BREAST RECONSTRUCTION

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AMERICAN SOCIETY OF PLASTIC SURGEONS

What is a Breast Reconstruction?

The goal of breast reconstruction surgery is to restore one or both breasts to near normal shape, appearance, symmetry, and size. **Women have breast reconstruction surgery following a mastectomy, lumpectomy, radiation treatment, or congenital or developmental breast deformity.** Breast reconstruction often involves several procedures performed in stages and can either begin at the time of mastectomy or be delayed until a later date.

There are many breast reconstruction surgery types and they generally fall into two categories: implant-based reconstruction or flap reconstruction. Either of these categories may utilize fat transfer from another body region. **Implant reconstruction** relies on breast implants to help form a new breast mound. **Flap reconstruction** uses the patient's own tissue from another part of the body to provide tissue or form a new breast.

There are many factors that will determine your course of treatment, which include:

- Type of mastectomy
- Cancer treatments that may have an impact on breast quality and appearance or cause a delay in reconstructive treatment
- Your body type and health status
- Tissue availability for reconstruction
- Time required for surgery and recovery

Is Breast Reconstruction right for me?

Breast reconstruction is a highly individualized procedure. You should do it for yourself, not to fulfill someone else's desires or to try to fit into any sort of ideal image.

It is also important to know that not every woman chooses to have a breast reconstruction and that is a valid personal choice.

Breast reconstruction may be a good option for you if:

- You can cope well with your diagnosis and treatment
- You do not have additional medical conditions or other illnesses that may impair healing
- You have a positive outlook and realistic goals for restoring your breasts and body image

Although breast reconstruction can rebuild your breast, the results are highly variable:

- A reconstructed breast may not have the same sensation or feel as the breast it replaces.
- A reconstructed breast will not age the same way an unoperated breast will.
- Visible scars will always be present on the breast, whether from reconstruction or mastectomy.
- Certain surgical techniques will leave incision lines at the donor site, which is commonly located in less exposed areas of the body such as the back, abdomen, or buttocks.
- Nipple preservation has significantly improved the aesthetic results of breast reconstruction. However, not all women are candidates for nipple preservation, so there are techniques available for nipple reconstruction.

A note about symmetry:

If only one breast is affected, it alone may be reconstructed. In addition, a breast lift, breast reduction or breast augmentation may be recommended for the opposite breast to improve symmetry of the size and position of both breasts.

There are laws in place that require insurance to cover surgery of your other breast to achieve a more symmetrical appearance. Talk to your plastic surgeon about your options.

Consultation & Preparing for Surgery

During your consultation be prepared to discuss:

- Your surgical goals
- Medical conditions, drug allergies, and medical treatments
- Current medications, vitamins, herbal supplements, alcohol, tobacco, and drug use
- Previous surgeries
- Documentation describing your cancer treatment

Your surgeon will also:

- Evaluate your general health status and any pre-existing health conditions or risk factors
- Examine your breasts and take measurements of their size and shape, skin quality, and placement of nipples and areolae
- Take photographs
- Discuss your options and recommend a course of treatment
- Discuss the likely outcomes of breast reconstruction and any risks or potential complications

Prior to surgery, you will likely be asked to:

- Get lab testing and a medical evaluation
- Get radiographic or cardiac testing to assure baseline health
- Take certain medications or adjust your current medications
- Stop smoking or vaping*
- Avoid taking aspirin, anti-inflammatory drugs, and herbal supplements as they can increase bleeding

**Smoking decreases blood flow, which can impede wound healing and increase the risk of infection.*

Breast reconstruction surgery is typically performed in a hospital setting, may include a short hospital stay, and will require general anesthesia.

Some follow-up surgical procedures to complete or refine results may be performed on an outpatient basis in the hospital or in an ambulatory facility and varying levels of anesthesia may be used. These decisions will be based on the requirements of your specific procedure and in consideration of your preferences and your doctor's best judgment.

It's very important to understand all aspects of your breast reconstruction. It's natural to feel some anxiety, whether it's excitement for your anticipated new look or a bit of preoperative stress. Don't be shy about discussing these feelings with your plastic surgeon. Friends and the breast cancer community, including social media groups and in-person support groups can clarify others' experiences, but those experiences may not match your treatment plan and situation. For this reason, more exact answers to your specific questions will be best obtained from your health care team.

The Procedure

Your breast reconstruction surgery can be achieved through a variety of different techniques. The appropriate reconstructive procedure for you will be determined based on your own preferences and goals, discussions with your surgeon, your health status and body type, prior therapy, and/or surgical treatment.

Types of Breast Reconstruction After a Mastectomy

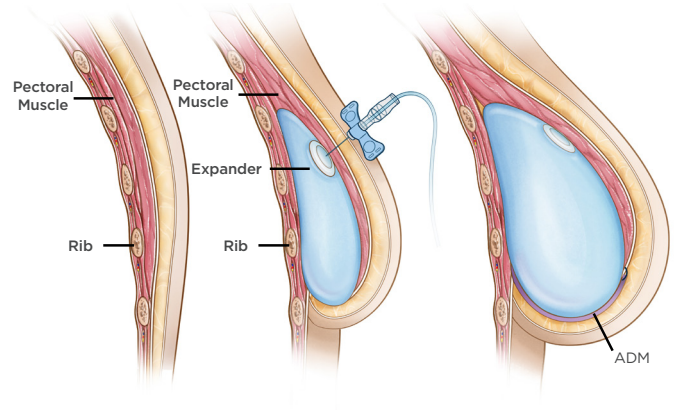
Implant Reconstructions

Expander/Implant

First, a temporary device known as a tissue expander is placed in the breast to create the soft pocket that will contain the permanent implant. This procedure is often performed for large breasts with sagging nipple position and requires significant reduction of the skin envelope and often the nipple areola to optimize healing and long-term outcome. Many surgeons also use biological materials such as acellular dermal matrix (ADA), a type of surgical mesh, to assist with reconstruction. One to two drains will be placed.

Expansion will often begin at the time of surgery. Saline will be added to the expander through the skin in several sessions in the office after surgery. The time it takes to complete expansion depends on symmetry, the expander volume capacity, and your size goal as discussed with your plastic surgeon. Expansion is not painful, but with larger volumes added, the expander may feel tighter in the chest.

Once expansion is complete the expander will be exchanged for the permanent implant during an outpatient procedure. This implant is most often silicone, but saline may be placed. Options for the different implant options will be discussed prior to committing to the implant.

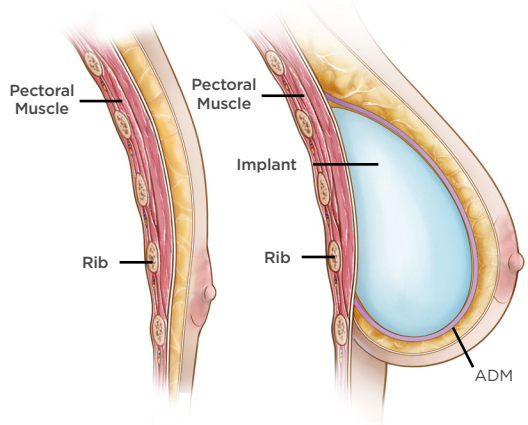


Expander: Subpectoral shown here

Direct-To-Implant

This approach allows for a breast implant to be placed immediately at the time of mastectomy, foregoing the need for a tissue expander. Placement may be above or beneath the pectoralis muscle and may include the use of other biological materials such as acellular dermal matrix to help support the implant, assist in healing, limit scar/capsular contracture, and optimize the cosmetic outcome.

This type of reconstruction is great for women with breasts that are C cup or smaller with well-positioned nipple areolar complexes, and good health. One to two drains will be placed. Some patients may still require a secondary procedure.



Direct-to-Implant Prepectoral shown here

Flap Reconstructions

Use of the patient's own tissue – skin, fat, and possibly muscle – to create a breast mound.

Donor Site: Abdomen

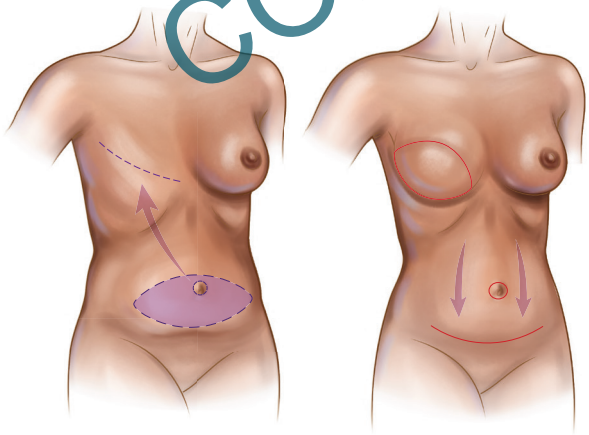
TRAM Flap:

The pedicled transverse rectus abdominus myocutaneous (TRAM) flap uses abdominal muscle, tissue, skin, and fat to create breast shape and potentially reconstruct the nipple. The patient will have the benefit of a flatter looking abdomen. The scar across the abdomen is between the belly button and pubic region, and extends from hip to hip.

The benefit of this procedure is that it can reduce unsightly skin excess in the abdomen in a several hour procedure without major surgical complexity. Women who undergo TRAM flaps are more likely to experience abdominal muscle weakness and asymmetrical laxity which might be pre-emptively treated with abdominal wall reinforcement at the time of the TRAM surgery.

At the end of the surgery there will be drains in the abdomen and breast areas.

TRAM Flap

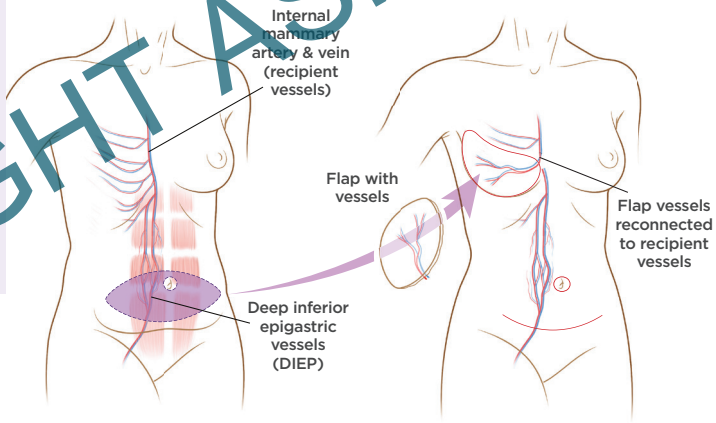


Abdominal free flap:

These microsurgical (Free TRAM, DIEP, SIEP) procedures may or may not use the actual abdominal muscle. Free flaps rely on the identification, transfer, and re-attachment of blood vessels feeding the segment of abdominal skin and fat that will rebuild the breast to arteries and veins in the chest either under the ribs or in the underarm, using a surgical microscope.

These procedures are highly complex and normally take a number of hours with subsequent close, specialized monitoring in the hospital. These microvascular techniques may spare abdominal muscles, safeguarding abdominal strength and competence after tissue harvest.

Microvascular Reconstruction

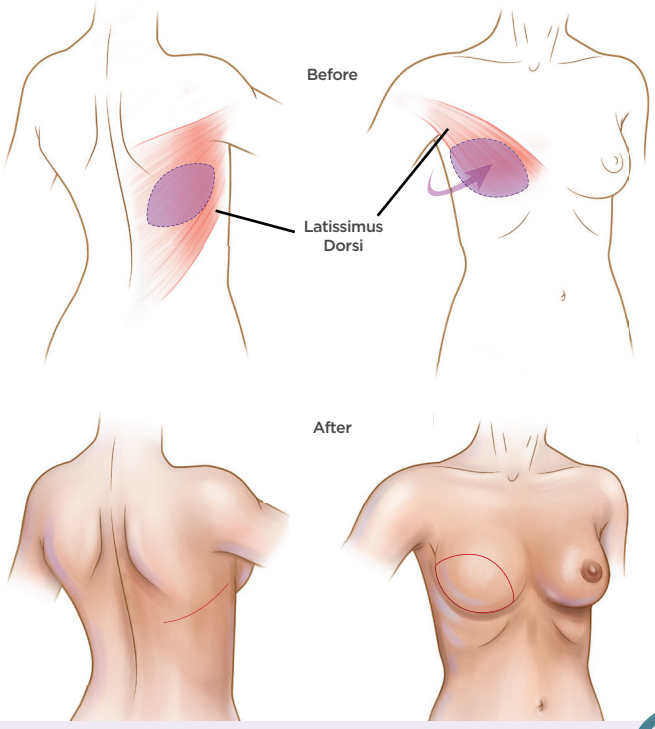


Donor Site: Back

LD Flap:

The latissimus dorsi (LD) flap is most commonly combined with an implant. At the time of breast reconstruction, the muscle and fatty tissue, with or without attached skin, is removed from the back and implanted in the breast. This flap provides a source of soft tissue that can help create a more natural-looking breast shape compared to an implant alone. The scar on the back can often be concealed under a bra strap.

Latissimus Dorsi (LD) Flap



Donor Site: Buttock

GAP Flaps:

The gluteal artery perforator (GAP) free flap uses skin and fat from the buttocks. This flap is also known as SGAP or IGAP depending on whether the tissue is taken from the top (Superior), or base (Inferior), of the buttock. The buttock is typically an option for tissue reconstruction in women who desire flap reconstruction but no longer have the ability to transfer tissue from the abdomen, such as women who have had tummy tucks in the past.

Donor Site: Thigh

PAP and TUG Flaps:

Profunda artery perforator (PAP) and transverse upper gracilis (TUG) flaps use skin, fat, and muscle from the inner portion of the upper thigh to reconstruct the breast. The tissue is dissected from the inner thigh and transplanted to the chest where it is reattached using microsurgery. The resulting thigh scar is generally well hidden.

Types of Breast Reconstruction After a Lumpectomy

Women who are having a partial mastectomy (also known as a lumpectomy or a segmental mastectomy) can also undergo a reconstruction of their affected breast. The appropriate procedure will be determined based on the size of a woman's breasts, how much and what portion of the affected breast needs to be removed, the patient's desires, and the likely need for radiation therapy.

Implant Reconstructions

An implant can be used to give more volume to the entire breast. However, any implant will affect the shape of the upper portion of the breast so an implant may have to be placed in the unaffected breast to achieve better symmetry.

Flap Reconstructions

Donor Site: Back

Usually, tissue brought in from another location does not need to be used after a lumpectomy. In some instances, rearrangement of the remaining breast tissues can be used to reconstruct the defect.
If a tissue flap is necessary, the common flap used to restore volume is the latissimus dorsi (LD) flap (described on page 11, illustrated on page 12.)

Fat Grafting

A final option to reconstruct a portion of the breast is to employ fat grafting. Fat is liposuctioned out of another area of the body, processed, and then reinjected back into the patient's breast. Fat grafting can be helpful to fill in contour depressions (a scar or dimpling in the skin) that may appear after a lumpectomy, but this may require more than one fat grafting procedure.

Implant Options

Saline or silicone?

You and your surgeon will determine the best implant choice for you. Here are some considerations to help make the decision:

	Saline	Silicone
Composition	Silicone shell filled with sterile salt water	Silicone shell filled with cross-linked silicone gel
FDA Approved?	Yes, 18 and older	Yes, 22 and older
Feel	Does not feel like breast tissue	Feels more like breast tissue
Cost	Less expensive option	More expensive option
Durability	Highly durable	Highly durable
If ruptured?	Harmlessly absorbed into the body	Likely remain in scar tissue
Sizes	Ideal for all sizes, especially the largest sizes	Ideal for most sizes

Implant sizes

Breast implants are available in sizes ranging from 100cc to over 800cc. Your breasts will project more if the implant is larger. Each implant size is available in a variety of widths and profiles. As a rough estimate, each 150cc is roughly equivalent to one cup size.

Implant shapes

When it comes to breast implant sizes and types, keep in mind that they are available in both round and teardrop shapes.

Your plastic surgeon will help you decide the implant shape that is right for you.

Smooth or textured?

Smooth implants do not adhere to the surrounding tissue. Some women prefer smooth implants because they make the breasts appear more natural during movement. Textured implants do adhere to the surrounding tissues and are more stable during movement. Teardrop implants are only available as textured implants.

Please know that textured implants have been associated with an increased risk of Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL).

Risks & Safety

The choice to undergo breast reconstruction is a highly personal one and requires careful consideration of the potential benefits in relation to your goals, as well as an assessment of the acceptable level of risk and potential complications. Your surgeon will provide a thorough overview of the specific risks associated with your chosen procedure and implant type.

Before the procedure, you may be asked to sign informed consent forms to verify that you fully understand the procedure and any associated risks and complications. It is important to feel comfortable asking any questions to ensure a full understanding of the risks involved.

Risks can include:

- Anesthesia risks
- Bleeding (hematoma)
- Flap surgery includes the risk of partial or complete loss of the flap and a loss of sensation at both the donor and reconstruction site
- Infection
- Breast asymmetry
- Breast contour and shape irregularities
- Changes in nipple or breast sensation, which may be temporary or permanent
- Poor wound healing
- Persistent pain
- Possibility of revision surgery
- The use of implants carries the risk of breast firmness (capsular contracture) and implant rupture
- Unfavorable scarring
- Fat transfer risks include cysts, infection, microcalcification, necrosis (death) of fat cells and the possibility that some of the transferred fat cells will leave the breast area
- The development of Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL), which is primarily associated with textured implants, or Breast Implant-Associated Squamous Cell Carcinoma (BIA-SCC), which are rare types of cancer that develop in the capsule around breast implants.
- Breast implants may be associated with systemic symptoms commonly referred to as breast implant illness (BII), which can include fatigue, “brain fog,” muscle or joint pain and rash.
- Acellular dermal matrix products may have a higher chance for complications or problems.

All risks will be fully discussed prior to your consent. It is important that you address all your questions directly with your plastic surgeon.

Recovery & Results

Following your surgery, gauze or bandages will be applied to your incisions. An elastic bandage or support bra will minimize swelling and support the reconstructed breast. A small, thin tube may be temporarily placed under the skin to drain any excess blood or fluid. A pain pump may also be used to reduce the need for narcotics.

You will be given specific instructions that may include how to care for your surgical site(s) following surgery, medications to apply or take orally to aid healing and reduce the risk of infection, specific concerns to look for at the surgical site or in your general health, and when to follow up with your plastic surgeon.

Be sure to ask your plastic surgeon specific questions about what you can expect during your individual recovery period.

- Where will I be taken after my surgery is complete?
- What medication will I be given or prescribed after surgery?
- Will I have dressings/bandages after surgery?
- When will they be removed?
- When can I resume normal activity and exercise?
- When do I return for follow-up care?

Procedure Type	Hospital Stay	Outpatient Recovery
Mastectomy/ Expander	1-2 days	4-6 weeks
Implant Exchange	1 day	1-2 weeks
Direct-to-Implant	1-2 days	4-6 weeks
TRAM flap	2-5 days	Several weeks to several months
Free Flap	3-5 days	Several weeks to several months
LD Flap	1-3 days	Several weeks
GAP free flap	3-5 days	Several weeks
Thigh free flap	3-5 days	Several weeks
After lumpectomy implant	1 day	1-2 weeks
Fat graft	Day surgery to 1 day	1 day to 2 weeks depending on amount of fat grafted

The outcome of breast reconstruction is expected to be long lasting as long as you maintain a healthy weight and overall fitness.

Although your body may lose some firmness as you age, most of the improvements should be permanent. However, it is important to note that there are no guarantees in surgery and the results may vary.

In some cases, a follow-up procedure may be necessary due to factors such as changes in weight, settling, or implant wear over time. Additionally, symmetry may require surgery on the unaffected breast in unilateral reconstructions.

Though some scar lines and sensation may return over time, these trade-offs are often considered minor compared to the overall improvement in quality of life and appearance.

It is important to regularly monitor your breast health through self-exams, mammography, and other diagnostic techniques for long-term well-being. Healing will continue for several weeks as swelling decreases and the shape and position of your breasts improve.

It is crucial to follow your plastic surgeon's instructions and attend all scheduled follow-up appointments.

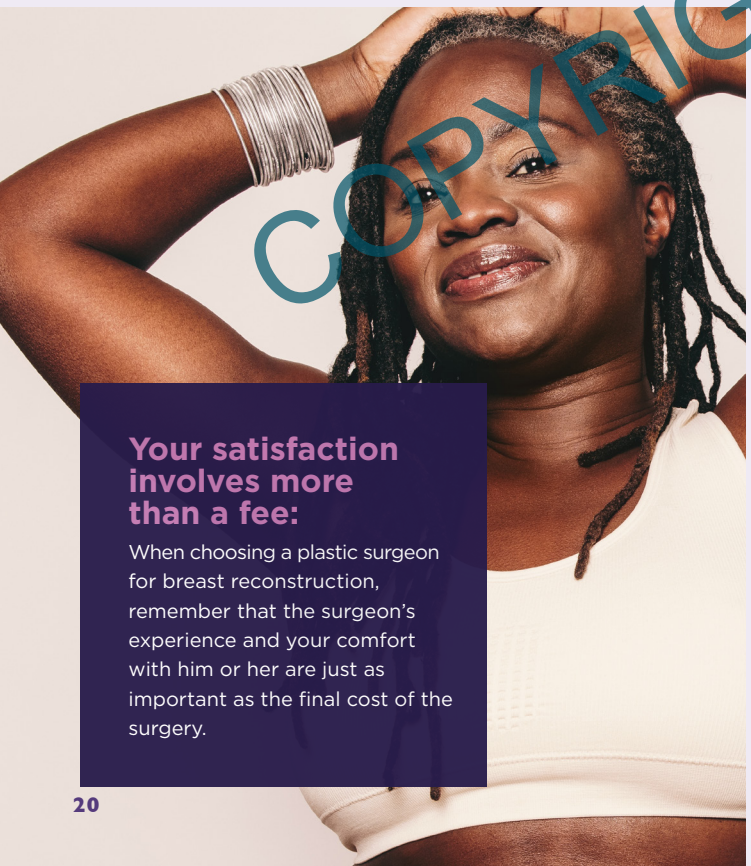
Cost

Breast reconstruction surgery after breast cancer is considered a reconstructive procedure and is Federally-mandated to be covered by health insurance, including surgery to the opposite breast for symmetry and revision work over time. In some cases insurance plans do not cover the full cost, and require co-pays and deductibles.

Prices for breast reconstruction can vary. A surgeon's cost may be based on his or her experience, the type of procedure used and geographic office location.

Cost may include:

- Anesthesia fees
- Hospital or surgical facility costs
- Medical tests
- Post-surgery garments
- Prescriptions for medication
- Surgeon's fee



Your satisfaction involves more than a fee:

When choosing a plastic surgeon for breast reconstruction, remember that the surgeon's experience and your comfort with him or her are just as important as the final cost of the surgery.

Words to know

- **Areola:** Pigmented skin surrounding the nipple.
- **Breast augmentation:** Breast enlargement by surgery.
- **Breast implant:** A gel-like or fluid material that resides in a flexible sac and is implanted behind or in place of a female breast in reconstructive or cosmetic surgery.
- **Breast lift:** Also known as mastopexy; surgery to lift the breasts.
- **Breast reduction:** Reduction of breast size and breast lift by surgery.
- **Capsular contracture:** A complication of breast implant surgery which occurs when scar tissue that normally forms around the implant tightens and squeezes the implant and becomes firm.
- **DIEP flap:** Deep Inferior Epigastric Perforator flap which takes tissue from the abdomen.
- **Donor site:** An area of your body where the surgeon harvests skin, muscle and fat to reconstruct your breast.
- **Flap techniques:** Surgical techniques used to reposition your own skin, muscle and fat to reconstruct or cover your breast, maintaining attached circulation or reattaching vascular structures at the new site.
- **Free TRAM flap:** A version of the TRAM flap based on the deep inferior epigastric artery but not including all of the rectus abdominis muscle saving abdominal integrity.
- **General anesthesia:** Drugs and/or gases used during an operation to relieve pain and alter consciousness.
- **Grafting:** Grafting for breast reconstruction can refer to Fat Grafting to improve tissue quality and volume or to Skin Grafting which is a technique used for some forms of Nipple Areolar Reconstruction. A "graft" is disconnected from its donor site and reattached to a new recipient site, which requires adopting new vascularity to the tissue from the recipient site.
- **Hematoma:** Blood pooling beneath the skin.
- **Intravenous sedation:** Sedatives administered by injection into a vein to help you relax.
- **Latissimus dorsi flap technique:** A surgical technique that uses muscle, fat and skin tunneled under the skin and tissue of a woman's back to the reconstructed breast and remains attached to its donor site, leaving blood supply intact.
- **Local anesthesia:** A drug injected directly to the site of an incision during an operation to relieve pain.
- **Mastectomy:** The removal of the whole breast, typically to rid the body of cancer.
- **SGAP flap:** Superior Gluteal Artery perforator flap which takes tissue from the buttock.
- **Tissue expansion:** A surgical technique to stretch your own healthy tissue and create new skin to provide coverage for a breast implant.
- **TRAM flap:** Also known as transverse rectus abdominus musculocutaneous flap, a surgical technique that uses muscle, fat and skin from your own abdomen to reconstruct the breast.

Questions to ask my plastic surgeon

- ❑ Are you certified by the American Board of Plastic Surgery?
- ❑ Are you a member of the American Society of Plastic Surgeons?
- ❑ Were you trained specifically in the field of plastic surgery?
- ❑ How many years of plastic surgery training have you had?
- ❑ Do you have hospital privileges to perform this procedure? If so, at which hospitals?
- ❑ Is the office-based surgical facility accredited by a nationally- or state-recognized accrediting agency, or is it state-licensed or Medicare-certified?
- ❑ Am I a good candidate for this procedure?
- ❑ What will be expected of me to get the best results?
- ❑ Where and how will you perform my procedure?
- ❑ What surgical technique is recommended for me?
- ❑ How long of a recovery period can I expect, and what kind of help will I need during my recovery?
- ❑ What are the risks and complications associated with my procedure?
- ❑ How are complications handled?
- ❑ What are my options if I am dissatisfied with the outcome?
- ❑ Do you have before-and-after photos I can look at for this procedure and what results are reasonable for me?

Make the Right Choice

Plastic surgery involves many choices. The first and most important is selecting a member of the **American Society of Plastic Surgeons (ASPS).**

ASPS member surgeons meet rigorous standards:

- Board certification by the American Board of Plastic Surgery (ABPS)® or in Canada by The Royal College of Physicians and Surgeons of Canada®
- Complete at least six years of surgical training following medical school with a minimum of three years of plastic surgery residency training
- Pass comprehensive oral and written exams
- Graduate from an accredited medical school
- Complete continuing medical education, including patient safety each year
- Perform surgery in accredited, state-licensed, or Medicare-certified surgical facilities

Do not be confused by other official-sounding boards and certifications.

The ABPS is recognized by the American Board of Medical Specialties (ABMS), which has approved medical specialty boards since 1934. There is no ABMS-recognized certifying board with “cosmetic surgery” in its name. By choosing a member of The American Society of Plastic Surgeons, you can be assured that you are choosing a qualified, highly trained plastic surgeon who is board certified by the ABPS or The Royal College of Physicians and Surgeons of Canada.

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