



# Reshaping You

Breast Reconstruction for  
Breast Cancer Patients

THE UNIVERSITY OF TEXAS

MD Anderson  
Cancer Center

Making Cancer History®

## Foreword

Women diagnosed with breast cancer begin a journey that requires making health care decisions that can have profound effects on their bodies and their quality of life. During this journey, having knowledge about the available health care options can help women act as their own advocate. The decision to have breast reconstruction may become a part of this journey. The role we play as reconstructive surgeons requires that we provide our patients with the tools and knowledge that can empower them to make important decisions about their bodies. We hope that this book can act as a resource, providing past, current and future patients with breast cancer the ability to make informed decisions about breast reconstruction.

On behalf of M. D. Anderson's Center for Reconstructive Surgery, I would like to thank the Volunteer Endowment for Patient Support for their support of this booklet. This booklet is dedicated to all my patients and their families. They have been my inspiration to embark on creating an educational guide about breast reconstructive options. My hope for all patients with breast cancer is that they have the opportunity to consider breast reconstruction. Breast reconstruction can give back a sense of wholeness and provide the final step in recovery for many survivors of breast cancer.



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# Reshaping You: Breast Reconstruction for Breast Cancer Patients

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### ***To the Patient and Family...***

This booklet is for people who are considering breast reconstruction and for their family and loved ones. There are many options for breast reconstruction and it can be overwhelming just thinking about them. To make it easier, think of breast reconstruction options one question at a time:

1. Do you want breast reconstruction?
2. If you do want breast reconstruction, when do you want to have breast reconstruction? At the same time as your mastectomy, or later?
3. What type of reconstruction do you want?

This booklet will provide the information you need to answer these questions. If you have questions that are not answered in this booklet, please ask your doctor, nurse or other member of your health care team.

Words in *italics* are defined in the glossary of this booklet.

## **Breast Reconstruction**

### **What is breast reconstruction?**

In breast reconstruction, a reconstructive surgeon (surgeon trained in plastic surgery) recreates all or part of a breast that has been surgically removed. This is done using an implant or tissue from another part of your body. The goal of reconstruction is to make breasts look natural and balanced when you are wearing clothing.

### **Can I have breast reconstruction?**

You may be able to have breast reconstruction, if you have been:

- Diagnosed with breast cancer and had or will have a *mastectomy* (surgical removal of a breast)
- Diagnosed with breast cancer and had or will have breast conservation surgery, such as partial mastectomy or lumpectomy (surgical removal of the tumor and surrounding breast tissue)
- Found to have a genetic mutation and will have *prophylactic mastectomy* (removal of non-cancerous breast to prevent cancer)

With improved treatment plans, breast reconstruction techniques and new medical devices, you now have many options. Surgeons can recreate a breast at the time of mastectomy or after you have had a mastectomy. They can also correct misshapen breasts that may result after breast conservation surgery.

### **Do I have to have breast reconstruction?**

No. Some patients decide that they are not ready to have reconstruction for many reasons. Or, they decide not to have any more surgeries. Many may choose to wear a *breast prosthesis* (an artificial device to replace a missing part of the body). This allows a better fit in clothing and reduces the lop-sided feeling that a missing breast or breast tissue may create for some after their breast cancer surgery. Living a long cancer-free life is our goal. Keeping your femininity is just as important, too.

### **When can I have breast reconstruction?**

Most breast reconstructions can be done at the same time as your mastectomy. It is called immediate reconstruction. (Figure 1)

Reconstruction can also be done weeks, months or years later. This is called delayed reconstruction. It is done

after you have completed any other breast cancer treatment, such as *chemotherapy* or *radiation*, or when you have decided that you want reconstruction. (Figure 1)

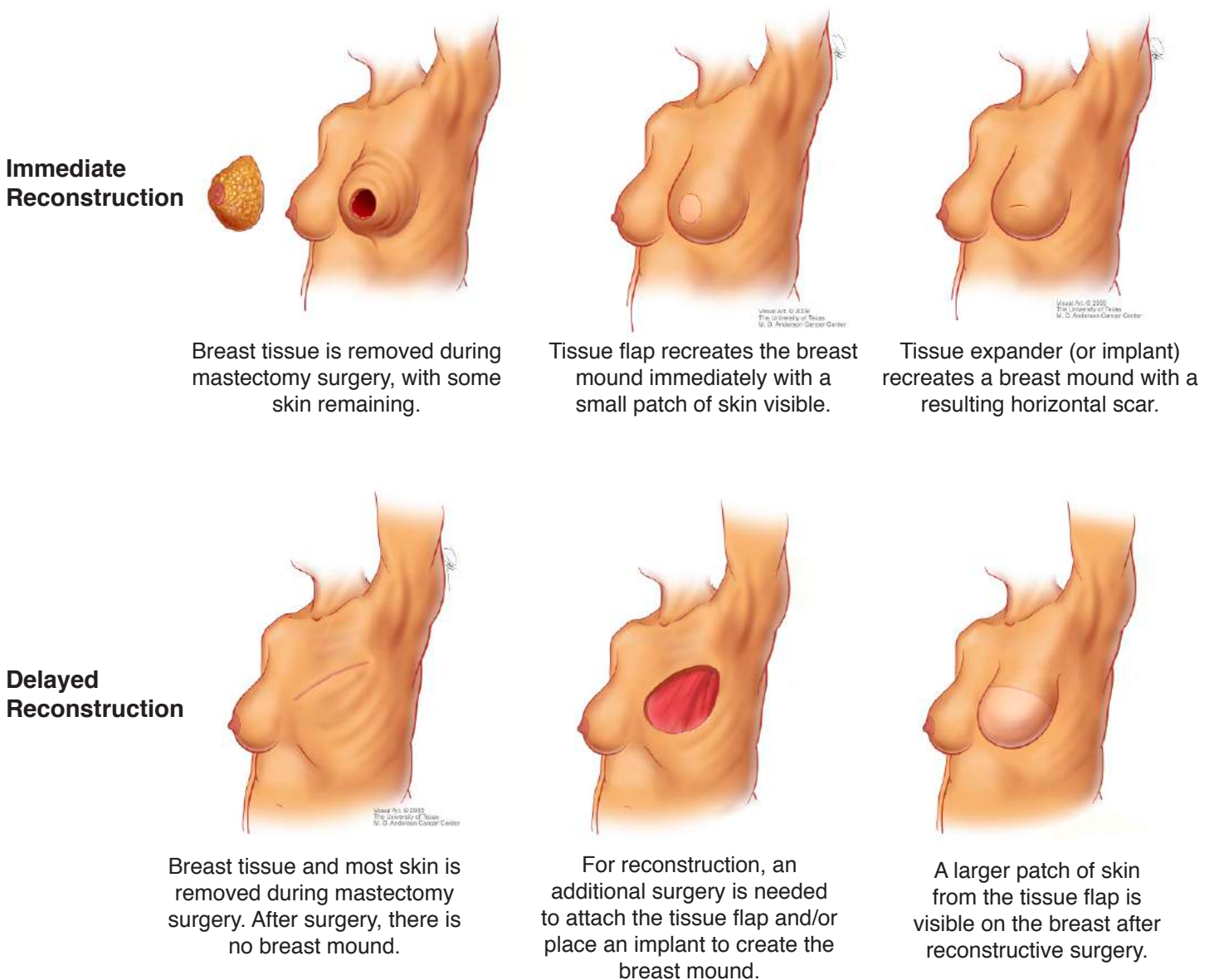


Figure 1. Immediate and Delayed Reconstruction

The choice to have immediate versus delayed reconstruction depends on many factors including:

- Breast cancer stage
- Your medical condition
- Your preference and lifestyle
- Additional therapies (such as radiation) needed to treat the breast cancer

The table on page 3 provides advantages and disadvantages of immediate and delayed reconstruction to help you decide which is best for you.

## Advantages and Disadvantages of Immediate and Delayed Reconstruction

	Advantages	Disadvantages
Immediate Reconstruction	<ul style="list-style-type: none"> <li>• Less risk of social or emotional difficulties (never without a breast)</li> <li>• Better cosmetic results</li> <li>• Possibly less surgery and lower cost</li> <li>• No difference in the rate of development (growth) of local cancer recurrences</li> <li>• No different in the ability to detect (find) local cancer recurrences</li> <li>• No significant delays in getting other treatments (such as chemotherapy)</li> </ul>	<ul style="list-style-type: none"> <li>• Harder to detect mastectomy flap necrosis (when the skin remaining from the mastectomy has problems with blood supply)</li> <li>• Longer time spent in the hospital than having mastectomy alone</li> <li>• Longer time spent recovering than having mastectomy alone</li> <li>• More scars and possible complications than having mastectomy alone</li> </ul>
Delayed Reconstruction	<ul style="list-style-type: none"> <li>• <i>Adjuvant therapy</i> (treatments, such as radiation, occurring after the mastectomy) does not cause problems to the reconstruction site</li> <li>• Gives patient more time to think about reconstructive options</li> </ul>	<ul style="list-style-type: none"> <li>• Mastectomy scar on chest wall</li> <li>• Requires additional surgery and recovery time</li> <li>• Sometimes harder to reconstruct after scarring occurs</li> <li>• Less optimal cosmetic results</li> </ul>

## Breast Reconstruction Options

### What are my options for breast reconstruction if I have a mastectomy? Which method may be best for me?

The options for reconstruction can be divided into three general categories:

- implant only
- using your own body tissue only
- implant combined with using your own body tissue

Both you and your reconstructive surgeon will discuss the best method for you. It depends on many factors, including your:

- body shape
- past surgeries
- current health
- treatment needs
- personal preferences

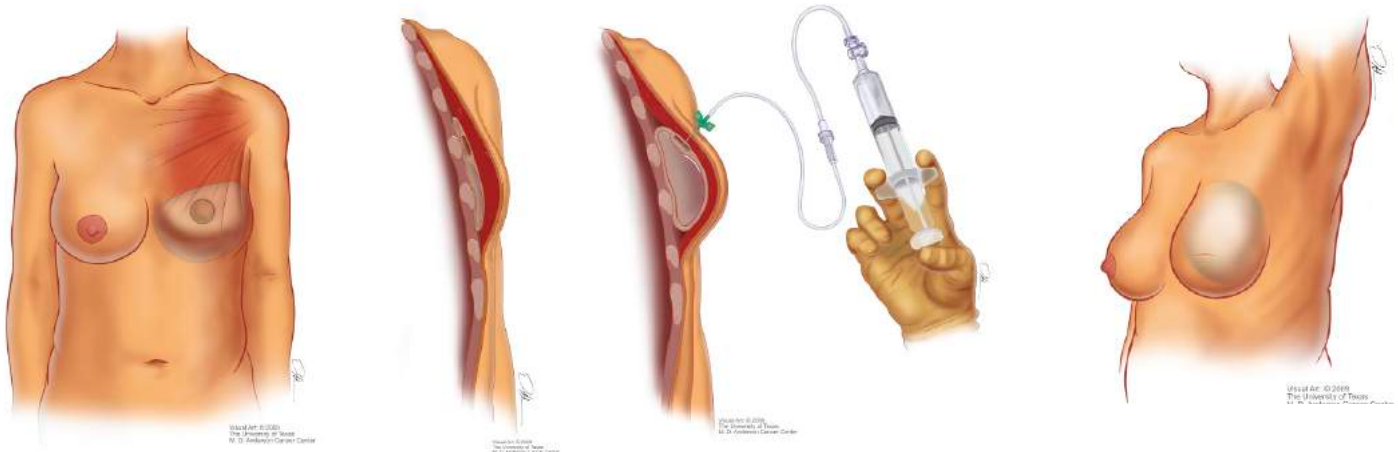
During your appointment, you and your surgeon will discuss your reconstructive options including the risks, benefits and choices for each of the options. You will also discuss the expected outcomes from reconstruction. No matter which reconstruction option is chosen, it is important to realize that the process usually requires multiple surgeries and will take time to achieve the final result.

The Breast Reconstruction Options chart, on page 19, can help you compare the different reconstruction options.

## Using Implants Only

Implant-based reconstruction offers an acceptable cosmetic result without having to use tissue from another part of your body. Following mastectomy, your reconstructive surgeon will insert a *tissue expander* in a pocket formed under a muscle on your chest wall and the skin remaining after the mastectomy. The tissue expander is a *silicone* balloon filled with saline (sterile salt water). Saline is added to the expander gradually during outpatient visits to the plastic surgery clinic. The tissue expander is filled with saline to help stretch the muscle and skin to the breast size desired. Often the skin is stretched slightly more than needed to achieve the desired size because it naturally shrinks when the tissue expander is removed.

The amount of saline needed for each expansion may vary depending on the tightness of the skin. Most patients do not have much discomfort or pain with tissue expansion. The process of stretching the breast skin usually takes two to three months. It may take longer if you need other treatments for your cancer such as chemotherapy. Once your muscle and skin has stretched to the desired size, the expander is left in place for about one to three months longer. Then outpatient surgery is scheduled to remove the tissue expander and replace it with a permanent implant. (Figure 2)



After mastectomy, the tissue expander is placed under your muscle and skin.

Saline is added to the tissue expander in the clinic.

The final implant is inserted after the tissue expander has been removed.

Figure 2. Implant expansion process

Permanent implants are much softer than the tissue expander. The permanent implant will be filled with either saline or silicone. Saline implants have been approved by the Food and Drug Administration (FDA) since 1992. Before 1992, silicone gel implants were used. Due to silicone leakage and fears that silicone implants could cause cancer and autoimmune disease (such as lupus), silicone *breast implants* were removed from the market by the FDA in 1992. After 1992, large scale studies were conducted to determine the safety of silicone implants. These studies showed that there was no connection between using silicone implants and the development of cancer or lupus. In 2006, the FDA reversed its ban on silicone breast implants. Today, both saline and silicone implants are available and safe for breast reconstruction. Both types of implants come in many shapes and sizes. Your surgeon will discuss with you the differences between the various types of implants and determine which type of implant is best for you.

## Using Your Own Body Tissue

These procedures involve using tissue from another part of your body to rebuild a *breast mound*. This can include tissue from your back, abdomen (stomach) or buttocks. Often the tissue can stay connected to its blood supply by rotating it (called “*pedicled*” flaps). Sometimes the tissue may be disconnected from its blood supply and connected to a new blood supply (called “*free*” flaps). This uses an operating room microscope and is termed “microsurgery.”

These operations have two surgical sites. This means two areas for scarring and *complications*: one on the breast and one at the site where the tissue is taken. The tissue must have a healthy blood supply to keep the tissue alive. Smoking, diabetes and other health problems may prevent a patient from having these procedures. Also, these procedures use your own tissue which can change over time, as well as enlarge or shrink as you gain and lose weight.

### Using Abdomen (Stomach) Tissue

Breast reconstruction using tissue from the abdomen (stomach) to re-create a breast mound provides the most natural result of any technique. The choice of tissue to be moved from your abdomen to your chest to re-create a breast mound will vary from person to person. It depends on the blood vessels that supply the tissue of your abdomen, and the skills of your surgeon.

The terms used to describe the flap taken from your abdomen can be confusing. An understanding of the makeup of your abdomen can be helpful (Figure 3). Your abdominal wall is made up of multiple layers, with the skin being the outermost layer. Under the skin is a layer of fat. That is followed by a layer of tissue known as *fascia*, which is sturdy and helps prevent your intestines from bulging out. Under the fascia is a layer of muscle known as the rectus abdominis muscle (or your “6-pack” muscle).

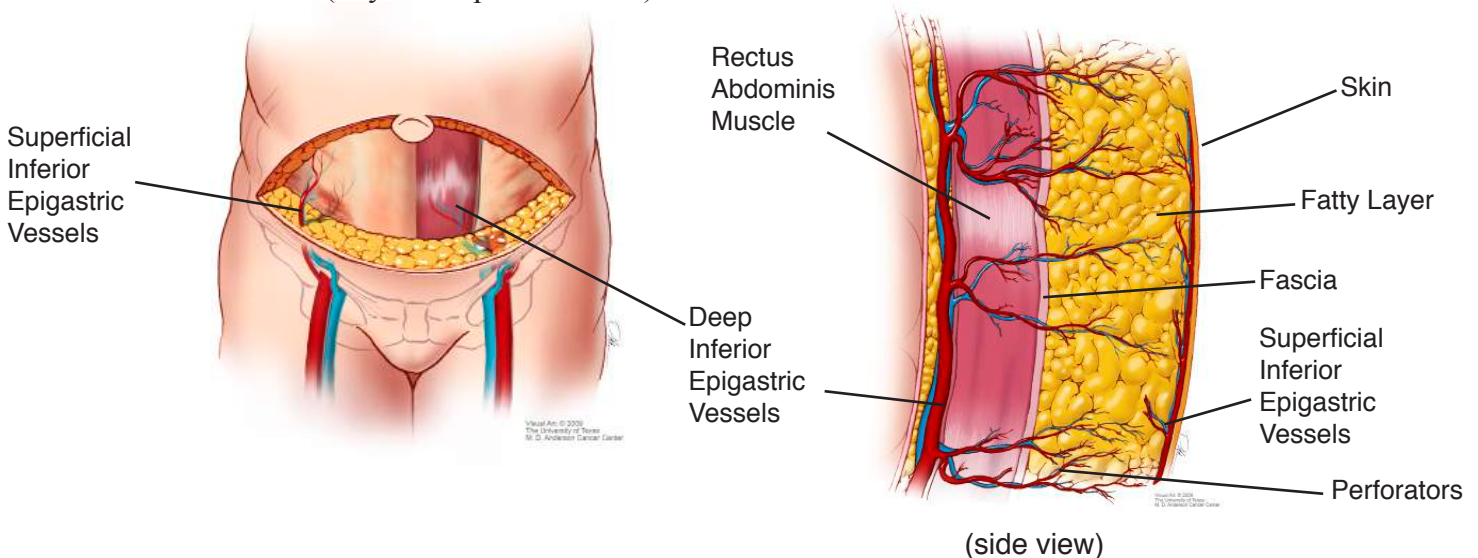


Figure 3. Anatomy of the Abdomen

Two blood vessels provide blood to this muscle - the deep *superior epigastric artery and vein* and the deep *inferior epigastric artery and vein*. The deep inferior epigastric artery and vein have smaller blood vessels that come off and travel back through the rectus abdominis muscle to supply the fatty layer and overlying skin. These smaller blood vessels are called “*perforators*.” Another set of blood vessels known as the superficial inferior epigastric artery and vein can also help supply blood flow to the fatty tissue and skin. These blood vessels lie on top of the fascia layer.

The tissue taken from your abdomen can consist of all of these layers of the abdomen or only a few. Also, the tissue may be rotated to your chest on its blood supply (“*pedicled*” flap) or disconnected from its blood supply and connected to a new blood supply in your chest (“*free*” flap).

The different types of flaps from your abdomen that may be used to re-create a breast mound are listed on page 6.



**Pedicated Transverse Rectus Abdominis Myocutaneous (TRAM) Flap:** This flap is rotated on its blood supply. It consists of skin, fatty tissue and muscle, with or without fascia. (Figure 4)

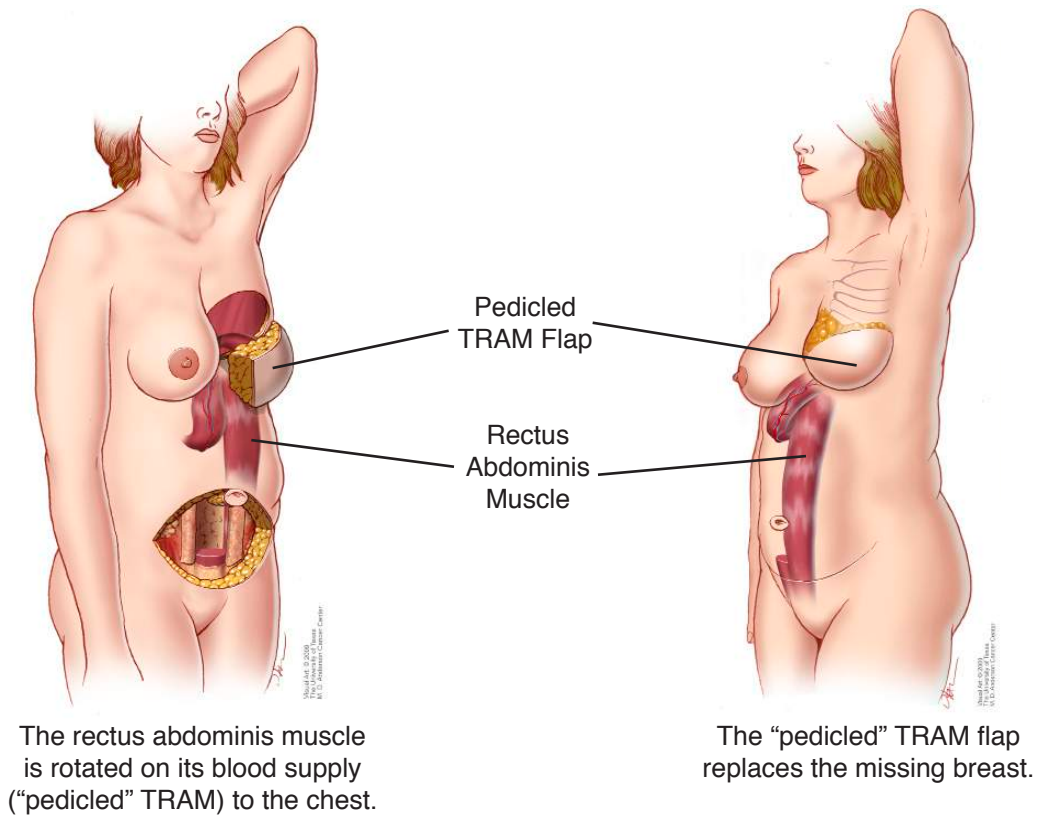


Figure 4. Pedicled transverse rectus abdominis myocutaneous (TRAM) flap

**Free Transverse Rectus Abdominis Myocutaneous (TRAM) Flap:** This flap is disconnected from its blood supply and connected to the blood supply in the chest. It also consists of skin, fatty tissue and muscle, with or without fascia. (Figure 5)

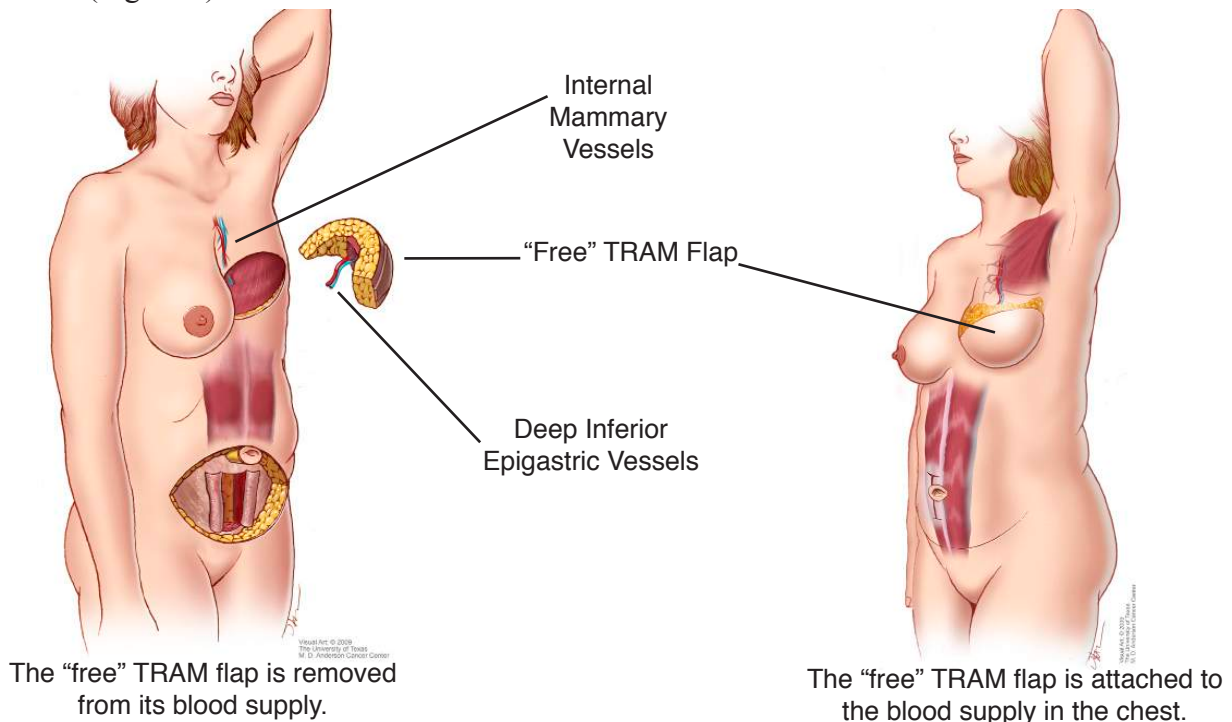


Figure 5. Free transverse rectus abdominis myocutaneous (TRAM) flap

## Muscle-Sparing and Perforator Flaps

Recent advances in surgical technique have allowed surgeons to lessen the amount of muscle and fascia taken with the flap. This has been shown to reduce problems such as abdominal weakness, *hernia* and “*bulges*” that may occur as a result of removing some of the supporting structure and strength of the abdominal wall. Depending on your surgeon’s training and experience, as well as the size and availability of blood vessels, it is possible to create a flap without removing any, or only a small amount, of the fascia or muscle.

**Free Muscle-Sparing TRAM Flap:** This flap is disconnected from its blood supply and is connected to the blood supply in the chest. It consists of skin, fatty tissue and a small portion of muscle, with or without fascia. Most of the fascia and muscle is not taken. (Figure 6)

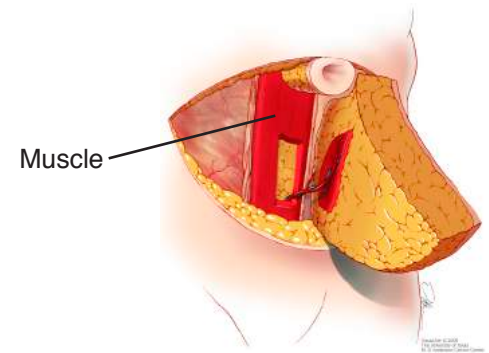


Figure 6. Muscle Sparing TRAM Flap

### Free Deep Inferior Epigastric Perforator (DIEP) Flap:

This flap is disconnected from its blood supply and is connected to the blood supply in the chest. It consists of skin, fatty tissue and the deep inferior epigastric artery and vein and its perforators (small blood vessels). (Figure 7)

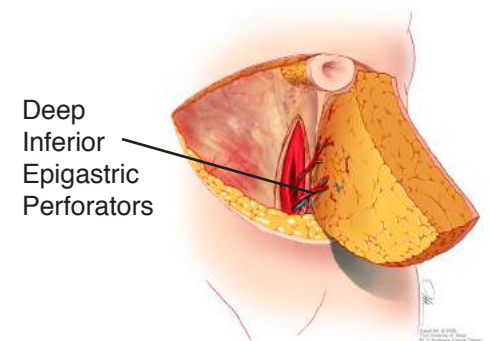


Figure 7. DIEP Flap

**Free Superficial Inferior Epigastric Artery (SIEA) Flap:** This flap is disconnected from its blood supply and is connected to the blood supply in the chest. It consists of skin, fatty tissue and the superficial inferior epigastric artery and vein and its perforators (small blood vessels). Due to the small size of the superficial inferior epigastric artery and vein, this flap is only available for use in less than 30 percent of patients. (Figure 8)

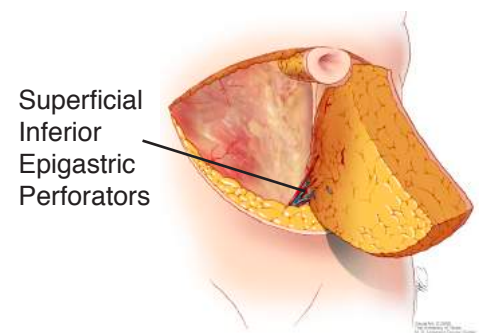


Figure 8. SIEA Flap

If a large amount of the fascia layer needs to be taken with the flap, your surgeon may need to replace this supporting layer to prevent bulging of your intestines. A prosthetic material is used, often called “*mesh*.”

No matter what type of flap is used, problems can occur with the blood flow to the flap. Your doctor will monitor the blood flow through the flap after surgery. Some surgeons use a machine known as a Doppler to listen to the blood flow. It gives an audible signal that sounds like your heartbeat. The color and temperature of the flap skin will also be monitored. If a blood flow problem occurs, your surgeon may need to bring you back to the operating room to fix the problem. This occurs less than five percent of the time, and often your surgeon can fix the problem. If the problem cannot be fixed (as in two to three percent of cases), another method for reconstruction may need to be considered.

Every flap will leave a scar around your belly button, on your chest at the site of the mastectomy and along your lower abdomen. The scar that results on your abdomen is usually low enough to be hidden by underwear or a bathing suit but is long and often goes from hip to hip. Since you have had surgery on your abdomen, most surgeons will tell you to not do any or very little heavy lifting. This could injure your abdominal wall and result in *hernias* and *bulges*. More surgeries are often needed to improve the *symmetry* of your breasts, improve your abdominal scar, or perform *nipple* and *areola* reconstruction.

## Using Buttock Tissue

Using tissue from the buttock is used only for patients who:

- do not have enough tissue on their stomach
- have enough buttock tissue to reconstruct a breast without causing a large depression (or dent) of their buttock region
- cannot use their stomach tissue because of prior surgery
- do not want to have implants

The flap of tissue that is taken from the buttock region consists of the skin, fatty tissue and underlying blood vessels that supply the tissue. Depending on where you have the most excess tissue, the flaps can be taken from either the upper portion of the buttock, which is supplied by the blood vessels known as the superior gluteal artery and vein, or from the lower portion of the buttock, which is supplied by the inferior gluteal artery and vein. These flaps are taken off their blood supply and connected to the blood supply in the chest. Therefore, they are known as “free” flaps. The names of these flaps are the **Inferior Gluteal Artery Perforator (IGAP) Flap** (Figure 9) and the **Superior Gluteal Artery Perforator (SGAP) Flap**. (Figure 10)

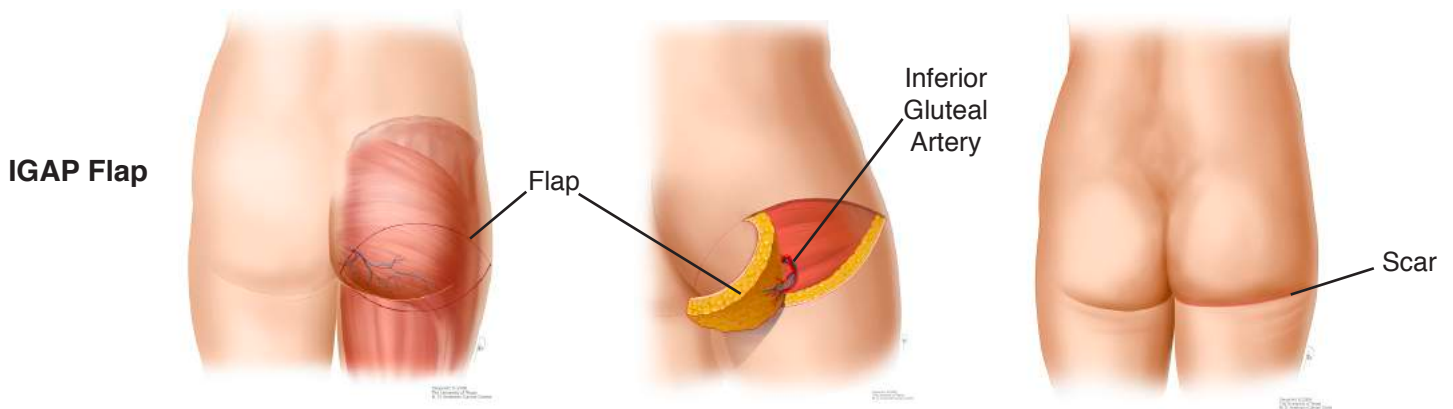


Figure 9. The IGAP flap is taken from the lower portion of the buttock. The resulting scar is often hidden in the skin fold at the bottom of the buttock.

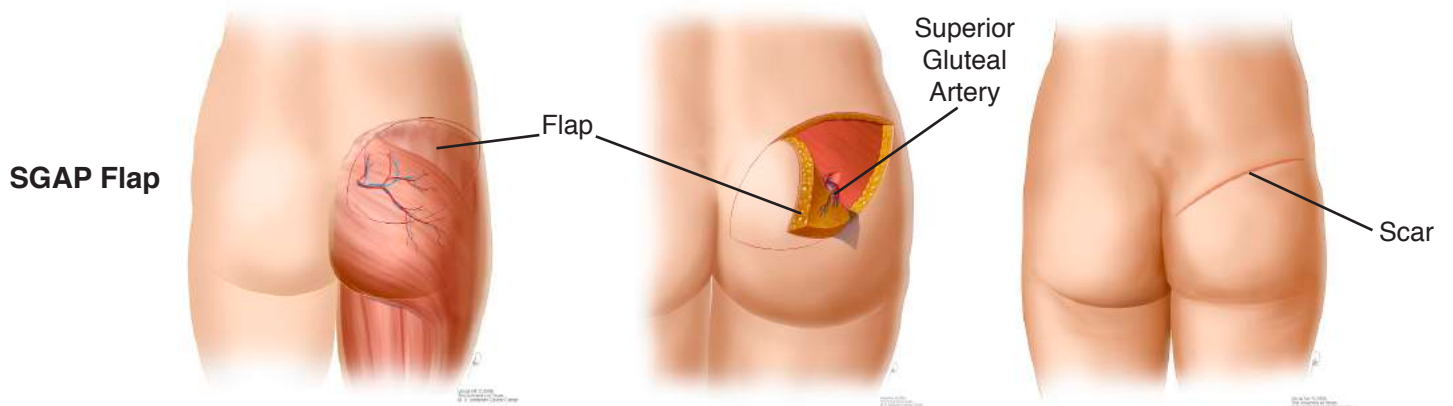


Figure 10. The SGAP flap is taken from the upper portion of the buttock. The resulting scar is at the top of the buttock.

The buttock area where the flap is taken from will often have a slight to moderate depression (or dent) along with a scar. This flap is more technically difficult than other flaps. It requires a skilled surgeon to perform. In addition, if you are planning bilateral mastectomies (both breasts), this flap may require two surgeries due to the positioning required in the operating room to perform the flap reconstruction.

## Using Implants Combined With Your Own Body Tissue

### Using Back Tissue

When back tissue is used, the muscle from your back, known as the latissimus dorsi muscle, and a portion of the skin and fat overlying this muscle (called the skin paddle), are taken. This procedure is called a latissimus dorsi (LD) flap (Figure 11). The tissue from your back is removed and moved to the front of your chest, with the arteries and veins still attached. Since most women do not have enough fatty tissue on their back to recreate a breast using only the LD flap, an implant or tissue expander is commonly used.

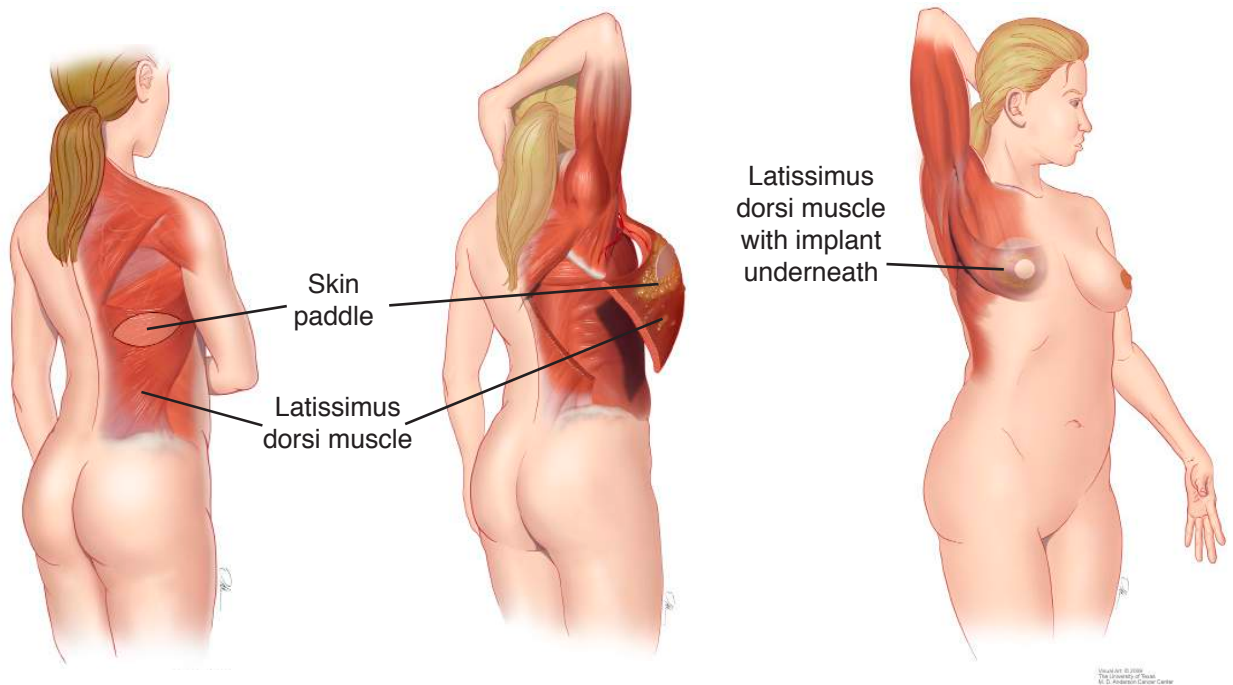


Figure 11. The latissimus dorsi muscle and some overlying fatty tissue and skin (skin paddle) is rotated to the front of the chest. An implant is used to make an adequate breast mound.

The location of the incision on your back will depend on the amount of skin that is needed to replace the skin removed during the mastectomy. Often, the incision and resulting scar can be placed so that your bra will hide the scar. Rotating the tissue from the back to the chest will result in a bulky area underneath the armpit. This will decrease over time but may never disappear.

An additional surgery may be needed to replace a tissue expander that was placed under the LD flap with a permanent silicone or saline implant. The LD flap may also be used after breast conservation surgery to fill the misshapen area that can result after removal of the breast tissue. Patients generally have no major long-term problems from using the latissimus dorsi muscle and can resume activities of daily living and exercise just the same as before surgery. However, if you are a competitive rock climber, swimmer or tennis player you may notice some shoulder weakness.

### Nipple and Areola Reconstruction

After your surgeon and you are happy with the shape and size of your reconstructed breast and time has passed for you to heal, you may consider having a nipple reconstructed. The nipple that your surgeon will create for you is not like your natural nipple. It does not react to temperature or touch by flattening and becoming larger. Reconstructed nipples do not have feeling. Depending on the type of reconstruction you have, it may be more or less “perky” than your remaining natural nipple. Because of this, many women are content to leave their reconstructed breast without a nipple.

If you choose to have a nipple reconstructed, there are many techniques used. Most will involve using the skin of your breast reconstruction (Figure 12). Another option is to take a portion of your natural nipple from your other breast (if it is large enough), and graft it to your reconstructed breast. These techniques often do not require you to go to the operating room and can be performed in the office setting.

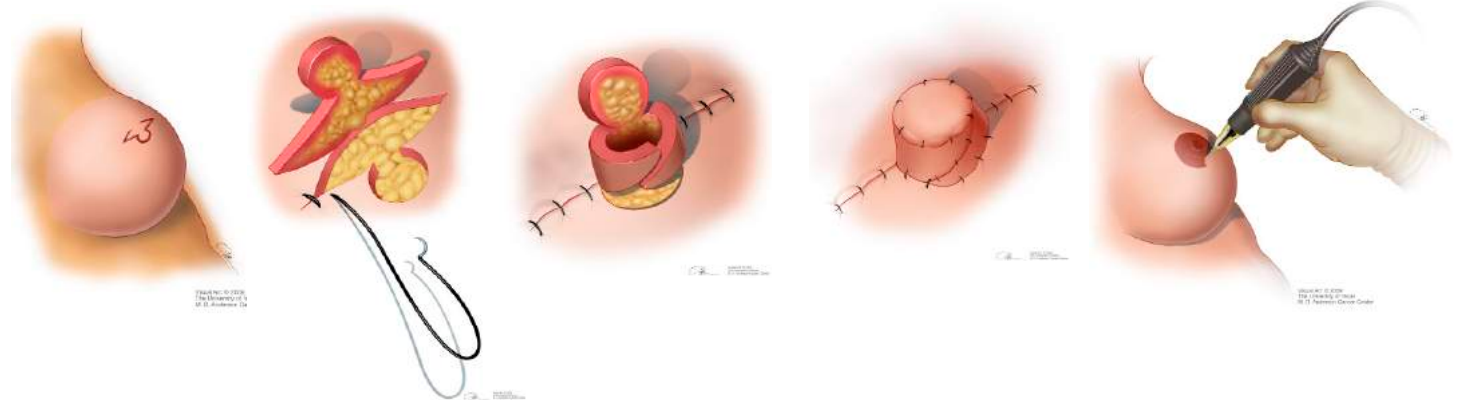


Figure 12. Nipple reconstruction using the skin of the reconstructed breast.

The areola, or colored portion around the nipple, is most often formed by using a tattoo. The appearance of a nipple can also be created by having a tattoo made with a central region that is darker than the rest. There are a variety of flesh tone colors available to choose from to create a natural-appearing areola. Areolar tattooing is usually painless and can be performed in the office setting by skilled personnel. Most tattoos will fade over time and may need to be reapplied after a few years.

Another option to create an areola is to use a graft of skin from another part of your body, usually your inner thigh or waist. Skin from these areas of your body has a natural tendency to heal darker when it is grafted. This procedure requires you to go to the operating room.

## Questions to Consider

### What questions should I ask my reconstructive surgeon?

Here are a few questions to ask your reconstructive surgeon when you discuss breast reconstruction.

- Can breast reconstruction be done in my case?
- When can I have reconstruction done?
- What types of reconstruction are possible for me?
- What type of reconstruction do you think would be best for me? Why?
- How many of these procedures have you (reconstructive surgeon) done?
- Will the reconstructed breast match my remaining breast? If not, what can be done?
- How will my reconstructed breast feel to the touch?
- Will I have any feeling in my reconstructed breast?
- What possible complications should I know about?
- How long will the surgery take?
- What is involved in the surgery?
- How long will I be in the hospital?
- Will I need blood transfusions? If so, can I donate my own blood?
- What type of anesthesia will be used?
- How long is the recovery time?
- How much help will I need at home to take care of my *drain* and wound?
- When can I start my exercises and return to normal activity such as driving and working?
- Can I talk with several of your patients who have had the same surgery?
- Will reconstruction interfere with chemotherapy or radiation therapy?

- How long will the implant last?
- What happens if I gain or lose weight?

### **What if my reconstructed breast does not match my natural breast?**

The goal of breast reconstruction is to create a breast that is symmetrical (or same size) with your other natural breast. It is key to consider your other breast when planning your reconstruction. Sometimes getting the breast to be the same is difficult unless surgery is done on the natural breast, too. For some, this may mean using an implant in the natural breast to make it larger (called breast augmentation). For others, it may mean making the natural breast smaller or less droopy. To do this, either some of the breast tissue is removed (called a breast reduction) or breast skin is lifted (called a *mastopexy*). Your surgeon will discuss these options with you. This “balancing procedure” is often done three to six months after your first surgery. This is to make sure the reconstructed breast is the size and shape you wanted and has healed.

### **How long will it take to complete my reconstruction?**

It can vary depending on how many surgeries you need or want and the need for other treatment for your cancer. This process often takes six months to one year no matter what type of reconstruction you choose and if no further cancer treatment is necessary. Many patients may choose to not have a nipple reconstructed. Or, they may require multiple surgeries to balance the reconstructed breast to the natural breast. So, the timeline to completion will vary for each patient. A general timeline of what to expect is:

- Step 1: First surgery to create breast. Wait about three months for healing. Increase this time if you need chemotherapy or radiation treatment.
- Step 2: Surgery to make any changes to refine or balance reconstructed breast. Wait about two to three months for healing. This step may be repeated, as needed.
- Step 3: Surgery to add nipple and areola.

### **Are there risks associated with breast reconstruction?**

Yes. As with any surgery, there are risks. Your surgeon will review the risks with you during your clinic visit. Some risks include:

- bleeding
- bulges
- changes in feeling
- failure or loss of implants
- implant rippling or exposure
- fluid build-up (such as *hematomas* and *seromas*)
- hernia
- infection
- lop-sidedness
- pain
- partial or complete loss of flaps
- poor cosmetic results
- scarring
- wound healing problems

### **What if I may need or will have chemotherapy?**

Breast reconstruction should not delay you getting chemotherapy. Your medical oncologist often will wait until you have healed from your mastectomy and reconstruction before chemotherapy is started. If you have wound

healing problems or infection, chemotherapy may be delayed to allow you to heal. If you are having your tissue expanded at the time you need chemotherapy, your surgeon may need to take blood from you. This is to make sure the numbers of cells that prevent infections are high enough to fight bacteria that may be on your skin during the expansion process. Once you have finished your chemotherapy, your surgeon will usually want to wait at least a month before doing more reconstructive surgery.

### **What if I may need or will have radiation?**

You may want to delay your reconstruction until you are finished with the radiation therapy. Radiation may damage your reconstruction and affect your final cosmetic result. If you have to have radiation, your surgeons at M. D. Anderson often will suggest that you use your own tissue for delayed reconstruction either alone or with an implant. Implant only reconstruction with radiation is often not recommended. It may result in increased issues including:

- infections
- severe *capsular contracture*
- fluid build up
- worse cosmetic result

Another option that may be available for you is to place a tissue expander at the time of your mastectomy to preserve the skin “pocket.” Saving the skin of your breast can make your breast look more like an immediate reconstruction. It also can provide a breast mound for you while you are waiting to hear if you need radiation.

If you do **not** need radiation, then you and your surgeon can plan your final reconstruction. If you do need radiation, the tissue expander can be left in place. At M. D. Anderson, the expander must be deflated while you are receiving radiation which usually takes six to eight weeks. The tissue expander is then re-inflated two weeks after radiation is complete. A delayed reconstruction is planned with your surgeon. This will usually involve using your own tissue only or with an implant. Not all surgeons will suggest this option because there is an increased risk of complications by having a tissue expander in place during radiation treatment.

### **Does breast reconstruction change the risk of my cancer returning? Does it make it harder to detect breast cancer?**

The risk of breast cancer recurrence depends upon:

- the stage of disease
- biologic characteristics of the cancer (for example, ER or HER2 status), and
- additional therapies given to treat the breast cancer

Reconstructive surgery has not been shown to increase the risk of cancer returning or make it harder to detect if the cancer does return. The method or tests used to screen you for recurrence will be decided upon by the doctors caring for you.

### **Who pays for my reconstructive surgery?**

In October 1998, Congress passed the Women’s Health and Cancer Rights Act, which requires group health and individual health insurance coverage for reconstructive surgery following a mastectomy. In general, the law states that these plans should cover:

- Reconstruction of the breast on which the mastectomy was performed
- Surgery and reconstruction of the other breast to produce a symmetrical appearance
- Prosthesis (an artificial device to replace a missing part of the body) and treatment of physical complications at all stages of the mastectomy

It is always good to check with your insurance company or the business office at M. D. Anderson to confirm that coverage is being provided by your insurance company for your surgery.

### **What if I am considering breast conservation instead of a mastectomy?**

If you are considering breast conservation surgery rather than a mastectomy, reconstructive options may be available to improve the cosmetic result. Breast conservation surgery usually involves removing a portion of your breast tissue where the cancer is located. It is followed by radiation therapy. This removal of breast tissue may leave an indentation, such as a large dimple, in your breast. This dimple may not be seen until after your radiation treatment. To prevent these cosmetic changes, a plastic surgeon may be able to “re-arrange” the tissue that is remaining in your breast at the time of the cancer removal. This may leave you with a smaller breast or further scars on your breast. These procedures are referred to as oncoplastic surgery. If this is not an option at the time of your cancer surgery, delayed reconstructive options may be used such as the latissimus dorsi flap and local tissue flaps.

### **Making a Decision**

There are many things to think about when making choices about breast reconstruction. Not only are there medical reasons to choose one option over another, but there are also your personal values and preferences.

Talk to your reconstructive surgeon to see if there are any medical issues that may affect which options will be best for you. Ask your doctor:

- If you can have breast reconstruction
- If you will need other cancer treatments that will delay reconstruction
- What reconstruction options are possible with your body size and shape

Also, when thinking about breast reconstruction, ask yourself the following questions:

- How do I want to look in and out of my clothes?
- How much time am I willing to spend recovering from surgery?
- What physical activities do I participate in that could be affected by surgery to my stomach, back or buttock?

Use the answers to these questions to help you decide what option you would prefer.

### **Getting Support and More Information**

If you have any questions about your breast reconstruction, please call:

Center for Reconstructive Surgery  
Monday through Friday, 8 a.m. to 5 p.m.  
Mays Clinic, Floor 5, near Elevator U  
713-563-8500

### **Are there support services at M. D. Anderson to help me?**

#### **Anderson Network**

The Anderson Network is a unique volunteer organization of current and former patients and their caregivers. They offer hope, support and understanding to those diagnosed with cancer, regardless of where they may receive treatment. Services include a patient and caregiver support line, online support, community support groups, an annual patient and caregiver conference, weekly educational presentations, a quarterly newsletter, an adult patient camp, and day trips for patients and caregivers.

713-792-2553 or 800-345-6324



## **Appearances**

Appearances, a retail shop, offers specialized products and services such as breast prostheses, head coverings, sun protective clothing, clothing to accommodate mastectomy and reconstructive surgery patients, cosmetics and motivational materials. It is open weekdays from 8 a.m. to 5 p.m. and located in the Mays Clinic on Floor 2, near The Tree Sculpture in Room ACB2.1502.

713-563-8200

## **askMDAnderson**

For up-to-date information about M. D. Anderson services, departments, programs, treatments and more, please contact askMDAnderson.

877-MDA-6789 (877-632-6789)

[www.mdanderson.org/ask](http://www.mdanderson.org/ask)

## **Beauty and Barber Shop**

M. D. Anderson's Barber and Beauty Shop offers hair and head care services, as well as assistance with scarves, hats, and wigs at no charge to M. D. Anderson patients. It is open weekdays from 8 a.m. to 5 p.m., and appointments are not necessary. The shop is located in the Main Building in the Basement near Elevator E in Room PB.3138.

713-792-6039

## **Chaplaincy**

The Department of Chaplaincy and Pastoral Education offers pastoral care and spiritual support to all patients, family members and staff. As part of the interdisciplinary team, chaplains are available in each care center and treatment areas 24 hours a day.

713-792-7184

## **The Learning Center**

The Learning Center is a free consumer health library with the latest information on cancer care, support, prevention and general health and wellness issues. Knowledgeable staff and volunteers help visitors locate the information they need. The Learning Center provides access to brochures, journals, reference books, online health databases, magazines and newsletters, audio and videotapes and Web sites. Locations include:

- Levit Learning Center  
Mays Clinic, Floor 2, near The Tree Sculpture, Room ACB2.1120 – 713-563-8010
- Law Learning Center  
Main Building, Floor 4, near Elevator A, Room R4.1100 – 713-745-8063

## **myMDAnderson**

myMDAnderson is a secure, patient care Web site personalized to the user's specific cancer type and treatment. M. D. Anderson patients have direct access to their health care team 24 hours a day, seven days a week, wherever they have access to a computer.

<https://my.mdanderson.org/>

## **Patient Advocacy**

Patients and families may contact Patient Advocacy with concerns and complaints or when unsure where to go with questions.

713-792-7776

713-792-7090 (for emergencies after hours or on the weekends)

## **Pink Ribbon Volunteers, Department of Volunteer Services**

Pink Ribbon Volunteers are carefully selected and trained to visit new and current patients. They have been educated to listen to patient concerns and share appropriate personal cancer experiences. They also demonstrate personal surgical results. Pink Ribbon Volunteers are located throughout the Breast Center lobby.

### **Place ... of wellness**

Place ... of wellness offers more than 75 programs, such as yoga, tai chi, meditation, lectures on complementary and integrative therapies, daily counseling, support groups and family discussion groups. Place ... of wellness is open to anyone touched by cancer, their family members and caregivers, whether or not they were treated at M. D. Anderson.

713-794-4700

### **Rehabilitation Services**

M. D. Anderson's Rehabilitation Services offers physical therapy and occupational therapy for patients recovering from surgery or experiencing problems related to the side effects of chemotherapy or radiation treatment.

Physical Therapy, 713-792-3192

Occupational Therapy, 713-792-3192

### **Social Work**

Highly skilled clinical social workers provide short-term counseling free of charge. The Department of Social Work also provides guidance with advance directives, identifying community resources and communicating with children about a cancer diagnosis.

713-792-6195

### **Where can I learn more?**

#### **The American Cancer Society**

The American Cancer Society (ACS) is a voluntary national health organization with local offices around the country. The ACS supports research, provides information about cancer, and offers many programs and services to patients and their families.

1-800-ACS-2345 (800-227-2345)

[www.cancer.org](http://www.cancer.org)

#### **The American Society of Plastic Surgeons**

The Patients and Consumers section of their Web site provides before and after photos, frequently asked questions and other educational information.

[www.plasticsurgery.org](http://www.plasticsurgery.org)

#### **Breast Cancer Network of Strength**

Volunteers who are former breast cancer patients are available to provide telephone support and answer questions about breast cancer.

English, 800-221-2141

Spanish, 800-986-9505

[www.networkofstrength.org](http://www.networkofstrength.org)

#### **National Lymphedema Network and Hotline**

The network educates and guides lymphedema patients by providing them with information on the prevention and management of primary and secondary lymphedema.

800-541-3259

[www.lymphnet.org](http://www.lymphnet.org)

#### **Susan G. Komen for the Cure**

A national toll-free breast care help line that offers information and resources to individuals with breast health or breast cancer concerns.

877-GO-KOMEN (877-465-6636)

[www.komen.org](http://www.komen.org)

## Glossary

**Adjuvant therapy:** additional cancer treatment given after surgery to lower the risk of cancer returning. It may include chemotherapy, radiation therapy, hormone therapy or other treatments.

**Areola:** the colored circular area around the nipple

**Autologous tissue:** medical term referring to living tissue that is removed from a person's own body.

**Axilla:** medical term for armpit or area under the arm.

**Axillary dissection:** the removal of lymph nodes in the armpit or under the arm.

**Bilateral:** medical term describing both sides of the body.

**Breast implant:** a medical device consisting of a silicone shell filled with either silicone or saline.

**Breast mound:** medical term referring to the reconstructed breast, usually before the nipple has been constructed.

**Breast prosthesis:** device that fits into a bra to replace the missing form of the breast after a mastectomy.

**Bulge:** medical term describing the protrusion of the abdominal wall due to weakened fascia. It is not a hernia.

**Capsular contracture:** the process of scarring and shrinkage of tissue that occurs around an implant or tissue expander when placed in the body. The scarring can go unnoticed or may result in a deformed and hardened breast.

**Chemotherapy:** treatment for cancer that involves chemical agents that are toxic to cancer cells.

**Complication:** problem associated with a surgical procedure.

**Dissect, dissection:** medical term used to describe the process of surgically separating tissues from the surrounding tissue.

**Donor site:** location on the body where your own tissue is taken to re-create a breast.

**Drain:** a flexible tube placed in the surgical site during surgery that exits the body through a small hole. The drain allows fluid from the surgical site to drain into a reservoir.

**Fascia:** the tough, flat, tendon like tissue that surrounds muscles.

**Fat necrosis:** death of the fat tissue due to inadequate blood supply which results in hardened areas of tissue.

**Flap:** term used to describe the tissue that is taken to recreate a breast. It may consist of different components of tissue such as skin, fat, muscles, fascia and blood vessels.

**Free flap:** tissue that is removed from its blood supply and attached to a new blood supply in another part of the body.

**Gluteus maximus muscle:** muscle of the buttock.

**Hematoma:** collection of blood in or under the tissues that have been dissected during surgery.

**Hernia:** medical term to describe the protrusion of the intestines through the fascia of the abdominal wall.

**Inferior epigastric artery and vein:** blood vessels that enter the rectus abdominis muscle in the groin region. They supply blood to the muscle and overlying skin and fat via perforating vessel branches.

**Inframammary fold:** the fold or crease that forms the lower border of the breast.

**Internal mammary blood vessels:** blood vessels located under the ribs along the breastbone (sternum) that are frequently used as recipient blood vessels for free flap reconstruction.

**Mastectomy:** surgical procedure in which different amounts of breast tissue and skin are removed. Types of mastectomy's include: partial, simple, skin-sparing, total, modified radical and radical.

**Mastopexy:** also referred to as a "breast lift," it involves a surgical procedure in which the nipple and areola are repositioned to a higher level.

**Mesh:** material that is used to prevent or repair hernias and bulges. It can be made of permanent suture material (prosthetic) or animal/human derived tissues (bioprosthetic).

**Morbidity:** medical term referring to the number of problems or complications associated with performing a medical procedure or an operation.

**Nipple:** a small projection of the breast upon which breast milk ducts are located that provide milk to the nursing infant.

**Pectoralis major muscle:** a muscle on the chest wall underlying the breast.

**Pedicle flap:** type of flap that is not taken off its blood supply but rather rotated to a new location on the body on its original blood supply.

**Perforator:** medical term used to describe a small blood vessel that comes off of a larger blood vessel and travels through muscles and fascia to supply the skin and fatty tissue.

**Postoperative:** medical term meaning after surgery.

**Preoperative:** medical term meaning before surgery.

**Prophylactic mastectomy:** surgical procedure in which different amounts of breast tissue and skin are removed in a breast without cancer. This is done as a measure to help prevent breast cancer from occurring.

**Ptoxis:** medical term referring to the amount of drooping that a breast has.

**Radiation therapy:** treatment of cancer involving ionizing radiation.

**Seroma:** collection of straw colored fluid in a wound that comes from the liquid part of blood. It may accumulate after a surgical procedure.

**Silicone:** found in the outer shell of breast implants and can be the filler of a breast implant.

**Superior epigastric artery and vein:** blood vessels that enter the rectus abdominis muscle from under the ribs to supply blood to the muscle and overlying tissue.

**Suture:** material used to close a surgical site.

**Symmetry, symmetric:** same size or proportions on both sides of the body.

**Tissue expander:** balloon-like device used to expand skin tissue. It consists of a silicone outer shell that is placed under the pectoralis major muscle and slowly filled with saline to stretch the skin and muscle.

**Umbilicus:** medical term to describe the navel or belly button.

**Unilateral:** medical term describing one side of the body.

**Vessel thrombosis:** medical term referring to the formation of a blood clot inside a blood vessel which may prevent the flow of blood to or away from the flap.

# Breast Reconstruction Options Chart

## Using Implants Only

## Using Your Own Body Tissue

### Consideration

### Implants

### Abdominal (Stomach) Tissue

<b>What is done?</b>	<p>Surgeon inserts a tissue expander in a “pocket” under a muscle on the chest and the remaining mastectomy skin. After the tissue has been expanded and remains expanded for one to three months a permanent implant is added.</p>	<p>Tissue is taken from the abdomen to create a breast mound. The tissue may stay on its original blood supply (pedicled) or be taken and transferred to a new blood supply in the chest (free).</p>
<b>Best if patient...</b>	<ul style="list-style-type: none"> <li>• Has not received or will not need radiation</li> <li>• Does not have enough fatty tissue in the back or stomach area</li> <li>• Has a good skin “pocket” for implant</li> <li>• Prefers shorter surgery and recovery times</li> <li>• Wants a more perky (augmented) looking reconstruction</li> <li>• Plans for bilateral reconstruction (harder to match the natural breast) or unilateral reconstruction if you have an augmented opposite breast</li> <li>• Does not smoke</li> </ul>	<ul style="list-style-type: none"> <li>• Is healthy enough to undergo a lengthy surgery</li> <li>• Has been pregnant</li> <li>• Does not smoke</li> <li>• Has no plans of radiation after mastectomy</li> <li>• Has had prior radiation</li> <li>• Has a BMI less than 35</li> <li>• Has not had any other surgeries to the abdominal area (not including c-sections and laparoscopic procedures)</li> <li>• Has time for recovery</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Less surgery and recovery time</li> <li>• Fewer scars</li> <li>• Satisfactory shape in clothing</li> </ul>	<ul style="list-style-type: none"> <li>• May spare all or most of the abdominal muscle</li> <li>• Most natural appearing reconstruction</li> <li>• May improve abdominal shape</li> <li>• Good option for patients with prior radiation</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Many appointments for the expansion process</li> <li>• Two steps for procedure (i.e., tissue expander and implant)</li> <li>• Problems with implant</li> <li>• Hard to achieve nipple projection with nipple reconstruction</li> <li>• Often difficult to achieve appearance of a natural breast</li> <li>• Need to replace implants periodically (more surgery)</li> </ul>	<ul style="list-style-type: none"> <li>• Challenging surgery that requires surgeon trained in microsurgery</li> <li>• Longer surgery and recovery</li> <li>• Variations in anatomy leading to variations in amount of abdominal muscle and fascia taken</li> <li>• Will have scar on stomach and around belly button</li> <li>• Risk of hernias and bulges on abdomen</li> <li>• Risk of partial or complete flap loss</li> </ul>

## Using Your Own Body Tissue

## Using Your Own Body Tissue

### Buttock Tissue

### Back Tissue (with Implants)

Tissue is taken from the buttock area to create a breast mound. The tissue is removed from its blood supply and reattached to the blood supply in the chest.

Tissue is taken from the back to create a breast mound. The tissue stays on its original blood supply. The tissue is used alone to create a breast mound (less common), or used to cover a tissue expander or implant (more common).

- Is healthy enough to undergo a lengthy surgery
- Does not have enough tissue on their abdomen
- Cannot use their abdominal tissue because of prior surgeries
- Has enough buttock tissue to reconstruct a breast without leaving a large depression (dent)
- Does not want implants
- Does not smoke
- Has no plans of radiation after mastectomy
- Has had prior radiation
- Has time for recovery

- Will not need radiation
- Has had prior radiation
- Is healthy enough to undergo moderate surgery
- Wishes to limit the number of surgeries
- Does not smoke
- Wants a more perky looking reconstruction

- Less pain than abdominal tissue
- Faster recovery than abdominal tissue
- Natural reconstruction
- Good option for patients with prior radiation

- Less surgery and recovery time
- Better coverage over implant which improves cosmetic result than with implant alone
- One time surgery if implant is placed immediately
- Good option for thin patient who has prior radiation

- Challenging surgery that may require many surgeons to be involved and trained in microsurgery
- May cause a depression (dent) in the shape of the buttock
- Will have scar on buttock
- Difficult to do bilateral reconstructions due to positioning on operating room table (may require two separate surgeries for bilateral reconstructions)
- Risk of partial or complete flap loss

- Usually need an implant under the tissue for projection and size
- Risk of complications and scars on back
- Muscle weakness in back (especially for swimmers, tennis players and rock climbers)

## Breast Reconstruction Options Chart (continued)

Consideration	Using Implants Only	Using Your Own Body Tissue
	Implants	Abdominal (Stomach) Tissue
<b>Final Results</b>	<ul style="list-style-type: none"> <li>• Are good to excellent</li> <li>• Have higher chance of firm/perky breast with imperfect symmetry/shape to a natural breast</li> <li>• May require additional surgery because of implant related changes</li> </ul>	<ul style="list-style-type: none"> <li>• Are good to excellent</li> <li>• Are soft and natural</li> <li>• Age naturally</li> <li>• May improve abdominal shape</li> </ul>
<b>Permanence</b>	Periodic adjustments and possible replacement of implant	Most permanent
<b>Surgery Length (not including mastectomy)</b>	60 to 80 minutes	6 to 8 hours for one side (unilateral) and more for two sides (bilateral)
<b>Hospital Stay</b>	1 to 2 days	5 to 7 days
<b>Recovery</b>	2 to 3 weeks	6 weeks
<b>Additional Symmetry Surgery</b>	Yes	Yes
<b>Blood Transfusion</b>	Rare	Possible
<b>Radiation Treatment</b>	Avoid	Okay if before reconstruction
<b>Artificial Implant</b>	Used	Rarely used
<b>Options</b>	<ul style="list-style-type: none"> <li>• Silicone implants</li> <li>• Saline implants</li> </ul> <p>Both types are safe for reconstruction and come in many shapes, sizes and profiles.</p>	<ul style="list-style-type: none"> <li>• Pedicled TRAM</li> <li>• Free TRAM</li> <li>• Free Muscle Sparing TRAM</li> <li>• Free Deep Inferior Epigastric Perforator (DIEP)</li> <li>• Free Superficial Inferior Epigastric Artery (SIEA)</li> </ul>



## Using Your Own Body Tissue

## Using Your Own Body Tissue

### Buttock Tissue

### Back Tissue (with Implants)

<ul style="list-style-type: none"> <li>• Are good to excellent</li> <li>• Age naturally</li> <li>• May leave depression (dent) in buttock area</li> </ul>	<ul style="list-style-type: none"> <li>• Are good to excellent</li> <li>• May require additional surgery because of implant-related changes</li> <li>• Muscle will thin over time</li> <li>• May have fullness under arm where muscle was rotated</li> </ul>
Most permanent	Possible replacement of implant (if used)
6 to 8 hours for one side (unilateral) and more for two sides (bilateral)	4 to 6 hours
5 to 7 days	2 to 3 days
4 to 6 weeks	3 to 6 weeks
Yes	Yes
Possible	Possible
Okay if before reconstruction	Okay if before reconstruction
Rarely used	Usually used
<ul style="list-style-type: none"> <li>• Inferior Gluteal Artery Perforator Flap (IGAP)</li> <li>• Superior Gluteal Artery Perforator Flap (SGAP)</li> </ul>	LD (latissimus dorsi) flap



