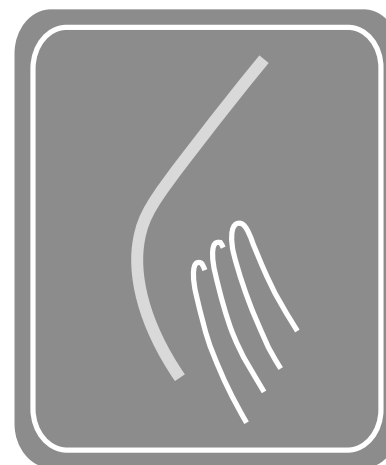


Breast Reconstruction:



Considering the Options

The information presented here is not intended to diagnose health problems or to take the place of professional medical care. If you have persistent health problems or if you have further questions, please consult your health care provider.



The treatment of local recurrence of cancer may involve local removal of the tumor, or radiation. These treatments may affect the appearance of the reconstruction, but rarely result in complete loss of the reconstruction.

Helpful Publications

A number of publications discuss resources for breast cancer patients and concerns that they may have. We have highlighted two booklets here, and we will be happy to provide you with copies:

A Woman's Guide to Breast Cancer Diagnosis and Treatment is a guide designed to help breast cancer patients work in partnership with their health care team. It suggests questions to ask providers and resources for further information.

Bay Area Breast Cancer Resource Guide is a directory of resources for women with breast cancer, listing contacts in 10 Bay Area counties. It identifies sources of information on prostheses and breast reconstruction, as well as medical care, complementary therapies, support groups and counseling.

Kaiser Permanente Member Benefits

Your benefits will cover all procedures necessary to reconstruct your breast, including nipple reconstruction. They will also cover certain procedures done to the opposite breast to achieve symmetry, such as breast reduction.

However, your benefits may not cover all procedures done to the opposite breast, such as breast enlargement, so please check with your surgeon and the Kaiser Permanente benefits office to be sure.

While your benefits will pay for the expense of medically indicated procedures, that cannot guarantee a result that will satisfy all of your personal expectations.

Reconstruction After Lumpectomy

Some women who have had a lumpectomy and radiation treatment find that there is a significant difference between the treated breast and the untreated breast.

Radiation may cause shrinkage of the untreated breast. Scarring inside one breast following the radiation treatment can distort the breast shape and the treated breast may become higher than the untreated breast.

Various techniques can be used to correct these deformities. These include breast implants and the latissimus flap. Most commonly, the untreated breast can be lifted and made a little smaller to help match the treated breast.

Recurrence of Cancer

Women who have had breast reconstruction do not have a higher rate of cancer recurrence than women who have not had reconstruction. However, breast cancer can sometimes return after a lumpectomy or after a mastectomy.

If the cancer does return, it may be found in the area of the chest or in other parts of the body. If it returns to other parts of the body, then the presence of the reconstruction will not have any effect on the diagnosis or treatment.

If the cancer returns in the chest area, the tumor usually comes back in the area of the previous incision (the scar). Therefore, in most cases, the presence of a reconstruction, whether with implants or tissue, does not seem to delay the diagnosis or treatment of the recurrent breast cancer.

When cancer does recur, the size and stage of the cancer has been found to be approximately the same, whether or not there has been a reconstruction. Therefore, there is little reason to believe that breast reconstruction increases the number of cancer recurrences, and there is little evidence that the reconstruction hides the recurrences or delays the diagnosis of cancer recurrence, in most cases.

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Reconstructing Both Breasts

Both breasts can be reconstructed at the same time, using either breast implants or abdominal tissue. Commonly, this is done for women who previously had one mastectomy and will now have a second mastectomy.

If both breasts are being reconstructed at the same time, then the results can sometimes be better than when only one breast is being reconstructed, because it is easier to match the two breasts with each other.

If you previously had one breast reconstructed with abdominal tissue, the excess tissue that could have been used for the other breast will no longer be available for use, and another type of reconstruction will be needed for the second breast.

Nipple Reconstruction

Nipple reconstruction is often performed as a separate procedure, and may be done under local anesthetic. Because the nipple is a reconstruction, it will not have any feeling and will not become erect.

Tissue from the reconstructed breast mound is used for a nipple reconstruction, and a small skin graft from another area (usually the hip) may also be used.

After healing is complete, the nipple reconstruction is completed in an office procedure that smoothes out the color of the nipple and areola, using medical-grade tattooing techniques.

Not all patients wish to have nipple reconstruction. This is entirely a matter of personal choice.

Microvascular Reconstruction

Other types of reconstruction are available in special cases, when more common types of surgery are not appropriate. Some examples are microvascular reconstruction utilizing thigh or buttock tissue.

Microvascular reconstruction involves a 6-8 hour surgery, 3-7 day hospitalization and 4-week recovery. There is a higher risk of complete flap loss, due to clotting of small blood vessels. Tissue texture is not as good as with abdominal (TRAM Flap) reconstruction.



Other Considerations

Surgery of the Opposite Breast

Depending on the size and shape of your breasts, you may choose to have surgery performed on the opposite breast, even if this is not absolutely necessary. In most instances, this additional surgery is entirely a matter of preference. If your doctor believes that it is impossible to match a particularly large or small breast, you may be encouraged to adjust the other breast.

Options include:

- lifting the other breast,
- reducing a breast in size if it is very large
- enlarging a small breast.

This surgery may be done at the time of the reconstruction. But in most cases, it is done as a separate procedure.

Additional breast surgery involves additional incisions and scars, and has its own set of risks and complications. If your doctor suggests a procedure, please ask about the risks if these are not explained to you.



Breast Reconstruction

Breast reconstruction is available to most healthy women who are about to have a mastectomy or who have already had a mastectomy. If a woman chooses to have reconstruction after a mastectomy, the surgery will usually result in a mound that is the approximate size and shape of the opposite breast.

This pamphlet is designed to help you decide if you should have breast reconstruction. It provides an introduction to breast reconstruction and an overview of current options, so that you can discuss your choices more fully with your doctors, family and friends, if you wish.

- You are invited to meet with a plastic surgeon in person to discuss your choices and any questions you may have. Feel free to discuss the information in this pamphlet with your doctors.
- This pamphlet is intended as a guide, to help you make decisions about breast reconstruction. It is not a complete listing of all possible procedures, nor does it include all of the advantages and disadvantages of every procedure.

A Complex Decision

Breast reconstruction is an option for most women who have a breast removed because of cancer, but it is not for everyone. You should not feel pressured into having breast reconstruction if you choose not to. This is a complex decision. You should take all the time you need to consider the options, and you can delay making a final decision until you are ready.

Each woman must look at her own individual desires and circumstances:

- Your healthcare provider must confirm that you are medically fit for surgery.

- You must have realistic expectations.
 - More than one operation is usually necessary.
 - The resulting breast will usually look fairly symmetrical when covered by clothing.
 - Only rarely will the resulting breast match the opposite breast exactly.
- You must consider your willingness to risk the complications and accept the consequences of each procedure.
- You must be prepared for the recovery period after each procedure.
- You must be willing and able to make the necessary commitment to the process.
- Only 25% to 50% of women who have mastectomies choose to have breast reconstruction.

Preparing to Decide

We encourage you to consult as many resources for information as you are able, as you consider your decision about breast reconstruction. This pamphlet includes many options and considerations, but it is not a comprehensive listing.

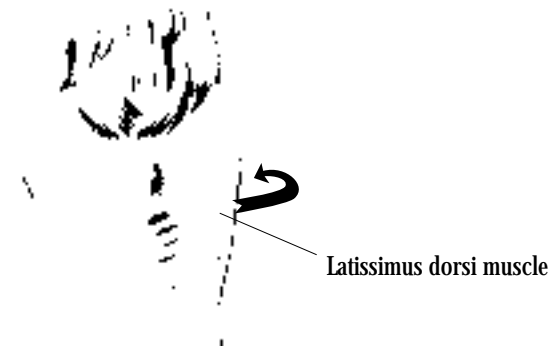
Reach for Recovery

You may wish to contact the American Cancer Society and their “Reach for Recovery” group. They can provide you with additional information, suggestions, and guidance. To contact the group nearest you, call (800)227-2345.

Breast Prostheses

Breast prostheses (external breast forms) are available for women who have had mastectomies or large lumpectomies. These may be helpful for women who decide against immediate breast reconstruction. These may also be helpful during the process of reconstruction, before all of the surgery is completed. Your benefits may entitle you to one prosthesis. Please ask your doctor for more information.

Latissimus Muscle Reconstruction



1. Back tissue flap removed and tunneled under skin.



2. New breast shape formed from tissue flap.

Latissimus Muscle Reconstruction

Advantages

The operation is generally performed in one stage, unlike tissue expander implant reconstruction.

The scar on the back that results from this operation can sometimes be positioned so it is hidden beneath the patient's bra, where it is less visible.

There is less disability associated with taking the back muscle when compared to the abdominal muscle. The muscle loss is generally not very noticeable.

There is less risk of losing transferred tissue (compared with using abdominal tissue) because the blood supply through the back muscle is better.

The shape of the reconstructed breast can be more natural, with more of the natural droop, than the shape of the standard implant reconstruction.

Disadvantages

An implant is almost always required (with all of disadvantages of implant surgery, such as hardening and leakage).

There will be a scar on the back which could be very long or wide.

The surgery is 4-6 hours, hospitalization is 3-5 days, and there is a 4 week recovery period.

There may be a noticeable donor site defect on the back where the muscle has been removed.

There is some loss of function associated with taking the back muscle. This is most noticeable during certain activities, such as golfing, tennis, or swimming. These activities can still be performed, but may be slightly more difficult.

The transferred muscle may be visible as it moves, causing rippling movements.

Fluid can accumulate in the back area even after drains have been removed. It may require periodic draining with a needle until the fluid resolves.

There is a small risk of losing some or all of the flap tissue. This risk is lower than with TRAM flap.

Personal Questions

There are many decisions that you need to make as you consider breast reconstruction:

Should I have a mastectomy, or a lumpectomy with radiation?

This question applies only to women who have been diagnosed with breast cancer but have not yet had surgery. A total mastectomy is surgical removal of the entire breast, including the cancerous tissue. A lumpectomy removes the cancerous tissue, along with some surrounding breast tissue, often leaving the breast looking nearly as it did before; this procedure is almost always followed by radiation therapy.

In many cases, your cancer surgeon may recommend that a breast-sparing operation is not a safe choice for you, and that a total mastectomy is necessary because the cancer is too large, it is in numerous areas of the breast, or for other reasons.

Should I choose reconstruction after a mastectomy?

Most women who have had a mastectomy and who are in good health can choose to have some form of breast reconstruction.

Either choice may be the right one for you. Women who choose to have breast reconstruction recognize that this is a very personal decision. But you should not feel obligated or pressured to have reconstructive breast surgery if you do not feel it is the right choice at this time.

Some reasons women give for choosing to have a breast reconstruction are:

- to improve their appearance without the need for an external prosthesis
- to allow them to look more natural without clothes
- to help replace the missing breast with a mound that can be quite similar to the form and shape of a natural breast

Some reasons that women give for deciding against breast reconstruction are:

- feeling comfortable with their appearance after surgery and finding that an external prosthesis is all they need to look good in clothing or a bathing suit
- not wanting to have additional surgery or scars
- feeling that the quality of the results isn't worth the effort
- general health concerns

Your doctors may advise against reconstruction, depending upon your general health, your age, your body type and the kind of cancer treatment you will have.

Should I begin reconstruction at the time of mastectomy or later?

If your doctors agree that immediate reconstruction is an option for you, there are advantages to having reconstruction *at the time of mastectomy* and advantages to having it *later*. This can be a very personal decision.

- Beginning reconstruction at the time of mastectomy speeds up the reconstruction process and can decrease the number of operations.
- Many women find that there are too many decisions to make at the time of a mastectomy and they prefer to decide about reconstruction later. This is a very reasonable choice. Your options for reconstruction remain open, and reconstruction can usually be performed at a later time.
- In some cases, your doctors may recommend against immediate reconstruction for medical reasons.

See additional discussion of timing of reconstructive surgery on page 6.

Implant & Tissue Transfer

Since it usually involves an implant as well as tissue transfer, this operation has many of the disadvantages of both.

When an implant is needed, the patient has the risks associated with implants, such as hardening and leakage. As in TRAM Flap Reconstruction, the operation involves scarring and risks that part of the flap will not survive. The patient may also have a mild loss of function in the back muscle when tissue is transferred from the back to the chest.

Who Should Have This Procedure

This procedure may be used for women who have enough fatty back tissue that they will not need an implant after the surgery.

For women who smoke, this operation may be done more safely than the TRAM flap operation.

It may be used for women whose abdominal tissue cannot be used because of scarring or size.

It may be used after women have had radiation treatments.

It may be used to bring in additional tissue to revise a previous implant or TRAM Flap reconstruction.

Latissimus (Back) Muscle Reconstruction

Reconstruction using the latissimus (back) muscle is done less commonly than other procedures, but it is useful in selected cases.

Latissimus muscle reconstruction involves moving a large muscle from the back, the *latissimus dorsi* (known as the “lat muscle”), and its overlying skin to the breast area.

The procedure is a 4-6 hour surgery done under general anesthesia. A section of tissue is removed from the back, pulled under the skin, through an opening at the chest, and attached to form a breast-shaped mound.

The Procedure

- 4-6 hour surgery with general anesthesia.
- Patient is hospitalized for 3-5 days.
- Recovery at home up to 4 weeks before regular activities (including work, childcare and housework) may be resumed.
- An oval-shaped segment of tissue (skin and fat) is removed from the back.
- The tissue remains connected to its original blood supply during and after the surgery. On its under-surface, the tissue remains attached to the *latissimus muscle*.
- The back tissue is then tunneled under the skin and pulled through an opening on the chest.
- The back tissue is now folded and shaped into a new breast-shaped mound.
- An implant is often needed beneath the transferred tissue, since the amount of muscle and tissue that is transferred in this surgery is usually not sufficient to reconstruct a breast. In some patients, there may be enough fat present over the back muscle to reconstruct a breast without using an implant.

What type of reconstruction should I choose?

You will make this decision, in consultation with your doctors, after you have answered all of the previous questions. We review your choices more fully in the following pages.

What Breast Reconstruction Can (& Cannot) Do

We use the term “breast reconstruction” to describe surgery after a mastectomy, although the plastic surgeon is not truly reconstructing or rebuilding a breast. Rather, what is created is an imitation breast.

While surgeons would always like to reconstruct a breast that will look and feel identical to the opposite breast, *that is almost never achieved*. What usually can be achieved is a mound of the approximate size and shape of the opposite breast, that will allow the woman to dress without requiring a large external prosthesis placed in her brassiere.

The “reconstructed breast” never has the exact look, feel, or shape of a natural breast. The reconstruction is frequently more rounded or flatter than a natural breast, and may have scars that are extensive or prominent. A reconstructed breast will have little or no feeling, and it will not function for breastfeeding. A reconstructed nipple will not have any feeling and it will not become erect.

Usually, after the reconstruction is finished, when revisions and cosmetic touch-ups are complete, there will be some differences between the reconstructed breast and the other breast that can be seen in certain types of revealing or tight-fitting clothing. Sometimes it is still necessary to wear some padding in one bra cup.

Results Can Vary

The results that can be achieved will vary from patient to patient, and will depend to a large extent on:

- the quality of the individual tissues
- the amount of tissue removed during the mastectomy
- the shape of the opposite breast, and
- individual healing characteristics.

Most patients do achieve a result that looks good when wearing a bra, and fair to good without clothing. However, a perfect match to the opposite breast, identical in texture and appearance under all conditions, is unlikely.

Your ultimate satisfaction with the quality of the reconstruction will depend to a large extent on your expectations, and the expectations of your family and friends. The final appearance of your reconstruction will be different from your original breast—although the reconstructed breast will usually be better than an external prosthesis and better than no reconstruction at all.

Immediate Versus Delayed Reconstruction

You may be able to begin your breast reconstruction surgery at the time of your mastectomy, or it may be done afterwards.

Be aware that *breast reconstruction is more a process than a single operation*. It usually requires one initial larger operation, followed by one or two smaller procedures. Therefore, you should *not* expect that having your first procedure performed at the time of your mastectomy will result in an “immediate” result, although it can speed up the process of reconstruction.

Not everyone begins the reconstruction process at the time of mastectomy. There may be medical reasons for waiting, and some women prefer to delay the decision for other reasons. Nothing is lost by waiting for reconstruction. If you choose to wait and have reconstruction later, all of your previous options will probably still remain.

- Using microvascular surgical techniques and a powerful surgical microscope, tiny blood vessels of the flap are connected to blood vessels in the chest area to provide a blood supply to the tissue.

Who Should Have This Procedure

The operation can be done for women with certain types of abdominal scars that would have disqualified them from having a conventional TRAM Flap Reconstruction.

Free TRAM Flap Reconstruction (Compared With TRAM Flap Reconstruction)

Advantages

The risk of losing small parts of the flap due to scabbing is somewhat reduced.

There may be slightly less risk of abdominal weakness, hernias, and bulging.

It is less likely that synthetic mesh reinforcement will be needed.

Disadvantages

It requires a longer surgical time of 6 to 8 hours.

There is a higher risk of complete flap loss, due to the clotting in the small blood vessels that are surgically connected.



Other Types of Reconstruction

These special types of surgery are usually reserved for cases when other types of surgery are not appropriate or safe.

“Free” TRAM Flap Reconstruction

In some cases, your physician may suggest a variation of the TRAM flap operation known as a **Free TRAM flap**. This operation is similar to the TRAM flap procedure, but the flap is completely detached from the body. Then the blood vessels are attached to small blood vessels in the chest area, using microsurgical techniques.

The procedure is a 6-8 hour surgery done under general anesthesia. A section of tissue is detached from the abdomen and attached at the chest to form a breast-shaped mound. Microsurgical techniques are used to attach the tissue and chest blood vessels.

The Procedure

- 6-8 hour surgery with general anesthesia.
- Patient is hospitalized for 3-7 days.
- Recovery at home up to 4 weeks before regular activities (including work, childcare and housework) may be resumed.
- Involves considerable abdominal discomfort.
- An oval-shaped segment of tissue (skin and fat) is detached from the abdomen.
- The tissue that is removed from the abdomen is similar to tissue removed in a “tummy tuck” operation, and often results in a flatter abdomen. It also produces abdominal scars.
- The abdominal tissue is now folded and shaped into a new breast-shaped mound on the chest.

When surgical breast reconstruction is done as part of the same surgical procedure as the mastectomy, it is often called an “immediate” breast reconstruction. Compared with having a separate reconstruction, “immediate” reconstruction speeds up the process of reconstruction and requires a shorter recovery time, overall.

If you do not have an immediate reconstruction, you may choose to have reconstruction done at any time after the mastectomy, following an initial recovery period of several months. As long as you remain in good health, your reconstruction may be done years after a mastectomy.

For women having a common form of breast reconstruction, using abdominal tissue to form the new breast, there may be a slight improvement in the results and a slight decrease in healing problems with immediate reconstruction, as compared with delayed reconstruction.

For women having reconstruction with an implant, complications such as infection and bleeding, resulting in loss of the implant in the immediate post-operative period, are slightly higher in those patients having immediate reconstruction, compared with those patients having delayed reconstruction. There may also be a higher incidence of implant firmness with immediate reconstruction.

If a woman experiences any healing problems with a breast reconstruction, that could postpone necessary chemotherapy or radiation therapy. In certain cases, your doctors may recommend delaying reconstruction until radiation or chemotherapy is completed.

Types of Breast Reconstruction

RECONSTRUCTION WITH AN IMPLANT

Saline-Filled Implant

First a tissue expander (balloon-like device) is placed under the skin, and inflated weekly to stretch the skin. Then the expander is replaced with a silicone-rubber implant that is filled with saline (salt water).

Not appropriate for women having radiation therapy.

For details see page 11

RECONSTRUCTION WITH NATURAL TISSUE

TRAM Flap Reconstruction

Uses excess abdominal tissue to form a breast shape. Tissue remains attached to the abdomen to maintain blood supply.

Not appropriate for women who smoke, are overweight or extremely thin, or women who have had certain types of abdominal surgery.

For details see page 16

SPECIAL TYPES OF SURGERY

Free TRAM Flap Reconstruction

Uses excess abdominal tissue to form a breast shape. Tissue is separated from the body and attached to chest blood supply.

Generally reserved for certain cases where regular TRAM Flap surgery cannot be done.

For details see page 22

Latissimus Muscle Reconstruction

Uses excess back muscle to form a breast shape. Tissue remains attached to the abdomen to maintain blood supply.

Generally reserved for certain cases where other procedures are not appropriate.

For details see page 24

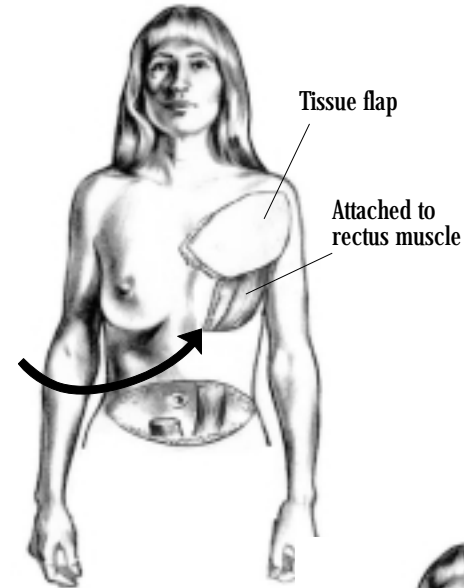
Microvascular Reconstruction

Uses thigh or buttock tissue for reconstruction.

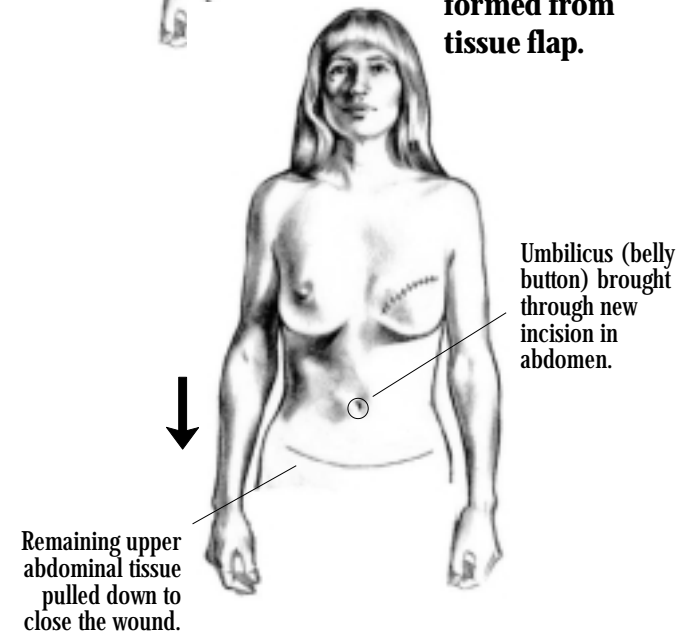
Generally reserved for certain cases where other surgery cannot be done.

For details see page 28

4. Tissue flap tunneled under skin and pulled through chest opening.

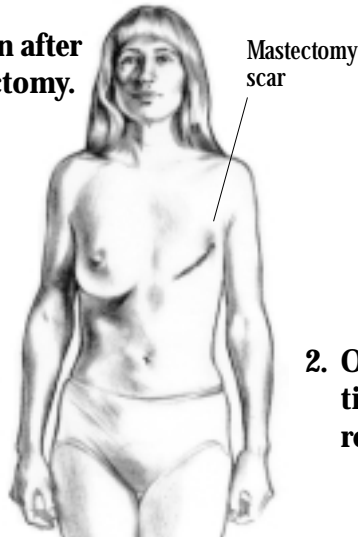


5. New breast shape formed from tissue flap.



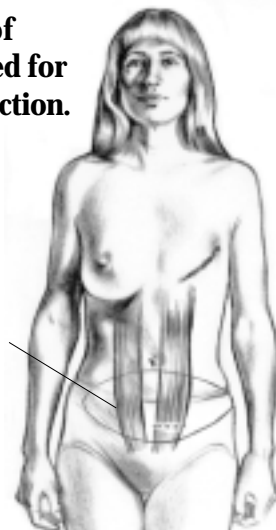
Natural Tissue (TRAM Flap) Reconstruction

1. Woman after mastectomy.



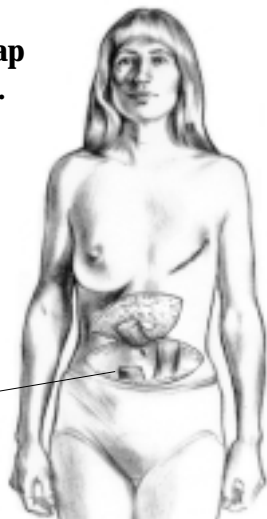
Mastectomy scar

2. Outline of tissue used for reconstruction.



Rectus muscles (long abdominal muscles) remain attached to tissue

3. Tissue flap removed.



Muscle divided so that tissue flap can be moved to chest area

Advantages

Disadvantages

Simpler, less painful surgery than reconstruction with natural tissue.
Consists of two outpatient procedures.
Follows original mastectomy scars.

Women may experience problems with the implant at a later time.
Breasts tend to have less projection.
Uncertain implant life expectancy (10-15 years).
May leak long after surgery.
Hard scar tissue may form.

Women are less likely to experience problems with the reconstruction at a later time.
Natural feel from own skin. Results in a "tummy tuck" for patient.
May be used for women having radiation therapy.

More complex and more painful than surgery with an implant.
4-6 hour surgery, 2-5 day hospitalization, 4 week recovery.
Additional scarring on abdomen. Loss of abdominal strength. Possible hernia.

Natural feel from own skin. Results in a "tummy tuck" for patient.

6-8 hour surgery, 3-7 day hospitalization, 4 week recovery.
Higher risk of complete flap loss due to clotting of small blood vessels.

Scar can be hidden under bra strap.

Usually requires an implant (and consequent complications of implants). 4-6 hour surgery, 3-7 day hospitalization, 4 week recovery.
Leaves a scar on the back.

Allows for reconstruction where alternatives are not appropriate.

Tissue texture is not as good as abdominal tissue. 6-8 hour surgery, 3-7 day hospitalization, 4 week recovery.
Higher risk of complete flap loss due to clotting of small blood vessels.

Common Types of Breast Reconstruction

The most common types of breast reconstruction are *Implant* and *Natural Tissue Reconstruction*.

Implant

A silicone-rubber implant filled with saline (saltwater) is placed under the skin.

Overall, this surgery is simpler and less painful, but women may experience problems with the implant at a later time.

Natural Tissue

Most commonly this is a *TRAM Flap Reconstruction*, using excess abdominal tissue to form the breast mound.

Overall, this surgery is more painful and more complex, but women are less likely to experience problems with the reconstruction at a later time.

TRAM Flap Reconstruction (continued)

Advantages

Both breasts can be reconstructed at the same time, using both muscles to create two breast mounds.

Chemotherapy and radiation therapy do not significantly interfere with TRAM Flap Reconstruction.

Disadvantages

A bulge may be visible in the upper abdomen where the lower abdomen muscle is placed or in the lower abdomen.

Patients may have complications in the abdominal region, including:

- risk of hernia, abdominal wall weakness or bulging, infection, scabbing or loss of some remaining abdominal skin
- displacement of the belly button up to 1" to the side, or removal of the belly button

Part of the flap may not survive and may require trimming or revision. Occasionally tissue loss results in a breast that is too small. Total flap failure is rare, but possible.

- Portions of fat may become hard or lumpy. These areas may soften over time, but an operation may be required to remove a lump. The skin may scab in some areas where it does not survive.
- Fat inside the flap may die and liquefy or drain.

The breast flap will usually not develop normal sensation, though some women develop some sensation over time.

If bleeding occurs, it can affect the final appearance. An operation may be needed to stop bleeding or to remove accumulated blood.

If a TRAM Flap reconstruction has been done previously, there will not be excess tissue available for a second breast reconstruction at a later time.

TRAM Flap Reconstruction

Advantages

Reconstruction can sometimes be completed in one stage. However, revisions and touch-ups are usually needed.

Once the reconstruction is completed, there are no concerns about implants leaking or hardening.

The breast may feel more natural because it is made of skin and fat, more similar to the original breast.

If the patient had excess abdominal tissue, some or all of it will be removed by this procedure. This is similar to a “tummy tuck” operation, and sometimes results in a flatter abdomen.

Disadvantages

Requires a longer hospital stay (2-5 days) after surgery than implant reconstruction. Most women require a 4-week recuperation.

The surgery involves considerable pain and discomfort at the abdominal incision.

Requires additional scars: one large scar across the lower abdomen; one scar around the umbilicus (belly button); and a scar on the reconstructed breast. There may be a color difference between the transferred tissue and the surrounding skin.

There is some permanent loss of strength in the abdominal wall, though this is usually not troublesome. Using two muscles further weakens the abdomen. This loss of abdominal strength can put more strain on the back muscles, leading to back pain.

Implant Reconstruction

The Procedures

In the first procedure, a *tissue expander* (balloon-like device) is placed under the skin. This may be done as part of reconstruction, or later, in an outpatient operation.

Next, the expander is inflated weekly, using *sterile saline* (saltwater) injections, to stretch the skin. This is done in the doctor’s office.

In the second procedure, the expander is replaced by a *silicon-rubber implant* that is filled with saline. This is done in an outpatient operation.

Tissue Expander (First Procedure)

- 2-hour surgery (a part of immediate reconstruction, or it may be done later, in delayed reconstruction, as an outpatient procedure).
- General anesthesia is required.
- An inflatable balloon-like device called a tissue expander is placed under the muscle and skin of the chest.
- A drain may be placed at the time of surgery that will be removed after a few days.
- Patient usually returns to work within 1 week.

Saline Injections (Office Visits)

- Weekly office visits for about 8 weeks.
- Saline is injected into the expander to slowly inflate the balloon and gently stretch skin and muscle.
- Injection process lasts 2-3 minutes and is described as a feeling of gentle pressure. This process is generally not painful and generally it is not very uncomfortable.
- Stretches the skin to about twice the size of the other breast.

Implant Placement (Second Procedure)

- 1- 2 hour outpatient surgical procedure.
- Balloon is removed and replaced with a saline breast implant to match the other breast.
- General anesthesia or local anesthesia with supplemental sedation. Little or no discomfort.
- Patient usually returns to work within 1 week.

Types of Implants

Implants today are made of a firm *silicone rubber outer shell*, which is filled with *sterile saline* (saltwater used for intravenous fluid). If the implants should leak at a later time, only safe, sterile, salt water leaks out, and it is safely absorbed by surrounding tissues. *There is currently no evidence of any systemic medical problems associated with saline breast implants.*

There are a variety of different saline-filled implants available. Your surgeon will let you know which type is best suited to your body size and shape.

Implants commonly used today are *not* filled with silicone gel. It is also important to note that research to date has *not* shown that women with breast implants have a statistically significant increase in problems or disease.* However, research into these products continues.

Capsular Contracture

One problem that occurs for approximately one in three women with implants is the appearance of a capsule of scar tissue around the implant that becomes noticeable, visible or even

- In some cases where additional abdominal tissue is needed, both abdominal muscles may be used, in order to double the blood supply to the tissue flap.
- A sheet of synthetic mesh material may be used to reinforce the abdominal wall after the muscle is removed. This type of mesh is frequently used in patients who have routine hernia repairs.
- The abdominal tissue is then tunneled under the skin and pulled through an opening on the chest.
- The abdominal tissue is now folded and shaped into a new breast-shaped mound.

When a Transfusion Is Needed

In rare cases, a blood transfusion may be needed.

If your doctor anticipates that there is a significant risk of major bleeding, you would be offered the opportunity to donate your own blood in advance. Transfusions involve the risk of transfusion reaction and rarely, the risk of acquiring life-threatening infection.

Who Should Not Have TRAM Flap Reconstruction

Women who smoke or who have circulation problems are not good candidates for TRAM Flap Reconstruction, because their tissue is less likely to survive the surgery than in women without these problems.

Women who are extremely thin may not have enough tissue to allow this type of reconstruction.

Women who are extremely overweight may not have a blood supply that can support a large flap of tissue.

Women who have had certain types of abdominal surgery may not be good candidates for this procedure, or may require other variations of the procedure.

* Reports of problems with silicone gel implants have been very low, statistically. Fewer than 1% of women with silicone gel breast implants have complained of medical problems such as generalized muscle or joint pains, fatigue, or symptoms of autoimmune diseases such as scleroderma. There is still no proof that these complaints are related to the implants. Currently, silicone gel implants are available only as part of special research studies.

Natural Tissue (TRAM Flap) Reconstruction

There are several methods of breast reconstruction that use a woman's own natural tissue. The most common of these uses a woman's excess abdominal tissue. This operation is called a TRAM Flap reconstruction.

A flap is a portion of tissue (in this case skin, fat, and muscle), that is moved from one area of the body to another. *T.R.A.M. Flap* stands for "transverse rectus abdominus muscle flap," referring to the abdominal muscle used in this operation.

The procedure is a 4-6 hour surgery done under general anesthesia. A section of tissue is removed from the abdomen, pulled under the skin, through an opening at the chest, and attached to form a breast-shaped mound. See illustrations on page 20.

The Procedure

- 4-6 hour surgery with general anesthesia.
- Patient is hospitalized for 2-5 days.
- Recovery at home up to 4 weeks before regular activities (including work, childcare and housework) may be resumed.
- Involves considerable abdominal discomfort.
- An oval-shaped segment of tissue (skin and fat) is removed from the abdomen.
- The tissue that is removed from the abdomen is similar to tissue removed in a "tummy tuck" operation, and often results in a flatter abdomen. It also produces abdominal scars.
- The tissue remains connected to its original blood supply during and after the surgery. On its under-surface, the tissue remains attached to the *rectus muscle*, which is a long abdominal muscle.

uncomfortable. This formation of scar tissue is called capsular contracture.

Capsular contracture can often be minimized by simple exercises. The woman moves the implant in each direction several times a day, for as long as she has the implant.

If, despite the exercises, scar tissue becomes problematic, it can be treated in outpatient surgery (a surgical scar release). In some cases the problem may recur, even after surgery. If capsular contracture is very severe or occurs repeatedly, the implant may need to be removed.

Who Should Not Have Implant Reconstruction

This procedure is generally not appropriate for women who have had, or will be having, radiation therapy (because radiation can damage the overlying tissue too much). If radiation becomes necessary later, the risk of complications, especially hardening of the reconstructed breast, increases significantly.

In some instances, in very thin individuals, a mild wrinkling may be visible over the surface of the breast in some positions.

If the woman gains or loses a significant amount of weight and if the natural breast gains or loses weight, the breasts may not match any more, since the reconstructed breast does not change size.

Implant Reconstruction

Advantages

The original mastectomy scar is used for the surgery. The reconstruction requires no additional scars.

The reconstruction may look very natural when viewed from the front and when in a brassiere.

Disadvantages

Breasts reconstructed with implants may be flatter and rounder and have less projection than natural breasts. The reconstruction tends to be positioned higher and has less droop than the natural breast. This difference is most noticeable to the patient as she looks down at her own breasts, though the breasts may look more similar when viewed from the front.

Implant Reconstruction (continued)

Advantages

Surgery can be done in outpatient procedures, with relatively little discomfort.

If the first procedure is done as an immediate reconstruction (with the mastectomy), then there is little additional discomfort in having the tissue expander placed. Consequently, there is relatively little disability or time off from work.

There is no tissue brought in from another area of the body, so there is no skin color mismatch.

In most cases, the implant texture is acceptable, but the implant may not *feel* quite as natural as a tissue reconstruction.

The skin over the breast will often have near-normal feeling.

Rarely, the permanent implant can be placed without requiring that a tissue expander be used to stretch the skin.

Disadvantages

Capsular contracture becomes a problem for approximately one in three women. A capsule of scar tissue around the implant can become noticeable, visible, or uncomfortable.

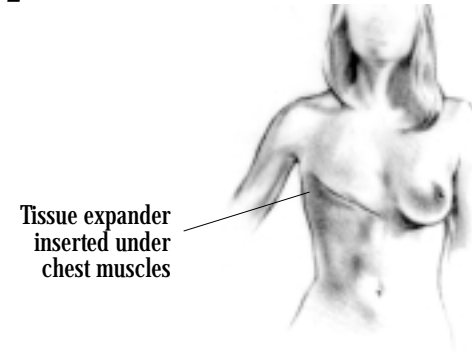
The tissue expander or implant can become infected and need to be removed. If this were to occur, the entire reconstruction would need to be repeated after the infection was resolved and the tissues had recovered. When infection occurs, it is almost always within several weeks of surgery.

Implants are not expected to last more than 10-15 years, but their life expectancy is unpredictable.

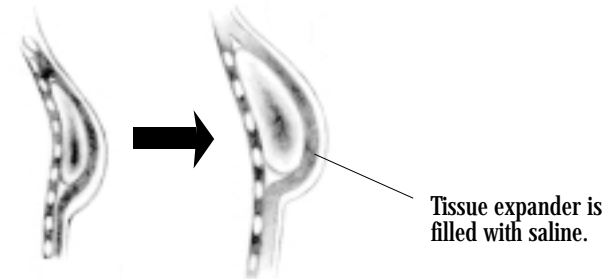
The implant may leak and may need to be replaced. It is not dangerous if the saline-filled implant leaks.

Complications such as infection, bleeding, and implant loss in the immediate post-operative period are slightly higher in those patients having an immediate reconstruction, compared with those patients having delayed reconstruction.

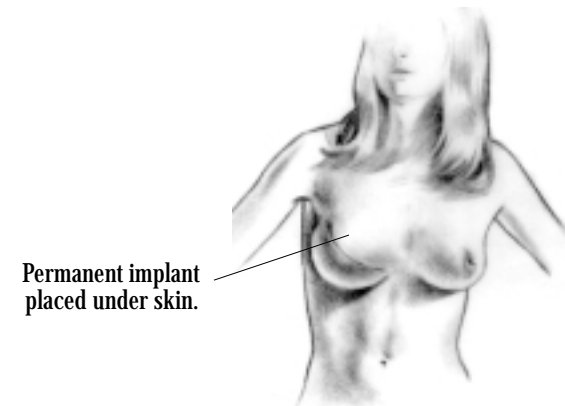
Implant Reconstruction



1. Tissue expander (first procedure).



2. Saline injections (office visits).



3. Implant placement (second procedure).