

Late Effects after Limb Sparing Procedures

What is a “limb sparing procedure”?

A limb sparing procedure is a surgical operation that replaces a diseased bone and reconstructs a functional limb by using a metal implant, a bone graft from another person (allograft), or a combination bone graft and metal implant (alloprosthetic composite).

What are the potential late effects after a limb sparing procedure?

- **Nonunion**—For people who had reconstruction with a bone graft, nonunion (non-healing) of the bones is a possible late complication. In the allograft procedure, the portion of bone removed due to tumor is replaced with donated bone. Nonunion occurs when one or both ends of the replaced bone do not heal, making fracture more likely, especially if the area is stressed. Surgery for additional bone grafting may be necessary.
- **Limb-length discrepancy**—Bones are constantly growing during childhood and adolescence, until adult height is reached. Each bone has a growth plate (area where growth activity occurs). Often, bone cancers are located near the growth plate, requiring removal of this area during the limb sparing procedure. Since the reconstructed section of bone cannot grow, a difference (discrepancy) in limb-length may occur over time. Surgeries or other procedures may be necessary to allow for growth.
- **Prosthetic loosening**—Sometimes the implanted joint can loosen or wear out, especially in people who are active. These complications may require further surgery to tighten or replace part or all of the implant. Any loosening of the implant should be reported to your orthopedic surgeon.
- **Contractures**—After a limb sparing procedure, muscles, tendons and ligaments sometimes stiffen or shrink, forming contractures (permanent tightening of the joint). This is more likely to occur in people who are not physically active. Periodic follow-up with a physical and/or occupational therapist helps prevent contractures from forming.
- **Difficulty engaging in physical activities to maintain a healthy weight.**
- **Chronic pain and/or infection**—some people may develop persistent problems with pain and/or infection.

What is the recommended follow-up care after a limb sparing procedure?

- Follow-up visits are usually done by the orthopedic surgeon (bone specialist) every 6 months until the person is fully grown, then every year. These visits may include x-rays of the limb and follow-up intervals may lengthen as time progresses.
- Life-long follow-up by an orthopedic surgeon (ideally by an orthopedic oncologist) is recommended.
- Limitation of certain physical activities is sometimes necessary.

What can you do to promote health after limb sparing surgery?

- Physical and occupational therapy are important for successful rehabilitation after limb sparing surgery. Both passive and active range-of-motion exercises help maintain the best limb function.
- If there is pain, swelling, redness or any other signs of infection at the surgical site, or if you develop fever, contact your healthcare provider promptly.
- If your limb sparing surgery was complicated, your orthopedic surgeon may recommend antibiotics prior to dental procedures (including teeth cleaning), and for other invasive medical procedures such as those involving the respiratory, gastrointestinal, or urinary tracts. Infection can result if bacteria enter the bloodstream during these procedures and become attached to the internal metal components (screws, plates, rods, joints) of the endoprosthesis. The potential need for antibiotics should be discussed with your orthopedic surgeon and your dentist.
- Some metal implants may pose a problem when going through security screening, such as at the airport. It is good idea to carry a medical letter indicating that you received treatment for bone cancer and have a metal implant.

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Additional health information for childhood cancer survivors is available at
www.survivorshipguidelines.org

Note: Throughout this *Health Links* series, the term “childhood cancer” is used to designate pediatric cancers that may occur during childhood, adolescence, or young adulthood. Health Links are designed to provide health information for survivors of pediatric cancer, regardless of whether the cancer occurred during childhood, adolescence, or young adulthood.

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