

THE DECISION GUIDE TO BREAST RECONSTRUCTION

Breast reconstruction is the process of making a new breast after mastectomy (removal of the breast) for breast cancer treatment or prevention (“therapeutic” or “prophylactic” mastectomies). This web site contains information to assist you in making choices related to breast reconstruction following mastectomy. Our goal is to give you understandable, up-to-date facts about reconstructive options. We hope this site answers many of your questions, lets you know what to expect, and helps you make a decision that you feel good about.

How to Use This Program

This guide can be used in a variety of ways. If you are planning to consult your health care provider about breast reconstruction, we recommend that you spend some time reviewing this information before your provider visit. The basic knowledge included in this guide will help you partner with your surgeon to choose reconstruction options which are right for you. Following your consultation, the web site may assist in clarifying issues raised during your visit. Remember — you and your surgeon are a team, working together to make treatment decisions which fit your values, priorities and lifestyle.

The Reconstruction Decision

When you lose a breast to cancer, it is comforting to think you can replace it and look and feel almost normal again. However, treating the cancer and getting back to a healthy life should always be your first concerns. If you are able to have breast reconstruction, make your decision about whether to have reconstruction, when to have reconstruction, and what kind of reconstruction to have based on what is best for you. A new breast is unlikely to change your life or make others treat you differently. Your doctor, family, and friends may offer suggestions, but you are the one who is going to live with your choice every day. Try to make a decision that you can feel good about for a lifetime.

How to Make Your Decision

As you’ll see from this guide, the reconstruction decision is a bit complicated: Because there are some many choices, this decision may be more challenging in some ways than choosing your cancer treatment. Your plastic surgeon can sort through the various options with you and help choose what is best for you.

Some women find it easiest to break the reconstruction decision into three smaller questions:

- Should I have reconstruction?
- When should I have reconstruction?
- Which surgical option is best for me?

This guide is organized around these three questions. Try to read through it before your visit with the plastic surgeon. It's a lot to take in, but we don't expect you to know it all when you come to see us. There won't be a test! 😊 Our goal here is to lay a foundation of information for your visit, giving you the opportunities to think about your goals and perhaps write down some questions ahead of time. Bring your question list to the visit to discuss with your surgeon.

Should You Have Reconstruction?

Breast reconstruction may help you to feel better about your body: you may feel more "normal," "balanced," and feminine. It may also help you to be able to wear more kinds of clothes with convenience and comfort. Some women are afraid that if the breast cancer returns, it will be harder to detect the tumor through a reconstructed breast than through a mastectomy scar. However, there is no need to fear difficulties with cancer detection. Current evidence indicates that it is no more difficult to find and treat cancer through a reconstructed breast than it is through a mastectomy scar. If you are thinking about breast reconstruction and are interested in breast feeding your children, you should know that you cannot breast feed from a reconstructed breast. The parts of the breast that deliver milk are the most likely parts to develop cancer and are therefore removed during the mastectomy.

Having breast reconstruction may cause you some inconvenience during the period after the surgery. It will take time to recover, and there may be additional treatments or follow-up surgeries. Depending on which kind of breast reconstruction you choose, you may need six months or more to fully return to your normal life.

Only you can decide whether the mental and physical benefits of having a new breast are worth the costs of having the surgery.

Advantages of Breast Reconstruction:

You may feel more "balanced," in terms of both breast weight and looks.

Your body may feel more "normal," in and out of your clothes.

You may be able to wear more kinds of clothes, possibly even low cut clothes like tank tops and bathing suits.

You may feel more feminine and attractive.

You may not be reminded of the cancer by having only one breast.

Disadvantages of Breast Reconstruction:

Regardless of the type of reconstruction you have, you will need more surgery, with all of the inconvenience and potential problems that come with it.

You may need more time to heal.

You may need to take more time off from work or from your family responsibilities.

There may be more scars.

There are risks with the reconstruction surgery, including infection, swelling, or delayed healing.

If you do not have insurance, it may be costly.

You won't know how the new breast will look until it is finished.

The new breast, no matter how good it is, will never exactly match your natural breast. (Natural breasts are almost never exactly the same, either!) Also, the reconstructed breast will not duplicate or look precisely the same as the breast which was removed.

In rare cases, there may be problems that can occur years after the reconstruction, like infections, hernias, or breast implant complications.

When Should You Have Reconstruction?

A new breast can be created (or at least started) at the time of the mastectomy (“immediate reconstruction”) or at a separate, later surgery (“delayed reconstruction”). For patients who choose reconstruction and wish to proceed as soon as possible, the immediate approach is usually possible. By combining the mastectomy and reconstructive operations, immediate reconstruction avoids an extra surgery and recovery period. Some patients find coping with mastectomy somewhat easier if they wake up afterwards with their reconstruction at least underway, if not completed.

In some cases, delayed reconstruction is the best choice. If patients are unsure about reconstruction, it’s best to wait and consider the choices over time. Based on patient satisfaction research, women having delayed reconstruction are just as happy with their results as those having reconstruction at the time of their mastectomies. If you choose not to have immediate reconstruction, you can always reconsider later, likely with much the same surgical results.

There are other reasons to delay reconstruction. If radiation treatment is likely after the mastectomy, most plastic surgeons prefer to postpone reconstruction until after the radiation. Radiation after reconstruction increases complication rates and may affect the appearance of the reconstructed breast. Results of reconstruction postponed until after radiation are usually associated with lower complication rates and better cosmetic results.

Surgical Choices for Reconstruction

Many women choose to have breast reconstruction. Some women feel more natural and balanced with a reconstructed breast. There are two major kinds of breast reconstruction:

- Implant Reconstruction
- Natural Tissue Reconstruction

Implant-Based Reconstruction

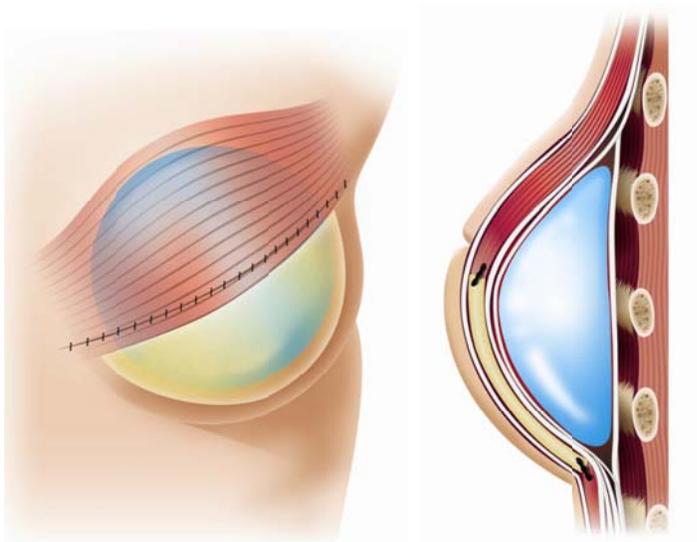
Your breast can be surgically reconstructed by putting in an artificial breast mound, known as an implant.

How is Breast Reconstruction Using Implants Performed?

Synthetic implants are round or teardrop-shaped pouches that are placed under the chest muscle skin to create the shape of a breast. The outside (“envelope”) of the implant is made of silicone plastic and is filled with silicone gel or saline (salt water). In silicone gel implants, the silicone filler inside the device is either semi-solid (like Jello) or solid. The process of breast reconstruction using implants may involve one or two stages, depending on the individual patient's breast size, skin condition, and other factors.

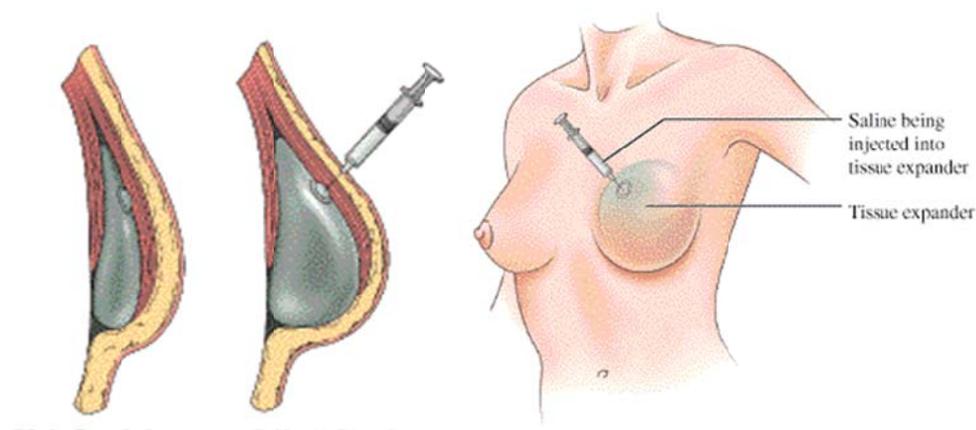
Single Staged (“Direct to Implant”) Implant Reconstruction

In patients with enough extra skin in good condition after the mastectomy, a single stage implant reconstruction may be possible. With this approach, the plastic surgeon places the silicone gel or saline implant in a pocket beneath the skin and muscle layers, at the location of the new breast. This surgery is usually performed through the original mastectomy incision. This single stage (or “direct to implant”) technique also uses a piece of banked human skin (termed “acellular dermal matrix” or “ADM”) to create the inner shape of the new breast. Manufactured under the names “Alloderm” or “Flex HD”, this skin has been harvested from human donors, radiated to prevent rejection, and sterilized to reduce chances for infection. The resulting material is sewn into the implant pocket to keep the implant centered and to maintain the proper shape. In select patients, single stage implant reconstruction yields good cosmetic results with a minimum of surgery.



Two Staged Implant Reconstruction

More commonly, however, implant breast reconstruction requires two operations or stages, usually due to a shortage of remaining breast skin after the mastectomy. In the two staged technique, the first operation (often done at the same time as the mastectomy) consists of placement of a temporary device called a "tissue expander." An expander is a silicone-walled pouch that resembles an empty balloon with a small valve in its front wall. This valve allows the surgeon to fill the implant with saline during and after this initial operation. A second operation months later is necessary to replace the tissue expander with the saline or silicone implant.



During the first surgery, the tissue expander is placed in a pocket beneath a chest muscle (the pectoralis) and the overlying skin. The tissue expander is later used to enlarge the implant pocket to accommodate the size of the implant needed to match the opposite breast or (in the case of two sided reconstructions) to reach the breast size preferred by the patient. The initial tissue expander placement surgery takes approximately one to two hours. At the end of the surgery, the side of the chest undergoing reconstruction will still be flat. Depending on your doctor's recommendations, this procedure can be performed on an outpatient basis or may require an overnight hospital stay.

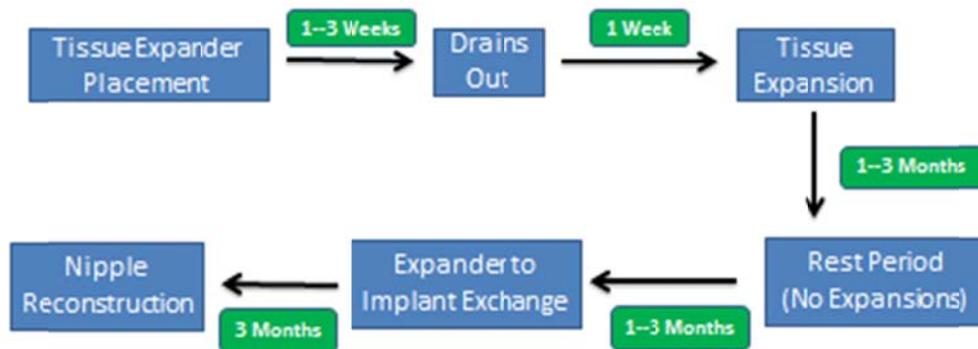
Whether a tissue expander or the finished saline or gel implant is placed at the initial operation, there are physical restrictions following the surgery. Although these may vary by surgeon, they usually include no driving for 2-3 weeks, and no physical work, heavy lifting or gym time for 3-4 weeks.

Approximately 14 to 21 days following placement of the tissue expander, the process of tissue expansion will begin. Every one to two weeks, you will visit your plastic surgeon. During these 20 to 30 minute visits, approximately two to four ounces (50-100 cc) of saline (salt water) will be injected through the overlying skin into the valve located on the front wall of the tissue expander. The tissue expander enlarges the pocket, growing the skin for the new breast. While the expansion process causes some soreness or discomfort in some women, others report simply a

feeling of "tightness" for several days following each expansion. Depending on a number of factors, including the patient's preferred breast size, the number of outpatient expansions usually ranges between four and eight. Following completion of the expansions, a "rest" period of one to three months is taken before proceeding on to the second operation. The rest period allows the skin (and the patient!) to relax and finish growing. Including the rest period, the average time between the first and second stages is 3-5 months.

At the end of the rest period, the patient undergoes the second stage of the reconstruction. During this surgery, the expander is removed, the tissue pocket is shaped, and the reconstructive implant is inserted. The surgery lasts about one to two hours and usually does not require a hospital stay (outpatient). Restrictions usually include no driving for 2-3 weeks, and no physical work, heavy lifting or working out for 3-4 weeks. Other than nipple reconstruction or fat grafting for shape adjustments (see below), this usually completes reconstruction of the breast.

Expander/Implant (Two Stage) Timeline



Implant Reconstruction: The Numbers

For the one stage, direct to implant approach, 2-3 hours of surgery are required, depending on whether one or two sides are being created. In the case of the two staged, expander-implant reconstruction, expander placement requires about one hour per side, while the second (exchange) operation also takes about an hour for each breast. At most, these surgeries require an overnight hospital stay. Expander-implant exchanges usually are performed in the outpatient setting. Recovery times following these operations vary, but there are usually 3-4 weeks of limitations in physical activities, including driving. Also, remember that for the expander-implant approach, the length of time between the tissue expander placement (first stage) and the exchange (for the reconstructive implant) operation (second stage) averages 3-6 months.

Saline or Silicone Implants?

Many patients and plastic surgeons believe that silicone gel-filled implants have a more natural look and feel than saline implants. Silicone gel has a texture that is very similar to natural breast tissue. Saline implants, on the other hand, do not feel as soft. Silicone gel implants are also less likely to cause visible wrinkling, compared with saline implants. Recent advances in implant technology have resulted in the use of solid or semi-solid gel fillers, which are easier to replace in the event of implant leakage.

Although concerns were raised in the early 1990's over possible adverse health effects of silicone gel implants, extensive research over the following decade demonstrated no links between the implants and chronic health conditions. An Institute of Medicine expert panel reviewed the research in 1999 and concluded that there was no evidence of silicone-related disease. In the years that followed, the Food and Drug Administration gradually released its previous restrictions on the use of silicone gel implants for reconstructive and cosmetic breast surgery.

Despite silicone gel implants' more natural shape and texture, saline implants do have some advantages. The scar tissue contracture rate (see below under "Risks") appears to be modestly lower in saline implants, compared with gel-filled devices. Although leakage rates are similar for both types of implants, leakage is easier to detect in saline implants: If it occurs, deflation is relatively obvious as the body absorbs the salt water. By contrast, if leakage is suspected in a silicone gel implant, an MRI scan is required to confirm the problem. Although the guideline is controversial, the Food and Drug Administration recommends that patients with silicone gel implants undergo MRI scanning every 2-3 years to screen for leakage.

Advantages of Implant Reconstruction

The implant approach usually involves shorter surgeries, little or no hospital stay, and faster recoveries. Implant surgery requires a shorter hospital stay and shorter recovery time compared with most other reconstruction options. Because this approach requires less extensive surgery than other reconstruction methods, usually less recovery time is necessary. If you choose to have immediate reconstruction, you will likely stay in the hospital overnight after the combined mastectomy and tissue expander or implant surgery. When the reconstruction is delayed, the operation is usually done in an outpatient (day surgery) setting. If you have a tissue expander, the second operation, in which the tissue expander is replaced with an implant, is also an outpatient procedure. Recoveries are also faster, compared with larger flap reconstructions. Patients can resume normal activities 3-4 weeks after tissue expander or implant surgery.

Implant reconstruction is less invasive, with fewer scars Since flaps are not harvested from other areas of the body with this approach, implant surgery leaves fewer scars. Often the mastectomy scar is used for the reconstruction as well, so you will have no additional scars after the reconstruction.

Cosmetic results are generally good to excellent, particularly in bilateral (two-sided) reconstructions. In bilateral reconstructions or in unilateral (one-sided) reconstructions with adjustments of the opposite breast, cosmetic results are usually good.

Disadvantages of Implant Reconstruction

The results of implant surgery may not be immediate. If a tissue expander is needed (two-staged implant approach), you will not wake up from the initial surgery with a new breast. If a tissue expander is required, it takes three to six months for breast reconstruction to be completed. In cases of one-sided reconstruction, one breast is bigger than the other during this period, creating a "lopsided" effect. This may limit the clothing you wear and the activities in which you participate. You may choose to wear a prosthesis or pad your bra to make your breasts the same size.

Implant surgery may be time consuming and inconvenient. If a tissue expander is needed, additional surgery and frequent doctor visits will be necessary. You must consider if you have the time and patience to undergo another surgery, hospitalization, and recovery period. You also need to think about whether you can attend doctor appointments every one to two weeks.

Implant reconstructions offer less flexibility in creating shapes to match an opposite natural breast. Unlike natural tissue flaps, implants cannot be sculpted to customize their shapes. As a result, patients having an implant reconstruction on one side may be more likely to need the opposite, natural breast altered to achieve acceptable symmetry. Implants also do not feel completely natural to the touch.

As you age, an implant reconstructed breast may not evolve (sag) in the same fashion as a natural opposite breast. Nobody likes to talk about sagging, but it can be an issue in breast reconstruction. Implant-reconstructed breasts tend to have "youthful" shapes, that is, very little sag. This shape usually does not change over time. By contrast, an opposite natural breast will likely descend (sag) with age. Consequently, patients with unilateral (one-sided) implant reconstructions may not stay symmetric (or even) over time and may require additional surgical alterations of the natural breast to re-establish symmetry later in life. In cases of bilateral (two-sided) reconstruction, this is less of an issue, since the two sides tend to age in the way.

Implants do not change to match changes in body weight. Implants do not change size or shape. This means that the size and shape of your reconstructed breast will also remain the same, regardless of changes that may occur elsewhere in your body. Consequently, if you lose or gain weight, your breasts may seem disproportionate to your new body shape.

If you have had radiation therapy, your skin may not respond well to the tissue expander. Radiation tends to cause scarring in the radiated skin on your chest. This skin may not stretch well during tissue expansion, making the process riskier and more difficult.

Complications with the expander or implant may develop. About 3-4% (3-4 women in 100) will develop an infection after tissue expander placement (first stage) and another 3-4% (3-4 out of 100) following the expander/implant exchange (second stage). For single stage (direct to implant reconstructions, the infection rate is higher, up to 10% (10 out of 100). Another 2% (2 in 100)

may experience bleeding ("hematoma") or fluid collection ("seroma") under the breast skin after these surgeries. These complications can require hospitalization or re-operation, including removal of the implant in cases of infection.

Implants may also develop complications over the long term. The most common complication is leakage or rupture. This happens in approximately 10% of cases (one out of 10) over the first 10 years for either saline or gel-filled implants (No reliable data yet exist to track the life of an implant after the first 10 years.) When this occurs, the implant must be removed or replaced. This outpatient surgery lasts from 30 minutes to 1 hour. For silicone gel implants, more extensive surgery is sometimes needed to remove loose silicone from the breast area. This tends to be less of a problem for the newer solid or semi-solid silicone gel implants.

The second most common long-term complication is encapsulation or "capsule formation." Scar tissue forms on the outside of all artificial devices when placed in the body. Usually, this does not pose a problem. However, in approximately 5-10% of cases (5-10 women out of 100), too much scar tissue forms. This may occur more frequently with silicone implants than with saline implants. The scar tissue may cause pain and discomfort and make the implant feel hard to the touch. When this happens, surgery may be necessary to break up or remove the scar tissue. It may also be necessary to remove or replace the implant. Capsules can form at any time from a few weeks to many years after the implants are inserted.

In about 7% (7 women out of 100), the implant shifts or settles after the surgery, causing a "wrinkle" , "dent" or change of position in the breast implant ("contour irregularity" or "malposition"). These may require additional surgery.

Implant-Latissimus Dorsi Flap Reconstruction

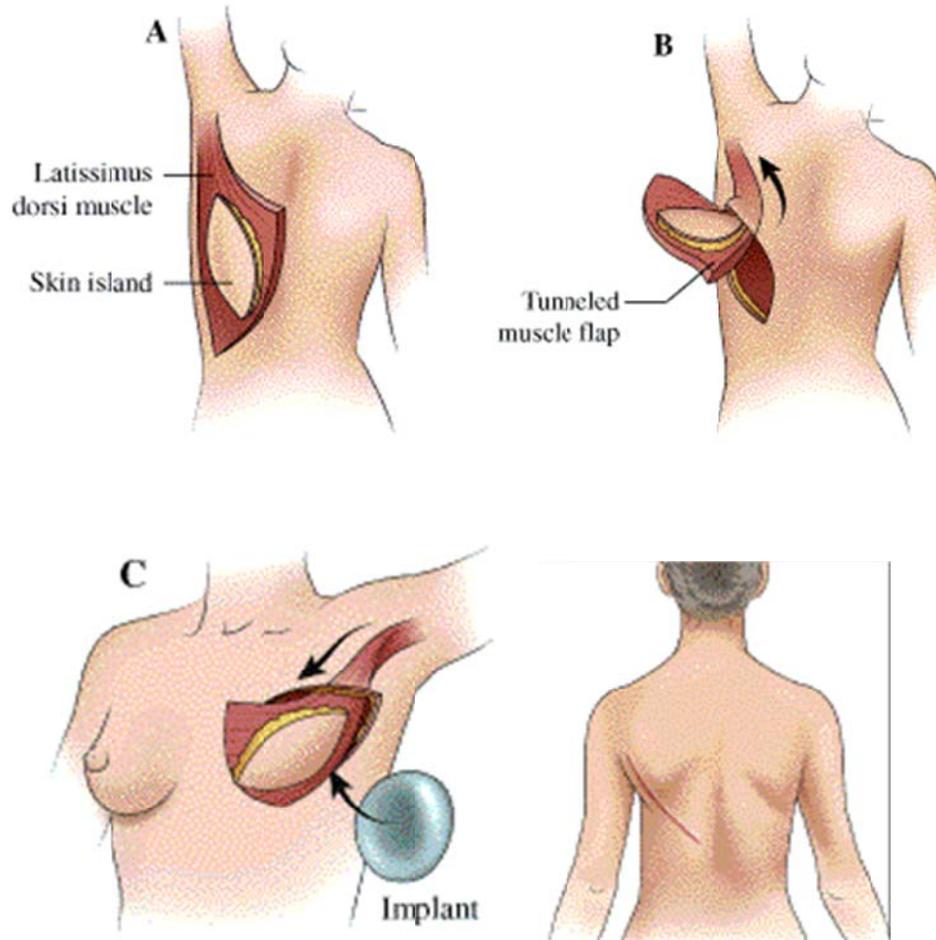
In a variation on the expander/implant approach, the latissimus dorsi (or "lat dorsi") flap may be used for additional coverage of the tissue expander and implant. Carrying less fat than the abdominally-based flaps, the lat dorsi is the only one of the tissue flaps that requires an implant to provide fill or volume for the new breast. The combination of the lat dorsi and a tissue expander is most commonly chosen for reconstruction of a previously radiated mastectomy site, to provide healthy skin and muscle for tissue expansion. The lat dorsi is also used in cases where the abdominal-based flaps are not available due to scarring from previous surgeries.

How is Lat Dorsi Reconstruction Performed?

The lat dorsi is a back muscle located next to your shoulder blade. Working through an incision in the upper or lower back (flank), the muscle is raised off the underlying ribs, bringing with it an attached piece of overlying skin. The muscle-skin flap is then tunneled through the armpit and into the mastectomy site, where the flap is used to provide covering for a tissue expander. The flap muscle and skin are inset into the surrounding breast skin. The donor site on the back is closed in a straight line, leaving a flat (not indented) contour.

Two to four weeks later, tissue expansions begin. From this point onward, the reconstruction process proceeds exactly as described under "Two-Stage Implant Reconstruction" above. Briefly, expansion usually is carried out in the office or clinic on a weekly basis. Four to eight expansions are normally required to achieve the desired size and shape of breast. After a "rest" period of one to three months following the end of expansion, patients undergo the second stage

of the reconstruction: In the outpatient setting, under a general anesthetic (patient asleep), the expander is removed and replaced with a saline or silicone gel-filled reconstructive implant.



Lat Dorsi Flaps; The Numbers

Lat dorsi reconstructions take 2-4 hours to complete and require a one or two day hospital stay. Patients' activities are restricted for about four weeks following surgery, although most women return to work somewhat later. As noted earlier, healing and expansions take 2-3 months, with the average time interval between the initial flap/expander placement and later expander/implant exchange being 3-5 months. The exchange surgery is usually an outpatient procedure and is followed by 3-4 weeks of limitations.

Advantages of Lat Dorsi Flap Reconstruction

The lat dorsi provides healthy, reliable skin and muscle for tissue expansion in patients with previous radiation. Of all the tissue flaps used in mastectomy reconstruction, the lat may be the most reliable. It rarely suffers from circulation problems.

The lat dorsi is an extremely reliable flap and can be used in patients who are not ideal candidates for other flaps. These patients may include those with medical issues, or those with abdominal donor sites which are not useable for reconstruction due to prior surgeries, excess fat or lack of fat.

Disadvantages of Lat Dorsi Flaps

In most cases, the lat dorsi still requires use of a tissue expander and implant.

For those preferring to use their own tissue for reconstruction without implants, the lat will not enable them to avoid these devices. (See “Disadvantages of Implant Reconstruction” above.)

The lat dorsi flap is still a major operation which leaves a new scar in an area outside the mastectomy site. Depending on choice of clothing, particularly in the summer months, the lat dorsi donor site scar may be difficult to hide.

Like all reconstruction options, the lat dorsi approach has risks. Risks include those of expander/implant reconstruction. (See “Disadvantages of Implant Reconstruction” above.) Although an extremely reliable flap, the lat dorsi can also have circulation problems in the first few days after surgery. The risk of total flap loss is 1% (1 out of 100 patients). Partial flap losses occur in less than 5% (less than 5 of 100 patients). Infection rates with lat dorsi procedures are 3-4% (3-4 out of 100), while the chances of abnormal bleeding following surgery are about 2% (2 out of 100). Any of these complications can require additional hospitalizations or surgeries.

Natural Tissue (Flap) Reconstructions

Your own body tissue can be used to recreate a breast. The most common kind of natural tissue reconstruction is the TRAM, in which tissue from the abdomen is used to create the breast. However, other techniques have evolved in recent years that harvest tissue from the abdomen, buttocks and thighs.

In this section, we'll discuss choices for breast reconstruction using natural tissue, including:

- Pedicle (Tunneled) TRAM Flaps
- Free TRAM Flaps
- DIEP Flaps
- GAP Flaps
- TUG Flaps

Pedicle TRAM (Transverse Rectus Abdominis Muscle) Flap Reconstruction

This operation uses tissue from your lower abdomen to make a new breast. The term “pedicle” means that the flap tissue is left partially attached and then tunneled from the abdomen into the mastectomy site, where it is sculpted into a new breast. The doctor will determine if you are able to have a TRAM, depending upon availability of donor tissues. For example, the doctor may not be able to use the abdomen tissue to reconstruct a breast if you have had previous surgery in that area. If you are a smoker, the doctor may choose not offer the TRAM reconstruction procedure at all. When discussing these reconstructive options with your doctor, be sure to mention other health problems that you may have. Also tell the surgeon about your lifestyle and what kinds of

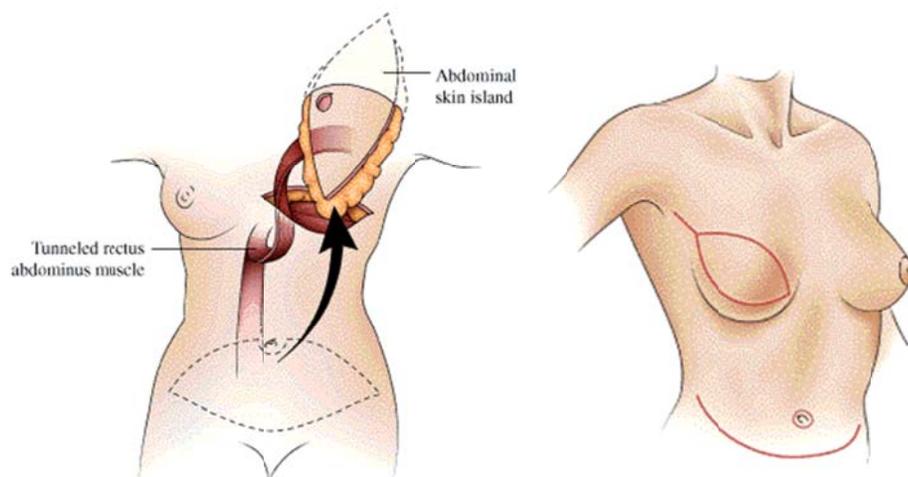
activities you want to be able to do after the surgery. These other issues will be very important in determining if this method of reconstruction is right for you, and whether it will be successful.

How is Pedicle TRAM Reconstruction Performed?

In the pedicle TRAM procedure, excess skin and fat, as well as a strip of the “sixpack” muscle are freed from the lower abdomen, leaving a portion of the muscle still attached to the abdominal wall. The flap tissues are tunneled up into the mastectomy site, where the skin and muscle are shaped into the new breast. Unlike the implant approach described earlier, no tissue expanders or implants are necessary for pedicle TRAM reconstruction. The abdominal skin provides the covering, while the abdominal fat supplies the filler for the new breast, all in one operation. Meanwhile, the lower abdomen is then sewn back together. In case of a double mastectomy, the tissue on the lower abdomen may be used to make two breasts. The abdominal donor site is closed in layers. The scar on the lower abdomen generally runs from hip to hip, but is low enough to be concealed under many types of swim suits. If you tell the doctor which type of two piece bathing suit you own, then he or she may be able to adjust the placement of the scar to make it less noticeable.

A brief word about the TRAM’s abdominal donor site closure: Some plastic surgeons describe the closure as a “tummy tuck”, but it is not. Although the TRAM donor site closure shares the same scar as a tummy tuck (or “abdominoplasty”, to use the technical term), the two operations are quite different in other ways. In most cases, a real tummy tuck will get a better, longer lasting cosmetic result. So, if you choose TRAM reconstruction (or any of the other abdominal flaps—see below), don’t do it for the “free” tummy tuck!

For pedicle TRAM reconstructions, some surgeons also perform an initial outpatient operation at least two weeks prior to the flap surgery. Called a “preliminary flap delay”, this operation consists of making a portion of the abdominal incision and then immediately closing it back up. The delay procedure takes 20-30 minutes and is performed under a general anesthetic (that is, with the patient fully asleep). This initial operation prepares the flap tissue for its move up to the breast and helps protect the flap from circulation problems during the later flap transfer. (See “Complications of Pedicle TRAM Flaps” below.) The TRAM delay procedure often can be carried out at the same time as a sentinel lymph node biopsy and thus may not require an additional general anesthetic.



Pedicle TRAM: The Numbers

Pedicle TRAM reconstructions usually take 4-5 hours, in addition to the mastectomy time. Following surgery, patients remain in the hospital for 2-4 days. Typical restrictions afterwards include no driving for four weeks and no physical work or exercising (other than walking and shoulder stretching) for six weeks. Although the restrictions are removed at six weeks, most patients need additional time (often another month) to regain their normal energy and stamina, and to return to work.

Advantages of Pedicle TRAM

Unlike the expander-implant approach, several months are not required to recreate a new breast.

This technique does not rely on expanders and implants. Potential implant risks such as scar tissue contracture and leakage are avoided. There is less likelihood of long-term complications, requiring additional surgeries later in life.

The flap shape can be customized for better symmetry with an opposite natural breast. Unlike implants, pedicle TRAM flaps can be sculpted and shaped to provide acceptable symmetry, with less need for surgeries on the opposite breast. Compared with implants, pedicle TRAMs may be better at mimicking a more “mature” breast shape (or sag).

Pedicle TRAMs work well in patients who have received radiation. The flap brings new tissue and circulation to the radiated area, improving healing and lessening the chances for infection.

Pedicle TRAMs adapt well to weight changes. Because they are largely made up of abdominal fat, the size of the TRAM increases or decreases with weight gains or losses. This reduces the chances later in life for asymmetry (lopsidedness) or breasts which are not proportional to a woman’s body size.

Disadvantages of Pedicle TRAM Flaps

Pedicle TRAM flaps require longer surgeries, hospitalizations and recoveries, compared with implant-based approaches. These are major surgeries, requiring months for a full recovery.

TRAMs may not be options for women who are significantly over- or underweight. In very overweight women, the risks of flap loss and abdominal wall complications may be higher. (See below) In very thin patients, there may not be enough abdominal fat to create a new breast.

Pedicle TRAMs are more invasive than implant techniques and leave scars in other areas of the body (abdomen). Although TRAM donor site scars are located low on the abdomen, they may still limit choices in clothing, particularly in swimwear.

These operations sacrifice portions of the abdominal (six pack) muscles. The impact on the abdominal wall is usually minimal with a one-sided flap, which harvests portions of only one of the six pack muscles. However, two-sided (bilateral) pedicle TRAMs use most of both six pack muscles and may significantly weaken the abdominal wall. While patients receiving one-sided

pedicle TRAMs usually return to normal activities, this appears to be less likely if both muscles are sacrificed in a bilateral pedicle TRAMs.

As with other breast reconstruction options, complications may occur with pedicle TRAMs. If circulation problems occur, portions or all of the flap can be lost. When it happens, this “flap necrosis” or tissue death, almost always occurs in the first few days after surgery. Late flap losses (beyond one week following surgery) are usually minor, typically appearing as a lump (“fat necrosis”) within the flap. While total flap losses require removal of the reconstruction, partial losses may be treated with dressing changes (when small) or with surgeries to remove more extensive areas of tissue loss and to reshape the flap. With pedicle TRAMs, the chances of total flap loss are about one in 100, while partial flap losses are around 7% (7 out of 100 women).

With pedicle TRAM reconstructions, hernias or bulges can occur in the abdominal donor site. Although these are usually seen in the first six months following reconstruction, they can happen even years later. If hernias or bulges do occur, surgical repair is usually recommended. These problems are seen in 5% (5 in 100) of one-sided and up to 10% (10 in 100) of two-sided pedicle TRAM procedures. For this reason, bilateral pedicle TRAMs are no longer recommended by our group. To help prevent hernias and bulges, surgical mesh is occasionally used to strengthen the abdominal closure in pedicle TRAM flaps.

As with the other breast reconstruction options, abnormal bleeding and infection are possible following pedicle TRAM surgery. The chances of these complications are about 2% (2 out of 100) each. Either may require a trip back to surgery in the days following the flap, although in flaps, infections usually respond well to antibiotics alone.

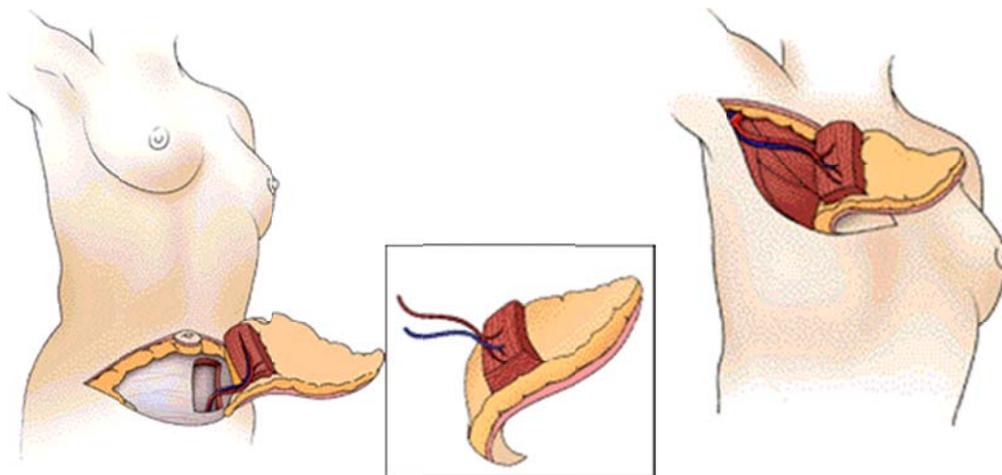
Free TRAM Flap Reconstruction

The free TRAM flap was developed in the 1990s as a refinement of the pedicle TRAM. As you'll see below, the free TRAM is quite similar to the pedicle TRAM, the main differences being the amount of muscle harvested with the flap and the way in which circulation is provided for the flap tissues.

How is Free TRAM Reconstruction Performed?

The "free flap" (microsurgical) TRAM commonly uses most of the same tissue as the pedicle (or tunneled) TRAM method described above. However, the free TRAM differs in two important ways: First, the free TRAM harvests a much smaller piece of abdominal muscle, preserving most of the "six pack". Second, the free TRAM does not tunnel the flap tissue up into the mastectomy area. Instead, the procedure completely detaches the flap, including skin, fat and the small portion of muscle from the abdomen. The flap is then moved to the breast area, where blood vessels from the flap are reconnected with vessels along the breast bone or in the armpit using a microscope and technology called (not surprisingly) "microsurgery." For this reason, the free TRAM is sometimes called a "microsurgical TRAM".

After connection of the free TRAM's blood vessels, the flap is shaped into a new breast and the abdominal donor site is closed as described earlier for the pedicle TRAM.



For TRAM reconstruction, some surgeons prefer the free version because it harvests minimal muscle, and as a result, have less impact on abdominal wall functioning (sit up power) in the

long run. This may be particularly true for bilateral (double) breast reconstructions where pedicle TRAMs would require sacrificing most of both six pack muscles. By contrast, a bilateral free TRAM would harvest only a small segment of muscle from each side.

Free TRAM Flaps: The Numbers

Free TRAMs are long operations: One-sided reconstructions take 6-8 hours, while double reconstructions require 8-12 hours, in addition to the time needed for the mastectomies. Patients usually spend 3-5 days in the hospital. We ask that they not drive for a month and avoid physical work or exercising (other than walking and shoulder stretching) for six weeks following free TRAMs. As with pedicle TRAMs, most patients are not back to full strength at six weeks after surgery. They usually do not return to work for at least two months, again mainly due to slow improvements in energy or stamina.

Advantages of Free TRAM Flaps

Free TRAMs offer all the advantages of pedicle TRAMs: They...

- Create the new breast in one operation
- Avoid tissue expanders and implants
- Provide better symmetry for one-sided reconstructions due to the flap's flexibility in shaping to better match the opposite breast
- Work well in patients with previous radiation
- Adjust well to weight changes and aging

Free TRAMs minimize muscle harvest, while still supplying reliable skin and fat for reconstruction of a new breast. Despite sacrificing less abdominal muscle than pedicle TRAMs, free TRAMs still have plentiful, reliable circulation. Outcome studies suggest that the minimal muscle harvest with free TRAMs reduces the chances for abdominal hernias or bulges in the years following reconstruction.

Disadvantages of Free TRAM Flaps

Like pedicle TRAMs, free TRAMs require longer surgeries, hospitalizations and recoveries.

Also like pedicle TRAMs, free TRAMs are major surgeries which leave new scars in other areas of the body beyond the mastectomies.

Free TRAMs may not be options for women who are significantly over- or underweight. In very overweight women, the risks of flap loss and abdominal wall complications may be higher. (See below) In very thin patients, there may not be enough abdominal fat to create a new breast.

As with other breast reconstruction options, free TRAMs have risks. Free TRAMs can encounter circulation problems in the reconnected blood vessels, resulting in partial or total flap loss. Total flap loss rates are 1-2% (1-2 patients out of 100). Partial flap losses occur in about 6% of patients (6 out of 100). Hernias and bulges happen in 3-5% of women (3-5 of 100), less frequently than in pedicle TRAMs, likely due to the minimal muscle harvest. Rates of infection are about 3-4% (3-4 out of 100 patients) each. Chances of abnormal bleed following surgery are

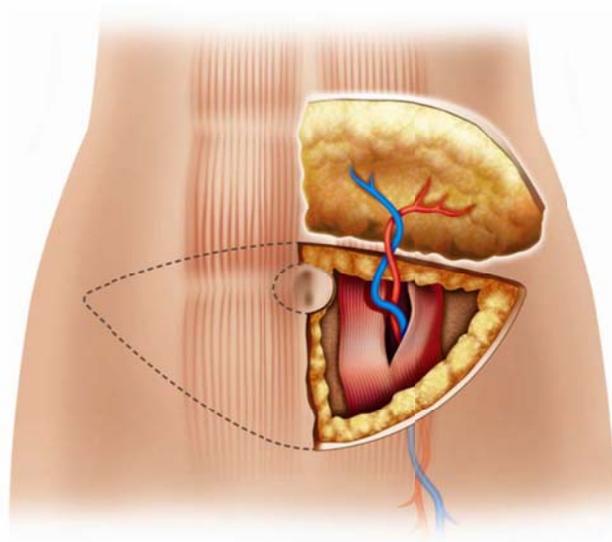
about 2% (or 2 out of 100). As noted earlier, any of these complications may require additional hospitalizations or surgeries.

Deep Inferior Epigastric Perforator (DIEP) Flap Reconstruction

The DIEP flap is the latest variation on abdominal flaps for breast reconstruction. It is a member of a family of operations called “perforator flaps”, meaning flaps which harvest skin, fat and blood vessels, but without sacrificing any muscle. As you’ll see later, other members of the perforator flap group include the less commonly used SGAP and TUG flaps.

How is DIEP Reconstruction Performed?

Think of DIEP flaps as being exactly the same as free TRAMs, with one important exception: Although they use the same island of abdominal skin and fat as do free TRAMs, DIEP flaps do not remove any of the six pack muscle. Instead, the DIEP flap splits the muscle to free the blood vessels that feed the skin and fat. The flap, made up of the lower abdominal skin, fat and local blood vessels is then detached and transplanted up to the mastectomy site. From this point on, the operation proceeds in exactly the same fashion as a free TRAM. Microsurgery is used to reconnect the flap’s artery and vein to local blood vessels in the breast area. The abdominal skin and fat are sculpted to create the new breast, while the abdominal donor site is closed



DIEP Flaps: The Numbers

Like free TRAMs, DIEP flaps are long operations, usually taking 6-8 hours for one side and 8-12 hours for double (bilateral) reconstructions. Patients spend 3-5 days in the hospital afterwards. Restrictions on physical activities last for six weeks following surgery, with many patients needing additional time off before returning to work, particularly in physically demanding jobs.

Advantages of DIEP Flaps

DIEPs offer all the advantages of pedicle and free TRAMs: They...

- Create the new breast in one operation
- Avoid tissue expanders and implants
- Provide better symmetry for one-sided reconstructions due to the flap's flexibility in shaping to better match the opposite breast
- Work well in patients with previous radiation
- Adjust well to weight changes and aging

By not harvesting any of the six pack muscles, DIEPs have less impact on abdominal wall function. The DIEP flap may do a better job of preserving sit-up power, compared with pedicle TRAM and (possibly) free TRAM flaps. Also, by avoiding muscle harvest, DIEP flaps may cause fewer hernias or abdominal bulges later in life. However, recent studies have found few or no differences between DIEP and free-TRAM flaps in their impact on abdominal wall function. This issue remains controversial and is the focus of ongoing research in plastic surgery.

DIEP flap patients may have less pain and recover faster than women having conventional TRAM flaps. However, research supporting these findings is limited. Current studies underway are evaluating these outcomes.

Disadvantages of DIEP Flaps

Like pedicle and free TRAMs, DIEPs require longer surgeries, hospitalizations and recoveries.

Also like pedicle and free TRAMs, DIEPs are major surgeries which leave new scars in other areas of the body beyond the mastectomies.

DIEP flaps may not be options for women who are significantly over- or underweight. In very overweight women, the risks of flap loss and abdominal wall complications may be higher. (See below) In very thin patients, there may not be enough abdominal fat to create a new breast.

As with other breast reconstruction options, DIEPs have risks. Like TRAM flaps, DIEPs can have circulation problems in the first few days following surgery. Total flap loss happens in about 2% (2 out of 100 patients), while partial loss is seen in 10-15% (10-15 out of 100). The somewhat higher rates of flap loss are likely due to a less robust circulation in some DIEPs, compared with the other abdominal flaps used in breast reconstruction. However, these differences probably depend on the surgeon as much as the type of flap used. Research on complication rates is ongoing.

Because they do not harvest abdominal muscles, DIEP flaps have fairly low rates of abdominal hernias or bulges following surgery. Although results vary, studies report hernia/bulge rates under 5% (5 out of 100) with DIEP reconstruction.

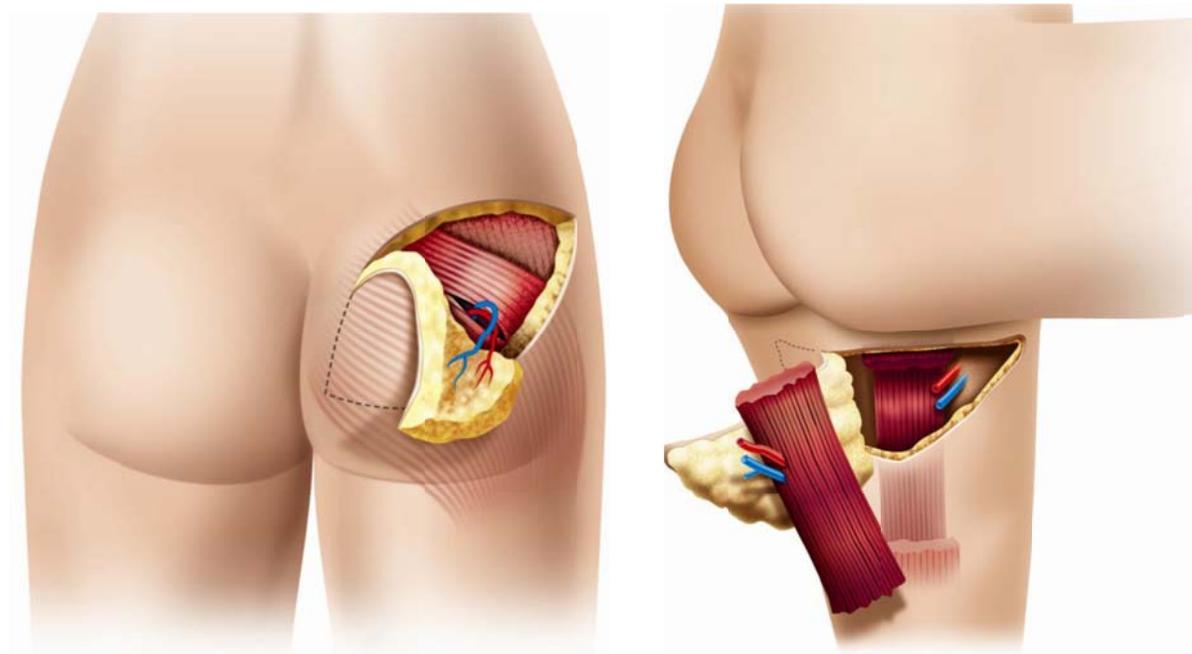
For DIEP flaps, rates of infection are about 3-4% (3-4 out of 100 patients) each. Chances of abnormal bleed following surgery are about 2% (or 2 out of 100). As noted earlier, any of these complications may require additional hospitalizations or surgeries.

Other Perforator Flaps: Superior Gluteal Artery Perforator (SGAP) and Transverse Upper Gracilis (TUG) Flaps

Like DIEP flaps, SGAPs and TUGs are natural tissue flaps made up of skin and fat as well as the blood vessels that supply these tissues. Not considered as preferred options for breast reconstruction by most plastic surgeons, SGAPs and TUGs are mainly used in cases where the abdominal donor site is not available due to body fat issues or previous surgical scars.

How Are SGAP and TUG Reconstruction Performed?

Like free TRAMs and DIEPs, SGAPs and TUGs are microsurgical free flaps, which are disconnected from their donor sites and transferred to the breast. The SGAP is harvested from the buttock area, while the TUG is taken from the inner thigh. At the mastectomy site, the flap's artery and vein are reconnected to local blood vessels, and the flap's skin and fat are sculpted to create the new breast. Meanwhile, the donor site is closed in layers.



GAP Flap

TUG Flap

SGAP and TUG Flaps: The Numbers

Like microsurgical free TRAMs and DIEPs, SGAP and TUG flaps are long operations, usually taking 6-8 hours for one side and 8-12 hours for double (bilateral) reconstructions. Patients spend 3-5 days in the hospital afterwards. Restrictions on physical activities last for six weeks following surgery, with many patients needing additional time off before returning to work, particularly in physically demanding jobs.

Advantages of SGAP and TUG Reconstructions

SGAPs/TUGs offer all the advantages of pedicle and free TRAMs and DIEPs: They...

- Create the new breast in one operation
- Avoid tissue expanders and implants
- Provide better symmetry for one-sided reconstructions due to the flap's flexibility in shaping to better match the opposite breast
- Work well in patients with previous radiation
- Adjust well to weight changes and aging

In patients wanting natural tissue reconstruction, these flaps may be options if the abdomen is unusable due to weight issues or scarring from previous surgery

Disadvantages of SGAP and TUG Reconstructions

Like pedicle and free TRAMs and DIEPs, SGAPs/TUGs require long surgeries, hospitalizations and recoveries.

Also like the other flaps, SGAPs/TUGs are major surgeries which leave new scars in other areas of the body beyond the mastectomies.

SGAP and TUG flaps may not provide enough volume or bulk for the new breast(s). These flaps can only harvest a limited amount of fat. Also, the texture of the GAP flap may be firmer than that of a natural breast.

SGAP and TUG flaps have risks. In some cases, their circulation is not as robust as the blood supplies of other flaps, resulting in higher rates of partial and total flap loss. While SGAPs and TUGs do not carry risks of abdominal hernias or bulging (like TRAMs and DIEPs), their donor sites may require additional contouring later, particularly for the buttock donor site of the GAP.

Additional Surgical Options Following Breast Reconstruction

Many women choose to have additional surgeries after breast reconstruction to make their breasts look as natural and symmetrical as possible. Nipple reconstruction may be done on the reconstructed breast mound to make it look more natural and "complete."

Additional surgeries may be done to make an opposite, natural breast look as much like the reconstructed breast as possible:

- Nipple Reconstruction
- Fat Grafting
- Breast lift
- Breast reduction

- Breast augmentation
-

Nipple Reconstruction

Nipple and areola (the dark circle around the nipple) reconstruction is completely optional. Some women want only the shape of the breast to fill a bra, and decide they don't need a nipple. Another option is to apply removable nipples that stick on with adhesive. These rubbery tips are shaped like a semi-erect nipple and the color and texture are quite lifelike.

How is Nipple Reconstruction Done?

If you choose to surgically reconstruct the nipple, there are several options. One common option is to use the skin of your reconstructed breast. The surgeon can take a small flap of skin from the breast, and "cone" it into a new nipple. Because the nerves aren't connected in the reconstructed breast, most women do not feel much pain with this surgery.

Options to reconstruct the areola involve taking skin from a different part of the body and sewing it to the new nipple on the reconstructed breast. The surgeon can take an oval of skin from the outer edge of your mastectomy scar or from the edge of the TRAM or DIEP donor scar on your abdomen (if you have this kind of breast reconstruction). The advantage of using this skin is that you won't have any new scars. You may be sore for up to two weeks at the place from which the skin was taken. However, most women have very little discomfort at the site of the reconstructed nipple. Another option is to reconstruct the nipple as described above and have the skin around it tattooed to a darker color to make an areola.

In all procedures, you will not have much or any feeling in the new nipple when it is touched. These surgeries can be done on an outpatient basis in under two hours, with local or general anesthesia. Most doctors will ask you to wait a week after the surgery before driving or working.

After you have healed, you can have the new nipple and areola tattooed to match the color of your other nipple. Often it takes two or three sessions to color the whole area evenly. Tattooing takes about an hour and can be done in the doctor's office. You can usually go back to work the same day. Most women can hardly feel the tattooing being done. However, your doctor may use a local anesthetic just in case.

When Can I Have Nipple Reconstruction?

Most plastic surgeons do not schedule nipple reconstruction until at least three months after breast reconstruction. You want to allow time for the swelling from surgery to go down and for the breast to "settle." This allows the surgeon to place the nipple so that it matches the position of the nipple on the other breast.

Advantages of Nipple Reconstruction:

- *Your reconstructed breast will match your natural breast more closely.*
- *You can go bra-less and have the shape of the nipple on both sides.*

Disadvantages of Nipple Reconstruction:

- *It is usually an additional surgery and requires another recovery period.*
- *If the skin is taken from a place where there is no scar, you'll have a new scar at the donor site.*

Fat Grafting

Grafting fat from other areas of the body is often used to improve breast shape after either implant-based or natural tissue reconstructions. In many cases, the new breast can be enlarged or smoothed out with the patient's own fat. Although not widely practiced, a few plastic surgeons are creating the new breast entirely out of grafted fat, injected periodically over a period of months.

How is Fat Grafting Done?

Under outpatient general anesthesia, fat is removed from the thighs, flanks or abdomen using liposuction. The fat is then processed to extract the living cells. A blunt tipped needle and syringe are used to inject the fat, bit by bit, into the reconstructed breast, via small puncture wounds. The operation usually takes under an hour to complete.

Afterwards, patients' activities are restricted for 2-4 weeks. Patients also need to wear a compression garment (usually Spandex shorts) over the liposuctioned areas for a month. Although some of the grafted fat (from one quarter to one third) is reabsorbed over time by the body, most of fat survives, improving the shape and/or size of the breast.

Advantages of Fat Grafting

- *Grafting can improve size, shape and symmetry using the patient's own living tissue.*
- *The procedure is relatively minor, with minimal additional scarring.*
- *Fat grafting can fill out areas that implants and flaps may not reach, such as a hollowed out area under the collar bone.*

Disadvantages of Fat Grafting

- *Not all the fat "takes": Some may fade away in the first several months following surgery. If too much volume is lost, an additional round (or two) of fat grafting may be desirable.*
- *In 3% (3 out of 100) of cases, fat grafting may leave a palpable lump, which will likely need to be removed. Although fat grafting rarely causes difficulties with future mammograms, another 3% of fat grafting cases will show mammographic abnormalities requiring needle biopsies. To date, we have seen no cases of breast cancer occurrence/recurrence in areas of previous fat grafting.*

Breast Lift (Mastopexy) of the Opposite Natural Breast

In cases of one-sided (unilateral) mastectomy reconstruction, it may be difficult to create the same shape on both sides. The reconstructed breast may not droop like the natural breast. However, the surgeon can do a breast lift, or mastopexy, on the natural breast, to make it look more youthful and to better match the reconstructed breast.

How is Breast Lift Done?

In breast lift, the surgeon cuts out a section of skin from the lower part of the breast. This skin is removed, and the nipple is moved upward. Skin that was previously above the nipple is drawn down and sewn together below the nipple. Because there is less skin, the breast is higher and firmer after surgery. The scars are usually around the areola, in a vertical line extending down from the nipple area, and, in some cases, along the lower fold of the breast.

This surgery takes from one to two hours, usually with general anesthesia. It is usually done in an outpatient setting. Many women return to work and resume most normal physical activities after 3-4 weeks.

After having a breast lift, you may lose some feeling in your nipple or breast for at least six weeks. This loss of feeling usually resolves as the swelling goes down after surgery, but in 5-10% (5-10 out of 100), nipple numbness can be permanent. Breast lift also leaves permanent scars. These can be lumpy and red for months following surgery, fading bit by bit until they are less noticeable. The scars can, however, be hidden under most bathing suits.

If you choose this procedure, be aware that gravity, aging, and weight changes will cause the breast to eventually sag again. However, this may happen in the reconstructed breast as well, depending on the type of mastectomy reconstruction.

Advantages of Breast Lift:

- *The lifted breast will more closely match the shape of your reconstructed breast.*
- *The lifted breast will be higher and firmer after surgery.*

Disadvantages of Breast Lift:

- *Breast lift is additional surgery.*
- *You will have permanent scars (although they can be covered by a bathing suit).*
- *There is a small possibility that you will permanently lose feeling in your nipple or breast.*

Making the Natural Breast Smaller: Breast Reduction of the Opposite Natural Breast

If your natural breast is large compared to your reconstructed breast, you may want to consider breast reduction. Breast reduction removes skin and fat from the breast.

How is Breast Reduction Done?

In breast reduction, the surgeon removes fat, breast tissue, and skin from the lower part of the breast. The nipple is then moved upwards and the tissues closed to form a smaller breast. As in breast lift, the scars are usually around the areola, in a vertical line extending down from the nipple area, and, in most cases, along the lower fold of the breast. The surgery usually takes from one to two hours but can take longer. It is done under general anesthesia, so you will be asleep through the operation. Breast reduction is usually done in the outpatient setting. Most women can return to work and resume normal physical activities in 3-4 weeks.

After having breast reduction, you may lose feeling in your nipple or breast for at least six weeks. This loss of feeling usually improves gradually as the swelling goes down after surgery, but is permanent in 5-10% (5-10 out of 100) of cases. If the breast is especially large and hangs

very low, the nipple and areola may have to be completely removed and re-sewn onto the breast higher up, in which case the nipple and areola will permanently lose all feeling. This is termed a “free nipple” technique.

Breast reduction, like breast lift, leaves permanent scars. These can be lumpy and red for months following surgery, fading bit by bit until they are less noticeable. However, the scars can be hidden under a bathing suit. It may be six months to a year before the reduced breast settles into its final shape. If you are of child-bearing age and are interested in breast feeding, you should know that you may not be able to breast feed with a reduced breast. The breast may also change size with hormonal changes, pregnancy, or weight changes. These shifts may be less of a problem if you have had natural tissue reconstruction on the other breast, as this breast may change in the same ways.

Advantages of Breast Reduction:

- *The reduced breast will more closely match the shape of your reconstructed breast.*
- *The reduced breast will be smaller, which may relieve strain on your back and neck and reduce irritation in the breast crease if you have very large natural breasts.*

Disadvantages of Breast Reduction:

- *Breast reduction is additional surgery.*
- *You will have permanent scars (although they can be covered by a bathing suit).*
- *Breast reduction may leave your nipples and breast skin numb for six weeks to a year.*
- *In normal cases, there is a small possibility that you will permanently lose feeling in your nipple or breast. If your breast is particularly large and the nipple must be completely removed before being placed higher up, you are certain to permanently lose feeling in the nipple and areola.*

Making the Natural Breast Larger: Breast Augmentation

If your natural breast is small compared to your reconstructed breast, you may want to consider breast enlargement, termed “augmentation”. In breast augmentation, the surgeon inserts an implant into your breast to make it larger. If your natural breast is small and droops, you may also be a good candidate for a breast lift. Your surgeon can tell you which procedure or combination of procedures is most appropriate for you.

How is Breast Augmentation Done?

In breast augmentation, the surgeon places an implant under your breast tissue to make it larger. The surgical incision may be made in the crease underneath the breast, around the areola, or in the armpit, depending on the surgeon, to make the scar as invisible as possible. The implant may go either under the breast tissue itself, or under the chest muscle behind the breast. The implant consists of a silicone sac filled with silicone gel or saline. This surgery takes about an hour,

usually with general anesthesia. It is usually done in the outpatient setting. Most women can return to work and other normal physical activities after 3-4 weeks.

As the years go by, the implant may leak. This happens in approximately 10% (10 out of 100) of cases over the first 10 years. When this occurs, the implant must be removed or replaced. A capsule of scar tissue may also form around the implant. Scar tissue forms on the outside of all artificial implants when placed in the body. However, in approximately 5-10% of cases (5-10 out of 100), too much scar tissue forms. The scar tissue may cause pain and discomfort and make the implant feel hard to the touch. Surgery may be necessary to break up or remove the scar tissue. It may also be necessary to remove or replace the implant. Capsules can form at any time from a few weeks to many years after the implant has been inserted.

If you undergo breast augmentation, you should realize that the placement of a breast implant in your augmented breast will affect, to some degree, your annual mammograms. If the implant is placed beneath the muscle layer, breast augmentation will not likely have much effect on the quality of later mammograms. However, if you have an implant in your reconstructed breast and you would like to get a mammogram, you should look for centers that are experienced in screening women with implants.

Advantages of Breast Augmentation:

- *The augmented breast will more closely match the shape of your reconstructed breast.*

Disadvantages of Breast Augmentation:

- *Breast augmentation is additional surgery.*
- *The implant may develop complications over the years, such as leaks or excess scar tissue formation that may need to be corrected by extra surgery.*
- *You will need to get your mammograms done at a facility with expertise in treating implant patients.*

Frequently Asked Questions

If you are interested in breast reconstruction, some practical questions you may want to think about include:

Who will do my reconstruction?

Breast reconstruction is done by a plastic surgeon. While your surgical oncologist is responsible for your mastectomy and treating your cancer, your plastic surgeon focuses on reconstructing your breast. If you decide to have immediate reconstruction, the plastic surgeon will need to coordinate with your oncologist to plan your surgery.

Plastic surgeons are first trained as medical doctors. After medical school, they receive five to eight years of specialized training in plastic surgery. Plastic surgeons perform many complicated surgeries. They re-attach hands after accidents, reconstruct body parts for burn patients, and

repair wounds. However, it is always good to ask if your surgeon has experience in breast reconstruction. You should make sure that your doctor is a "board certified" or "board eligible" plastic surgeon. Also, your surgeon should be willing to talk with you about both cosmetic and surgical issues. Remember that the surgeon works for you: you can choose to stop reconstruction at any point, from choosing no reconstruction to declining nipple reconstruction and tattooing.

Who will pay for my reconstruction?

Insurance companies and managed care organizations are now required to pay for breast reconstruction for women who have had a mastectomy. Health care plans are also required to pay for surgery to make the opposite natural breast match the reconstructed breast. The Women's Health and Cancer Rights Act of 1997, which ensures these rights, states that: "A group health plan, and a health insurance issuer providing health insurance coverage in connection with a group health plan that provides medical and surgical benefits with respect to a mastectomy, shall ensure that, in a case in which a mastectomy patient elects breast reconstruction, coverage is provided for--

1. All stages of reconstruction of the breast on which the mastectomy has been performed; and
2. Surgery and reconstruction of the other breast to produce a symmetrical appearance;

in the manner determined by the attending physician and the patient to be appropriate, and consistent with any fee schedule contained in the plan."

This law also applies to Medicare and Medicaid patients. However, you should still check with your insurance company ahead of time – Some companies still require that you obtain authorization in advance for any surgery that is not an emergency. Also, not all insurance companies cover nipple tattooing, so ask about this procedure if you think you would like to have it done. If you do not have insurance, you should talk with your doctor about the cost of the breast reconstruction surgery, office visits, and potential additional costs due to implant or TRAM complications.

Should I have mammograms after my reconstruction?

If you have an implant-based reconstruction:

If you have had an implant, mammograms are usually not recommended for the reconstructed breast. Most physicians prefer to screen for local recurrence of cancer with physical examinations of the breast. Do self breast exams on both breasts once a month and visit your doctor as recommended for a checkup. Continue to have mammograms done on the natural breast as recommended by the American Cancer Society or your physician.

If you have had flap (natural tissue) reconstruction:

Increasingly, providers are recommending that flap reconstructions (without implants) be periodically screened with mammograms. Try to find a mammography facility that is experienced in doing mammograms on reconstructed breasts. In addition, most physicians also rely on physical examinations of the breast to detect cancer recurrences. Do self-exams on both

breasts once a month and visit your doctor as recommended for a checkup. Continue to have mammograms done on both breasts as recommended by the American Cancer Society or your physician.

Non-Surgical Options

Many women choose not to have breast reconstruction because:

- They feel comfortable living as they are.
- They don't want to have more surgery.
- Their partners or families do not think reconstruction is necessary.
- There is no plastic surgeon who does breast reconstruction in their area.

If you choose not to have breast reconstruction, you can:

- Live without a breast replacement, or
- Get a prosthesis (false breast).

Some women who choose not to have reconstruction may wear a prosthesis or pad their bras. Others choose to do nothing. The side of the chest with the mastectomy simply remains flat, and the mastectomy side of the bra remains empty.

Advantages of No Prosthesis

- *Wearing no replacement may be:*
 - *Simpler*
 - *More convenient*
 - *More comfortable*

Disadvantages of No Prosthesis:

- *Some women may feel unbalanced with only one breast.*
- *It may be harder to keep your posture straight because of the imbalance.*
- *It may be harder to wear some kinds of clothes with only one breast.*

Wearing a Prosthesis

A prosthesis is a breast form you can use under clothing to recreate the breast. Some women choose to use a prosthesis until they have breast reconstruction, while others use prostheses for life.

Where Do I Get a Prosthesis?

Prostheses can be purchased at surgical supply stores, pharmacies, custom lingerie clothing shops, or a private home service.* Contact the Reach to Recovery program of the American Cancer Society for information about which stores in your area sell prostheses (telephone 1-800-ACS-2345 or www.cancer.org/treatment/supportprogramsservices/reach-to-recovery). You may want to contact the stores first to ask if they offer a trained fitter. Fitters know how to take your

measurements so that the prosthesis fits your chest and matches your other breast. They can also show you how to wear it. When you have the prosthesis fitted, consider trying on samples under a variety of your own clothes.

*If you live in the Ann Arbor, Michigan area, you may want to try Personal Touch. They have a great selection of prostheses and post-mastectomy wear, a trained nurse fitter, and a web site with lots of good information on prostheses, local breast cancer support groups, and caring for yourself after breast cancer. www.med.umich.edu/pmr/op/touch.htm

How Does the Prosthesis Stay in Place?

Special bras, lingerie and bathing suits are designed for breast cancer survivors. They are available from Nordstrom, Sears, Land's End, JC Penney, or American Cancer Society catalogs, as well as department stores and smaller specialty shops. The clothing comes with a pocket to hold the prosthesis, or you can have pockets sewn into the suits or bras you already own. This helps keep the prosthesis from popping out during swimming or other physical activities. One product comes with adhesive Velcro patches to attach the prosthesis to the upper part of your chest. This allows you to go bra-less or wear a regular bra. Many active women and athletes choose this model. (Since some women have skin sensitivities, ask the store to let you take home and try a sample of the adhesive before buying the whole product.) The adhesive lasts from three to five days and the prosthesis can even be worn while swimming or in the shower.

How Do I Choose a Prosthesis?

There are many shapes, sizes and materials of prostheses. The ideal product has the shape, weight, motion, and balance of your natural opposite breast. You'll probably want to get more than one type of prosthesis. Before you go into surgery, consider contacting your local Reach to Recovery program of the American Cancer Society (1-800-ACS-2345 or www.cancer.org/treatment/supportprogramsservices/reach-to-recovery). They provide a free temporary prosthesis to all women who are undergoing mastectomy. You can adjust the temporary prosthesis by filling a cloth cover with as much fiberfill as you need to match the other side.

While this temporary model is helpful for the initial recovery period, you will probably want to buy a longer-lasting prosthesis at some point. There are two main types. A lightweight style (made of polyfill or foam) is also good for the initial post-surgery recovery period. It can be used later for warm weather activities or times when you want less weight. This type is machine washable.

The second type is made of silicone. Most women prefer this style, because it is more lifelike. Two shapes are available: asymmetrical (one for the left side, one for the right) and symmetrical, a pear shape worn sideways to fill out the side, or straight up for fullness and cleavage. Silicone is closer to the consistency and weight of a natural breast. You may find the weight a bit tiring, but it can help balance the other breast and keep your posture straight. Silicone products are hand washable. Many prostheses are shaped to include a nipple on the front.

Prostheses also come with different kinds of covers. Most have some type of cloth cover, like soft cotton. Others come with a latex cover. Some brands now offer a cloth pad on the back to absorb perspiration and keep you cooler. Ready-made products come in many sizes; you choose the one that matches your natural side. It's worth taking the time to find one that matches your other breast and is comfortable. If you really want to splurge, you can buy a custom-made prosthesis that is made especially for you, to fit the contour of your body and to match your other breast.

How Much Will It Cost?

Prices of silicone prostheses range from \$200 to \$500. Foam and fiberfill prostheses usually cost less than \$100. Cost depends mostly on quality and brand. A custom-made prosthesis will cost more. If you want your health insurance to reimburse you, be sure to get a prescription from your doctor for the prosthesis. Prostheses last from two to five years. (Swimming pool water, salt water, and hot tubs will damage silicone prostheses.) Most insurance coverage pays for two bras with a prosthesis pocket per year and a new prosthesis every two years. If you do not have insurance, check with the American Cancer Society. Many offices give away free prostheses that stores have donated.

Advantages of Prostheses:

- *Prostheses may give you a more natural shape under clothes.*
- *Prostheses may provide a more "balanced" look.*
- *Prostheses do not require surgery.*
- *If your natural breast size changes, you can buy a new prosthesis.*

Disadvantages of Prostheses:

- *You may be less comfortable in revealing clothes than if you had reconstructive surgery.*
- *A prosthesis may be heavy, feel hot, and move around inside the bra.*
- *You may need to wear a special bra so the prosthesis doesn't shift (or buy a model with adhesive).*
- *It may be less convenient to do certain things, such as playing active sports, than if you had reconstruction or did not replace the breast.*

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