



Reconstructive Options in Breast Cancer

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Objectives

- Benefits
- Pre-Operative Planning & Timing
- Techniques
- Post-Op Care
- Outcomes

Why Reconstruct?

“I have a long life to live and I want to live it whole.”

“I want to put on a nightgown again & fill it out & feel beautiful.”

“I was gardening one day when I bent over and my prosthesis fell out. Crying I picked it out of the muddy water. The next day I called a Plastic Surgeon.

The Reconstructive Option- Introduction

Pt. Interest & Satisfaction Remains

HIGH

Overall Referral Rate Remains **LOW**

Only **40 percent** of all patients
undergoing a mastectomy undergo
breast reconstruction.

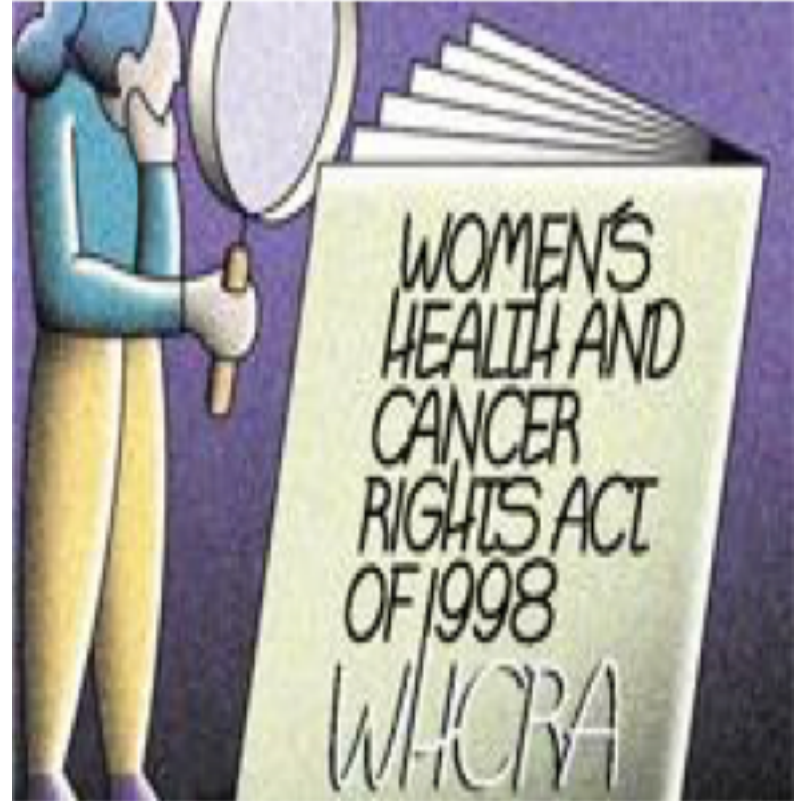
Remains an **Underutilized Option**



Benefits of Reconstruction

Improves:

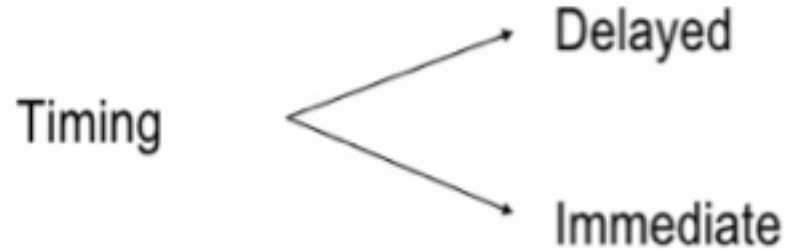
- Psychological State
- Social Functioning
- Emotional Health
- Self-esteem: Sexuality & Body Image



Breast Reconstruction Timing

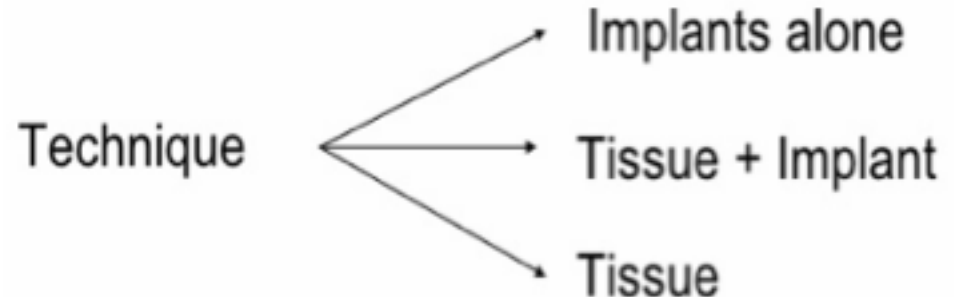
Immediate

- Expanders Placed at the time of the Mastectomy
- Direct to implant



Delayed:

- Following mastectomy Expanders placed then stage 2 or 3.



Types of Reconstruction

Prosthetic:

- Expander based Implant
- Direct to Implant

Autologous:

- Perforator Flaps
- TRAM
- Latissimus Dorsi

Combination w/ Adjunct

Procedures :

- Both Implant and Flap
- Nipple Reconstruction
- Fat Grafting
- BRAVA Device
- Contralateral Mastopexy

Important Considerations

Locally Advanced Dz Contraindications to immediate reconstruction.

Autogenous tissue reconstructions tolerate radiation better

Wait 2 to 3 months until chemotherapy has been completed for Delayed Recon.

Patients on Herceptin should have cardiac clearance prior to reconstruction.

Hold tamoxifen 2 weeks preop to avoid venous thromboembolism

Relative Contraindications to reconstruction include chronic medical conditions, such as COPD, CAD, severe asthma, fragile diabetes, extreme obesity, hypercoagulable and rheumatological disorders and the use of nicotine.

Decisions, Decisions...

<u>Condition</u>		<u>Best reconstruction option</u>
• Radiation	➡	• Delayed autologous tissue
• Bilateral reconstruction	➡	• Abdominal based recon – DIEP or SIEA
• Smoker	➡	• No abdominal based recon
• Obesity (BMI>35)	➡	• No abdominal based recon
• Multiple medical issues	➡	• Implant based recon

CANCER SURVEILLANCE

Current Evidence : Breast reconstruction does not impair cancer surveillance.

Recurrences occur:

1. A distant site
2. At the mastectomy skin.

Retrospective studies: NO increase in the risk of local failure. Annual oncologist visits.

Pts. w/ TRAM or perforator flap reconstruction can undergo annual mammography.

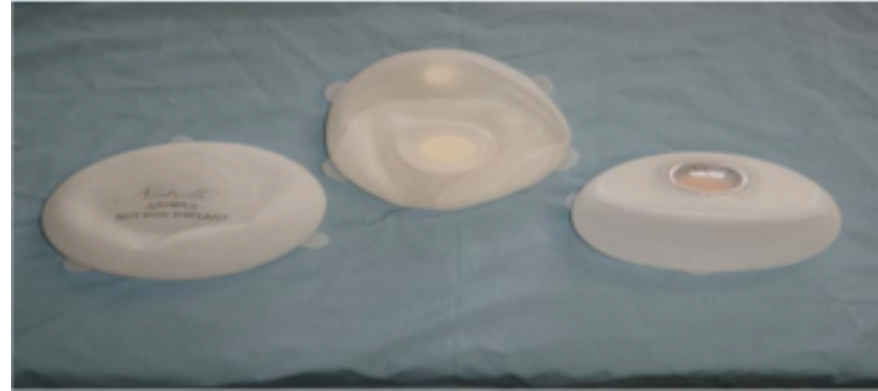


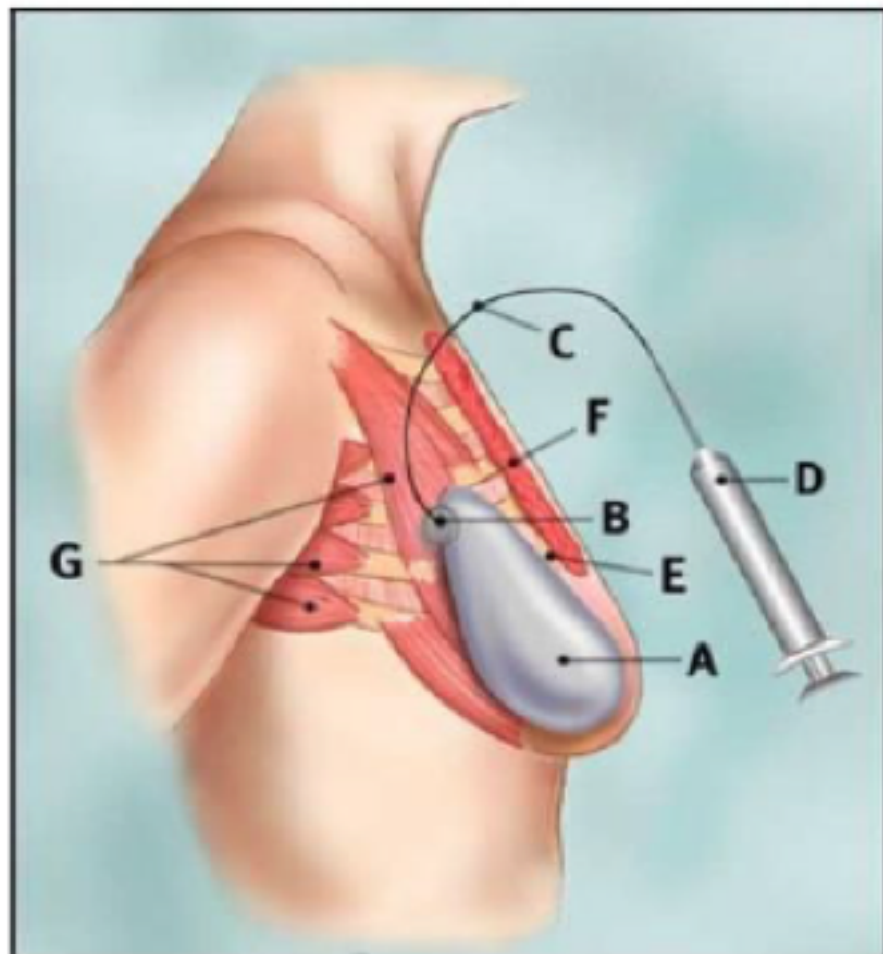
Prosthetic Reconstruction

2009 ASPS study 86,424 women underwent breast Reconstruction.

2/3 a total of 56,978 tissue expansion & implant based.

66% Female PRS reported that they would choose implant-based reconstruction for themselves if they had mastectomies.



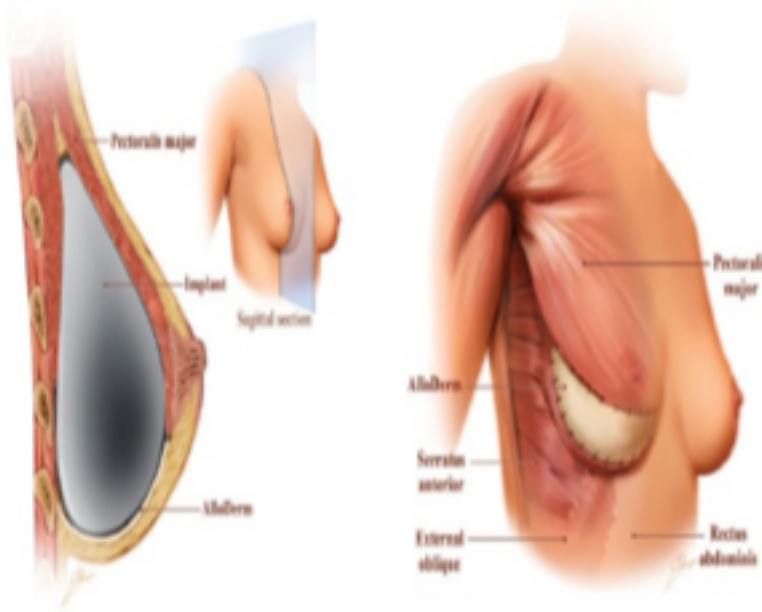


Side view of breast area
with filled tissue expander
in place

- A. Tissue expander-filled
- B. Port
- C. Catheter
- D. Syringe
- E. Ribs
- F. Pectoralis major muscle
- G. Muscles of the chest wall

Prosthetic Reconstruction

Acellular Dermal Matrix (AlloDerm®)



Autologous

- TRAM: Transverse Abdominis Myocutaneous Flap
- Perforator Flaps
 - DIEP
 - SIEA
 - Free Tram
- Latissimus Dorsi



TRAM Flap

TRAM Types: Pedicled or Free Tram

Tissue: A skin, fascia and muscle flap.

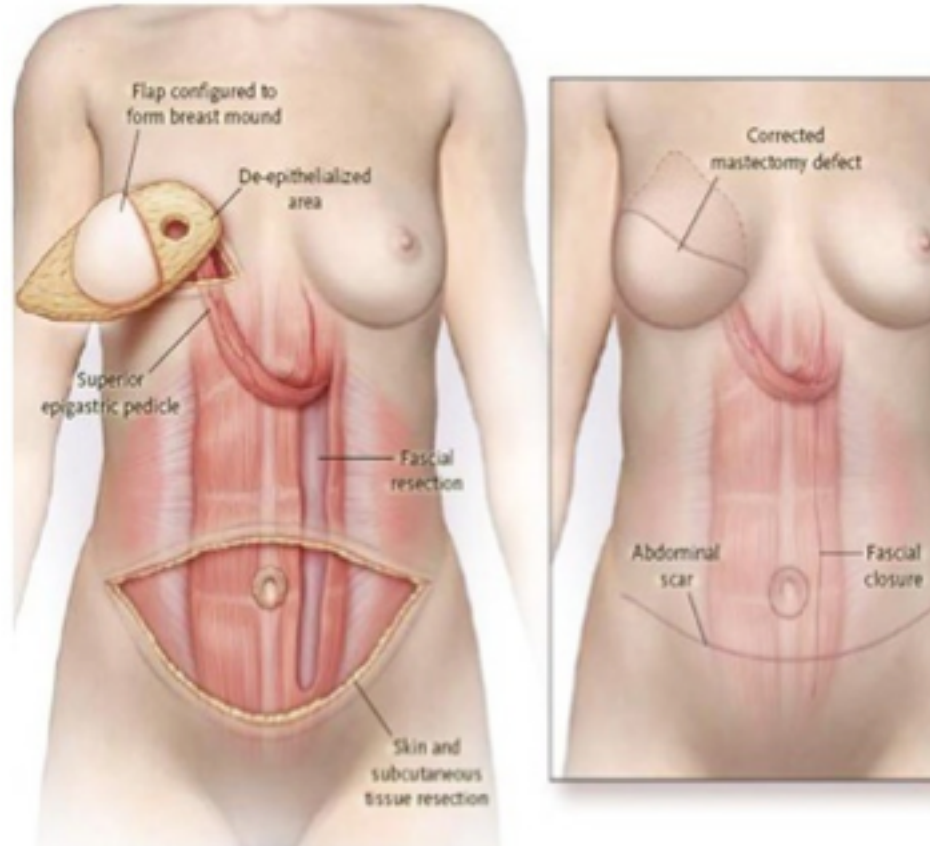
Innervation: Intercostal nerves, not typically harvested as a sensory flap.

Blood supply: The deep inferior epigastric artery and vein

Artery: Large caliber artery from 2 to 4 millimeters.

Vein(s): Paired

Pedicle length: This depends on muscle entry and the amount of intramuscular dissection



Skin-sparing mastectomy w/ Immediate TRAM



DIEP Flap

Tissue: Skin and fat from the lower abdominal wall.

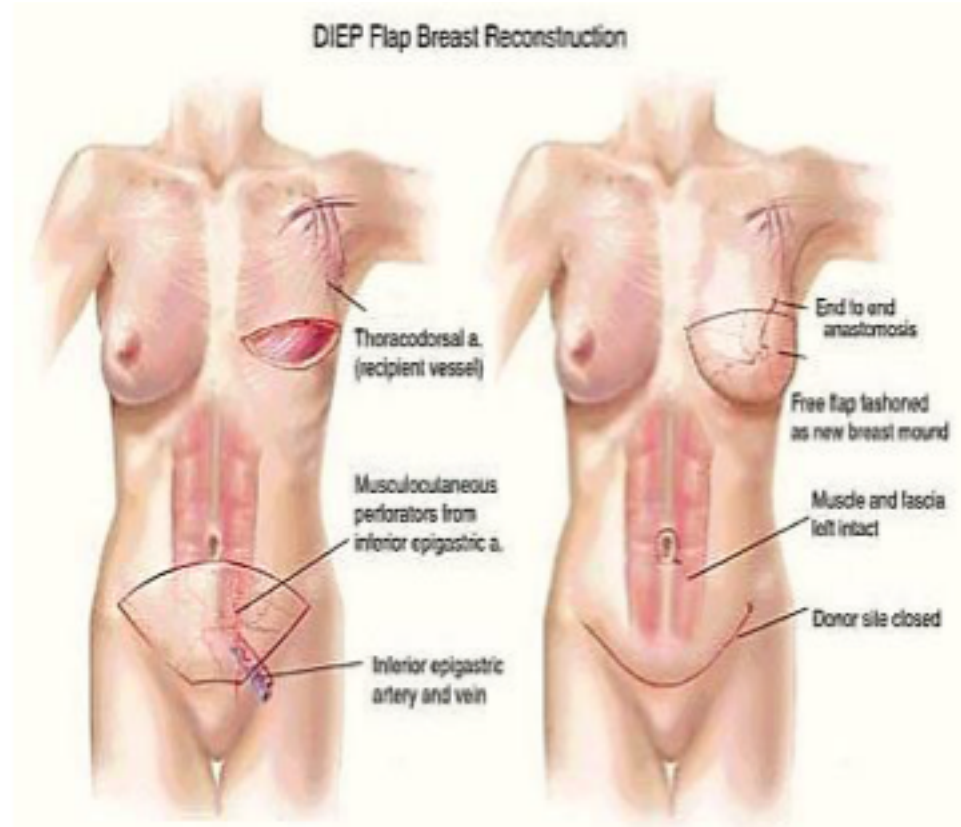
Zones 1, 2 and 3 are generally well perfused.

Innervation: Intercostal T11 and T12 dermatome via intercostal nerves.

Blood supply: The deep inferior epigastric artery and venae via perforators through the rectus muscle.

Vein(s): Paired

Pedicle length: From the perforator point to the origin on the external iliacs. Very Long



Left Mastectomy w/ Free DIEP



Latissimus Dorsi Flap

Tissue: Muscle flap. May be harvested with a skin paddle.

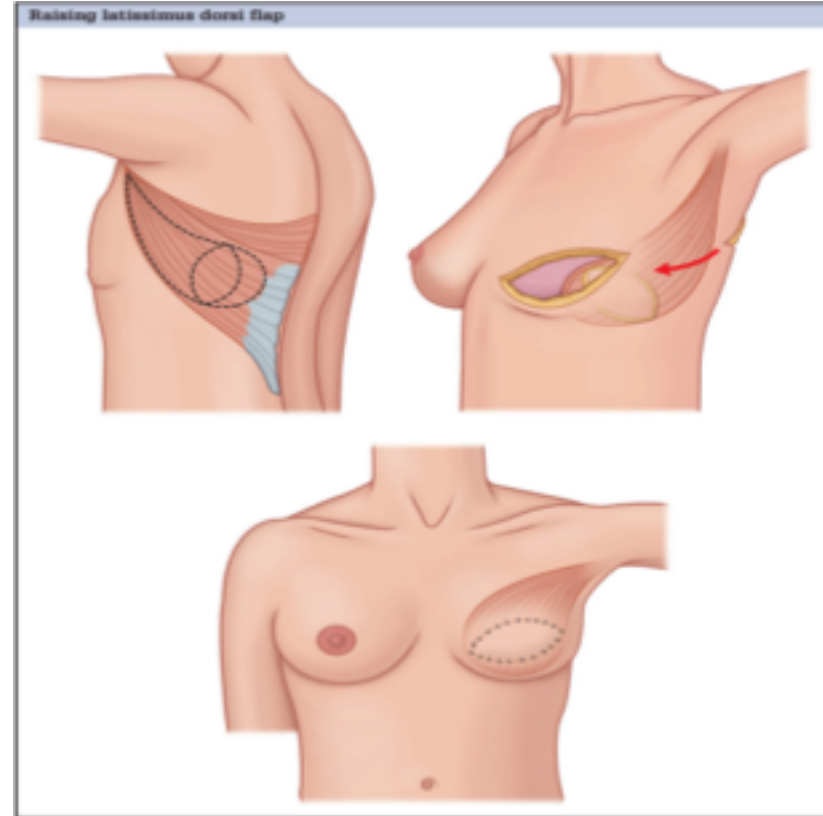
Innervation: The thoracodorsal nerve.

Blood supply: Thoracodorsal artery via the subscapular artery.

Artery: Can be up to 2 or 5 mm if harvested up to the subscapular artery.

Vein(s): Comparable to the artery. A single venae comitans.

Pedicle length: Approx. 15 cm



Bilateral Latissimus



A



B



C



D

Why is alloderm used to create the inferior lateral implant pocket?

Why is alloderm used to create the inferior lateral implant pocket?

Eliminates the need to elevate the serratus anterior fascia/musculature – it is hypothesized that this can decrease the pain and sensory morbidity experienced due to both the surgical disruption and postoperative expansion of the lateral intercostal nerves.

Other Prosthetic Options

Direct to Implant:

- Single Staged Procedure.
- Avoids second operation.
- Avoids Expander Use.
- Good For Patients with previous implants or excellent tissue coverage.

Autologous Time



**“Flappy
Breast”**

Flappy Breast - Name the Flap

This Flap Receives its blood supply from
the Thoracodorsal Artery:

Flappy Breast - Name the Flap

Latissimus Dorsi Flap

Flappy Breast - Name the Flap

The **pedicled** transverse rectus abdominis myocutaneous (TRAM) flap is based on the _____ vessels, and may be harvested as either a unipedicle or bipedicle flap.

Flappy Breast - Name the Flap

The Superior Epigastric Vessels

Flappy Breast - Name the Flap

The free TRAM flap is based on
the _____ vessels.

Flappy Breast - Name the Flap

inferior epigastric vessels

This allows for a more direct and robust blood supply to the skin paddle.

Flappy Breast - Name the Flap

The Most Common Cause of Flap Failure:

Flappy Breast - Name the Flap

Early 24 hours Technical Error

Late >24 hours Thrombosis

Combined & Adjunct Procedures

Necessary to improve:

- Improves Symmetry
- Reconstructs the nipple
- Repairs contour abnormalities.

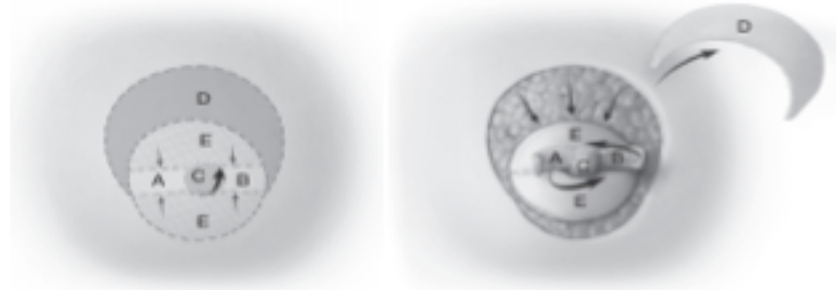
Techniques:

- Nipple Reconstruction
- Fat Grafting
- BRAVA Device
- Contralateral Mastopexy

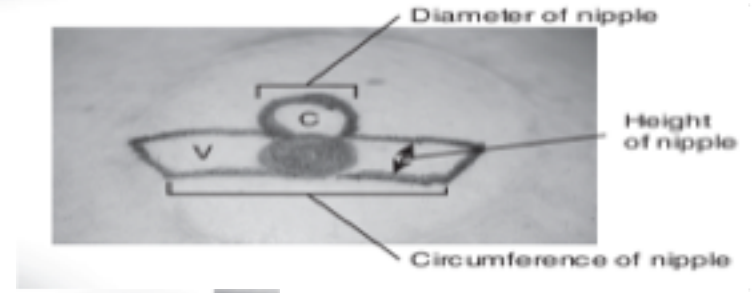


Nipple Reconstruction

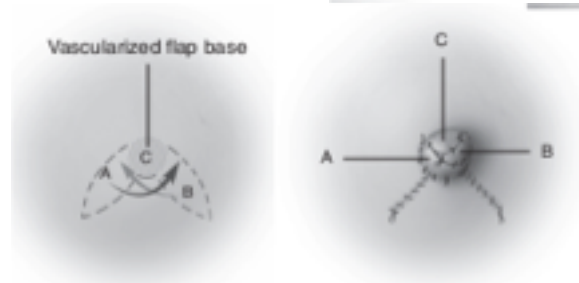
Skate Flap



C-V Flap



Fishtail-Modified C-V



Fat Grafting



BRAVA Device



The Michigan Breast Reconstruction Outcome Study (MBROS)

Distribution of Procedure Types and Timing*

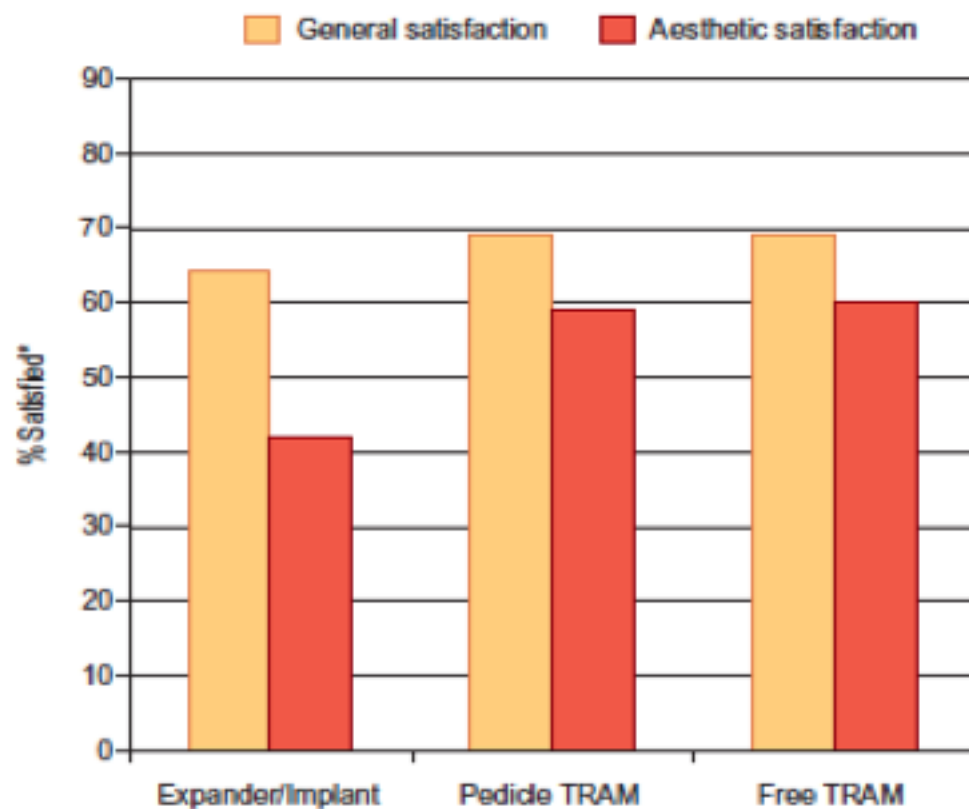
Procedure Timing	Implants		Pedicle TRAM Flaps		Free TRAM Flaps		Total
	No.	%	No.	%	No.	%	
Immediate	65	82.3	96	53.6	48	71.6	209
Delayed	14	17.7	83	46.4	19	28.4	116
Total	79	100.0	179	100.0	67	100.0	325

* Does not include one patient who received both a free and a pedicle TRAM flap.

The Michigan Breast Reconstruction Outcome Study (MBROS)

	Implants <i>n</i> (%)	Pedicle TRAMs <i>n</i> (%)	Free TRAMs <i>N</i> (%)
Back pain	1 (1.3)	4 (2.2)	4 (6.0)
Hernia/abdominal wall laxity	–	14 (7.8)	8 (11.9)
Lymphedema	3 (3.8)	10 (5.6)	3 (4.5)
Capsular contracture	12 (15.2)	–	–
Implant shift	1 (1.3)	–	–
Wound dehiscence	3 (3.8)	10 (5.6)	1 (1.5)
Partial flap loss (fat necrosis)	5 (6.3)	29 (16.2)	10 (14.9)
Total flap loss	0	2 (1.1)	1 (1.5)
Anastomotic thrombosis	–	–	4 (6.0)
Implant failure	3 (3.8)	–	–
Infection	28 (35.4)	21 (11.7)	12 (17.9)
<i>C. difficile</i> colitis	0	1 (0.5)	0
Hematoma/seroma breast	4 (5.1)	7 (3.9)	6 (9.0)
Hematoma/seroma abdomen	–	7 (3.9)	3 (4.5)
Abdominal wall necrosis	–	3 (1.7)	0
Cardiac/pulmonary complications	1 (1.3)	6 (3.4)	6 (9.0)
<i>Alderman AK, Wikirs E, Kim M and Lowery J. Complications in post-mastectomy breast reconstruction: two year results of the Michigan breast reconstruction outcome study. Plast Reconstr Surg 2002;109:2265-2274.</i>			

Patient satisfaction by procedure type at year two



* Responded "very satisfied" or "satisfied" for all questions within the two subscales

SURGICAL OUTCOMES

Table 22.3 A comparison of patient satisfaction by procedure type and body-mass index at postoperative year 2³

	Normal	Overweight	Obese
General satisfaction			
Expander/implant	63%	53%	64%
Free and pedicle TRAM	76%	83%	70%
Aesthetic satisfaction			
Expander implant	55%	27%	13%
Free and pedicle TRAM	77%	69%	74%
<i>Atisha D, Alderman A, Wilkins E, et al. The Impact of Obesity on Patient Satisfaction with Breast Reconstruction. Plast Reconstr Surg 121(6):1893-1899, 2008.</i>			