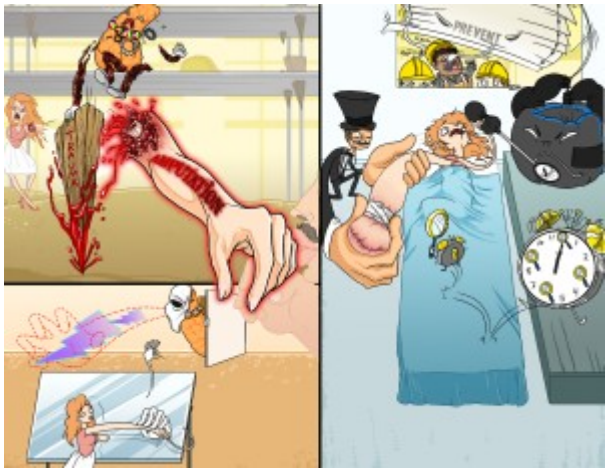
Amputation

The goal of amputation is to preserve the affected extremity’s length and function while removing all infected, pathologic, and ischemic tissue. Trauma and peripheral vascular disease are common indications for amputation. Surgery types include closed amputation, open amputation, and disarticulation. Closed amputations create weight-bearing residual stumps by suturing a skin flap to cover the bony part of a residual limb. The purpose is to prevent drainage accumulation leading to pressure and bacteria. Open amputation (guillotine amputation) leaves a surface on the residual limb to assist with the control of infections. The wound is later closed by surgery or skin traction surrounding the residual limb. Disarticulation is performed through a joint. Vascular tests such as arteriography, Doppler, and venography may be done to determine the extremity's circulatory status. Gentle handling, frequent inspection, and compression bandages are critical to minimize traumatic damage and infection. A surgical tourniquet must be kept at the bedside for emergency use. Mirror therapy and analgesics may be used to address phantom limb pain.



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Indications

Trauma
Trauma-spike
Amputations secondary to trauma are more common among young individuals. Examples of trauma include motor vehicle accidents, landmines, and farm-related injuries

Peripheral Vascular Disease
Peripheral Vessels Diseased
Amputations affecting the lower limbs secondary to peripheral vascular disease are more common among older patients. Decreased blood flow to the extremities reduces perfusion (oxygen delivery to tissues), white blood cells proliferation, and nutrients delivery to the limbs.

Diabetes Complications
Dyed-bead-pancreas Complication
Diabetes mellitus is the most common cause of peripheral vascular disease requiring amputation. Patients with diabetic neuropathy lose protective neurosensory information and this can increase the incidence of injury or trauma to the affected limb. Severe injury or infection of the foot can go unnoticed by a patient with diabetic neuropathy, and this can result in poor outcomes or a higher incidence of amputation.

Considerations

Gentle Handling
Gentleman Handling
Gentle handling of the residual limb is critical in promoting the healing process and preventing traumatic damage.

Surgical Tourniquet at Bedside
Surgical Tourniquet at Bedside
During the immediate postoperative period, a surgical tourniquet must be kept available at the bedside at all times for emergency use. The tourniquet is used to stop excessive bleeding that may occur in the residual limb.

Prevent Contractures
Prevent Contractors
Physical therapy is an important early modality to implement following an amputation. Important aspects of physical therapy include a comprehensive exercise program aiming to prevent the development of contractures. It is important to educate the patient about postoperative positioning and maintaining proper body alignment. Prolonged stasis or immobility in one position can increase the risk of developing contractures, as well as other unintended outcomes like DVT development.

Frequent Inspection

Frequent-clock Inspection

Frequent inspection, especially within the first 24 hours, of the stump and incision site is critical for monitoring for signs of complication. Assess for signs of tissue breakdown, bleeding, early infection, tenderness, and neurovascular status. To avoid skin irritation: do not apply lotions, powders, or oils directly to the surgical site.

Compression Bandages

Compressing Bandage

Compression bandaging is indicated to shrink the residual limb to shape the stump for eventual prosthesis fitting. Compression bandages are used immediately after surgery to support soft tissues of the residual limb. Residual limb bandaging is indicated to decrease edema and minimize pain. The residual limb should be exposed to air for 20 minutes each day. For amputations above the knee or below the elbow, delayed prosthetic fitting is the optimal choice.

Phantom Pain

Phantom Pain-bolt

A significant percentage of amputees experience phantom limb pain after surgery. The patient still perceives pain in the missing portion of the limb and may also experience feelings of coldness, heaviness, and cramping. It can be exacerbated by underlying anxiety or depression and may develop into a chronic problem for the patient. Proper rehabilitation, including mental healthcare and pain management, can help the patient improve and cope with the problem of phantom limb pain.

Mirror Therapy

Mirror Giving Therapeutic-massage

Mirror therapy is indicated to help decrease phantom limb sensation and pain. By using a mirror, visual information is sent to the brain and replaces sensory feedback expected from the missing limb.