

## Amputation Outline

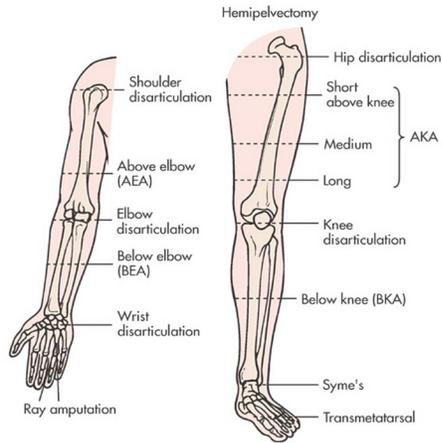
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### Amputation

- Removal of a body part
- More males than females
- elective or traumatic (accident)
  - a. Elective:
    - i. complications of peripheral vascular disease and arteriosclerosis
    - ii. congenital deformities
    - iii. chronic osteomyelitis
    - iv. malignant tumor
- Level determined by amount of circulation and presence of infection
- **Goal: preserve the most distal level that will heal**
- Described in respect to extremity and above or below the designated joint
- Disarticulation = through the joint
- The higher the level of amputation = greater energy expenditure
  - a. AKA {above-the-knee amputation} vs BKA {below-the-knee amputation}; AKA will have the need for more energy to move, utilize prosthesis
- Not all clients are candidates for a prosthesis

### Upper Vs. Lower Extremity

- Upper: above- and below- the elbow, wrist, shoulder, finger
  - a. accidents, war injuries, and other trauma
- Lower: above- and below- the knee, hip & knee disarticulations, Syme's (foot, ankle preserved), mid-foot and toe
  - a. PVD (arteriosclerosis)
  - b. amputating as little as possible



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## Prevention

- Diabetics- monitor blood glucose and HBA1C
- Safety measures
- smoking cessation
- weight loss and exercise
- Foot care & observing non-healing wounds

## Risk Factors

- Traumatic: motor vehicle crashes, industrial equipment, and war-related injuries
- Thermal: frostbite, electrocution, burns
- Peripheral vascular disease
- Malignancy
- Older adult clients: increased risk of PVD and DM= decreased tissue perfusion and peripheral neuropathy
- Chronic Illnesses
  - a. PVD = ischemia/gangrene
  - b. DM = peripheral neuropathy and PVD
  - c. Infection = osteomyelitis

## Assessment:

- Decreased tissue perfusion
  - a. Pain
  - b. Altered peripheral pulses
  - c. Differences in temperature

- d. Altered color
- e. Presence of infection and open wounds
- f. Lack of sensation
- Monitor capillary refill, neurovascular checks, observe for edema, necrosis, and lack of hair distribution

#### Diagnostic Procedures

- determine blood flow & level of amputation
- Angiography: shows circulation; peripheral vessels
- Doppler & Ultrasound: speed of blood flow
- Transcutaneous Oxygen Pressure TcPO<sub>2</sub>: oxygen pressures to look at blood flow – indicator for healing
- Ankle-brachial index: measures difference between ankle and brachial systolic pressures

#### Nursing Care: Pre-Op

- Psychological preparation: feelings & perceptions regarding amputation
- Teach about phantom limb pain
- Teach pre-, post-, and discharge expectations
- If infection: antibiotics, C&S
- Limb Disposal Form
- Discuss pain management
- Stump (Residual Limb) Care
- Prosthesis, mobility
- Support groups, resources

#### Types of Procedures

- Closed:
  - a. Most common type
  - b. Skin flap sutured over the end of residual limb; closing site
  - c. Allows for weight bearing on stump
- Open:
  - a. Used for active infection
  - b. Skin flap left open to allow drainage

- c. Skin flap closed later in another surgery

### Nursing Care: Post-Op

- Prevent post-op complications: *infection, pain, contractures, edema, hemorrhage, DVTs, PNA*
- Assess for bleeding
- Vital Signs
- Tissue perfusion (neurovascular checks)
- Assess for infection
- Manage dressings
- Manage medications
- Positioning
- Exercise education

### Post-Op Positioning

- Ok to elevate residual limb for first 24 hrs post-surgery
- DO NOT ELEVATE past 24 hrs
- Prevent deformities:
  - a. Prone positioning 3-4xday for 30 minutes
  - b. LE amputations: Extend the hip joint
  - c. Avoid prolonged sitting
  - d. ROM & strengthening exercises ASAP
  - e. Keep legs together to prevent abduction deformity

### Pain

- incisional vs. phantom
- Pain may indicate hematoma or fluid accumulation
- Incisional: analgesics
  - a. Muscle spasms : change position, apply heat if ok by MD
- Phantom: REAL sensation

### Phantom Limb Pain

- Related to severed nerves

- Described as deep, burning, cramping, shooting, or aching
- Can be immediate or up to several weeks, to years post-op
- Less frequently with traumatic amputations
- Mirror Therapy: mirror thought to provide visual information to the brain, replacing sensory feedback expected from the missing limb
- **Pain management is different than incisional pain**

#### Phantom Limb Pain Management:

- Exercises: push the residual limb down toward the bed on a pillow (helps with pain, helps with mobility)
- Non-pharmacological treatments:
  - a. Transcutaneous electrical nerve stimulation (TENS); Massage; Relaxation therapy; Heat; Biofeedback
- Pharmacological Treatments:
  - b. Calcitonin: decrease phantom limb sensation
  - c. Beta Blocker's (propranolol): dull, burning sensation
  - d. Anticonvulsant's (gabapentin): sharp, burning, stabbing, limb pain
  - e. Antispasmodics (baclofen): muscle spasms
  - f. Antidepressants (Amitriptyline HCl): sleep and pain

#### Client's Feelings & Self-Image

- Need to allow grieving time for loss of body part and change in body image
- Depression, anger, withdrawal, and grief
- Assess: psychosocial well-being, altered self-image, altered self-esteem, willingness and motivation for rehabilitation
- Encourage support groups, refer to counselors as appropriate

#### Immediate vs. Delayed Prosthesis Fitting:

- Immediate:
  - a. prevents swelling, allows for better adjustment, allows for early mobility = less complications
  - b. Early weight bearing – rigid dressing

- c. Unable to see incision (plaster cast)
- Delayed:
  - a. ACE wrap
  - b. focus remains on preventing edema, molding stump; treating infection; preventing other complications
  - c. Temporary prosthesis; partial weight bearing after suture removal → work on up to full weight bearing
  - d. If goal = ambulation, must have temporary prosthesis ASAP

### Residual Limb Care:

- Inspect stump daily
- If blisters or raw area = prosthesis adjustment – call MD
- Clean stump daily; warm water and soap, rinse well, no ETOH/lotions/oils unless ordered by MD
- Needs to be shaped and shrunk for prosthesis
- Wrapping the stump with elastic bandages (ACE); figure 8 style
- Stump shrinker sock (synthetic cotton or wool); apply before prosthesis, wash sock daily
- Wear prosthesis during the day after prescribed- helps molding
- Air splint (plastic inflatable device)- inflated to protect stump and allows for inspection of incision
- Teach: how to care for stump, wrapping, exercises, prosthesis care
- Too tight: elevate stump, if continues- call MD
- Too loose: as stump heals, it will shrink- call Prosthetic orthotist
- After removing prosthesis: wipe inside with damp cloth and thoroughly dry; do not immerse in water