

TISSUE EXPANSION

AT CHILDREN'S HOSPITAL OF PITTSBURGH OF UPMC, we believe parents and guardians can contribute to the success of this surgery and invite you to participate. Please read the following information to learn about the surgery and how you can help.

Fast Facts About Tissue Expansion

- Tissue expansion is a way for doctors to create skin that can be used to repair or replace other skin just about anywhere on the body.
- It requires a short surgery, during which an expander balloon will be placed under your child's skin. Over a period of several weeks, the balloon will be filled with fluid to stretch the skin and create more skin surface.
- Your child's surgery to place the expander will be done under general anesthesia (*an-es-THEEZ-ya*), which means that he or she will be sound asleep during the surgery.
- When general anesthesia is needed, there are special requirements for eating and drinking that must be followed in the hours before surgery.
- This surgery usually takes about 1 hour.
- Your child will stay overnight for 1 day after the surgery.

What Is Tissue Expansion?

Tissue expansion is a fairly simple way for doctors to create extra skin that can be used to replace or repair skin on other parts of the body. Similar to the way a pregnant woman's skin stretches as the baby grows inside her, tissue expansion uses a balloon called an expander to stretch the skin covering it. Over a period of several weeks, the expander is filled with liquid to gradually stretch the skin around it. When enough extra skin has been created, the tissue expansion is complete and the next step in the reconstruction can be scheduled.

Expanded tissue may be used to repair skin that has been injured, burned, scarred from a previous surgery or prior to a surgery to remove large birthmarks and congenital nevi (*con-GEN-it-ool NEE-vie*) or hairy brown moles. It is particularly ideal for scalp repair because the stretched skin on the scalp retains normal hair growth. Most other body tissue does not grow hair to the same degree as the scalp, so tissue expansion of the scalp gives a much better appearance after the reconstruction.

Tissue expansion can be done practically anywhere on the body, and your child's doctor will determine the best area for

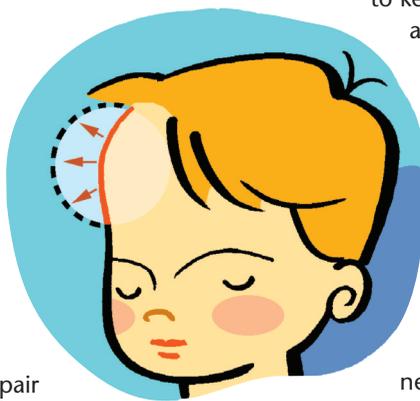


the expander balloon to be placed. Some common areas for tissue expansion are in the thigh, back, abdomen and scalp. Usually, the expander is placed near the site of the skin being replaced so that a flap of skin can be created. When the damaged skin is removed, the flap of extra skin is pulled into place.

Once the expander has been healed in place under your child's skin, it will be filled with about 20 mLs (a little more than 1/2 an ounce) of sterile saline (*SAY-leen*) each week during the tissue expansion process. Sometimes more or less saline is used depending on the size of the expander. Saline is a liquid that is present in the body and is similar to tears, so it is completely safe to use inside the body.

Just below the surface of the skin where the expander is placed there will be a small button called a "port." This port is connected to a tube attached to the expander and acts as a plug to keep the saline in, while allowing more saline to be added when needed. Each time your child needs to have saline added to the balloon, a special cream will be rubbed on the skin right over the port to numb it so your child will feel no pain. After about an hour, when the skin over the port is numb, a thin needle will be inserted into the center of the port to add the saline. The saline inside the balloon has some blue dye in it, so before the saline is put in, a small amount of liquid will be pulled out through the syringe (*seer-RINJ*) or needle to make sure the needle is in the right spot. If blue liquid is seen, the needle is in the expander and new saline will be added.

Your child may feel a bit uncomfortable just after the saline has been added to the expander, and the skin around the expander may feel taut or tight to the touch. Within a few hours, your child's discomfort will go away, and in the days after the saline is added, the skin will stretch and feel soft again.



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Expanders come in several sizes, but most expanders hold about 200 mLs of liquid, or about the same amount as in a typical juice box. If more tissue is needed, your child's doctor may choose to use a larger tissue expander, which will create a larger bulge in the skin. Sometimes, several tissue expansions are needed to create the amount of skin needed. Your doctor will determine if a larger expander or more than one expander is needed.

Home Preparation

When general anesthesia is needed, there are important rules for eating and drinking that must be followed in the hours before the surgery. One business day before your child's surgery, you will receive a phone call from a nurse between the hours of 1 and 9 p.m. (Nurses do not make these calls on weekends or holidays.) Please have paper and a pen ready to write down these important instructions.

- The nurse will give you specific eating and drinking instructions for your child based on your child's age. Following are the **usual** instructions given for eating and drinking. No matter what age your child is, you should follow the specific instructions given to you on the phone by the nurse.

For children older than 12 months:

- After midnight the night before the surgery, do not give any solid food or non-clear liquids. That includes milk, formula, juices with pulp, and chewing gum or candy.

For infants under 12 months:

- Up to 6 hours before the **scheduled arrival time**, formula-fed babies may be given formula.
- Up to 4 hours before the **scheduled arrival time**, breastfed babies may nurse.

For all children:

- Up to 2 hours before the **scheduled arrival time**, give only clear liquids. Clear liquids include water, Pedialyte®, Kool-Aid® and juices you can see through, such as apple or white grape juice.
- In the 2 hours before the **scheduled arrival time**, give nothing to eat or drink.
- You may bring along a "comfort" item—such as a favorite stuffed animal or "blankie"—for your child to hold during the surgery.

The Surgery

Your child's tissue expander placement surgery will be done through the Same Day Surgery Center at Children's Hospital of Pittsburgh of UPMC. When you have checked in at the Same Day Surgery Center, you and your child will be called to an examination room where your child's health history will be taken and vital signs will be checked.

You will meet with one of the doctors on your child's surgical team to go over the surgery. He or she will answer any last-minute questions you might have at this time. A member of the anesthesia staff also will meet with you and your child to review

his or her medical information and decide which kind of sleep medication he or she should get. As the parent or legal guardian, you will be asked to sign a consent form before the anesthesia is given.

When it is time for your child to go the operating room, you will be asked to wait in the surgical family waiting area.

- If your child is very scared or upset, the doctor may give a special medication to help him or her relax. This medication is flavored and takes effect in 10 to 15 minutes.
- If relaxation medicine is needed, you may stay with your child as he or she becomes drowsy; then you will be asked to wait in the surgical waiting area when your child is ready to move to the operating room.
- Young children get their sleep medication through a "space mask" that will carry air mixed with medication. Your child may choose a favorite scent to flavor the air flowing through the mask. There are no shots or needles used while your child is still awake.
- Once your child is asleep, an intravenous (*in-tra-VEE-nuss*) or IV line will be inserted into a vein in your child's hand or arm so that medication can be given to keep him or her asleep throughout the surgery. Your child will have no pain during the surgery and no memory of it afterward.
- If your child is having the expander placed in his or her scalp, the hair on the scalp will be shaved prior to the surgery.
- Your child's surgeon will make a careful incision to minimize scarring. The expander will be placed under the skin, and sutures (*SOO-chers*) or stitches will be used to close the skin around the expander. These sutures will stay in place throughout the whole tissue expansion process.

A Parent's/Guardian's Role

The most important role of a parent or guardian is to help your child stay calm and relaxed before the surgery. The best way to help your child stay calm is for you to stay calm.

During the surgery, at least one parent or guardian should remain in the surgical family waiting area at all times, in case the family needs to be reached.

While Asleep

While your child is asleep, his or her heart rate, blood pressure, temperature and blood oxygen level will be checked continuously. To keep your child asleep during the surgery, he or she may be given anesthetic medication by mask, through the IV or both. When the surgery is over, the medications will be stopped and your child will begin to wake up.

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Waking Up

When your child is moved to the recovery room, you will be called so that you can be there as he or she wakes up.



- Your child will need to stay in the recovery room to be watched until he or she is alert and vital signs are stable. The length of time your child will spend in the recovery room will vary because some children take longer than others to wake up after anesthesia.
- Children coming out of anesthesia may react in different ways. Your child may cry, be fussy or confused, feel sick to his or her stomach, or vomit. These reactions are normal and will go away as the anesthesia wears off.
- Your child will still have the IV in. A nurse will remove it before your child leaves the hospital, when he or she drinking well and urinating normally.
- Your child will have a bandage on his or her skin, and a small tube coming from under the skin and leading to a small plastic container. This tube drains away any excess blood from the area of the surgery and will be removed several days after the surgery, depending on how much it is draining. The bandage will be removed before your child leaves the hospital, but most patients go home with the drainage tube still in place. The nursing staff will give you specific directions about how to care for your child's drainage tube at home.
- Your child will have an incision (*in-SIZZ-yun*) or cut in the skin, and sutures (*SOO-chers*) or stitches to hold the skin closed where the expander was placed. These sutures will stay in place during the whole expansion process.
- Your child can be given pain medication every 4 to 6 hours, as needed, when he or she wakes up.
- When your child is alert, he or she will be moved to a hospital room so the nursing staff can continue his or her care.

Going Home

- When your child is drinking well and urinating normally, the IV will be removed by a nurse before you leave the hospital.
- The nurse will show you how to care for your child's sutures and drainage tube so that you will be comfortable doing it at home.
- As soon as you get home, you should call to make an appointment for your child to be checked within 1 week after surgery. The drainage tube will be removed at the first follow-up visit. The expander will be filled for the first time at your second follow-up visit.

At-Home Care

A complete list of instructions for taking care of your child at home will be given to you before you leave the hospital. The main things to remember are:

- If you notice any of the following changes in your child, **call the surgeon right away:**
 - Fever higher than 101.4°F
 - Trouble breathing or skin color changes (pale, blue or gray)
 - Bleeding or foul-smelling drainage from the sutures
 - Signs of dehydration, including lack of energy, sunken eyes, dry mouth or not urinating enough/fewer wet diapers
 - Leakage of fluids from the sutures or deflation of the expander
 - A change in the way the skin looks around the expander
 - Pain, redness or swelling around the sutures or expander site
- Your child should not participate in any contact sports during the tissue expansion process; however, your child may participate in regular gym classes, and may go to school or day care as usual.
- You may want to prepare your child's teachers, caregivers, friends and classmates for changes they may notice in your child's appearance during the tissue expansion process. It may help to explain that doctors will be making more skin for your child by placing a water balloon under the skin to stretch it. Although the balloon might look funny for a few weeks, when the tissue expansion process is complete and the reconstruction surgery has been done, your child will be back to normal.
- Your child's expansion will begin on the second follow-up visit to the hospital, approximately 2 weeks after the surgery to place the expander. You will need to return to the hospital every week to have saline added to the expander.
- You may also choose to have your child's expander filled by your pediatrician or primary care physician (PCP). If you decide to have your PCP fill the expander, you will need to return to your PCP's office every week to have saline added.
- Some parents are comfortable with filling the expanders on their own and may receive training from the nursing staff to add the saline at home. If you decide to do the expansion at home, you will still need to return regularly to the hospital or your doctor's office to check the skin over the expander.
- As the tissue expander fills up and gets bigger, your child may have trouble finding a comfortable sleeping position. If your child is old enough to sleep in a bed, he or she may find extra pillows helpful.
- Your child may need to wear looser clothing over the area of the tissue expander in the last weeks of the expansion process.

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Special Needs

If your child has any special needs or health issues you feel the doctor needs to know about, or if you have any questions, please call 412-692-8942 *before* the surgery and ask to speak with the nurse. It is important to notify us *in advance* about any special needs your child might have.

To contact your child's surgeon, call 412-692-7949. If you are unable to reach the surgeon, or it is after hours, call the Children's Hospital operator at 412-692-5325 and ask to page the doctor who is on-call for your child's surgeon.

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To see the list of all available patient procedures descriptions, please visit www.chp.edu/procedures.