

Amputations

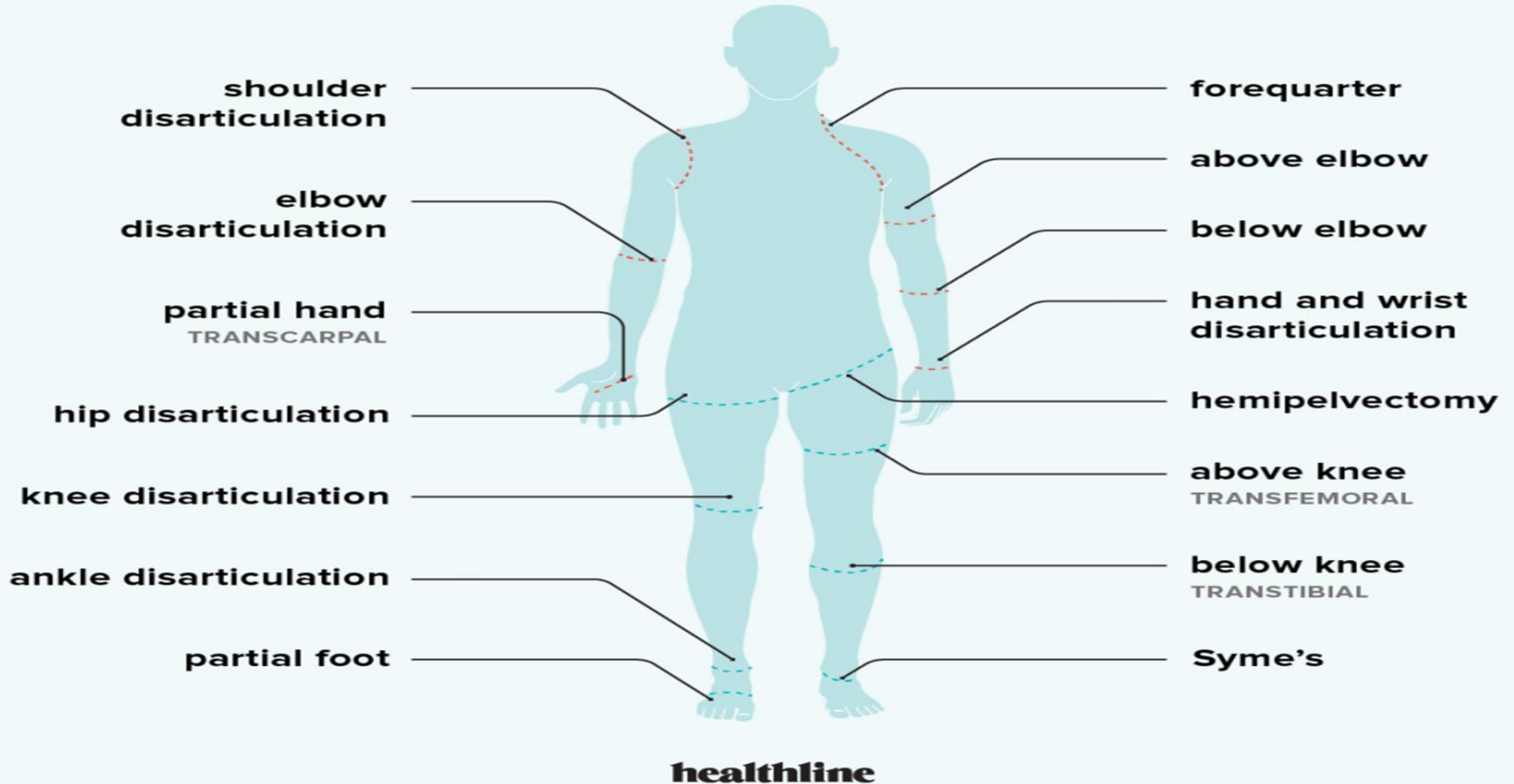


What is meant by amputations?

- Amputation is the loss or removal of a body part such as a finger, toe, hand, foot, arm or leg.
- It can be a life changing experience affecting your ability to move, work, interact with others and maintain your independence. Continuing pain, phantom limb phenomena and emotional trauma can complicate recovery.

TYPES OF AMPUTATION

amputation of the upper and lower body



What are the causes of amputation?



- ❖ A person can experience a **traumatic amputation** from a motor vehicle, occupational or industrial accident or combat injury. Traumatic injury accounts for about 45% of all amputations. A body part can be cut off or torn away in a severe accident, or it can be so badly damaged from a crush injury or severe burns that it cannot be saved.
- ❖ If tissue destruction, infection or disease affects a body part in a way that makes it impossible to repair or endangers the person's life, that part may be removed by **surgical amputation**.
- ❖ Trauma or disease that cuts off blood flow to a body part for an extended time can also cause tissue death requiring an amputation. An example is frostbite, which can damage the blood vessels in fingers and toes, eventually requiring their removal.



❖ **Amputation, Diabetes and Vascular Disease**

- About 54% of all surgical amputations result from complications of vascular diseases and other conditions that affect blood flow, such as diabetes and peripheral arterial disease (PAD). Chronic vascular problems can lead to tissue death in toes, feet and legs. Of patients undergoing amputation for complications of these diseases, nearly half will die within five years of the amputation procedure.

❖ **Cancer-related Amputation**

- Removing a hand, foot, arm or leg to prevent the spread of certain types of cancer account for less than 2% of amputations. Cancers such as sarcomas can affect bone and soft tissue in the limbs, and if the cancer is too large or aggressive to be removed, if it is recurring, or if it extends into the nerves or blood vessels, amputation might be necessary. Advanced cancers affecting the upper leg can result in an amputation procedure called hip disarticulation, which removes the entire femur (thigh bone) from the pelvis.



❖ Amputation for Severe Infection

- Severe sepsis is also called septicaemia or blood poisoning. It happens when drug-resistant bacteria overwhelm the body and spread throughout the bloodstream. Sepsis can affect blood flow and cause tissue to die, especially in the toes, fingers, hands and feet. Severe sepsis can be deadly if antibiotic medicines cannot control the infection.
- One cause of sepsis is the bacteria which cause a serious form of meningitis — an inflammation of the coverings of the brain and spinal cord. Methicillin-resistant (MRSA), also a bacterium, can cause a severe condition called necrotizing soft tissue infection, or fasciitis. For these and other dangerous infections occurring in a body part that the patient can survive without, an amputation might be necessary to save the person's life.

What is congenital amputation?



- This is not a procedure, but a term that refers to a missing or incompletely formed hand, foot, arm or leg that is present at birth. Children who are born with congenital amputations may undergo surgery later in life or be fitted with artificial limbs if the child, parents and care team determine that such intervention might improve the child's function and well-being.

Types of Upper Extremity Amputation



- ❖ Partial hand amputation: removing part of the hand
- ❖ Wrist disarticulation: removing the hand after separating it from the lower arm at the wrist
- ❖ Below-the-elbow amputation: removing part of the lower arm by cutting across the bones of the lower arm (radius and ulna)
- ❖ Elbow disarticulation: removing the lower arm after separating it from the upper arm at the elbow
- ❖ Above-the-elbow amputation: removing the lower arm, elbow and part of the upper arm by cutting across the upper arm bone (humerus)
- ❖ Shoulder disarticulation: removing the entire arm after separating it from the shoulder
- ❖ Forequarter amputation: removing the arm and part of the shoulder (shoulder bones could include the clavicle and scapula)

Types of Lower Extremity Amputation

- ❖ Partial foot amputation: removing part of the foot (there are many types of partial foot amputation)
- ❖ Ankle disarticulation: removing the foot after separating it from the lower leg at the ankle
- ❖ Below-the-knee amputation: removing the foot and part of the lower leg by cutting across the bones of the lower leg (tibia and fibula)
- ❖ Knee disarticulation: removal of the lower leg by separating it from the upper leg at the knee
- ❖ Above-the-knee amputation: removal of the lower leg, the knee and part of the upper leg by cutting across the upper leg bone (femur)
- ❖ Hip disarticulation: removal of the entire leg by separating it from the pelvis at the hip joint
- ❖ Pelvic amputation, or hemipelvectomy: removal of the entire leg and part of the pelvis
- **Double amputation** is removal of both hands, feet, arms or legs.

• Phantom Limb and Other



Post-Amputation Sensory Issues

- The most common complication of amputation surgery is phantom limb pain. Phantom pain occurs when nerves in your stump send pain signals to the brain even though your limb is no longer there.
- Phantom limb pain usually goes away in time. Physical therapy can help reduce the discomfort.
- Phantom limb sensations and phantom pain are almost universal in people who undergo an amputation. Though the cause is not yet fully understood, it may be that after amputation, the remaining nerve connections in the spinal cord and brain “remember” the body part, and can cause a compelling sensation that it is still there (phantom limb syndrome) or severe pain (phantom pain syndrome). These symptoms can be very distressing.

- The surgeon can take steps during the amputation surgery to address the nerves that carry sensations back to the brain that affect pain and phantom sensations. These steps do not eliminate the problems but can reduce the overall risk of them happening and the extent to which they occur. The nerve procedures may also be performed later for patients who have already had an amputation and are still experiencing severe nerve pain.

- **Osseointegration (OI)**
- Surgeons remove a body part and insert a steel implant into the end of the leftover bone. A prosthetic can attach to that implanted piece. When used for a leg amputation, this procedure can enable the leg and hip bones to absorb weight bearing instead of the soft tissue left behind, so standing and walking feel more natural to the patient.
- **Rotationplasty**
- During rotationplasty, which might be a choice for some patients with a tumour in bone or soft tissue, surgeons remove the part of the limb where the cancer is, and any healthy tissue below the tumour is turned around and re-attached.

- For example, if cancer surgery requires amputation of the person's knee, the bone and tissue of the ankle on that leg may still be healthy. A rotationplasty can rotate the lower leg and re-connect it so that what was the ankle joint becomes a substitution for the knee.
- Successful rotationplasty can allow some patients to use a prosthetic lower leg, and enjoy mobility and even participation in activities and sports.



- **How amputations affect the body**

because amputation removes a portion of the body that was naturally present, it's easy to wonder how this affects your overall health. There are undeniably effects that can occur due to amputation. It's important to work with your doctor and physical therapist to minimize these effects whenever possible.

- **Examples include:**

- changes in your centre of gravity and balance
- increased risk of arthritis in your remaining limb (if applicable) because it often has to increase its workload
- back pain due to changes in the body's positioning for lower limb amputees

- Often, the effects of an amputation are related to where it is and your overall health.

Thank you for attending
Good Luck with your tests

How amputations affect the body

