BREAST RECONSTRUCTION

Breast reconstruction following mastectomy or congenital absence of the breast can take several forms. The goal of reconstruction is to replace both the skin and volume (mound) removed at the time of the mastectomy. This will hopefully allow you to resume any pre-surgical activities and not be limited in the clothing you can comfortably wear. This can be achieved in several ways which will be addressed later, however it is important to realize that this process will only create a new mound in place of the removed, diseased tissue. It will ***not*** create a new, normal breast. There are several different procedures for breast reconstruction (and nipple/areolar reconstruction) and each of these results in a different appearance of the breast and each involves a different operative technique with its associated differences in operative time, risks and recovery period. The goals of reconstruction may range from the simple desire to eliminate an external prosthesis to an elegant reconstruction of the breast with near natural shape including nipple and areola reconstruction. The goals are very individual and the degree to which the breast will be reconstructed depends on your personal objectives.

The timing of reconstruction depends on the surgical procedure used. Whether done immediately at the time of the mastectomy or at a later date (delayed reconstruction) the final results will be comparable. Factors such as lymph node involvement, need for chemotherapy or radiation or personal desires to wait may delay certain types of reconstruction.

Although the ideal outcome of breast reconstruction is a breast mound and nipple which is identical to the other side, this may be an unobtainable goal. Factors such as the existing scar location and quality, the location of the tumor, whether radiation is planned, the type of surgical procedure and the appearance of the opposite breast all must be taken into account and will have an influence on the final result. The goal is symmetry in size and shape. Times exist when the other breast may be of insufficient size or may be too large to achieve symmetry with the techniques available. The breast also may have too much “droop” or ptosis. These conditions may necessitate adding volume, removing or reducing volume or lifting the breast to help achieve a more even match in size and shape. These factors can be addressed at the time of the initial consultation.

The specific type of tumor, your family history of breast cancer and your age are factors which may increase your risks of developing cancer in the opposite or contralateral breast. Although not a common occurrence, this risk should also be considered when planning reconstruction of the involved breast. There exist situations where bilateral or two sided mastectomies and reconstruction may be performed to treat or prevent cancer on the “uninvolved” side. Bilateral reconstruction can often result in good symmetry in size and shape. Concerns regarding bilateral breast disease should be discussed with your general surgeon.

If the uninvolved breast is not treated at the time of the mastectomy, it will need careful and frequent examination by your physician as well as by mammography. This will allow early detection of any abnormalities in this breast. In addition, although the breast tissue will have been

removed from the diseased breast, you are still at risk to develop a recurrence of the cancer on that side. This area should not be neglected and will also require frequent examination by you and your surgeon. The reconstructed side will not require mammography as the residual tissue is superficial and easily examined by physical examination alone.

There are several different surgical procedures that can be used to reconstruct a breast mound. These operations address the replacement of the missing tissue, both skin and volume, by different methods. Each of these will have benefits and risks unique to that operation. In addition, every surgery has inherent risks. These will be the same for each of the procedures and include:

-Bleeding and the potential need for additional surgery or a blood transfusion (and the possibility of blood borne infections such as hepatitis, HIV and transfusion reactions)
-Infection, which may require removal of the implant if one is used for the reconstruction
-Scars, which may take up to 12 months to fade and flatten. Sometimes these scars may widen, become discolored or raised and ugly.
-Numbness, which may be permanent and irreversible.
-Pain, which is usually temporary in nature, may be chronic and untreatable.
-Weakness, resulting from muscle utilization for reconstruction may limit your ability to resume vigorous activity.
-Blood clots (pulmonary emboli), which may travel to the lungs resulting in illness or rarely, death.
-Delayed healing, which may require additional surgery, prolonged local wound care and which may result in wider scars. ***SMOKING WILL INCREASE YOUR RISK OF THIS AND MOST OTHER COMPLICATIONS!***
-Persistent fluid accumulation, which may require aspiration and the need for drain placement/replacement.
-Hernias, which may require additional surgery.
-Asymmetry, which may require additional surgery or may be unable, even with surgery, to be corrected.
-Implant problems, which will be discussed later under implant concerns. *Three of the four operations require a breast implant to replace volume.*
-Death. Surgery of any type may result in anesthetic or surgical complications which may result in death.

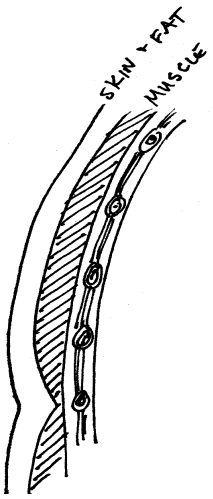
These potential problems may occur but every possible factor will be taken into consideration and all attempts will be made to reduce or eliminate these risks for your surgery.

The following discussions will be directed towards each reconstructive procedure. The operation you chose will be one of these and the others are presented for your information and comparison. You should remember that there is no one perfect operation for all patients requiring reconstruction. The method of reconstruction chosen will take into consideration your desires, the size and shape of the other breast, your work and recreational activity level , the type of tumor you have and your overall health. Please feel free to ask many questions and be sure to write them down so that we may address them at the time of your consultation.

TECHNIQUE #1

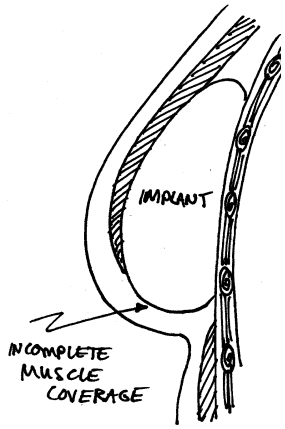
PLACEMENT OF AN IMPLANT *ONLY* TO REPLACE BREAST VOLUME.

This technique is very basic in that a prosthetic implant is placed beneath the chest wall skin and the large chest wall muscle – the pectoralis major – to add volume to the breast area. This is the easiest of the operations to undergo and the recovery time will be the shortest of all the procedures. The only scar will be the mastectomy scar as the implant can be placed through this incision. These are the *only* advantages.



When the breast tissue is removed at the time of the mastectomy, only a thin layer of skin and underlying fat remains. Through this layer courses a delicate network of blood vessels that keep the skin alive. Deep to this skin and fat layer, lying on the chest wall is the pectoralis muscle which is attached to the collar bone (clavicle), the breast bone (sternum) and at the lower breast area is attached to the ribs. This situation presents several limitations in the use of this technique.

First is that the muscle is relatively tight and does not completely cover the entire area of the chest wall that the breast tissue once covered. It is smaller than needed to completely cover an implant of sufficient volume for most women.
This limits the operation to women whose other breast is small or in bilateral cases where the desired breast volume will be small.



Second is the requirement of a foreign material: a breast implant. Over thirty years of accumulated breast implant experience both for cosmetic augmentation and reconstruction has revealed the fact that if the implant can be placed as deep into the body as possible it will have fewer complications. These complications can take several forms:

WRINKLING where the folds of the implant may be seen under the skin.

CAPSULAR CONTRACTURE which is excessive scar formation around the implant which may cause discomfort, deformity or firmness of the breast mound.

COLD INTOLERANCE due to the thin outer covering layer of only skin and fat on the lower portion of the implant.

SKIN EROSION which will lead to implant exposure and ultimately the removal of the implant. This may result in or from **INFECTION** of the implant. Once an implant pocket, or space around the implant, becomes infected and the implant is removed, it may not be able to be replaced due to the high risk of repeat infection.

All these complications are increased with this technique. In addition, there are **other complications** associated with implants that will be discussed later and in addition a description of the **different types** currently available (saline or silicone gel filled) and the **advantages and disadvantages of each** can be found later in the text.

Third is the fact that this type of reconstruction can only be done safely as a **delayed operation**. This is related to the tenuous blood supply of the skin and fat layers (flaps) and the possibility that there may be insufficient blood supply to allow the incision to heal . If this happens over the area where the implant has no muscle coverage, the implant will become exposed and infected.

Fourth is the inability of this procedure to yield adequate results in an area that has received **radiation treatment**. The effects of radiation cause delayed or inadequate skin healing and the muscle loses some of its ability to stretch to accommodate the implant.

Fifth is the increased incidence of hardening around the implant, also called **capsular contracture**. The interface between the skin/fat flap and the implant has an increased risk of causing this over formation of scar tissue. Complete muscle coverage will lessen the likelihood of this occurring.

Although this operation may seem tempting from the aspect of **short surgery time** (1.5 hours) and relatively rapid recovery time (3-4 weeks), the long term results are quite limited and the risk of short and long term complications is high.

As mentioned, this first technique for reconstruction **requires a breast implant** to replace the volume of the breast mound. Actually, three of the four operative techniques require an implant to replace the volume removed at the time of the mastectomy. The possible complications associated with implants have been partially listed on page 3. Listed here are several others.

Wrinkles or folds in the implant shell may occur and be visible or able to be felt beneath the overlying tissue. These conditions are increased in frequency if you are thin, small framed or there is a small amount of overlying tissue. Large implants or the formation of scar tissue (capsular contracture) may also distort the implant and cause folds or wrinkling. The placement of the implant beneath the muscle lessens the likelihood of these being felt, however, they may still exist in the lower portions of the breast. Surgical revision may be desired by some patients exhibiting folds or wrinkles, but some times this is ineffective. For some patients these features tend to diminish with time however reports of folds leading to thinning or erosion of the overlying tissue and subsequent implant exposure and removal do exist.

Calcification in the tissue surrounding the implant may also result from the operation. It is not known whether this is due directly to the operation itself or the effects of the implant. It is probably a combination of both factors. Calcification around the implant may lead to a hardened, distorted breast or may interfere with the early detection of cancer recurrence if the implant is placed in front of the pectoralis muscle, or if an implant is placed in the other breast to achieve better symmetry.

The implant for breast augmentation is a foreign object. Each patient's tolerance to surgery, medication or implantation with a foreign object may be different. There are currently multiple types of implants available for surgical breast implantation. The standard implant consists of a silastic (silicone rubber) outer envelope which is filled with a **silicone gel** or **saline** also known as salt water. Various forms of these implants have been available for over 30 years. There is also a variety of implants which use a combination of these two fills and these are called double lumen or bilumen implants. They consist of either an inner shell of saline or silicone and a smaller outer shell of the other material.

The outer shell of the implant can either be smooth or it can be textured. The **smooth walled implants** were the first to be developed and have been in use for approximately 30 years. The **textured implant**, like the name implies, has a rough surface. The characteristics of the rough surface are intended to break up the outer scarring and hopefully produce a softer, more natural breast. Recent reports in the literature have failed to show any benefit with this implant surface in preventing hardness when placed in a location beneath the muscle, the preferred location in breast reconstruction. In addition, the wrinkling with textured implants is more severe and more obvious. **Anatomic or tear drop shaped** implants were developed to try and mimic the shape of the breast when seated or standing. Again, recent studies show no difference between **round** implants and tear drop shaped implants as the round implants assume a natural position when you are upright. The disadvantage of the tear drop shaped implants lies in the fact that they are all textured (see above) and if malposition occurs, it is uncorrectable without surgery. They also have a higher rate of failure and resultant leakage.

Each implant has it's **advantages and disadvantages**. Many surgical choices exist and most surgeons take into account the current implant technology and their own training and experience with these implants to advise as to implant choice. The advantages of gel filled implants are that they come pre-sealed and the likelihood of contamination and infection is lower as they require less handling at the time of surgery. They are (in my opinion) the most natural appearing and feeling breast implant. Disadvantages are related primarily to the controversies regarding silicone gel. The inflatable (saline filled) implant again, has advantages and disadvantages. The advantage of having saline rather than silicone fill is that should rupture occur, the saline will be rapidly absorbed by the body. Saline is a substance found naturally within the body and causes no adverse reaction if leakage occurs. It is the same fluid run into the IV at the time of surgery. The major disadvantage with inflatable implants is the possibility of spontaneous deflation. This deflation can occur from normal wear along the edge of the implant or from the filling valve itself. Should this occur, rapid deflation and loss of volume results. This would require a second operation for implant replacement. The implant manufacturers list the **life expectancy of an implant** to be between **10 and 25 years**. They offer a **warranty** which will replace the implant. A silicone implant failure will require a general anesthetic to remove it and to remove the silicone containing scar capsule. A saline filled implant can be removed and replaced in the office facility under local anesthesia. The scar capsule need not be removed with a saline implant. Another disadvantage is that the saline implant has a slightly more firm feeling initially then do the gel filled implants. Folds or wrinkles are more commonly felt in saline implants than in gel filled implants.

Because of the foreign body characteristics of the implant there are several concerns directly related to the presence or consistency of this foreign body. The first is a natural tendency of any foreign implanted object to form scar tissue around it. This is true of a pacemaker, artificial knee or breast prosthesis. The unique thing about a breast prosthesis is that it is compressibleand the others are firm. This compressibility is desirable in that it mimics the natural appearance and feel of breast tissue. **ALL PATIENTS FORM CAPSULES OF SCAR AROUND THEIR IMPLANTS.** However each patients capsule will vary in degree ranging from thin to heavily thickened. Contractures of a fibrous capsule may occur independent of it's thickness resulting in discomfort, pain, excessive breast firmness, an implant which can be felt and/or may recreate wrinkles or folds in the prostheses shell. It may also create displacement of the prosthesis. Although the cause of **capsular contracture** is not known, several reports have implicated infection, blood collection, implant volume, patients own immune system, implant type, gelbleed or leakage, trauma and foreign body reaction as possible etiologies. There is no one common factor present in patients who develop hardening of their breasts. If the implant becomes displaced and/or uncomfortable treatment may be indicated. Currently the recommended treatments are surgical. With submuscular placement of the implants, approximately 10 to 15% of patients will develop some unnatural firmness. Of these, approximately 1/3 (5% of total) will desire some treatment. The rate of contracture is much higher, up to 80% if the implant is placed above the muscle. Saline has a lower contracture rate than silicone gel filled implants. As mentioned, treatment is currently surgical in nature. It usually consists of re-operation through the initial incision with removal of the implant, cutting the scar tissue and replacement of the implant. The chance of excessive capsular contracture for all patients with implants will increase in time and may necessitate re-operation. Occasionally there will be an underformation of this scar tissue which may result in migration or increased movement of the implant. This malposition is most commonly appreciated when lying on one's back when the implants settle to one side.

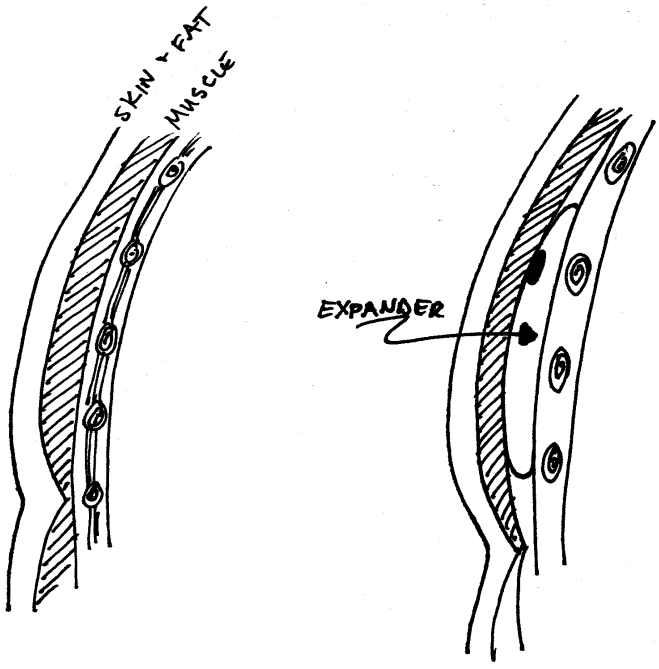
Silicone gel filled implants, in addition to the possibility of gross failure and leakage, will also experience what is called **gel bleed.** This is the *microscopic* leakage of gel through an intact implant shell. This bleed has been implicated in causing an increased immunologic response in some women. This was the basis for the **implant controversy of the early 1990's.** The implants were the center of an argument as to whether or not gel implants caused systemic illness and in particular, autoimmune diseases. Multiple scientific studies from such centers as Harvard Medical School affiliated hospitals, John's Hopkins, and Mayo Clinic have failed to show any significant increase in systemic illness in women with implants. The Institute of Medicine (a subsection of the National Academy of Sciences) released a report in June, 1999 finding that women with silicone breast implants are no more likely than the rest of the population to develop cancer, autoimmune diseases or neurologic illness. This was a 440 page report requested by Congress. The report was compiled by a panel of 13 scientists specializing in many different clinical subspecialties. In 1990, the FDA placed restrictions on the availability of gel implants: patients with reconstructive needs or patients requiring replacement of a gel implant were the only women allowed to receive them. Cosmetic augmentation patients were restricted to saline implants only. Women receiving gel implants are required to enter a nation wide study to follow and record implant data. In addition, many experimental studies both past and ongoing continue to show the safety of silicone gel implants.

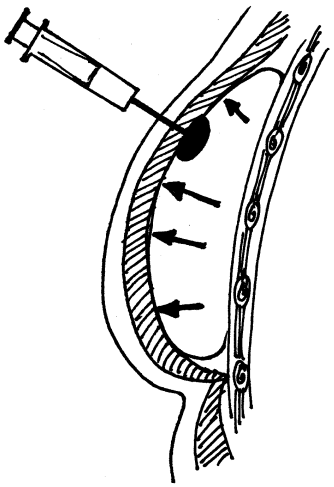
The American Society of Plastic and Reconstructive Surgeons (ASPRS) as well as various manufactures are continuing their ongoing research in this direction. IN SUMMARY, THE **FDA** HAS ELECTED **NOT TO REMOVE** THESE IMPLANTS FROM THE MARKET BASED ON THEIR PROVEN CLINICAL HISTORY AND LONG IMPLANTATION RECORD. THEY ARE HOWEVER, LIMITING THE AVAILABILITY OF THESE IMPLANTS ONLY TO WOMEN DESIRING BREAST RECONSTRUCTION (OR REPLACEMENT OF AN EXISTING IMPLANT). FOR THIS REASON, SALINE IMPLANTS OR SILICONE IMPLANTS MAY BE USED FOR YOUR OPERATION BUT I PREFER THE SALINE FILLED DUE TO THE EASE OF LEAK DETECTION AND REPLACEMENT. The **role of implants** in breast reconstruction was brought to light in review of a large national study. This pole showed an overwhelming acceptance of breast reconstruction and breast implants by women who have been implanted. What should a woman who is contemplating surgery for breast implants do? For now the best course of action is to discuss this situation frankly with her physician. It is perfectly reasonable to ask the physician to see the informational material that comes with the implant that describes the possible adverse effects. Most of this information has been summarized in this consent form. She needs to talk over the known local breast related risks as well as the less well understood non-breast related risks described above and to weigh these risk against benefits of the procedure. That way you can make informed decision about whether to proceed with the surgery.

TECHNIQUE #2

PLACEMENT OF A TISSUE EXPANDER FOR BREAST RECONSTRUCTION

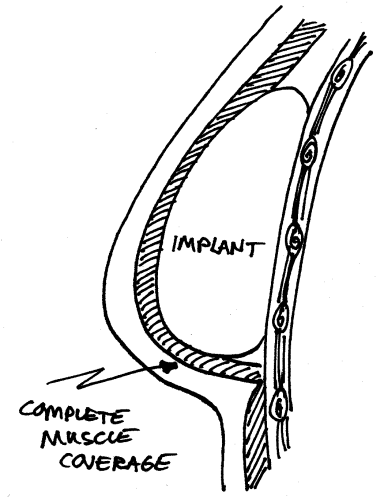
This technique attempts to overcome the limits of *Implant Only Reconstructin* by covering the implant with a complete layer of chest wall muscle. When the skin and muscle on the chest wall is inadequate in extent to allow placement of an implant directly, this skin can be expanded to allow placement of a larger implant. This technique starts with a **FIRST OPERATION** at which time a **TISSUE EXPANDER** (an empty balloon) is placed beneath the skin and muscle. Over several weeks, a series of injections expands that balloon and the overlying skin and muscle. At a **SECOND OPERATION** the temporary expanding device is removed and a permanent prosthesis similar to that described in the prior technique is placed. If you have not reviewed that section pertaining to implants and their limitations, please do so now. Placement of an empty devise allows the maintaining of the muscle attachments and eventually the complete





Following placement of the expander and after a short healing period, the in-office expansion injections can be started. This is accomplished by localizing the metal backed injection port and adding a volume of antibiotic solution and saline to the expander. This is usually done weekly and may take 6-8 weeks depending on the total volume to be injected. During this filling time you can resume normal activities depending on your overall recovery. Once expanded to the desired volume, the skin and muscle must have a period of time to stretch and overcome the natural tendency to contract to the previous state. This may take 2-3 months. After this time, a second surgery will be needed to remove the tissue expander as it is only a temporary device. A permanent implant of either saline or silicone gel will then be placed. The result should be an implant with complete muscle coverage with a size and shape comparable to you other breast.

The **advantages** of complete coverage by muscle are many. There is **less visible wrinkling** due to the additional thickness of the muscle layer. There is **less tendency to develop capsular contracture** which may distort the breast and make it feel hard or firm. There is less tendency to have the foreign body (expander) become exposed if there should be delayed skin healing. This makes **immediate reconstruction** safer and more predictable**.**



Other features of this operation include the fact that both **operations** are relatively short (1.5 hours) and can be done as **day surgery** or with one night in the hospital if done at the time of the initial mastectomy. **Recovery** is likewise shorter than the more involved procedures and most women are back to work in a couple of weeks and returning to full activity in 3-4 weeks. The expander and subsequent permanent implant can be placed through the mastectomy wound/scar making the need for additional incisions unnecessary. This **single scar** enables the skin color, texture and sensation to assume almost a normal quality with time. This is a good procedure for **bilateral reconstruction.**

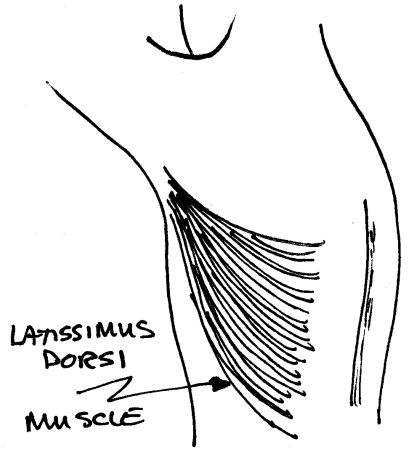
The **disadvantages** of this operation include the obvious need for an **implant** and the associated potential problems with any implant or foreign material. These also include **premature leakage** of the expander prior to complete filling. The **shape of the breast** is more hemispherical and often has fullness in the upper portion of the breast mound. The **long treatment time** which may approach 6 months. The **poor results in women who have received radiation** to the chest wall as part of their cancer treatment. This is due to the scarring and fibrosis caused by radiation. If chemotherapy is needed during the reconstructive phase of the treatment, the second operation will be **delayed until the chemo is finished** and you have recovered to allow better healing from the second operation.

This operation is best applied to patients with small frame size and smaller, less ptotic (droopy) breasts. It also is a good bilateral technique.

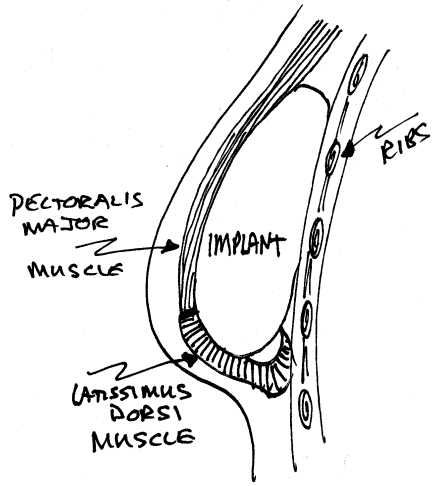
TECHNIQUE #3

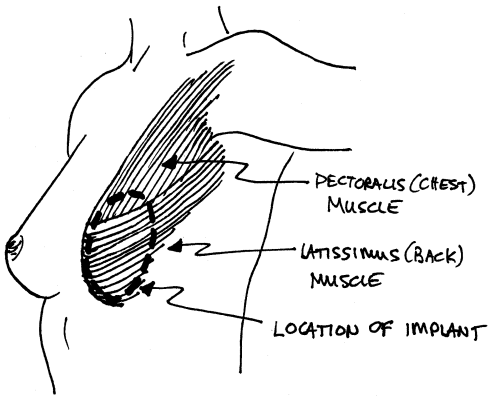
LATISSIMUS DORSI (BACK) MUSCLE *AND* IMPLANT RECONSTRUCTION

This technique, as are the others, is a technique for replacement of both skin and breast mound volume. The skin is replaced not by expansion as in the previously mentioned technique but by bringing skin and muscle from an adjacent area. In this case the skin is brought from a portion of the back, usually in the area starting in the back part of the underarm and coursing for a variable distance down towards the upper part of the hip bone. Occasionally this may be removed from a mid-portion of the back as shown in other brochures. This skin does not have blood supply of its own and can only be moved if blood supply is moved with it. This blood supply is provided by the underlying muscle called the latissimus dorsi muscle. Once the skin and overlying muscle have been replaced ,this technique requires breast fill replacement by an implant and thus has the setbacks associated with implant placement as mentioned previously. The skin and muscle unit, once cut free from the back, pivots around to the front of the chest where it is sewn to the chest wall muscle-the pectoralis major. The implant is then placed behind this muscle envelope.

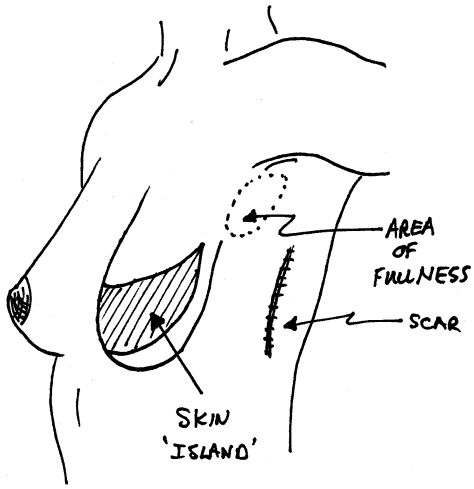


The **<u>advantages</u>** of this operation is that it is a **single operation** for breast skin and breast mound replacement. This can be done as an **immediate** reconstruction at the time of mastectomy or can be performed as a delayed procedure. Because of the additional muscle coverage which the latissimus muscle provides for the implant this tends to create a **softer** breast than does tissue expansion technique. This technique also develops a breast which may have **more ptosis or droop** to it than the tissue expanded breast. It is therefore a better technique for mimicking a more mature breast. This amount of droop can be achieved easier, however it is limited by the amount of skin that can be replaced. In addition to being an easier procedure to perform and recover from than the one which will be discussed subsequently **the blood supply to this flap is extremely healthy.** It is rare to have complications with the skin healing following reconstruction with this type of technique. For this reason it can be described as being **a more durable flap**, than the next reconstructive technique. It is a good technique for **bilateral reconstruction.**





The **<u>disadvantages</u>** of this procedure involve the removal of skin and muscle from the back. As far as the skin, the only resulting negative effect is the additional placement of a **second scar** in the area just beneath the arm on the flank or possibly across the back. Although techniques will be used to keep the scar to its shortest possible length and width, due to the constant respiratory motions and locations on the flank this scar has a tendency to widen. Often it is necessary to take a fairly wide piece of skin as well as a long piece of skin to replace skin removed at time of mastectomy. The length of the scar will be determined by the length of the mastectomy incision and the widening of the scar will be determined primarily by techniques of closure and the constant motion in the chest region. The **functional loss of the underlying muscle** usually is of no consequence in normal daily activity or normal nonprofessional sports related activity. There may be a **fullness beneath the arm** where the blood supply and thinner portions of the muscle are moved from the back to the front of the chest for reconstruction. This fullness will usually disappear with time, however, this may take six to twelve months to decrease in size. The muscle having a finite bulk will also be missed not only functionally but also cosmetically. This will give a relatively **concave appearance** to the outer portion of the back when viewed from directly behind. The skin once removed from the back and rotated to the front portion of the chest will be devoid of its sensory nerve supply. For this reason the patch of skin which now exits in the breast (in the area of the skin removed at the time of mastectomy) will have **no sensation**. Although this may be a nuisance at first this is usually adapted to quickly and has no usual long-term consequences. The patch of skin brought from the back will also usually be of slightly **lighter color** than the more reddish color of the upper breast skin. For this reason this patch is placed in an area which will be covered by a swimsuit or bra. This procedure is more difficult to perform and will entail **longer operative time** as compared to the tissue expansion reconstructive technique. In addition, time to **recover is longer** (4-6 weeks) and this technique will add one to three days of additional stay to your **hospitalization.**



This procedure can be done at the time of the mastectomy however the combined mastectomy and back muscle reconstruction **may be associated with blood loss requiring blood transfusion**. As a delayed procedure this may allow time for **self blood donation**, however if done immediately this may not be an option and although attempts will be made to eliminate the need for a transfusion, if health and safety require transfusion, one will be given.

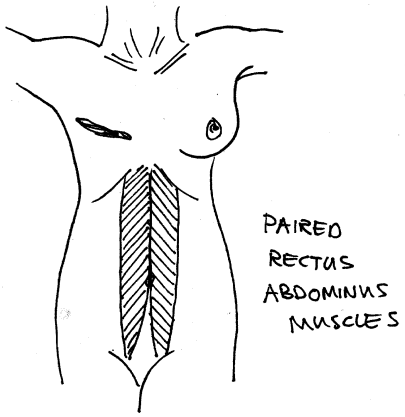
This muscle and skin flap rarely has enough bulk by itself to provide adequate volume for most reconstructive needs. Therefore an **implant is usually required**. You should review the implant related concerns as discussed earlier in section on technique #1

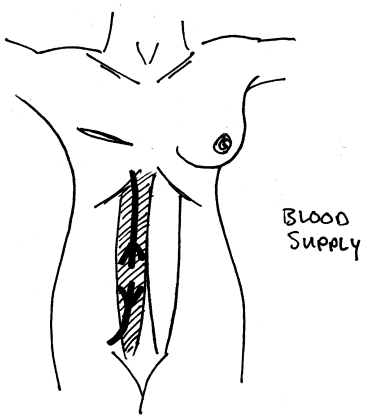
This is a one step procedure used for unilateral or bilateral reconstruction. It can be used to create a more mature, more ptotic or larger breast mound. The longer recovery and second scar are two of the drawbacks. As with the first techniques, this operation requires and implant.

TECHNIQUE # 4
TRANSVERSE RECTUS ABDOMINUS MYOCUTANEOUS FLAP (ABDOMINAL FLAP) RECONSTRUCTION

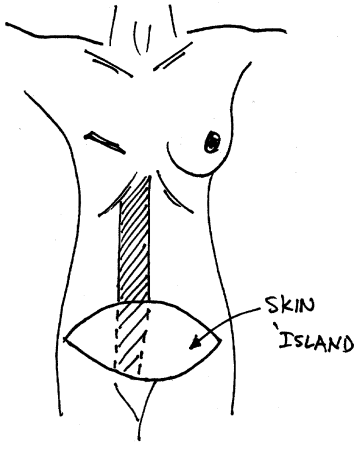
This technique allows breast reconstruction without the need for implant. This allows a more natural reconstruction which may avoid the possible complications associated with implant placement. It should be mentioned that NOT all women are candidates and the limiting factors will be discussed later.

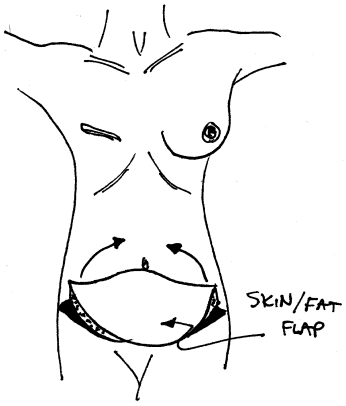
In this procedure, the skin and fill are both replaced by the tissues in the lower abdominal region. If there is excess skin available between the umbilicus and the top of the pubic bone this can be utilized for breast reconstruction. This is made possible by the fact that this tissue has blood supply within the muscles of the abdominal wall, the rectus abdominus muscles.

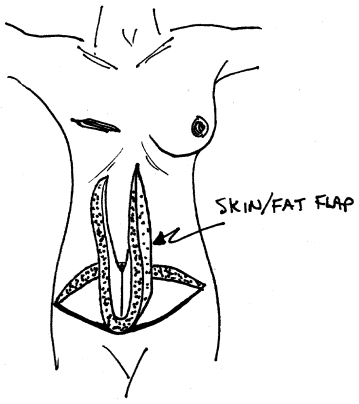


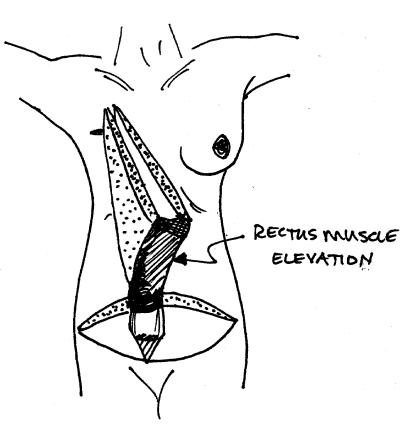


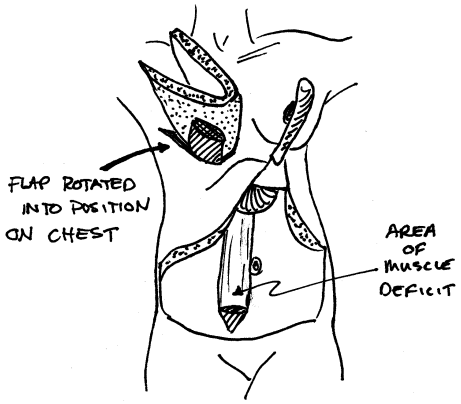
This skin as well as the underlying fatty tissue and muscle (the muscle once again being the blood supply to skin and fat) will be transposed from the lower abdominal region to the new breast region by tunneling beneath the upper abdominal skin. The shape variations possible with this procedure are numerous as the amount of droop that can be created with this is greater and can be tailored to better mimic your other breast. It may be necessary to completely detach this flap of tissue and reconnect the blood vessels with the use of microsurgery (see additional sheet on free tissue transfer).

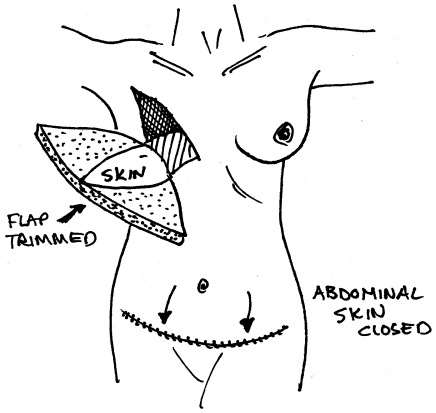


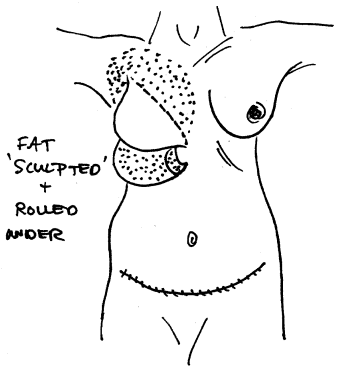


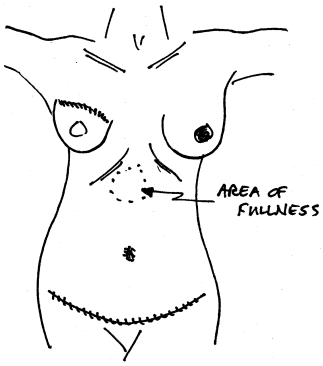












Closure of the muscle defect will require placement of a synthetic mesh to reduce the likelihood of hernia formation. Despite these precautions, a hernia may occur and may require additional surgery for repair. The abdominal skin closure is similar to that seen following abdominoplasty or tummy tuck. Problems with delayed healing, open wounds requiring local wound care and abdominal wall numbness are all potential problems unique to this procdure.

The **<u>advantages</u>** of this operation is that it is a **single operation** for breast skin and breast mound reconstruction. Additional advantages as mentioned above are the **great variations of shape** that can be reconstructed as well as the **more natural reconstruction requiring no implant**. The donor site (from where the skin, fatty tissue and muscle come) is usually in an area where there is excess in most women who are of age developing breast cancer and who may have had several children. The resultant removal of skin, fatty tissue, and closure of the abdominal area is, in essence, a tummy tuck or **abdominoplasty.** The scar will run from just above the pubic hair to about the area of the hip bones on each side. The flatness and tightness of the abdominal region often offset the scar.

The possibility of this procedure to remove large amounts of skin and fatty tissue make a very useful technique for reconstruction when **large amounts of skin and volume** are removed at the time of the mastectomy as with large or centrally placed tumors or where **radiation** may have damaged the skin beyond repair.

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The **disadvantages** of this procedure are as follows. **This operation is not for all women.** First you need an amount of skin and fatty tissue which will enable you to not only reconstruct a breast but also to allow closure of the abdominal wound or donor site without need for additional surgery. For this reason very slender women who may be short waisted may not be candidates for this procedure. In addition, due to the long route of blood flow through the muscle, through the fatty tissue and through to the edges of the skin, this **flap is not as durable as the back muscle flap** mentioned above. Although several types of vascular disease may limit this blood flow, the major factor for decreasing blood flow is ***smoking***. For this reason if you are unable to stop smoking for two weeks prior to surgery this procedure has increased risk of skin death, fat hardening, re- operation or infection. This does not mean you may not resume smoking at a later date but does mean that in the perioperative period no smoking will be allowed. (In addition you may be given medications to try to increase blood supply prior to and shortly following surgery). There are also cases where **previous abdominal operations** which you may have had may preclude consideration of this procedure. These may include gallbladder surgery and any abdominal surgery with an incision that is in the lower midline. Although these two operations do not by themselves preclude the procedure, it may make the amount of tissue available for reconstruction inadequate for total volume replacement. Other previous operations which complicate this operation would be any gynecologic procedure utilizing the incision based just above the pubic hair. This approach is often times utilized for elective c-sections or elective surgery such as hysterectomy.

As well as being the most sophisticated type of breast reconstruction, this is also the most time consuming, not only at the **time of initial surgery** but also as far **as recovery** is concerned. This operation takes 4 to 6 hours to complete (as compared to 2 to 3 hours for latissimus reconstruction or 1 to 2 hours for tissue expansion procedure). Due to the extensive surgery required in the abdominal region, the recovery will be prolonged as compared to the other types of operations. Because of the duration and extent of operation, a **blood transfusion** is usually performed. Surgery can often be scheduled to allow you to donate your own blood and set up an **autotransfusion.** In addition , you will be given iron before and after surgery to help restore your blood count. Because of the need for transfusion, immediate reconstruction procedures may require a several a delay of several weeks to allow sufficient time for donating your own blood if you are unwilling to accept blood bank blood.

As with the back flap, skin and muscle are removed. The muscle loss is not a major **functional loss** as there is an accompanying parallel muscle immediately adjacent to the one removed. The repair of the tissues over the muscle is usually adequate to eliminate the need for any additional surgery. The muscle that is removed and tunneled beneath the upper part of the abdomen to supply blood to the new breast mound will cause **a fullness in the area between the breasts** in the lower aspect. This will decrease with time as this muscle is no longer functional and will atrophy. Cases requiring **bilateral reconstruction** are much more involved due to the need for microvascular reattachment of the blood vessels to restore blood flow. Using one muscle to reconstruct one side leaves the other muscle to provide strength. Using two muscles, one for each side, would leave the abdominal wall in an extremely weakened condition. Therefore more extensive, alternate procedures must be employed.

In addition to the above stated problems with this operation, there may be areas of **numbness** of the abdominal wall or **areas of fullness** which may not be able to be corrected. The overall appearance of the abdomen is usually improved with this operation. There may be cases where the **umbilicus** is off center and this is related to the shifting of the deeper layers to the side from which the muscle is taken. This can often times be corrected however may require an additional operation to correct. The **scars** may become reddened or thickened and may widen with time. These scars may be longer or higher on one side than the other due to the shifting of tissues in early healing. There are also areas of the abdomen as well as the breast which may not have adequate blood supply. This may result in areas of **firmness in the underlying fatty tissue or areas of skin death**. These areas of fatty tissue may be uncomfortable or just feel hard. If they interfere with tumor surveillance, they may require biopsy or removal. Delays in the healing of the skin may require reoperation or extended local wound care.

OTHER TECHNIQUES

There is also a technique in which the upper portion of the gluteal muscle and upper buttock fat and skin are utilized to replace the breast. This is a lengthy operation requiring 6-7 hours and has a more tenuous blood supply. This requires microscopic re-connection of blood vessels which increases the chance for partial or total flap death. This technique is usually reserved for an end stage procedure when all other techniques are not applicable. Removal and utilization of skin, muscle and fat from the upper, inner thigh has been used in a similar fashion.

NIPPLE RECONSTRUCTION

Reconstruction of the nipple and areola is done following mound reconstruction. The color is added by application of tattoo dye and the nipple is formed by a local flap of skin that adds projection to the nipple. It is an office procedure with local anesthesia and has a rapid recovery.

The goal with any of these techniques is the greatest degree of symmetry possible. If bilateral mastectomies are performed the degree of symmetry that can be obtained is usually very good. Symmetry available with other techniques in unilateral or one-sided reconstruction is dependent upon your non-involved breast. Although each of these procedures can be performed with hopes of achieving the greatest degree of symmetry there are factors at the time of surgery and in settling of the breasts which may make additional skin excision or breast mound alteration necessary to achieve the degree of symmetry you desire. Often times this additional surgery can be performed at the time of nipple reconstruction which occurs 1 to 3 months following major breast mound reconstruction. Procedures to alter the other breast can be done at the same time if desired.

Breast reconstruction will require surgery to create a new breast mound. It should be the goal to achieve this outcome in the safest and most time efficient manner so that you can resume normal activities and get on with your life. It is not an overnight process and will require time and effort to achieve the goals you set. The results are variable, but should allow you to wear any type of clothing with confidence and to return to an active lifestyle.

In any operation there are risks to be considered. These include bleeding, infection, numbness, pain or discomfort, reactions to the medications or anesthetics, asymmetry, or failure to achieve your desired appearance. Efforts will be made to reduce the risks of this operation. You must help by following all preoperative and postoperative instructions and by keeping all scheduled appointments. You also must report any changes in your condition to the office so that treatment may be altered if necessary. ***If you smoke, your healing will be delayed and you increase the risk of a complication following your surgery.***

Any of the potential problems could result in the need for additional surgery and recovery time, time lost from work, possible hospitalization, financial loss, disappointment and/or psychological stress to you. Please take time to consider this operation carefully and to ask any questions you may have regarding the procedure, risks or healing.

This information is quite extensive and may seem overwhelming. I would encourage you to review the information again at your convenience and record your questions as you do so. My office is available for questions and to review photos of patients who have had the various procedures. Please feel free to contact the office at any time.