



Wolters Kluwer
Health

Lippincott
Williams & Wilkins

Chapter 5: Pathology and Pharmacology



Introduction

- Pathology
- Pharmacology
- Pathology, pharmacology, and massage

Key Definitions

- Pathology
 - Study of disease processes or of any deviation from a normal, healthy condition
- Pharmacology
 - Science of the preparation, mechanisms, applications, and effects of medications used to treat pathological conditions

Pathology

- Etiology
 - Study of the source or cause of disease
 - For example: heredity, infection, autoimmunity, trauma, or aging
- Stages of injury and healing
 - **Acute:** develops quickly and severely or has a short duration
 - **Subacute:** period of 3 days to 3 weeks after onset
 - **Chronic:** develops slowly, recurs, or persists for a long time

Pathology—(cont.)

- **Contraindication**
 - A situation/condition for which massage should be avoided
 - Types
 - **Local:** avoid massage only in affected area (bruise)
 - **Systemic:** avoid massage altogether (fever)
- **Indication**
 - A condition for which massage would be beneficial or recommended
 - **When in doubt, refer out**



Pharmacology

- Diagnosing and prescribing are not in MT scope of practice.
- Massage strokes increase blood flow and can increase the effects of medication in the body.
- Medications are categorized by purpose and mechanism.
- Learn drug classifications and the effect of massage on drugs.
- Consult the *Physicians' Desk Reference* or other source.

Pharmacology—(cont.)

- Anti-inflammatory drugs/analgesics
 - Avoid techniques that create therapeutic inflammation.
 - Common classifications
 - Salicylates (aspirin)
 - Acetaminophen (Tylenol)
 - Non-steroidal anti-inflammatory drugs (ibuprofen)
 - Corticosteroids (cortisone)
 - Narcotics (codeine)
 - Combination medications (Excedrin)

Pharmacology—(cont.)

- Muscle relaxants
 - Avoid techniques that require clients to monitor pain levels (positional release, direct pressure, friction)
 - Common classifications
 - Centrally acting skeletal muscle relaxants (Flexeril)
 - Peripherally acting skeletal muscle relaxants (Dantrium)

Pharmacology—(cont.)

- Anti-anxiety medications
 - Adjust for side effects such as dizziness, poor coordination, forgetfulness, confusion, and depression.
 - Have client use caution when sitting up and getting off the table.
 - Common classifications
 - Barbiturates (Amytal)
 - Benzodiazepines (Xanax)
 - Buspirone (BuSpar)

Pharmacology—(cont.)

- Antidepressants
 - Constipation is a side effect treatable by massage
 - Massage alters brain chemicals and may affect client's response to medication; consult prescribing physician.
 - Common classifications
 - Tricyclics (Aldi-Nortriptyline)
 - Monoamine oxidase inhibitors (MAOIs; Marplan)
 - Selective serotonin reuptake inhibitors (SSRIs; Prozac)

Pharmacology—(cont.)

- Cardiovascular disease management
 - Massage may make client fatigued, sluggish, or dizzy
 - Have client get off the table slowly after massage
 - Common classifications
 - Antilipemics (Lipitor)
 - Antianginal drugs (beta blockers)
 - Antihypertensive drugs (sympatholytic and vasodilating)
 - Diuretics

Pharmacology—(cont.)

- Anti-infectives
 - Massage may help reduce symptoms of GI side effects.
 - Use gentler techniques to avoid overstressing the body.
 - Common classifications
 - Antibacterial drugs (penicillins)
 - Antiviral drugs (Tamiflu)
 - Antimycotic drugs (Amphotec)

Pharmacology—(cont.)

- Antihistamines
 - Side effects include drowsiness, anxiety, dizziness, lethargy, and distorted or masked reactions to massage.
 - Avoid any area that has received topical applications or injections of medications for at least 24 hours.
 - Common classifications
 - Ethanolamines (Tavist)
 - Alkylamines (Dimetapp)
 - Piperidines (Zyrtec)



Pharmacology—(cont.)

- Anticoagulant therapy
 - Systemic contraindication because of the risk for blood clots until cleared by physician.
 - Clients may be weak or tired after a massage.
 - Help client sit up, get off the table, and get home safely.
 - Common classifications
 - Warfarin (Coumadin)
 - Anisindione (Miradon)

Abnormal Conditions of Cells and Tissues

- Cancer
 - **Manifestations:** tumor, sarcoma, leukemia, myeloma, lymphoma
 - **Contraindications:** locally at the site of tumor
 - **Indications:** helps client cope with symptoms and drug side effects associated with cancer (e.g., pain, stress, fatigue)
 - **Etiology:** carcinogens (substances that cause cancer; e.g., smoking)
 - **Treatments:** surgery, radiation, chemotherapy, bone marrow transplantation, etc.



Abnormal Conditions of Cells and Tissues—(cont.)

- Plantar fasciitis
 - **Manifestations:** pain in plantar fascia on bottom of foot that is greatest on getting out of bed in the morning
 - **Contraindications:** none
 - **Indications:** reduces discomfort and promotes healing by reducing muscle tension, increasing circulation, and softening and stretching the collagen fibers in the fascia
 - **Etiology:** could be bone spur; unclear whether inflammatory or degenerative condition
 - **Treatments:** vary



Integumentary (Skin) Conditions

- Open wounds or sores
 - **Manifestations:** blood or fluid leaking out or a crust or scab at the site of injury
 - **Types:** incisions, lacerations, abrasions, fissures, vesicles, pustules, and ulcers
 - **Contraindications:** locally for affected area
 - **Indications:** none
 - **Etiology:** injury
 - **Treatments:** topical medications and bandages



Integumentary (Skin) Conditions—(cont.)

- Acne vulgaris
 - **Manifestations:** raised, white or black and sometimes reddened, inflamed pimples on the face, neck, and upper back
 - **Contraindications:** locally for affected area to prevent spread of infection and aggravation by massage lotion
 - **Indications:** none
 - **Etiology:** bacterial infection of oil glands
 - **Treatments:** topical or oral medications

Integumentary (Skin) Conditions—(cont.)

- Superficial scar tissue
 - **Manifestations:** new skin tissue that is randomly structured, dense, and fibrous and has decreased blood supply, decreased sensory neurons, and no hair follicles or pigmentation
 - **Contraindications:** locally for affected area during acute stage
 - **Indications:** increases speed of healing, circulation, and mobility; minimizes fascial restriction
 - **Etiology:** healing of an injury to the skin
 - **Treatments:** soft tissue work

Integumentary (Skin) Conditions—(cont.)

- Fungal infections
 - **Manifestations:** red, circular lesions and itchy patches that thrive in warm, moist places
 - **Contraindications:** locally for small affected area; systemically for large affected area
 - **Indications:** none
 - **Etiology:** infection by fungi
 - **Treatments:** topical fungicides or oral medications

Skeletal System Conditions

- Postural deviations
 - **Manifestations:** kyphosis (overdeveloped thoracic curve), lordosis (excessive lumbar curve), and scoliosis (lateral curvature of spine)
 - **Contraindications:** none
 - **Indications:** reduces lengthened and shortened muscle and soft tissue tension and pain
 - **Etiology:** structural (congenital) or functional (injury)
 - **Treatments:** physical therapy, chiropractics, and braces surgical rods



Postural Deviations



Scoliosis



Kyphosis



Lordosis



Skeletal System Conditions—(cont.)

- Fractures

- **Manifestations:** pain and decreased function at the joint closest to injury
- **Contraindications:** locally during acute stage
- **Indications:** promotes healing in later stages by increasing circulation and reducing inflammation
- **Etiology:** injury or disease process
- **Treatments:** immobilization, casting, surgery with pins or plates; massage that focuses on lymphatic drainage



Types of Fractures

Oblique



Spiral



Comminuted



Greenstick



Transverse



Skeletal System Conditions—(cont.)

- Sprains
 - **Manifestations:** pain (all stages) and redness, heat, swelling, decreased mobility at affected joint (acute stage)
 - **Contraindications:** locally during acute stage, except for lymphatic drainage
 - **Indications:** enhances healing, decreases swelling and adhesion, and increases range of motion to affected joint during the subacute stage
 - **Etiology:** overstretching or tearing of the ligament because of trauma or exceeding range of motion
 - **Treatments:** immobilization, ice and compression, elevation



Skeletal System Conditions—(cont.)

- Osteoarthritis
 - **Manifestations:** stiffness and pain in affected joints, redness and heat (if inflamed), and muscle tension
 - **Contraindications:** locally during acute stage when inflammation is present
 - **Indications:** relieves pain and stiffness and increases joint mobility during the subacute stage; treats trigger points
 - **Etiology:** repetitive wear and tear of synovial joint structures
 - **Treatments:** pain and anti-inflammatory medications, steroid injections, nutritional supplements, dietary change

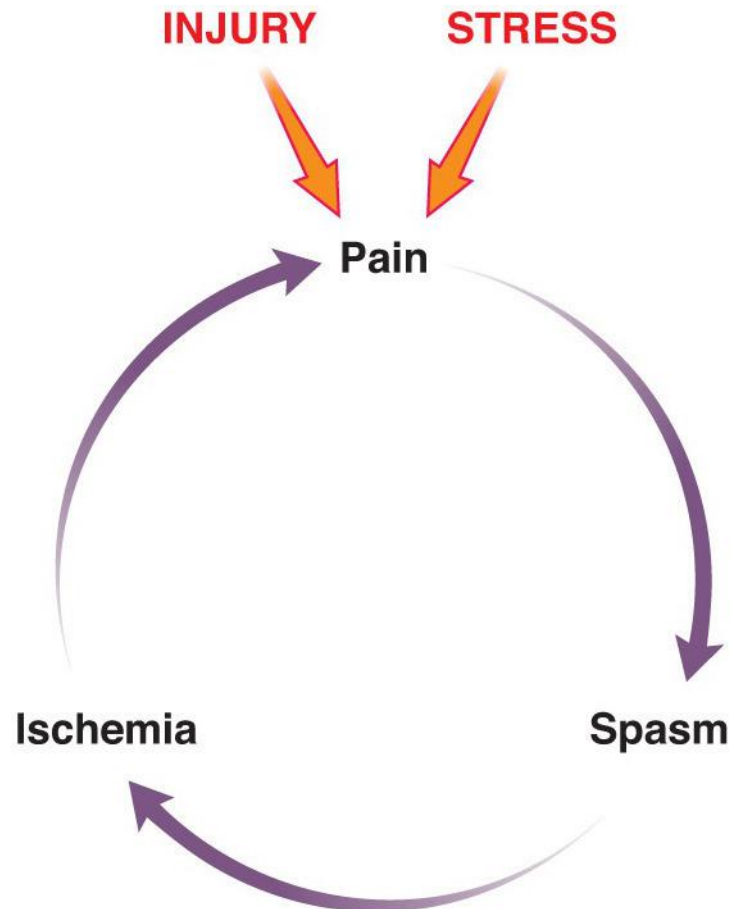


Muscular System Conditions

- Hypertonic muscles
 - **Manifestations:** tightness, pain, discomfort, restrictions in functional movement, and compensation patterns
 - **Contraindications:** none
 - **Indications:** relieves pain, lengthens shortened muscles, and reduces ischemia
 - **Etiology:** exercise and activities that result in repetitive muscle contractions
 - **Treatments:** massage, ice or heat packs, hot tub soaks, analgesics, and muscle relaxants



Pain–Spasm Cycle





Muscular System Conditions—(cont.)

- Muscle spasms and cramps
 - **Manifestations:** involuntary muscle contractions and no immediate relaxation; tightness, pain
 - **Contraindications:** locally during acute stage or with splinting or protective guarding
 - **Indications:** decreases pain and hypertonicity and increases circulation during subacute and chronic stages
 - **Etiology:** ischemia, muscle splinting after injury, and low levels of calcium and magnesium in the blood
 - **Treatments:** splinting, massage, ice or heat packs, analgesics, muscle relaxants, and nutritional supplements

Muscular System Conditions—(cont.)

- Trigger points
 - **Manifestations:** painful knots or taut bands that can refer pain to another part of the body
 - **Contraindications:** none
 - **Indications:** relieves trigger points and pain, relaxes muscle, and increases circulation to muscle tissue
 - **Etiology:** spasms at motor end unit resulting from decreased circulation, lack of hydration, mechanical stress, lack of sleep, and increased stress
 - **Treatments:** massage, heat or ice packs, pain medication (injected or oral), and muscle relaxants

Muscular System Conditions—(cont.)

- Fibromyalgia
 - **Manifestations:** chronic muscle pain, neuroendocrine and sleep disruption, tender points in the muscles and soft tissue
 - **Contraindications:** none
 - **Indications:** reduces pain and improves sleep
 - **Etiology:** unknown
 - **Treatments:** massage, pain and sleep medications, antidepressants, muscle relaxants, nutritional changes and supplementation, exercise, stretching, and acupuncture



Muscular System Conditions—(cont.)

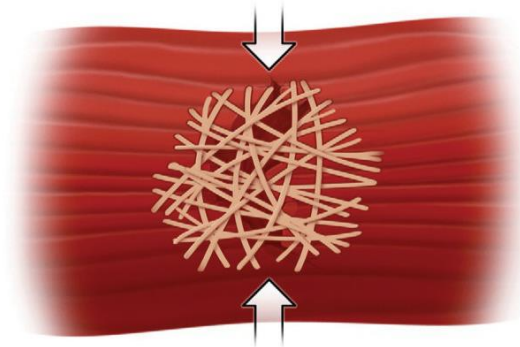
- Muscle strain
 - **Manifestations:** localized pain, stiffness, and inflammation
 - **Contraindications:** locally during acute and subacute stages
 - **Indications:** breaks up adhesions and scar tissue, reduces edema, and restores range of motion to nearest joint
 - **Etiology:** excessive stretch or contraction
 - **Treatments:** massage, ice or heat, anti-inflammatory medications, muscle relaxants, and analgesics



Muscle Tissue Injury



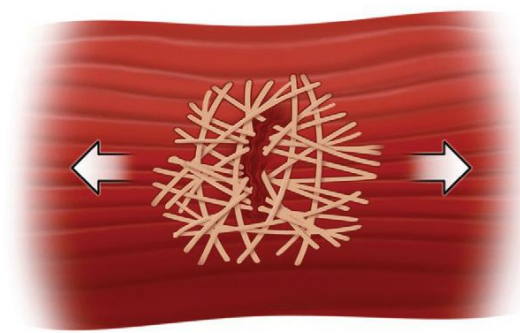
A Injured muscle tissue



C Structural weak spot



B Random arrangement of deposited scar tissue



D New injury at site of scar tissue

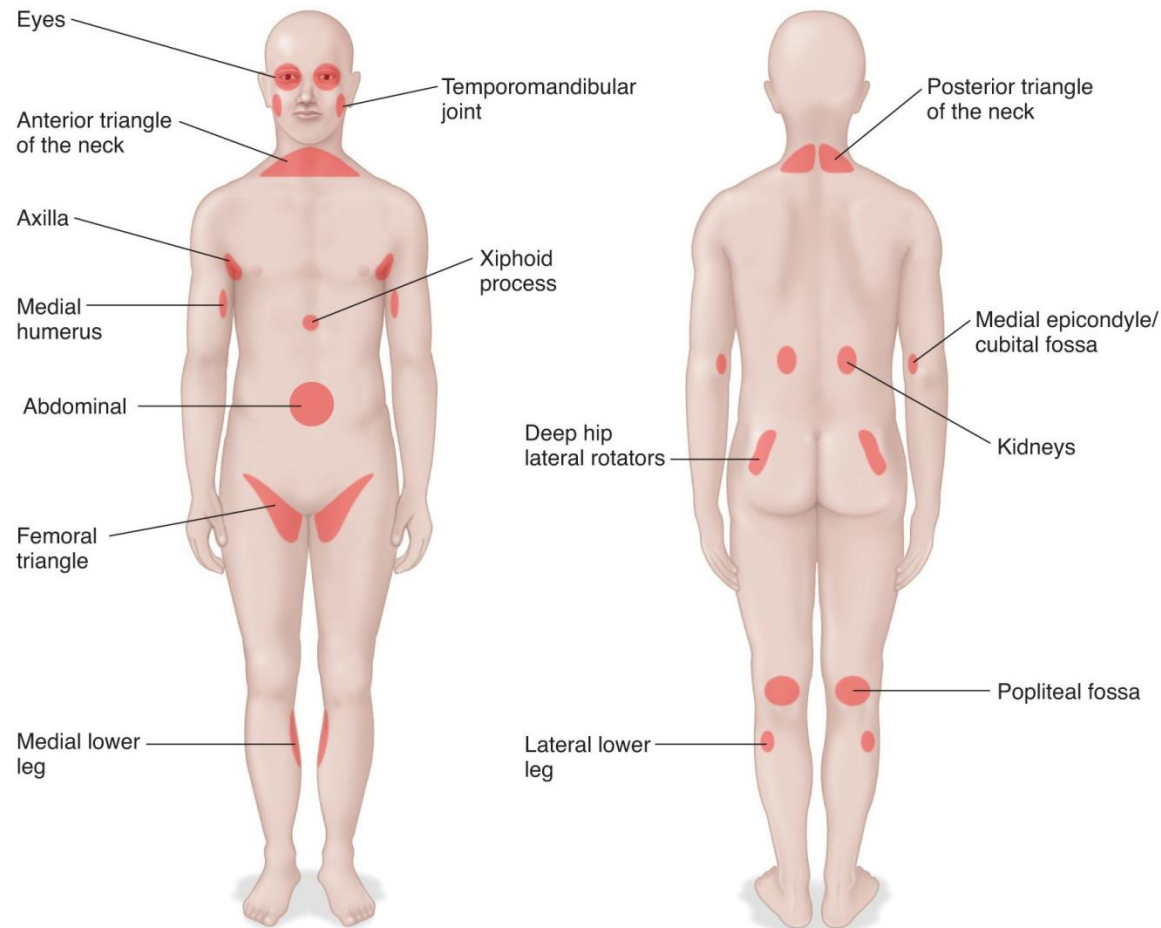


Muscular System Conditions—(cont.)

- Tendinopathy
 - **Manifestations:** pain, stiffness, inflammation, and decreased ROM in acute stage
 - **Contraindications:** locally during acute stage
 - **Indications:** increases circulation, breaks up adhesions or scar tissue, reduces edema, and restores ROM to the affected joint
 - **Etiology:** injury and inflammation of tendon
 - **Treatments:** massage, ice or heat, immobility of affected tendon, pain medications, anti-inflammatory medications



Endangerment Sites





Nervous System Conditions

- Sciatica
 - **Manifestations:** aching or cramping sensations and/or shooting or burning pain in the buttocks and down the leg into foot
 - **Contraindications:** locally in true sciatica
 - **Indications:** relaxes problematic muscle tissue and relieves pressure on nerve if muscular cause exists
 - **Etiology:** irritation to sciatic nerve near its root
 - **Treatments:** massage, muscle relaxants, pain medication, physical therapy, traction, cortisone injections, chiropractic or osteopathic adjustment, or surgery

Nervous System Conditions—(cont.)

- Headaches
 - **Manifestations:** pain in head and neck region
 - **Contraindications:** systemically in acute vascular and pathological headaches
 - **Indications:** relieves stress and muscle tension associated with tension headaches
 - **Etiology:** increased muscular tension, increased blood flow within vessels in cranium, underlying pathology
 - **Treatments:** ice, pain and anti-inflammatory medications, muscle relaxants, nutritional supplements, and stress management



Nervous System Conditions—(cont.)

- Thoracic outlet syndrome
 - **Manifestations:** paresthesia, tingling, shooting pain, weakness, numbness, feeling of fullness, and discoloration
 - **Contraindications:** locally if cause is other than muscular tension
 - **Indications:** relieves pain and other symptoms when the cause is muscular tension
 - **Etiology:** tight or atrophied muscles, cervical or rib misalignment, herniated intervertebral disk, or spondylosis
 - **Treatments:** vary



Nervous System Conditions—(cont.)

- Stress
 - **Manifestations:** anxiety, depression, sleep disruption, or compromised immune function
 - **Contraindications:** none
 - **Indications:** reduces stress and restores homeostasis by evoking a parasympathetic response in the body
 - **Etiology:** various physiological and emotional stressors
 - **Treatments:** massage



Cardiovascular System Conditions

- Bruise
 - **Manifestations:** black and bluish colored skin
 - **Contraindications:** locally
 - **Indications:** none
 - **Etiology:** injury
 - **Treatments:** none



Cardiovascular System Conditions— (cont.)

- Varicose veins
 - **Manifestations:** bluish, ropey, and elevated veins in the legs
 - **Contraindications:** locally for deep specific massage techniques
 - **Indications:** none
 - **Etiology:** damage to internal venous valves resulting in retrograde blood flow and distension
 - **Treatments:** support hose, elastic bandages, elevation of legs, injections of chemicals, or surgical removal



Cardiovascular System Conditions— (cont.)

- High blood pressure
 - **Manifestations:** none, typically; detected only by blood pressure assessment
 - **Contraindications:** systemically in severe cases until client's physician clears it
 - **Indications:** reduces physical stress and encourages parasympathetic response within the body
 - **Etiology:** varies
 - **Treatments:** medications or dietary changes such as reduction of salt or fat intake



Lymphatic and Immune System Conditions

- Edema
 - **Manifestations:** puffy and swollen tissue in area where fluid is retained
 - **Contraindications:** systemically in cases of diagnosed underlying pathological conditions
 - **Indications:** returns lymphatic fluid to the heart by increasing circulation when related to immobility, inactivity, or musculoskeletal injury
 - **Etiology:** electrolyte or protein imbalances, mechanical obstruction
 - **Treatments:** diuretic medications



Lymphatic and Immune System Conditions—(cont.)

- Fever
 - **Manifestations:** body temperature elevated above normal, shivering, flushing, and sweating
 - **Contraindications:** systemically for massage that requires an adaptive response
 - **Indications:** improves sleep when reflexive or very light
 - **Etiology:** viral or bacterial infection
 - **Treatments:** vary depending on cause



Respiratory System Conditions

- The common cold
 - **Manifestations:** mild fever, headache, sore throat, postnasal drip, congestion, and coughing
 - **Contraindications:** systemically during acute stage
 - **Indications:** may speed recovery in subacute stage
 - **Etiology:** viral infection of upper respiratory tract
 - **Treatments:** rest, increased fluid intake, antihistamine medications, decongestants, and cough suppressants



Respiratory System Conditions—(cont.)

- Sinusitis
 - **Manifestations:** headaches; tenderness over the affected area; runny or congested nose; facial or tooth pain; fatigue; thick, opaque mucus; fever; and chills
 - **Contraindications:** systemically during acute stage
 - **Indications:** may help sinuses drain and reduce sinus pain in client with chronic or noninfectious cases
 - **Etiology:** pathogenic infection, allergies, physical obstruction
 - **Treatments:** increasing air humidity and water intake, decongestants, corticosteroids, and antibiotics



Respiratory System Conditions—(cont.)

- Asthma
 - **Manifestations:** coughing, wheezing, and difficulty breathing
 - **Contraindications:** systemically during acute stage
 - **Indications:** relaxes and improves efficiency of tight breathing muscles (diaphragm, intercostals, scalenes)
 - **Etiology:** unknown
 - **Treatments:** avoidance of triggers; use of steroids and bronchodilators



Digestive System Conditions

- Irritable bowel syndrome
 - **Manifestations:** irregular bowel activity, constipation, diarrhea, abdominal bloating, and intestinal cramping
 - **Contraindications:** none
 - **Indications:** reduces stress
 - **Etiology:** stress, anxiety, and diet
 - **Treatments:** lifestyle changes to reduce stress and anxiety; changes in diet

Digestive System Conditions—(cont.)

- Peptic ulcers
 - **Manifestations:** burning pain in stomach or chest that is sometimes eased by eating; abdominal bloating, burping, or vomiting after meals
 - **Contraindications:** locally for techniques that involve mechanical manipulation or pressure
 - **Indications:** reduces stress, increases circulation of blood and lymph, and aids healing, as long as abdomen is avoided
 - **Etiology:** varies
 - **Treatments:** antibiotics, antacids, and avoidance of medications that cause symptoms



Endocrine System Conditions

- Diabetes mellitus
 - **Manifestations:** frequent urination, excessive thirst, elevated appetite, weight loss, nausea, and vomiting
 - **Contraindications:** systemically shortly after client has taken insulin
 - **Indications:** none
 - **Etiology:** insufficient insulin production or insulin resistance in the cells of the body
 - **Treatments:** diet, exercise, and insulin



Reproductive System Conditions

- Breast cancer
 - **Manifestations:** small, often painless lump or thickening of breast tissue
 - **Contraindications:** locally in areas affected by edema, surgery, soreness, or numbness and in lymph nodes; obtain clearance from physician because massage can be controversial
 - **Indications:** none
 - **Etiology:** unknown
 - **Treatments:** chemotherapy, surgery, radiation, and hormone therapy



Reproductive System Conditions—(cont.)

- Prostate cancer
 - **Manifestations:** urination problems in early stages and blood in urine, painful ejaculation, and bone pain later stages
 - **Contraindications:** locally in areas affected by edema, surgery, soreness, or numbness; obtain clearance from physician because massage can be controversial
 - **Indications:** none
 - **Etiology:** unknown
 - **Treatments:** chemotherapy, radiation, hormone therapy

Reproductive System Conditions—(cont.)

- Pregnancy
 - **Manifestations:** nausea, vomiting, loss of balance and coordination, destabilized pelvis, and general discomfort
 - **Contraindications:** vary depending on trimester and presence of complications
 - **Indications:** reduces stress and discomfort



Conditions of the Special Senses

- **Manifestations:** blindness, deafness, and compromised proprioception
- **Contraindications:** none, in general; clients may need special attention to ensure a safe, relaxing, and comfortable massage
- **Indications:** none



Summary

- Important to know indications and contraindications for common conditions
- “When in doubt, don’t”
- Consult In Brief boxes or a pathology text for details on specific conditions