



## Breast Reconstruction Options

### *Natural reconstruction using your ABDOMINAL tissue:*

#### ***TRAM Flap – (Transverse Rectus Abdominis Myocutaneous)***

There are various forms of TRAM flap reconstruction that are commonly performed by plastic surgeons. These are:

*The **Pedicle TRAM Flap**:* This was the first procedure to describe use of one of the rectus abdominis muscles (sit-up muscle) for breast reconstruction. This procedure begins with an incision from hip to hip. Then, a “flap” of skin, fat and one of the patient’s abdominal muscles is tunneled under the skin to the chest to create a new breast. Recovery from the pedicle TRAM flap procedure is difficult and painful. Long-term, the patient has to adapt to the loss of some of their abdominal strength (up to 20%). As with any procedure there is the possibility of complications including delayed healing, fat necrosis (part of the tissue turns hard due to poor blood supply), loss of the reconstruction altogether (rare) and abdominal complications such as bulging and/or hernia.

*The **Free TRAM Flap**:* This procedure involves disconnecting the flap from the patient’s body, transplanting it to the chest and reconnecting it to the body using microsurgery. Advantages over the pedicle TRAM include: improved blood supply (and therefore less risk of healing problems and fat necrosis) and less muscle sacrifice (so the abdominal recovery is a little easier). Since the tissue is disconnected and transplanted to the chest, there is also no tunneling under the skin as there is with the pedicle TRAM, and no subsequent bulge in the *upper* abdomen (which is typically seen with tunneling).

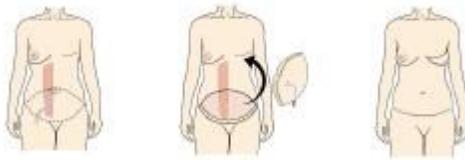
The **PRMA surgeons do not perform pedicle or free trams** due to amount of muscle sacrificed and the potential associated complications, namely abdominal bulging and hernia.

*The **Muscle-Sparing Free TRAM Flap**:* This is similar to the free TRAM except the amount of muscle taken is typically quite minimal (postage-stamp size). This procedure is associated with significantly fewer abdominal side-effects and complications (pain, bulging, hernia, strength loss) because such a small amount of muscle is sacrificed. PRMA surgeons perform this procedure only if the patient’s anatomy does not allow for a DIEP flap (which is rare).



### ***DIEP Flap – (Deep Inferior Epigastric Perforator)***

The DIEP flap procedure is currently the **gold standard in breast reconstruction** and the preferred reconstruction procedure performed at PRMA. Like the TRAM flap, the DIEP flap uses a patient's own abdominal tissue to reconstruct a "natural" breast. Unlike the TRAM, the DIEP procedure preserves ALL the patient's abdominal muscle. The DIEP flap procedure only requires the removal of skin and fat. NO MUSCLE is sacrificed. The blood vessels required to keep the tissue alive lay just beneath the abdominal muscle. Therefore, a small incision is made in the abdominal muscle in order to access the blood vessels and microsurgery is required to reattach them to the chest area. Since NO abdominal muscle is removed or transferred to the breast, patients preserve their abdominal strength long-term, and experience less pain and a much quicker recovery. The risk of abdominal bulging and hernia is also very small, significantly lower than with the TRAM flap.



### ***SIEA Flap – (Superficial Inferior Epigastric Artery)***

The SIEA Flap procedure is very similar to the DIEP flap procedure. The main difference between the SIEA and DIEP is the artery used for blood supply to the new breast. The SIEA arteries are generally found in the fatty tissue just below skin. As with the DIEP, the SIEA flap does not sacrifice the abdominal muscle and only uses the patient's skin and fat to reconstruct the breast. While the SIEA flap procedure is similar to the DIEP, it is used less frequently since the arteries required are generally too small to sustain the flap in most patients. Less than 20% of patients have the anatomy required to allow this procedure.

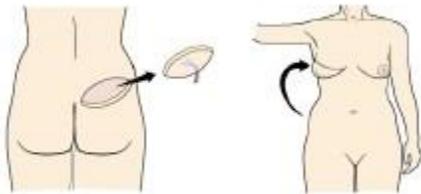
### **Natural reconstruction using your BUTTOCK tissue:**

#### ***GAP Flap – (Gluteal Artery Perforator)***



The GAP flap procedure uses excess skin and fat from the gluteal (buttock) region. Tissue is taken from either your superior (upper buttock) region or inferior (lower buttock) region. Both incisions can be easily hidden in most underwear.

If the GAP procedure is performed as an immediate reconstruction the patient will first undergo the mastectomy as usual. Immediately following the mastectomy the patient will then be gently turned on her stomach and the GAP flap is harvested. The patient is then turned back onto her back and the new breast is created. It is important to discuss the possibility of bilateral reconstruction with your surgeon and how this can impact the number of procedures you need to complete your reconstructive process. Advantages of the GAP flap include: a scar that is generally hidden with underwear or swim-suits, and no loss of muscle function or strength. Subsequent surgical re-contouring of the buttock(s) is usually required for the best contour.



### **Natural reconstruction using your THIGH tissue:**

#### ***TUG or VUG Flap – (Transverse or Vertical Upper Gracilis)***

These flaps use skin, fat and the gracilis muscle from the inner portion of the upper thigh. Unlike loss of other muscles (like the rectus abdominus), loss of the gracilis muscle does not result in any noticeable functional impairment. The tissue is dissected from the inner thigh and transplanted to the chest where it is reattached using microsurgery just like the DIEP, SIEA, GAP, and other thigh flaps.

#### **ALT Flap**

The ALT flap uses skin and fatty tissue from the outer thigh and leaves a vertical scar over the outer part of the thigh.

#### **LTP Flap**

The LTP flap procedure uses skin and fatty tissue from the upper, outer thigh and outer buttock (“saddle bag”) and leaves a horizontal or oblique scar over the upper, outer thigh.

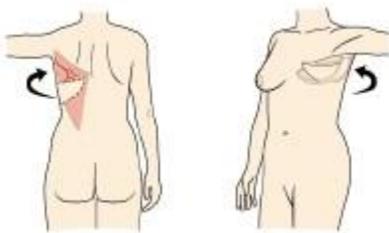
#### **PAP Flap**

The PAP flap uses skin and fatty tissue from the upper, posterior thigh just beneath the buttock crease and leaves a horizontal scar beneath the buttock.

### **Natural reconstruction using your BACK tissue:**

#### ***Latissimus Dorsi Flap***

The Latissimus procedure uses skin, fat and the latissimus muscle from the back just beneath the shoulder blade. This is detached from the back and brought to the breast area to create the new breast. Most patients also require an expander in order to obtain satisfactory breast volume. The expander is replaced by a permanent implant at a second procedure down the line. Fat grafting can also be performed instead of, or in addition to an expander to add volume to the latissimus reconstruction. Patients will have a scar on their back that can sometimes be seen through a tank-top, swimsuit or sundress. Women who are very active in sports should know that this procedure can impact certain activities like golf, climbing, swimming, or tennis.



#### ***Tissue Expander/Implant Reconstruction***

The most common method of breast reconstruction surgery in the US uses tissue expanders and implants. Most surgeons perform this as a two-staged procedure. The first stage involves placement of the tissue expander(s). This can either be done at the time of the mastectomy (for immediate reconstruction patients) or after the mastectomy has healed (for delayed reconstruction patients). The use of tissue expanders/implant reconstruction in our practice is generally reserved for patients who are not good candidates for reconstruction using their own tissue (a “flap” procedure), or who strongly prefer implants. The expanders are filled with saline until the patient’s skin is expanded enough for an implant to be inserted. The expander is removed at a second surgery and a permanent implant is placed.

Some patients are candidates for ***direct-to-implant reconstruction*** whereby the permanent implant is inserted immediately without going through the tissue expander and expansion process. The implant is completely covered by the pectoralis muscle and/or an acellular dermal graft (like Alloderm). This approach is generally reserved for patients undergoing prophylactic nipple-sparing mastectomy and immediate reconstruction.

Two types of implants are available to patients: saline or silicone. Please speak with your surgeon as to which implant would be best for you, and about the short- and long-term risks of implants. Patients who undergo implant reconstruction should be aware that their implants may need to be replaced at a future date.

