Chapter 6 Introduction

- Lymph system function
  - What moves lymph?
    - Gravity
    - Muscle contraction
    - Alternating hot and cold
    - Breathing
    - Massage

- Back-up anywhere in system changes fluid balance
  - Veins, lymph vessels or nodes can be injured
  - Stagnant fluid impairs diffusion
  - Implications for massage

Chapter 6 Introduction

- Immune system mistakes
  - Allergies
  - Autoimmune diseases
  - (Both of these are hypersensitivity reactions)

Chapter 6 Introduction

- Hypersensitivity reactions
  - Type I:
    - Immediate reaction; Ig
    - Hay fever, food allergies
  - Type II
    - Cytotoxic ("cell killing") reactions (rare)
    - Hemolytic anemia, penicillin allergies, reactions to mismatched blood

Chapter 6 Introduction

- Type III
  - Antibodies bind with antigens, but particles too small to be phagocytized: granulomas
  - Get caught in filters: kidneys, eyes, brain, serous membranes
  - Stimulate inflammatory reaction
  - Lupus, other autoimmune diseases

- Type IV
  - Delayed reactions, cell-mediated (T-cells)
  - Contact dermatitis, etc.
Edema

• Definition:
  – Accumulation of excess fluid between cells

• Etiology: what happens?
  – More fluid accumulates between cells than the lymphatic and circulatory capillaries can take up
  – Causes include...
    • Mechanical factors: weak heart, liver, kidney; obstruction in vessels or lymph nodes; tight clothing
    • Chemical factors: accumulation of hydrophilic substances between cells; water retention

Signs and Symptoms:
  – Depends on source, duration, affected area
    • Soft, puffy, boggy texture
    • Hot with recent injury, infection
    • Cool if long-standing, from poor circulation
    • Pitting suggests circulatory overload
    • Hard, indurated edema suggests long-term chronic problems

Treatment:
  – Address the underlying cause; varies
  – Medications:
    • Antihistamines for allergic reactions
    • NSAIDs
    • Steroidal anti-inflammatories
    • Diuretics for heart, liver, kidney dysfunction

Massage
  – Risks: Most types of edema contraindicate all but the lightest bodywork, at least in the acute stage.
  – Benefits: Subacute or postacute musculoskeletal injuries may have long-term edema that general massage can help to resolve.
  – Options: Lymphatic work from a trained practitioner is appropriate for forms of edema that is not due to infection or other contraindicating condition.

Mononucleosis

• Definition:
  – Viral infection of salivary glands and throat; invades whole lymphatic system
  – 90% from EBV
  – Very common, not always diagnosed
    • Mostly seen in 15-25 year olds

Etiology: what happens?
  – EBV is spread most efficiently through saliva-saliva contact (“kissing disease”)
  – Virus invades epithelial tissue of throat, salivary glands
  – Incubation up to 60 days (contagious, may be asymptomatic)
  – EBV is not eradicated, can go dormant
Mononucleosis

• Signs and Symptoms:
  – In young adults:
    • Prodrome may have general fatigue, malaise days-weeks
    • Aggressive infection: fever, sore throat, swollen nodes
  – Enlarged spleen in ½ all patients
  – Acute symptoms last about 2 weeks; leave person weak, exhausted
  – May take months for full recovery

• Treatment:
  – Supportive therapies
  – Avoid contact sports until the spleen is healthy
  – Medications:
    – Acetaminophen, ibuprofen for fever, aches
    – Steroidal anti-inflammatories for inflammation of throat, tonsils

• Massage
  – Risks: Fever and inflamed lymph nodes contraindicate massage until the infection has resolved. Lymphatic congestion and fatigue may be lingering problems for mono patients that require some adaptation.
  – Benefits: Gentle work that doesn’t challenge homeostatic adaptation is appropriate during recovery; a client who has fully recovered from mono is a good candidate for massage.

Allergic Reactions

• Definition:
  – Immune system reactions against stimuli that are not inherently hazardous
• Etiology: what happens?
  – Theories about allergies:
    • Hygiene hypothesis
    • Repeated exposures lead to increasing reactions
    • Multiple chemical sensitivity syndrome: person is exposed to trigger, allergic reactions become progressively worse and diversified

• Types of allergic reactions
  – Anaphylaxis:
    • Acute, severe, systemic
    • Massive histamine release
    • Triggers: antibiotics, blood products, diagnostic imaging dye; latex, wasp stings, ants, honeybees; nuts...

  – Angioedema:
    • Rapid onset of localized swelling (often asymmetrical)
    • Skin, genitals, extremities, GI tract
      – At tongue, larynx, pharynx: may interfere with breathing
    • Triggers: nuts, chocolate, fish, eggs, aspirin, ACE inhibitors, poison ivy, etc.
**Allergic Reactions**

- **Signs and Symptoms:**
  - Hives, itching, flushing
  - Can cause breathing problems, dysphagia
  - At GI tract: nausea, vomiting, cramps, bloating
  - Puffy, hot skin; extreme asymmetric swelling
  - Rapid onset, usually resolved within 72 hours

- **Treatment:**
  - Beyond identifying and avoiding triggers, most allergies are controlled by medication.
  - Allergy shots to reduce risk of dangerous anaphylaxis

- **Medications:**
  - Antihistamines
  - Epinephrine for severe attacks
  - Steroidal anti-inflammatories as needed

**Allergic Reactions**

- **Massage**
  - Risks: Acute swelling around the breathing passages, can be a medical emergency. Client with allergies may be sensitive to some lubricants and other factors (scent, laundry detergent) that may be present in a session room.
  - Benefits: Massage can help address the exhaustion and other discomfort that allergies cause as long as care is taken not to exacerbate symptoms.
  - Options: Massage that works to reduce inflammation, especially in the sinuses and throat, can provide some symptomatic relief from non-threatening respiratory allergies.

**Chronic Fatigue Syndrome**

- **Definition:**
  - Collection of signs and symptoms involving fatigue and other symptoms

- **Etiology: what happens?**
  - Combination of factors:
    - Infectious agents, stressful event, endocrine/neurological dysfunction, etc.
  - Used to be called "Epstein-Barr"; from exposure to EBV

- **Signs and Symptoms:**
  - Fatigue not restored by sleep or rest for 6 months + 4 or more of...
    - Poor short term memory
    - Sore throat
    - Muscle/joint pain
    - Poor sleep
    - Poor concentration
    - Headache in a new pattern

- **Treatment:**
  - Make lifestyle choices for best support:
    - Manage stress, avoid stimulants, depressants, get gentle exercise

- **Medications:**
  - NSAIDs for joint, muscle pain
  - Anti-anxiety medications
  - Anti-allergy medications
Chronic Fatigue Syndrome

- Massage
  - Risks: Clients with CFS may have low stamina and be easily over-treated; the rigor of their massage must be gauged to their resilience.
  - Benefits: Massage can help with pain, sleep, anxiety. This is a good choice for CFS patients.

Fever

- Definition:
  - Abnormally high body temperature
  - Usually from bacterial or viral infection
  - Can be stimulated by other types of tissue damage
  - Identified at 101°F, 38.3°C

- Etiology: what happens?
  - Several steps:
    1. An infection begins
    2. White blood cells find and eat pathogens, stimulate other WBCs
    3. Interleukin-1 and other cytokines are produced
    4. Interleukin-1 goes to the brain; thermostat is reset
    5. Muscular and glandular reflexes (shivering, etc.) raise core temperature

- Signs and Symptoms:
  - Body temperature is higher than normal
  - Can fluctuate through the day
  - Chills, shivering; flushing, sweating

- Treatment:
  - Best practices are controversial;
    - Suppressing symptoms may prolong infection
    - Fever can become dangerous, is usually uncomfortable

- Medications:
  - Aspirin, ibuprofen, acetaminophen
**Fever**

- Massage
  - Risks: Fever usually indicates infection or severe dysfunction, and massage is best postponed in order to avoid working with a client who is already challenged.
  - Benefits: Gentle or reflexive bodywork may be supportive. Clients who have fully recovered are good candidates for massage.

**HIV/AIDS**

- **Definition:**
  - AIDS = acquired immune deficiency syndrome
  - Recognized in 1983, probably present before then
  - Causative agent is HIV: human immunodeficiency virus
- **Etiology: what happens?**
  - HIV enters body in intimate fluid:
    - Blood, breast milk, semen, vaginal secretions
    - Disabling T-cells dismantles immune system response

**HIV/AIDS**

- **Communicability**
  - Exchange of intimate fluids
  - Not sweat, saliva, tears
  - Unstable outside a host
  - Can’t use insect or other vectors
- **Signs and Symptoms:**
  - Depends on the stage of the infection

**HIV/AIDS**

- **Treatment:**
  - Drug combinations to get at the virus
    - These can be toxic
    - They work by slowing/interfering with replication
    - Not always clear when to start medication
- **Medications:**
  - Antiretroviral drugs

**HIV/AIDS**

- **Massage**
  - Risks: It is rare but possible for HIV+ people to have opportunistic diseases that may be communicable through indirect or casual contact. The biggest risk is that the MT may carry some pathogen that is potentially dangerous for the client.
  - Benefits: Asymptomatic HIV indicates massage, which can boost immune system activity. Clients with AIDS can benefit from massage that is adjusted to their resilience. Bodywork can be an especially important treatment for people who are often rejected, ignored, or persecuted.

**Crohn Disease**

- **Definition:**
  - Part of “inflammatory bowel disease” with ulcerative colitis
  - Disconnected patches of inflammation and damage all along the GI tract, some other tissues
Crohn Disease

- Etiology: what happens?
  - Inflamed areas in upper and lower GI tract
  - Can affect tissues outside digestive system
  - Scar tissue may block intestines (stenosis)
  - Fistulas may form

- Complications include...
  - Malnutrition
  - Gallstones, jaundice, cirrhosis
  - Kidney stones
  - Internal bleeding
  - Increased risk of colorectal cancer

Crohn Disease

- Signs and Symptoms:
  - Flare and remission
  - During flare:
    - Abdominal pain, cramping, diarrhea (may be bloody), bloating
    - Weight loss, fever, ulcers in mouth, on skin, anal fissures, abscesses

- Treatment:
  - Treatment is aggressive to limit damage, risk of cancer
  - Surgery
    - Not curative, may be repeated
  - Dietary adjustments

Crohn Disease

- Medications:
  - Antibiotics as needed
  - Oral, injected, topical steroid anti-inflammatory
  - Immune-modifying drugs

- Massage
  - Risks: During flare a client with Crohn disease may be uncomfortable with rigorous bodywork. Also some meds may require adaptation.
  - Benefits: In remission massage can be safe and simply gauged to activity levels, although intrusive abdominal work may be painful.
  - Options: Gentle work to the abdomen may help the body to “organize” its responses to stimuli; it is especially important for clients with digestive problems.
Lupus

• Definition:
  – Autoimmune attack on various tissues
  – Mild to life-threatening
  • Can attack heart, lungs, kidneys, brain
  – Women > men, 9:1

• Etiology: what happens?
  – Immune system attacks on many types of tissue
  – Often begins at small blood vessels
• Systemic lupus erythematosus
  – Antibody attacks on tissues throughout the body
  • Leads to... arthritis, renal failure, thrombosis, psychosis, seizures...

• Signs and symptoms:
  – Lupus can affect every body system
  • Rash
  • Ulcers of mucous membranes
  • Arthritis
  • Non-specific muscle, joint pain; looks like fibromyalgia
  • Nervous System:
    • Headaches
    • Inflammation of blood vessels, atherosclerosis, heart attack
  • Renal failure

• Signs and symptoms:
  – 4+ of the following, not necessarily simultaneously:

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue</td>
<td>Cognitive dysfunction</td>
</tr>
<tr>
<td>Photosensitivity</td>
<td></td>
</tr>
<tr>
<td>Discoid rash</td>
<td></td>
</tr>
<tr>
<td>Ulcers at mucous membranes</td>
<td>Arthritis at 2+ joints</td>
</tr>
<tr>
<td>Palmar, pericarditis</td>
<td>Kidney problems</td>
</tr>
<tr>
<td>Brain irritation</td>
<td>Blood count abnormalities</td>
</tr>
<tr>
<td>Immune abnormalities</td>
<td>ANA in blood</td>
</tr>
</tbody>
</table>

• Treatment:
  – Goal: reduce inflammatory damage during flares
• Medications:
  – NSAIDs
  – Steroidal anti-inflammatory
  – Immune-suppressant drugs

• Massage
  – Risks: Active flares may involve inflammation of the skin, lungs, heart, kidneys, and joints. Any bodywork must be designed NOT to exacerbate these symptoms or put stress on an inflamed cardiovascular system.
  – Benefits: Gentle work during flare and more rigorous work during remission can help to address pain and stiffness.
Multiple Sclerosis

- **Definition:**
  - Inflammation, degeneration of myelin sheaths in CNS
  - Autoimmune

Multiple Sclerosis

- **Etiology: what happens?**
  - Myelin sheath in CNS is attacked, destroyed
  - Oligodendrocytes multiply to repair damage; ultimately fail
    - Myelin is replaced with scar tissue
  - Electrical impulses are slowed or obstructed
  - Runs in flare/remission

Multiple Sclerosis

- **Etiology**
  - Leading theories:
    - Immune system attack on myelin leads to massive inflammatory reaction and damage
    - Increase in incidence with distance from equator
      - Vitamin D deficiency is implicated

Multiple Sclerosis

- **Signs and Symptoms:**
  - “The Great Imitator”

<table>
<thead>
<tr>
<th>Weakness</th>
<th>Spasm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in sensation</td>
<td>Optic neuritis</td>
</tr>
<tr>
<td>Urologic dysfunction</td>
<td>Sexual dysfunction</td>
</tr>
<tr>
<td>Difficulty walking</td>
<td>Cognitive dysfunction</td>
</tr>
<tr>
<td>Depression</td>
<td>Digestive disturbance</td>
</tr>
<tr>
<td>Sensitivity to heat</td>
<td>Fatigue</td>
</tr>
</tbody>
</table>

Multiple Sclerosis

- **Treatment:**
  - Exercise, PT, OT, diet, sleep, stress management

- **Medications:**
  - Steroidal anti-inflammatories

Multiple Sclerosis

- **Massage**
  - Risks: Massage that is too deep or too fast can trigger painful spasms, even during remission. Sudden changes in temperature may be uncomfortable.
  - Benefits: Massage may help MS patients sleep better, manage stress and depression. This may help to reduce the frequency or severity of flares.
  - Options: Some MS patients experience weakness, spasm in their extremities. Massage may slow or minimize this as long as sensation is accurate.
Psoriasis

• Definition:
  – Accelerated production of skin cells
  – Classified as autoimmune
  • Runs in flare/remission
  • Treated with immune-suppressant drugs

Psoriasis

• Etiology: what happens?
  – Normal exfoliation cycle = 28-30 days
  – With psoriasis, isolated lesions = 3-4 days
  – Multifactorial condition:
    • Genetics: lots of pro-inflammatory chemicals; overlap with metabolic syndrome
    • Triggers: stress, infection, dry cold air, injuries

Psoriasis

• Signs and Symptoms:
  – Flare and remission
  – Lesions with well-defined edges, sometimes with silvery scale
  – Can develop anywhere on skin,
    • Rarely inside mouth, skin folds, genitals

Psoriasis

• Treatment:
  – Psoriasis has no cure; treatments are often temporarily successful
  • Medications:
    – Topical applications of soothing lotions
    – Vitamin D cream
    – Injected steroids into plaques

Psoriasis

• Massage
  – Risks: Be careful about making itching worse, and be sure skin is intact. Otherwise, no risks.
  – Benefits: Massage can be a welcome experience for clients with non-contagious skin conditions, as long as symptoms are not exacerbated.
  – Options: Use a hypoallergenic lubricant.

Rheumatoid Arthritis (RA)

• Definition:
  – Autoimmune attack on synovial membranes
  – 3.1 million in US
  – Women > men, 3:1
• Etiology: what happens?
  – Immune system attacks synovial membranes
    • Synovial membrane thickens, swells
    • Fluid accumulates
    • Inflamed tissue releases enzymes that erode cartilage
### Rheumatoid Arthritis

**Signs and Symptoms:**
- **Prodrome:** malaise precedes sharp, specific joint pain
- **Flare and remission**
- **Joints** are hot, painful, stiff
- **Bilateral,** may not be symmetrical

**Treatment:**
- It is important to get a good diagnosis for RA as soon as possible because early treatment leads to a better prognosis.
- **Medications:**
  - NSAIDs
  - Steroidal anti-inflammatories

### Rheumatoid Arthritis

**Massage**
- **Risks:** During a flare any intrusive or rigorous work may be overwhelming. Be aware that some RA medications may require adaptation as well.
- **Benefits:** Massage can help with pain, stress, and muscle tension.
- **Options:** ROM exercises, as long as they are painless, can be helpful for RA patients. Special focus on the muscles and tendons that cross affected joints is a good idea.