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BREAST RECONSTRUCTION

Breast reconstruction can be the first step toward regaining a "normal" life after breast cancer. New techniques in reconstructive surgery provide women considering breast reconstruction a variety of reconstructive options; the key to making the "right" choice is information. This handout is an overview of the procedures, "pros and cons" and risks and complications. Read it carefully, WRITE DOWN any questions and ASK Dr. Rock. Some of the happiest and most satisfied patients are those who have undergone breast reconstruction. But remember, this is an elective surgical procedure; only YOU can make the decision that is right for you.

What is Breast Reconstruction?

Breast reconstruction recreates the breast mound at the site of the mastectomy using a breast implant or the woman's own tissue. NO breast reconstruction of any type can replace your original breast. A good reconstruction looks quite natural, is a good size match with the remaining breast and allows you to wear regular clothes and undergarments.

Who is a candidate?

Most women with early-stage cancer are candidates for reconstruction. Certain health problems such as high blood pressure, diabetes, obesity or smoking may make the more complex types of reconstruction too risky.

When is the best time?

Immediate breast reconstruction can be done at the time of the mastectomy. Delayed reconstruction is done at a separate time after the mastectomy. There are advantages and disadvantages to each approach.

With immediate reconstruction a woman wakes up from her mastectomy with the reconstruction already in place (flap reconstruction), or the process initiated (tissue expander). She is spared the experience of seeing herself with no breast at all. In some cases, immediate reconstruction may result in a more naturally shaped breast than delayed reconstruction.

Sometimes, the nature of the cancer or the overall health of the patient make delayed reconstruction a better choice. Some women feel overwhelmed by the diagnosis of cancer and wish to leave decision-making about reconstruction until later. Chemotherapy can be given safely after immediate reconstruction. If radiation therapy is planned after mastectomy, reconstruction will be delayed. **It is never "too late" for breast reconstruction, the option is always there.**

Will it match my other breast?

While reconstructive techniques are quite sophisticated, no reconstruction is an exact replica of the breast it replaces. The most difficult aspect of reconstruction is creating the natural "droop" of the mature breast. Reconstruction is also limited in its ability to create a larger breast. Often

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it is necessary to modify the remaining healthy breast to achieve a good match. This may mean a breast lift (mastopexy), augmentation or reduction.

What about the nipple?

Nipple/areola reconstruction is the last stage in any breast reconstruction. It is done about three months after the completion of the breast mound. It consists of a minor office procedure to rearrange skin on the breast mound to form the nipple, followed by in-office tattooing six weeks later to complete the reconstruction.

What are the various types of breast reconstruction?

ALLODERM AND TISSUE EXPANDER/BREAST IMPLANT

Alloderm is a "regenerative tissue matrix", which is used to help cover either a tissue expander or breast implant at the time of mastectomy. If enough skin remains at the time of mastectomy, the breast can be reconstructed in one step using Alloderm and an implant (either saline or silicone). If too much skin is removed, a tissue expander (a saline-filled balloon) is placed beneath the skin and chest muscle/Alloderm. This allows the surgeon to stretch the muscle and skin to give adequate cover to the implant and gain back some of the skin that was removed. Either procedure takes one to two hours and is done under general anesthesia. Patients may go home that evening or stay overnight in the hospital. Most are back to work in about a week. If tissue expansion is required, over a period of 2 to 3 weeks, saline (salt water) is injected into the expander to slowly fill it and stretch the overlying skin. Once the skin is adequately expanded, the tissue expander is left undisturbed for three to four months to allow for skin relaxation. The expander is then replaced with a permanent saline or silicone implant, in a one-hour outpatient procedure under general anesthesia. Patients are back to work in two to three days.

Risks and complications: This is the simplest approach to breast reconstruction, however complications or reactions to general anesthesia are always possible. **Bleeding** may occur during any surgery. Usually, the expander and implant can be placed through the mastectomy incision or scar. Although the scar is visible, it usually fades with time. Some patients may develop wide red or thick scars. Most of the complications involved with this type or reconstruction have to do with the implant. The most common complication is **capsular contracture**. The capsule is the normal scar tissue that forms around the implant. Some capsules become very tight and may deform the implant and make it feel hard or painful. Capsular contracture does not always occur and presents NO health risk. If the capsule becomes unattractive or painful, it may be necessary to do a capsulectomy (removal of the scar capsule) and an implant exchange. **Rarely**, implants get infected. Infections most often require the removal of the implant and replacement some months after the infection has cleared. Implants like any other manufactured device, have a limited life-span. Most implants seem to last 10 to 20 years. As they age, they may leak or rupture. While this requires replacement of the implant, it presents NO KNOWN HEALTH RISK. Current information on saline and silicone implants will be discussed further during your consultation, and published implant complication rates will be provided via manufacturer booklets.

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FLAP RECONSTRUCTION

Skin, fat and muscle (called "flaps") can be moved, most commonly from the back or the abdomen to build a natural breast mound. When tissue is moved from the back, an implant is frequently used to add volume to the reconstructed breast. This type of reconstruction is much more complex and leaves scars not only on the new breast, but also at the site from which the tissue is taken (donor site). The initial surgery and recovery times are longer, but once the healing is complete, there are rarely complications.

Transverse Rectus Abdominus Flap

The two rectus abdominus muscles (frequently called "abs") run vertically from your lowest ribs to your pelvic bone. The blood supply to the skin and fat of the lower abdomen runs through this muscle. Using this muscle, fat and skin for breast reconstruction is called a Transverse Rectus Abdominus Musculocutaneous flap, or TRAM flap. The tissue is removed from the lower abdomen, so the patient has the added bonus of a "tummy tuck". The TRAM flap can be left attached to the muscle and tunneled under the skin to the chest. Alternately, the TRAM flap can be transplanted to the chest without tunneling and reconnected to different blood vessels using microsurgery (a "free" TRAM). The TRAM flap creates the most naturally shaped reconstruction, but it is the most complex of the reconstructions discussed here. Only select patients are good candidates. The surgery may take from six to eight hours and is done under general anesthesia. A hospital stay of five days is typical. Patients are back to work in approximately six weeks. Removing the rectus abdominus muscle typically results only in mild abdominal weakness, i.e. many TRAM patients cannot do sit-ups. In cases where both muscles are required for reconstruction, an artificial mesh is frequently used to reinforce the abdominal wall. After removal of the lower abdominal fat and skin, the upper abdominal skin is pulled down like a window shade. The navel is attached to the abdominal wall and has to be "cored" out of the upper abdominal skin before pulling the skin down. A new opening is then made for the navel and it is "popped out" and sutured into place. This results in a long scar on the lower abdomen from hip-bone to hip-bone and a scar around the navel.

> **Risks and Complications**: This is a long procedure, making reactions or complications related to a **long general anesthetic** somewhat more common than shorter procedures. **Some blood loss** is anticipated. Drains will be placed both under the breast and under the abdominal skin, to decrease the chance of fluid accumulation. The drains stay in place until the drainage is minimal. Most patients go home with drains in place. **Infection** is infrequent but can occur, especially in those cases where mesh is used for abdominal wall reinforcement. **Abdominal hernia** can develop due to the weakening of the abdominal wall. Because the rectus abdominus muscles help support the lower back, some patients experience **low-back pain** for some time after surgery until the back muscles become stronger. The blood supply to the navel can be lost, resulting in total or partial **loss of the navel**. This generally heals with minor dressing changes (after all, the navel IS a scar).Some **loss of abdominal skin** can occur, especially at the suture line. Skin loss may result in prolonged healing and unattractive scarring. Significant skin loss may require surgical revision. Smoking is commonly associated with skin loss.

****PARTIAL OR TOTAL FLAP LOSS**** is a significant complication. In both types of TRAM procedures (tunneled or transplanted) the blood supply to the tissues is reduced to one artery and vein (or group of arteries and veins). The vessels can go into spasm after surgery resulting in inadequate blood supply and necrosis (death) of part or all of the flap. Some areas of loss are expected. These heal on their own or with minor revisions. More extensive loss may require extensive revision or a second reconstruction. In TRAM flaps that are transplanted, a

small blood clot can form at the site where the vessels are sewn together (usually in the first three days). This requires an immediate trip back to the operating room to remove the clot. **Smoking** is the leading preventable cause of flap death. There can be NO smoking for at least **4** weeks prior to surgery (no patches, no gum, no NICOTINE or any kind). There can be NO smoking and NO exposure to secondhand smoke for at least one month after surgery. Take this opportunity to quit forever.

Latissimus Dorsi Flap and Implant

The latissimus dorsi muscle is a large flat muscle of the back which can be used for breast reconstruction. The blood supply to the muscle and its overlying skin and fat can be isolated, allowing the flap to be tunneled under the skin around to the front of the chest. The surgery is done under general anesthesia and takes four to six hours. Patients usually stay in the hospital two or three days and can go back to work in two to four weeks. Moving the flap from the back usually does not leave a significant deformity of the back, other than a linear scar. No functional loss of the back or shoulder is perceptible except in extremely athletic people. Depending on the size of the original breast, an implant is frequently necessary under the flap to match the volume of the natural breast.

> **Risks and complications:** Reactions or complications of **general anesthesia** are possible. **Bleeding** is possible in any surgery. **Infection** is uncommon, but possible. **Fluid collections** at the breast or donor site can occur. Drains are placed at the time of surgery and left in place until the drainage is minimal. Most patients leave the hospital with some or all drains in place. **Scars** will be present on the breast and back. Back scars frequently widen even under ideal conditions.

****PARTIAL OR TOTAL FLAP LOSS**** can be a significant complication in flap reconstruction. In order to move the flap, its blood supply is reduced to the dominant artery and vein. After transfer, the artery and vein may go into spasm for some time, further decreasing the blood flow. A small amount of loss is expected and may require minimal revisions. Larger losses require more extensive revisions or a second reconstruction entirely. **Smoking** is a leading cause of flap death. You must stop (NO nicotine patches, NO nicotine gum, NO nicotine of any kind) for a least **4** weeks prior to surgery. You may not smoke or be exposed to secondhand smoke for one month after surgery. Take this opportunity to quit forever.

Perforator Flaps

Perforator flaps are flaps which allow the breast to be reconstructed using skin and fat, moving limited or no muscle. The procedures will be discussed by Dr. Rock, but he does not offer them as a reconstructive option.

How do I decide?

Dr. Rock will discuss the options with you and may indicate that you are a better candidate for one reconstruction over another. If you have several choices, consider your lifestyle and your comfort level with additional surgery. You may also seek input from the American Cancer Society which has a separate group of volunteers, all breast cancer patients themselves, to answer questions and provide firsthand insight.