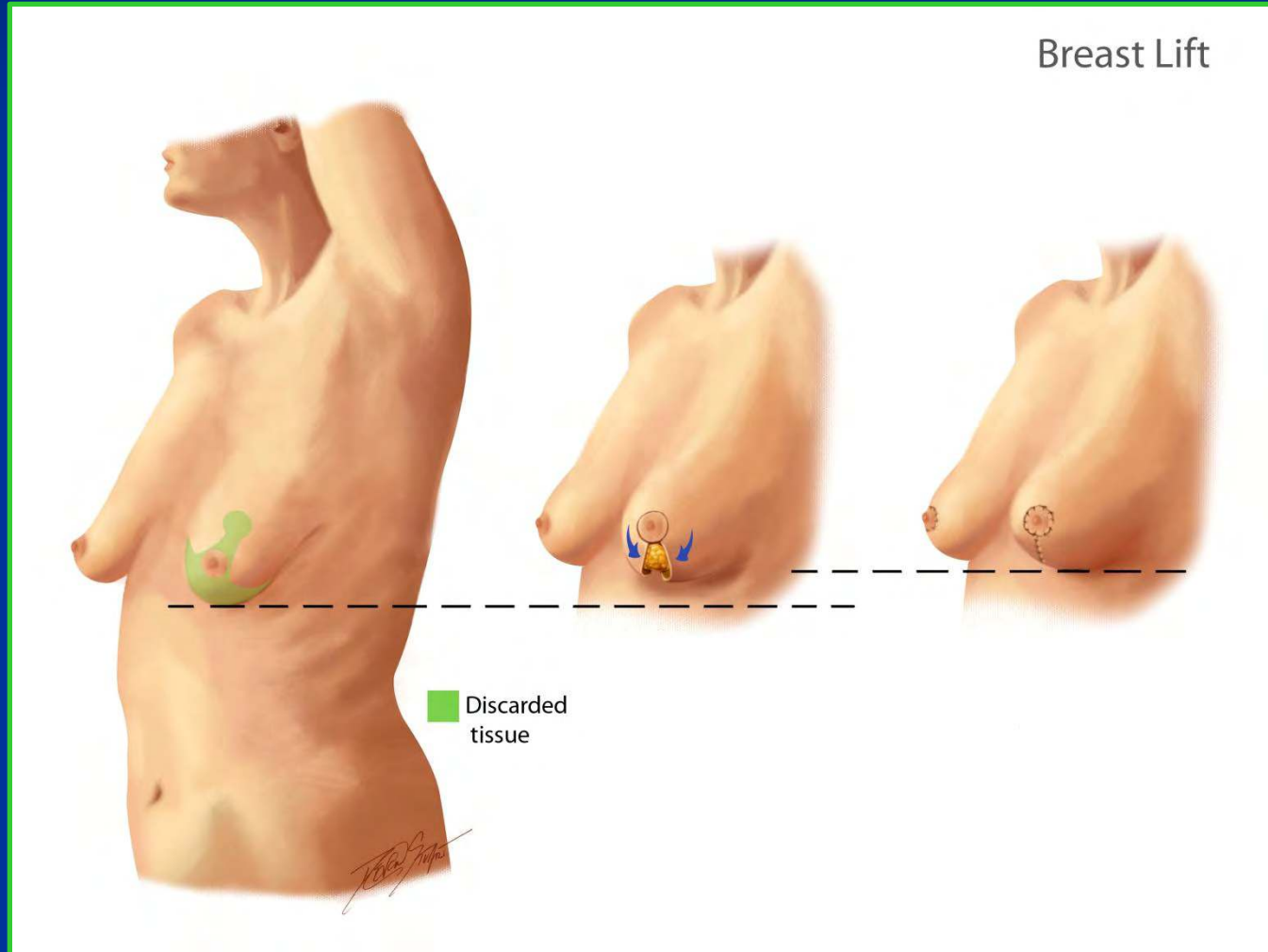
Breast Reduction as Matching Procedure



Breast Reduction as Matching
Procedure

Breast Lift

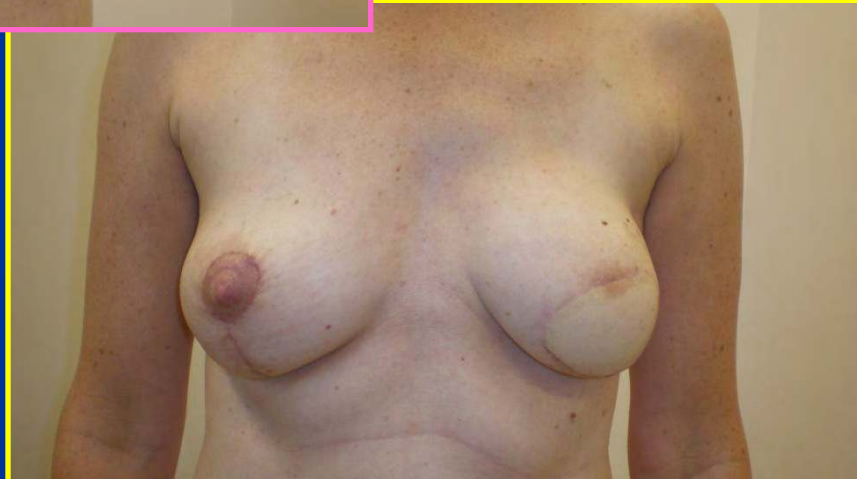
Removes excess skin from breast envelope, no breast tissue removed



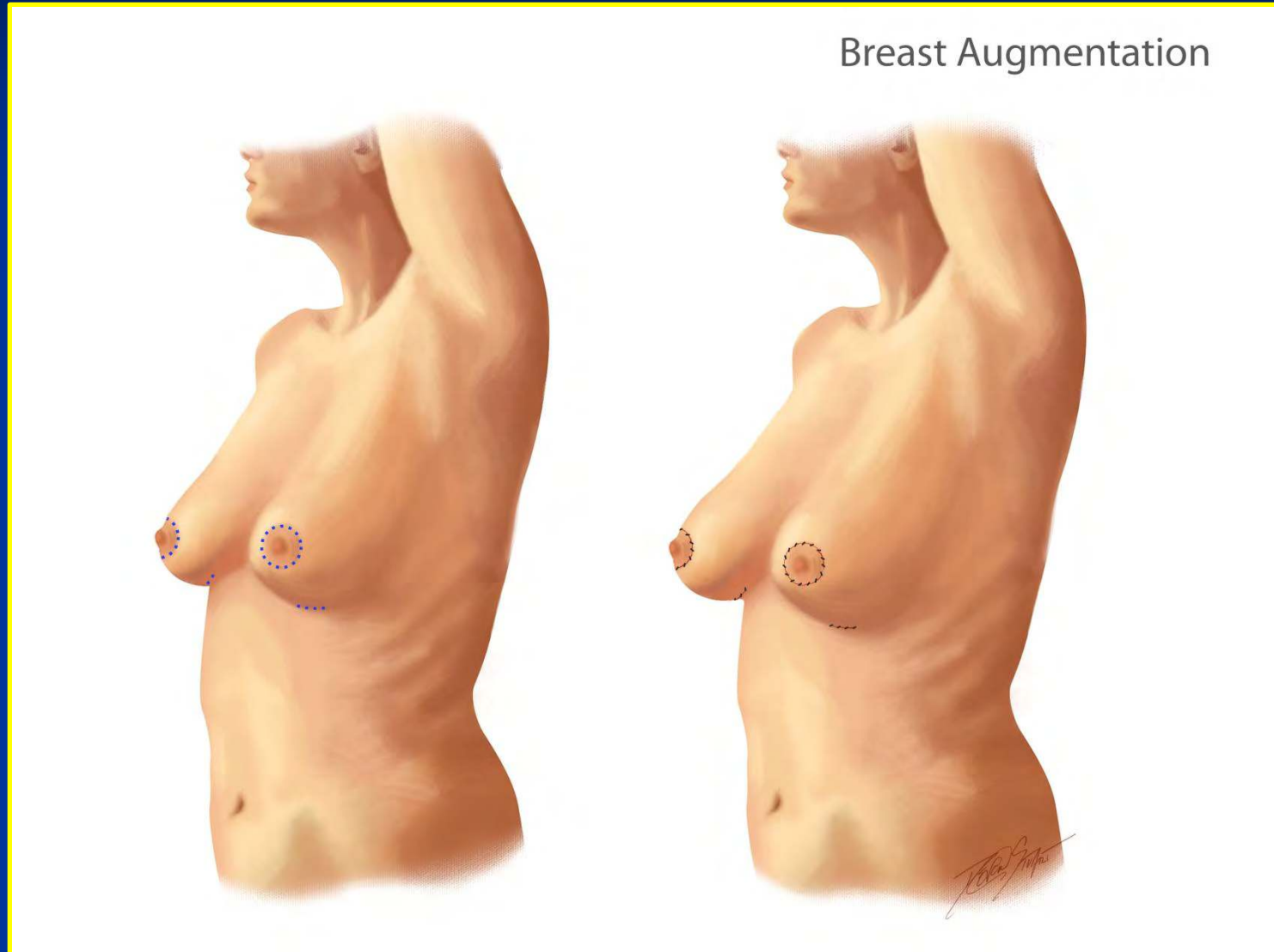
Breast Lift



Breast Lift



Breast Augmentation



**Left breast implant
reconstruction with right
breast augmentation
matching procedure**





Summary of Options



■ Prosthetic/Implant-Based

- Tissue Expander
- Saline or Silicone Implant

■ Autologous Tissue

- Free DIEP/SIEA
- Free S-GAP
- Free L-SGAP
- Free TUG
- T-Dap
- Pedicled Lat Dorsi
- Free TRAM
- Pedicled TRAM

■ Other

- Flap + Implant
- Oncoplastic Breast Reduction

* Remember, breast reconstruction is a work in progress over time.

With your patience, we strive for natural results with symmetry in shape and size.