



Breast Reconstruction: a personal choice

PMH

dear patient...

This booklet was made for women who are thinking about breast reconstruction, either after a mastectomy as part of the surgical treatment of breast cancer or removal of all or some of the breast tissue and nipple as a preventative measure (prophylactic mastectomy) for a positive BRCA gene.

Breast reconstruction is a personal choice, and there are several options available. This booklet is made to give you information to help you decide, and it is to be used with information you will get at your consultation with a plastic surgeon.

This is a service that is covered under Provincial health Insurance for all Canadians.



Please visit the UHN Patient Education website for more health information:
www.uhnpatienteducation.ca

© 2011 University Health Network. All rights reserved.

This information is to be used for informational purposes only and is not intended as a substitute for professional medical advice, diagnosis or treatment. Please consult your health care provider for advice about a specific medical condition. A single copy of these materials may be reprinted for non-commercial personal use only.

Author: Dr. Toni Zhong and Dr. Stefan Hofer, UHN Breast Restoration Program

Created: 12/2011

Form: D-5810



a personal choice

Breast reconstruction is an option available to most women faced with the physical changes after a mastectomy. While breast reconstruction is an optional surgery, having a breast reconstruction can have important emotional and practical benefits. It is also important to keep in mind that breast reconstruction does not get in the way of the treatment of your breast cancer or watching for a return of cancer. It can, however, help to increase your confidence and self-image after mastectomy.

The decision to have breast reconstruction is a personal one, to be made by you and your loved ones. It is important to know that not all patients can get all types of reconstruction. You and your surgeon, depending on your particular needs, body type and previous treatments, will decide the type of reconstruction you undergo. This booklet will provide you with important information as you consider your options. You will learn about how breast reconstruction works, including the techniques currently in use, and what most women can expect in terms of recovery and results.

Many women wonder what a reconstructed breast looks and feels like. Will it look the same as my before cancer surgery? Will it match my other breast? Does the nipple have feeling? Unfortunately, while there are many techniques of breast and nipple reconstruction, none of them will be able to give you back the exact same breast that you had before. It is important to realize that after a mastectomy, the only tissue remaining on the chest wall is muscle and a thin layer of skin. Your surgeon will be creating an entirely new breast for you around your own tissues. The breast often feels and looks different from the original breast and procedures to make it look more similar to the opposite side may be needed as you will read below. Also, most women find the skin of the chest wall has less feeling after a mastectomy. Nerves that were removed during the mastectomy cannot be replaced and the loss of feeling is unfortunately lasting. Despite these limits, most women have breast reconstruction greatly benefit from the procedure. These benefits include feelings of regained wholeness and femininity, as well as practical benefits such as getting rid of the need for wearing a breast prosthesis.

There are 3 main steps in breast reconstruction:

1. Creation of a new breast shape
2. Touch-ups of the reconstruction, and possible modification of the opposite breast (lift, reduction) in patients having a mastectomy of one side (optional)
3. Creation of a new nipple and areola (optional)

In addition, there are 3 main types of breast reconstruction. The first type of reconstruction uses an implant filled with silicone gel to recreate the breast shape. An alternative is to build a breast mound using tissue taken from another part of your body. The last type of reconstruction combines the use of both taken tissue from your back as well as an implant. Your plastic surgeon and his/her team will discuss these methods with you and help you decide option is best suited for you based on your physical body and your treatment.

who can have reconstruction?

Most women who have had a complete or partial mastectomy (removal of all or some of the breast tissue and nipple) are candidates for breast reconstruction. If you have had, or will need radiation therapy to the breast, it may affect the type of reconstruction, and when you can have it. This will be discussed in greater detail later in this booklet. Some patients will need chemotherapy after their mastectomy, and this too can affect the timing of your reconstruction.



when to begin reconstruction?

Reconstruction can be either immediate (at the same time as the mastectomy) or delayed (at a later time). This decision may be made based on the characteristics and stage of your breast cancer, and will be made together with your breast surgeon. In many cases, immediate reconstruction is a reasonable and safe option.

Immediate Reconstruction

Immediate reconstruction has been shown to be a safe option for many women. In this type of reconstruction, the breast mound creation is done at the same time as the mastectomy. This can help minimize the negative effect that a mastectomy can have on body image and self-esteem. If you are interested in beginning reconstruction at the time of mastectomy, this must be coordinated with both your breast surgeon and plastic surgeon to discuss whether this is an option for your specific situation. If you may need

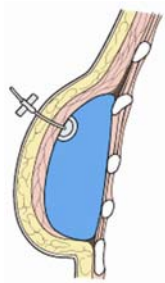
radiation therapy, it is often recommended to delay reconstruction until radiation treatment is finished.

Delayed Reconstruction

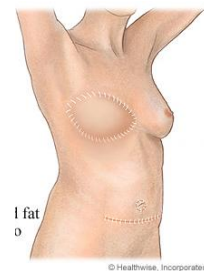
Delayed reconstruction is done several months or even years after the mastectomy and other cancer treatments are finished. Usually, we prefer to wait a minimum of 6 months following the end of surgery or radiation therapy to allow time for the chest skin to heal before doing breast reconstruction.

reconstruction methods

There are THREE methods of reconstruction:



A
Reconstruction
Using Implants



B
Reconstruction Using
Your Own Tissue
(Autologous
Reconstruction)



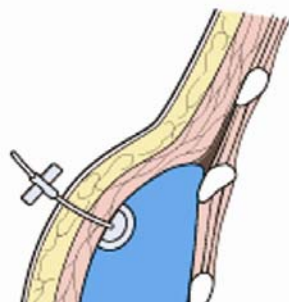
C
Reconstruction Using Your
Own Tissue Combined with
an Implant

implant reconstruction

This is generally done in two stages. During the first stage, placing a saline-filled (salt water) tissue expander under the skin and muscle of the chest creates the breast mound. Part of the skin as well as the breast tissue are removed during the mastectomy, and it is usually necessary to stretch the remaining skin and chest muscle before putting the permanent breast implant in. The temporary implants (tissue expanders) allow this gradual inflation using salt water injections. The expansion procedure is repeated about 6-8 times every one to two weeks during office visits.

At a minimum of 8-12 weeks after the last expansion, the tissue expander is removed and a permanent implant is put in its place. This is done under general anesthesia as an outpatient surgical procedure meaning that you will not need to stay over night at the hospital. The expanded skin is shaped into the final breast shape during this procedure. It is also convenient to reduce or lift the opposite breast at the same time if you like.

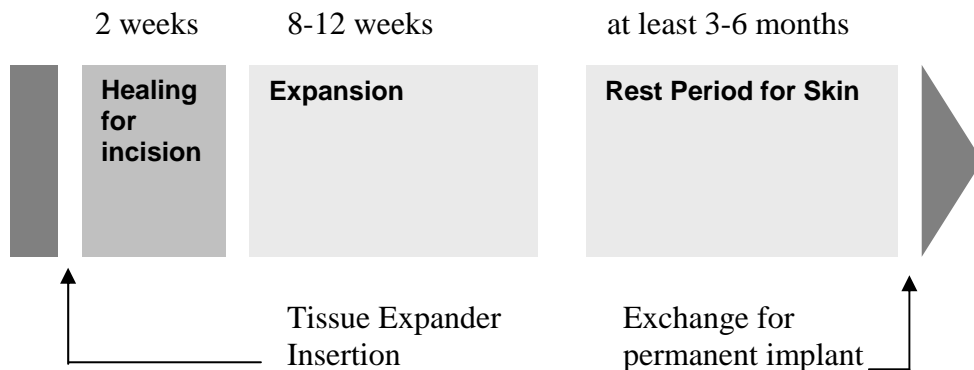
If your breast tissue has been or will be treated with radiation therapy, then an implant reconstruction alone is not generally recommended.



To prepare chest skin for insertion of a permanent breast implant, a tissue expander is placed under the chest muscle.

A needle is used to serially inject saline (salt water) into the tissue expander to gradually stretch the skin.

Tissue Expansion Timeline



One-stage implant reconstruction using Acellular Dermal Matrix

We are currently exploring the use of a new biologic material called acellular dermis (AlloDerm®, Lifecell Corp) in a single-stage direct to implant reconstruction technique. AlloDerm is approved by Health Canada for use in breast reconstruction but is available only in a few centres in Canada. We are currently enrolling patients in a randomized controlled trial comparing outcomes between one-stage AlloDerm assisted implant reconstruction compared to the traditional two-stage tissue expander/implant reconstruction. This trial is expected to take place from September 2009 to December 2012.



before



Lower pole implant/expander coverage



before



After bilateral skin sparing mastectomies and AlloDerm assisted one-stage implant reconstruction.

Breast Implant Safety

Both saline and silicone gel implants are safe and available for use in Canada. The chance that an implant would be “rejected” by the body is rare.

Saline implants are plastic shells made of silicone and filled with salt water. Reconstructions using permanent saline implants tend to result in an unnatural appearance and feel. The average life-span of saline implants is only around 10 years, which is shorter than silicone implants. Other than a few limited uses, we generally do not recommend the use of saline implants as the permanent breast prosthesis for reconstruction.

In the 1980s, there were thoughts that silicone gel may be associated with breast cancer and rare autoimmune disorders. Many studies published from reputable university centres world wide have found no significant evidence to support this cause and effect relationship. After a temporary ban on the use of silicone implants for breast augmentation by the United States Federal Drug Administration (FDA) in the 1990s, the use of silicone implants was approved in Canada in October 2006. The newer generation silicone implants contain thicker silicone gel that is more cohesive than the older versions and in turn are more “form-stable”.



Expectations and Results

The tissue expander can sometimes cause a feeling of pressure or tightness in the chest each time that fluid is added. Please note that the amount of fluid in your permanent implant selected by your plastic surgeon will be smaller than the final amount of your tissue expander. The most common side-effect of the implant procedure is the steady hardening of the breast due to capsular contracture. While breast implants themselves never harden, the body normally forms a capsule or layer of scar tissue around a foreign object, in this case, the breast implant. This is called “capsular contracture”. In most women, the scar tissue capsule remains soft and pliable, but in some women (10%) the capsule can be unusually thick resulting in a firm and painful breast. In these cases, surgery may be needed to ease these symptoms. Other complications of implant reconstruction include: infection (4%), implant malposition (3%), and wrinkling (2.5%). In general, an implant reconstructed breast will feel firmer than the natural breast, and it will always feel different from the natural breast.



before
Just following
breast biopsy.



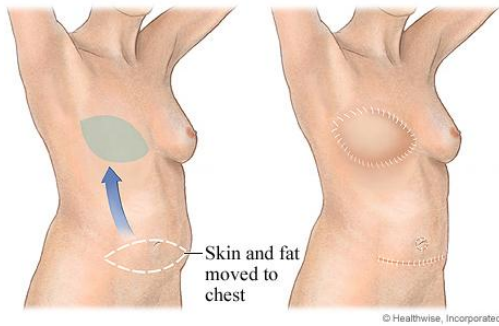
after
Right silicone implant reconstruction
and left mastopexy (lift).

autologous reconstruction

Abdominal Tissue Reconstruction

This method is the state-of-the-art reconstruction that uses your own abdominal tissue to construct a new breast mound. In our hospital, we use the fat and skin from your lower abdomen with the blood vessels to build the breast. This procedure is called a free DIEP flap (deep inferior epigastric perforator) breast reconstruction. In a small number of cases (10-15%), the blood supply to the skin and fat of the lower abdomen is not enough, and we will take a small cuff of the abdominal muscle to include more blood vessels. In very rare cases (1%), the entire abdominal muscle from one side is needed to guarantee adequate blood supply. This operation is called a free TRAM (transverse rectus abdominis myocutaneous) flap breast reconstruction. The decision to take a little or all of your muscle will be made during your operation based on your body type. The DIEP flap is the most advanced technique for autologous breast reconstruction because the abdominal muscles are left intact, which will maintain greater abdominal wall strength after your surgery.

The main risk of free flap techniques is that in 1 - 3% of patients, microsurgery fails to reconnect the abdominal tissue transferred to the chest. If this happens, the reconstruction will be unsuccessful. The transferred tissue cannot be saved and another method of breast reconstruction must be used at a later date. Women who smoke regularly, are obese or have conditions such as diabetes or clotting disorders have greater risk for microsurgery failure.



During the free TRAM or DIEP flap reconstruction, abdominal skin + fat with or without a small piece of muscle are removed and transferred to the chest where new circulation is established and breast shape is created.

Expectations and Results

Reconstruction using your own abdominal tissue results in a natural feel and look that will last forever. Your new breast will be fully built into your body and respond to changes in your body weight as would your natural breast.

When the skin from your abdomen is used as the donor tissue for breast reconstruction, the scar will extend from side to side at the level above your pubic hairline. This scar is usually slightly higher than the scar from a cosmetic tummy tuck. Although this method will remove excess skin and fat from your abdomen, it will not make your abdomen flat. You must always keep in mind that the main goal of this procedure is to reconstruct the breast following cancer surgery, not flattening of the abdomen.

Recovery from the abdominal flap reconstruction takes around 8 weeks. While most of the physical discomfort goes away within the first two weeks, there is lasting feelings of tiredness for the remainder of the rest period. It is common to experience fullness, tightness, or numbness of the abdominal skin. These symptoms will almost always improve over time, but may take up to 6 months or more.

In about 5% of women, especially those requiring both breasts to be reconstructed, there is an increased risk of abdominal hernia and bulge formation following the abdominal flap procedure. The risk of this is higher for the TRAM flap than from the DIEP flap procedure in which all the abdominal muscle is left intact. Your surgeon will describe to you in full detail what you can expect to experience in case of a bulge or hernia.

Occasionally after a DIEP or TRAM flap, there can be a phenomenon called “fat necrosis” in the newly reconstructed breast mound. That is when the fat from the abdominal flap does not receive enough blood supply in its new position and forms a scar as a result. It will look and feel like a hard lump under the breast skin, which can be alarming to some patients. Your plastic surgeon can usually tell the difference between fat necrosis and cancer recurrence when he or she examines you. If there is any doubt, then you will undergo a needle biopsy or breast imaging to arrive at a diagnosis.



before



after
Right DIEP flap and nipple areolar
reconstruction.

Gluteal Free Flap

One of the main reasons for the use of an alternate flap can be inadequate abdominal fat in a slender patient or previous abdominal surgeries that have disrupted the blood supply to the abdominal tissues.

The large amount of soft tissue of the buttock makes the free gluteal flap a reasonable option for creating a breast mound. Although this method is more limited in its ability to create a large breast, the reconstructed breast will be softer than an implant and will still have a more natural shape.

However, there is flattening at the buttock donor site, which can be noticeable in normal clothing.

Thigh Free Flap

The TMG (Transverse Myocutaneous Gracilis) flap is taken from the inner thigh region, in a similar distribution as in a cosmetic inner thigh lift. The gracilis muscle is used to provide the blood supply to this flap, its removal is not usually missed. This flap is used to create a smaller sized breast and almost no contour change in shape can be expected in the inner thigh following this flap.

In both the gluteal and thigh flaps, the amount of skin that can be taken is limited, so these techniques are mostly used for immediate breast reconstruction. Since tissue must be completely removed from the body and transferred to the chest, microsurgery is required to restore circulation to the transplanted skin and fat. The risk that the microsurgery will not be successful and all of the tissue will be lost is greater than in a TRAM/DIEP flap (3-7%), as these procedures are technically much more difficult.

autologous with implant reconstruction

This type of breast reconstruction requires the use of a smaller tissue expander/ implant with your own tissue because of the smaller size of your back tissue.

Latissimus Dorsi Flap

This flap borrows muscle and skin from the upper back. This tissue, while still partially attached to the body, is moved underneath the skin from the back to the chest. Although this method provides much of the needed skin, there is usually not enough tissue volume to form the breast mound by itself. Therefore, either a tissue expander or implant can be used to stretch the transferred muscle and skin from the back. At a later stage, the tissue expander is replaced with a permanent implant. This procedure is most commonly performed if you have had a mastectomy on one of your breasts followed by radiation and do not meet the criteria for a TRAM, DIEP, TMG or gluteal flap. This procedure is not recommended if you perform a lot of repetitive or strenuous overhead activities with your arms.



before



after

Right mastectomy and implant reconstruction and left latissimus dorsi with implant reconstruction.

selecting a technique

The best method of reconstruction for you depends on several factors.

These include:

- Size and shape of your breasts
- One or both breasts removed
- Amount of body tissue in the potential donor sites such as: abdomen, thigh, and buttock
- Whether or not you will or have received radiation therapy.

Your plastic surgeon will recommend one or more options to you based on these factors. It is important that you understand the major advantages and disadvantages of each method. Outlined next page is a brief comparison of implant and tissue reconstruction techniques.

Comparison table

	Implant/ Expander	Autologous tissue	Latissmus Dorsi/Expander
Surgery	2 separate shorter surgeries (2 hours)	1 longer procedure (4-8 hours)	2 separate procedures (3 hours and 2 hours)
In hospital	Day surgery or overnight stay	Average 5 days	2 night stay for 1st procedure, day surgery for 2nd procedure
Recovery	2-4 weeks following tissue expander insertion	6-8 weeks	3-4 weeks following 1st procedure, 2 weeks following 2 nd procedure
Scars	Mastectomy scar only	Mastectomy scar and scar at donor site	Scar on back, Flap insert at mastectomy scar
Shape and Feel	No natural sag, firm over time	Very natural feel, soft	More natural than implants alone
Opposite Breast	More changes needed to match implant	Fewer changes needed to match other side	Fewer changes needed to match
Complications	Breast feels more firm and less natural appearing with time	1%-3% risk of microsurgical failure with complete flap loss, abdominal weakness, bulge, hernia	Decreased strength with repetitive overhead activities. Seroma or ematoma in back at donor site.

other options

Matching the Opposite Breast

A reconstructed breast will not precisely match your natural breast. If you have large breasts, you may need a reduction of your opposite breast in order to match the reconstructed breast. If you have smaller breasts that sag, you may need a lift of the natural breast or augmentation with an implant to improve the shape and symmetry. Both reductions and lifts leave permanent scars on your breasts. The precise location of the scars and technique used to balance the breasts will be explained in great detail by your plastic surgeon when planning for this stage.



before
Just following breast biopsy.



after
Right mastectomy and implant reconstruction and left latissimus dorsi with implant reconstruction.

Reconstruction of the Nipple and Areola

We prefer to allow your reconstructed breast to “settle” for at least 4 months so that the nipple and areola can be placed in the proper position. Nipple/areola reconstruction is done usually with local anesthesia as an outpatient surgery, meaning that you will not need to stay overnight at the hospital. This procedure usually involves very little discomfort. The nipple is usually made from the tissue and fat of the reconstructed breast. The finishing touch in nipple/areola reconstruction is a tattoo procedure to match the colour of your natural nipple and areola. This can be done either in our procedure room or by a medical tattoo artist 10 weeks following the nipple/areolar reconstruction.



Nipple/areola reconstruction using a local flap and tattoo.

making your choice



Breast reconstruction is an elective surgery intended to improve your self-image and confidence following mastectomy surgery for breast cancer. If you are considering breast reconstruction, we encourage you to make an appointment with one of our plastic surgeons to find out what options are available to you. We encourage you to consult with us as well as with your breast surgeon to find out if you are able to have immediate breast reconstruction (at the same time as mastectomy).

The decision to have breast reconstruction is an individual one. There are physical and psychological benefits to reconstruction, but you must be completely committed to the process before you begin. If you are not sure now, remember that you can always choose to have breast reconstruction later. It is a choice that requires careful and thoughtful consideration, and it is yours to make.

For more information about your reconstruction, please go to these websites:

www.breastrestoration.ca

www.torontoallderm.ca

You can help make a difference

Donating to our Program

Some of our breast reconstruction patients ask if they can make a donation to support the quality of patient care and research activities of the Breast Restoration Program. Donations are vital to sustaining excellence in our breast reconstruction program. Your generous donations go towards funding our clinic and research program to improve the level of care for our breast reconstruction patients. Donations can be made through the Princess Margaret Hospital Foundation by contacting: Shannon Stuart, Associate Director, The Princess Margaret Hospital Foundation at 416-946-2353 or shannon.stuart@pmhf.ca or visit www.pmf.ca

Participating in Research

We know that having your breast(s) reconstructed has an impact on how you feel about yourself and your body and other important areas of quality of life. Our research is focused on understanding more about the personal impacts of breast reconstruction procedures on patient satisfaction and quality of life. Your participation may not be of direct benefit to you but we hope that it will help us to improve patient care and benefit

other women and breast cancer survivors choosing breast reconstruction surgery in the future.

For questions regarding any of our studies, please contact our Clinical Research Coordinator, Kate Butler. She can be reached at:
416-340-4800 ext 2343
email: kbutler@uhnres.utoronto.ca

Breast Cancer Survivorship Program

If you have not been referred to the Breast Cancer Survivorship Program yet, please ask your breast or plastic surgeon to do so. The Princess Margaret Hospital (PMH) Breast Cancer Survivorship Program (BSCP) offers clinics and programs for survivors at all stages of their cancer journey from diagnosis through active treatment and long-term follow-up. A major focus of the program has been on survivorship clinics to support survivors living with the late and long-term effects of cancer treatment.

Breast Cancer Survivorship Clinics

Consult with the Survivorship Program: Opportunity to meet with a health professional to review the patient's understanding of their breast cancer treatment and to develop a personalized plan for information and support called a "Survivorship Care Plan".

- **Lymphedema Clinic:** Lymphedema is a condition causing swelling in the arm and surrounding area, that can occur after the removal of the lymph nodes with or without radiation. This clinic educates patients about management techniques to reduce the risk of pain and disfigurement.
- **Function & Mobility:** For patients who have difficulty moving their arm(s) and doing physical activity as a result of breast cancer treatment.
- **Neurocognitive Clinic:** For patients experiencing changes in thinking abilities and dealing with the challenges of compromised memory or attention span.
- **Fatigue Clinic:** For patients experiencing tiredness and difficulty completing tasks because of low energy as a result of breast cancer treatment.

Location:

Princess Margaret Hospital,
2nd floor, beside the Breast Clinic

Hours:

Monday to Thursday 9:00am – 5:00pm

Friday 9:00am – 12:30pm

For more information, go to www.survivorship.ca

If you would like to make an appointment with a plastic and reconstructive surgeon at Toronto General Hospital, please ask your oncologist or breast surgeon to call us at 416-340-3449 or 416-340-3858 or fax a referral to 416-340-4403.

Sincerely

UNH Breast Restoration Program



Stefan Hofer, M.D. PhD FRCS(C)
UNH Breast Restoration Program



Toni Zhong, M.D., FRCS(C), MHS
UNH Breast Restoration Program

mission statement

Our mission is to provide excellence in state of the art reconstructive procedures and comprehensive surgical and nursing care to women confronted with breast cancer.