# Breast Reconstruction

## Quick Reference: Reconstruction Options

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<th>Type of Reconstruction</th>
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<td>Saline/Silicone Implant - Direct to Implant/One Stage Implant</td>
<td>• Good for women who are slender and small-breasted or who do not wish to increase their bust size. • Smokers, obese women, or those who have had radiation therapy may not be eligible.</td>
<td>• Implant is placed between layers of chest muscle under breast skin during the same surgery as the mastectomy. • Acellular Dermis (ADM) will usually be used.</td>
<td>• Radiation therapy may cause the implant to develop capsular contracture (get hard). • Remaining breast may be sized to match the reconstructed breast with implants.</td>
<td>• Ask to see and touch your different implant options. • Ask to talk with other women who have had the procedure you are interested in.</td>
<td>• Less surgery, anesthesia, pain and faster recovery than tissue flap procedures. • Risk of rupture, leak, deflation (one in 10 in first 10 years). • Silent rupture of a silicone implant may be detected only with MRI. • Implant may shift in place which may require an additional surgery. • Area around the implant may scar and harden (capsular contracture). • Infection after surgery is a risk. • Additional surgery may be needed for removal, replacement, revision or nipple reconstruction.</td>
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<td>Saline/Silicone Implant - Two Stage Tissue Expander</td>
<td>• Good for women with chest skin and muscles that are tight. • Good for women who wish to be larger than their original size or are unsure of how large they would like to be at the time of surgery.</td>
<td>If chest skin and muscles are tight, reconstruction is done in two steps: • First a tissue expander is placed in the mastectomy area. • The surgeon adds saline to increase the size of the expander at regular intervals in the office. • When the expander is the desired size, it is replaced with a smaller permanent implant in a second surgery.</td>
<td>• Second surgery (removal of the expander and placement of the implant) may be delayed until after chemotherapy and/or radiation therapy is completed.</td>
<td>• Uses saline filled expander with valves that allow for expansion after surgery and can create the desired size. Skin stretches and droops in a natural curve. • Ask to see and touch your different implant options. • Less stress on the skin than in the direct to implant process. Saline can be removed if needed. • Gives women more time to think about the type of implant, final size and shape they desire.</td>
<td>• Less surgery, anesthesia, pain and faster recovery than tissue flap procedures. • Risk of rupture, leak, deflation (1 in 10 in the first 10 years). • Silent rupture of a silicone implant may be detected only with MRI. • Implant may shift in place which may require an additional surgery. • Area around the implant may scar and harden (capsular contracture). • Infection after surgery is a risk. • Additional surgery may be needed for removal, replacement, revision or nipple reconstruction.</td>
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<td>Oncoplastic Surgery</td>
<td>• Women with larger breasts must have clear margins from lumpectomy.</td>
<td>• Typically prior to radiation therapy, could possibly be performed at lumpectomy surgery or after radiation is completed.</td>
<td>• Radiation therapy is usually done after oncoplastic surgery.</td>
<td>• Using own breast tissue rearranged to fill in defect from lumpectomy or partial mastectomy, both breasts can be reduced and lifted if large breasts (basically a breast reduction).</td>
<td>• Radiation may cause affected breast to change, may become firmer or smaller risk for complication increased if performed after radiation therapy.</td>
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<td>TRAM (transverse rectus abdominus muscle) Flap – Pedicle Flap</td>
<td>• Women who are smokers, have high blood pressure, have had major abdominal surgery, are obese or very thin may not be eligible. • Women who have adequate abdominal fat may consider this option.</td>
<td>• Skin, fat and muscle will be moved from the abdomen to chest area through a tunnel created by the surgeon under the skin. • Recovery from surgery may require several days in the hospital and several weeks off from work.</td>
<td>• If radiation or chemotherapy is recommended after mastectomy, TRAM flap may be delayed until after treatment is complete. With a skin sparing mastectomy, an implant or tissue expander may be used temporarily to keep the skin stretched.</td>
<td>• Since the reconstructed breast is made from your own skin and fat it, will be more similar to natural breast tissue. • Your tummy will be flatter, although the scar is higher than a “tummy tuck” scar, which may change the look of your belly button.</td>
<td>• TRAM surgery and recovery times take longer than implant surgery. • There will be two surgical sites and two scars. • Abdominal hernia and abdominal bulge is possible due to the removal of supportive abdominal muscle. • Flap may die and have to be removed. A pedicle flap is less likely to completely fail than a free flap. • There is a risk for infection and problems with healing. • You will need additional surgery to create a nipple and areola, and possibly additional surgery to shape the flap.</td>
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<td>TRAM (transverse rectus abdominus muscle) Flap – Free Flap</td>
<td>• Women who are smokers, have high blood pressure, have had major abdominal surgery, are obese or very thin may not be eligible.</td>
<td>• A section of skin, fat, muscle and blood vessels are cut free from their location in the abdomen, relocated to the chest area and reconnected to the blood supply using microsurgery. • Surgery can take many hours.</td>
<td>• If radiation or chemotherapy is recommended after mastectomy, TRAM flap may be delayed until after treatment is complete.</td>
<td>• Feels like a natural breast and is warm and soft because of good circulation. • Moves like your natural breast because it is also fat tissue. • Because abdominal tissues are used, you will also have a tummy tuck. • Should last for your lifetime.</td>
<td>• TRAM surgery and recovery takes longer than implant surgery. • Surgical time for a TRAM free flap is longer than for a pedicle flap. • You will have two surgical sites and two scars. • Abdominal hernia and abdominal bulge is possible with the removal of abdomen muscles. • Flap may die and have to be removed. A free flap is more likely to fail than a pedicle flap (5% failure rate). • There is a risk for infection and healing problems. • You will need additional surgery to create a nipple and areola, and to shape the flap.</td>
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| Latissimus Dorsi Flap  | • Women who have had radiation therapy and are not candidates for tissue expansion may consider this option.  
  • Best for women with average amounts of body fat and small-to-medium-size breasts.  
  • Women with vascular disease, diabetes or connective tissue disease may not be eligible. Women who are overweight or obese and smokers may not be eligible. | • Skin and muscle will be moved from the upper back to the mastectomy area through a tunnel created by the surgeon under your skin. An implant is placed under the flap to create the desired volume.  
• If radiation or chemotherapy is recommended after mastectomy, Latissimus Dorsi Flap may be delayed until after treatment is complete. | • Transplanted skin will be a close color match for your breast skin. The breast will feel warm and flexible. | • You will have two surgical sites and two scars.  
• Some women experience weakness in the back, shoulder and arm muscles and require physical therapy.  
• There is a risk for impact to the function of the shoulder. If you play sports or are an avid swimmer you may want to consider another type of reconstruction.  
• There is a risk for infection and problems with healing.  
• You will need additional surgery to create a nipple and areola. | • You will need two surgical sites and two scars.  
• Some women experience weakness in the back, shoulder and arm muscles and require physical therapy.  
• There is a risk for impact to the function of the shoulder. If you play sports or are an avid swimmer you may want to consider another type of reconstruction.  
• There is a risk for infection and problems with healing.  
• You will need additional surgery to create a nipple and areola.  

| DIEP (deep inferior epigastric perforator) Flap | • Women who are smokers, have high blood pressure, have had major abdominal surgery, are very thin or have already had a procedure to remove abdominal skin and fat are not eligible. | • Skin, fat and blood vessels are moved from the upper abdomen to the chest area and then reconnected to the blood supply using microsurgery. A small implant can be placed under the tissue flap if necessary.  
• Surgery can take many hours. | • No muscle is removed so there is minimal risk of an abdominal hernia (unlike TRAM flap).  
• There may be less pain, faster recovery than TRAM flap.  
• Similar to a TRAM flap your tummy will be flatter. | • More time in surgery than TRAM flap.  
• You will have two surgical sites and two scars.  
• If the procedure fails, the flap will die and must be removed  
• There is a risk for infection and problems with healing.  
• You will need additional surgery to create a nipple and areola.  

| SIEA (superior inferior epigastric artery) Flap | • Women who are smokers, very thin or have already had a procedure to remove abdominal skin and fat are not eligible. | • Skin, fat and blood vessels are moved from the lower abdomen to the chest area and then reconnected to the blood supply using microsurgery.  
• Surgery can take many hours. | • SIEA blood vessels are not located within muscle so abdominal muscles are never disturbed.  
• There is minimal risk of an abdominal hernia (unlike TRAM flap).  
• Less pain and faster recovery than TRAM flap.  
• Similar to a TRAM flap, your tummy will be flatter. | • There is a risk for infection and problems with healing.  
• You will need additional surgery to create a nipple and areola.  
• Slightly higher risk of partial flap loss than DIEP.  
• Not all patients are good candidates, depending on their vascular anatomy. |
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| IGAP (inferior gluteal artery perforator) Flap | - Women without adequate abdominal fat are good candidates for IGAP.  
- Smokers and women who have previously had lower buttock skin and fat removed or have had liposuction on the lower buttock are not eligible. | - Fat, skin and blood vessels are removed from the lower buttock to the chest area and then reconnected to the blood supply using microsurgery.  
- Surgery can take many hours. | - If radiation or chemotherapy is recommended after mastectomy, IGAP flap may be delayed until after treatment is complete. | - No muscle is cut or moved resulting in quicker recovery time.  
- Buttck lift results from removal of gluteal skin and fat. | - There will be two surgical sites and two scars.  
- If the procedure fails, the flap will die and must be removed – new reconstruction may not be done for 6-12 months.  
- There is a risk for infection and problems with healing.  
- You will need additional surgery to create a nipple and areola. |
| SGAP (superior gluteal artery perforator) Flap | - Women without adequate abdominal fat are good candidates.  
- Smokers and women who have previously had upper buttock skin and fat removed or have had liposuction on the upper buttock are not eligible. | - Fat, skin and blood vessels are removed from the upper buttock to the chest area and then reconnected to the blood supply using microsurgery.  
- Surgery can take many hours. | - If radiation or chemotherapy is recommended after mastectomy, SGAP flap may be delayed until after treatment is complete. | - No muscle is cut or moved resulting in quicker recovery time.  
- Buttck lift results from removal of gluteal skin and fat. | - There will be two surgical sites and two scars.  
- If the procedure fails, the flap will die and must be removed – new reconstruction may not be done for 6-12 months.  
- There is a risk for infection and problems with healing.  
- You will need additional surgery to create a nipple and areola. |
| TUG (transverse upper gracilis) Flap | - Women without adequate abdominal fat are good candidates.  
- Smokers and women who have previously had upper buttock skin and fat removed or have had liposuction on the upper buttock are not eligible. | - Fat, skin and blood vessels are removed from the upper buttock to the chest area and then reconnected to the blood supply using microsurgery.  
- Surgery can take many hours. | - If radiation or chemotherapy is recommended after mastectomy, TUG flap may be delayed until after treatment is complete. | - Inner thigh lift results from this surgery. | - There will be two surgical sites and two scars.  
- If the procedure fails, the flap will die and must be removed. |