

Mosby's PATHOLOGY for Massage Therapists

Chapter 1 Disease Awareness and Infection Control

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Lesson 1.1 Objectives

- List and define terms related to the language of pathology.
- Identify risk factors of diseases.
- Discuss types and various agents of diseases.
- Discuss physical effects of aging.
- Contrast and compare relationships among pathogens, reservoirs, and resultant infection or disease.

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Introduction to Pathology

- Steps to understanding pathology:
 - Acquire basic terminology
 - Review of normal anatomy and physiology
- Goal of learning pathology in massage schools is public safety
 - Continually check for most up-to-date medical information

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Language of Pathology

- Disease – condition of abnormal function involving anatomic structures or body systems
 - Characterized by recognizable set of signs and symptoms
- Pathology – study of disease
 - Includes causes and effects of disease
- Diagnosis determines presence of disease

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Language of Pathology (cont'd.)

- Diagnosis – evaluation of physical signs and symptoms, medical history, physical examination, and other procedures that lead to identifying particular diseases
- Prognosis – prediction of how disease will progress and chances of recovery

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Language of Pathology (cont'd.)

- Signs – objective indicators of disease obvious to someone other than affected individual
 - Can be measured and observed
- Symptoms – subjective feelings of which only the affected person is aware
- Asymptomatic – disease without symptoms

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Language of Pathology (cont'd.)

- Syndrome – group of signs and symptoms occurring together to present a disease or abnormality
- Etiology – causes or origins of disease
- Idiopathic – disease without a known cause
- Risk factors – tendencies that promote disease development

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Language of Pathology (cont'd.)

- Disease can be described by its degree of involvement:
 - Local disease: affects one body area
 - Systemic disease: distributed throughout the body
 - Acute disease: abrupt onset and runs a brief course
 - Chronic disease: develops gradually, vague or mild symptoms, lasts longer than 6 mo.

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Language of Pathology (cont'd.)

- Remission – period of partial or complete disappearance of signs and symptoms
- Exacerbation – period of increased signs and symptoms
- Complications – conditions arising after onset of original disease

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Language of Pathology (cont'd.)

- Epidemic – occurs when a disease affects a large number of people at the same time within a region
- Pandemic – disease that involves large numbers of people in several regions, even worldwide
- Morbidity – rate a disease occurs within a group or area
- Mortality – number of deaths resulting from a disease in a given time period

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Leading Causes of Death in the United States (2004)

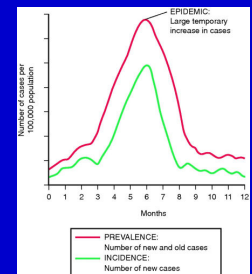
- | | |
|--------------------------------------|-------------------------|
| 1. Heart disease | 6. Diabetes |
| 2. Cancer | 7. Pneumonia/ influenza |
| 3. Stroke | 8. Kidney disease |
| 4. Chronic lower respiratory disease | 9. Septicemia |
| 5. Accidents | 10. Liver disease |

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Language of Pathology (cont'd.)

- Incidence – number of new cases in a particular population during a period of time
- Prevalence – number of existing new and old cases of a disease within a specific population and time period



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Risk Factors for Disease

- Risk factors make a group or individual more likely to contract a disease
- Examples of risk factors are:
 - Age
 - Gender
 - Genetics
 - Lifestyle
 - Environment
 - Stress

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Types of Diseases: Autoimmune

- Inappropriate or excessive immune system response
 - Immune system doesn't distinguish between body tissue and foreign material
 - Immune system attacks body tissue
 - Depletes immune system and its ability to respond to real threats



From Jarvis C. *Physical examination and health assessment*, ed. 4, Philadelphia, 2004, Saunders.

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Types of Diseases: Cancerous

- Uncontrollable growth of abnormal cells
 - Cancerous (malignant) tumors will often metastasize (or spread) to other body parts
- Noncancerous (benign) tumors don't metastasize, but may become life threatening if they put pressure on vital areas



From deVliver A. *Atlas of Clinical Dermatology*, ed 2, London, 1993, Gower Medical Publishing.

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Types of Diseases: Deficiency

- Deficiencies result from:
 - Lack of an essential vitamin, nutrient, or mineral in the diet
 - Inability to digest or absorb nutrients
- Interferes with growth, development, and metabolism



Courtesy Dr. RH MacDonald, In Kamal A, Brockhurst J.C. *Color atlas of genetic medicine*, ed 2, St. Louis, 1991, Mosby.

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Types of Diseases: Degenerative

- Caused by tissue breakdown from:
 - Overuse
 - The aging process



From Cotran RS, Kumar V, Collins T. *Robbin's pathologic basis of disease*, ed 7, Philadelphia, 2005, Saunders.

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Types of Diseases: Genetic

- Caused by abnormality in genetic code
- Can be:
 - Inherited
 - Result from spontaneous mutation



A. From Damjanov I. *Pathology for the health-related professions*, ed 2, Philadelphia, 2000, Saunders.
B. Courtesy A. Olney and M. MacDonald, University of Nebraska Medical Center, Omaha, Nebraska.

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Types of Diseases: Infectious

- Caused by biologic agents such as bacteria and fungi
- Transmitted by a reservoir (sources of infection) onto a host where pathogens reside
- Hosts – organisms in which pathogens reside
- Infectious diseases are contagious
- Also called communicable diseases

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Types of Diseases: Metabolic

- Physiologic dysfunctions that disrupt metabolism



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Types of Diseases: Congenital Disorders

- Present at birth
- Result from:
 - Genetic abnormalities
 - Maternal diet
 - Habits of pregnant mother (smoking, alcohol use)
 - Fetal oxygen deprivation



From Zitelli B, Davis H. Atlas of pediatric physical diagnosis, ed 5, 2007, Mosby.

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Types of Diseases: Traumatic Disorders

- Result from injuries
- Examples are:
 - Wounds
 - Fractures
 - Spinal cord injuries
 - Head injuries

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Agents of Disease

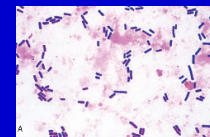
- Pathogen – agent of disease
- Contamination – occurs when pathogens reside on an organism
- Four basic pathogenic agents:
 - Bacteria
 - Fungi
 - Protozoa
 - Viruses

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Agents of Disease: Bacteria

- Unicellular microorganisms
- Most are not pathogenic
- May be transmitted from another person, an animal, a fomite (inanimate object), ingestion of contaminated food, or from not washing hands after toilet use



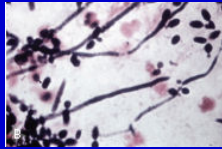
From Kumar V, Abbas AK, Fausto N, Robbins & Cotran pathologic basis of disease, ed 7, 2005, Philadelphia, Saunders.

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Agents of Disease: Fungi

- Examples are molds and yeasts
- They thrive in warm, moist environments
- Usually transmitted by a fomite
- Infections are usually superficial but can be systemic



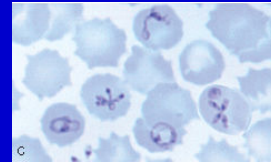
Courtesy of Dr. Dominick Cusack, Department of Pathology, University of Texas Southwestern Medical School, Dallas, TX. In Kumar V, Abbas AK, Fausto N, Robbins & Cotran Pathologic basis of disease, ed 7, 2005, Philadelphia, Saunders.

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Agents of Disease: Protozoa

- Simplest form of animal life
- Pathogenic protozoa can survive only in a living subject
- Transmitted through feces, contaminated food or water, or insect bites and stings



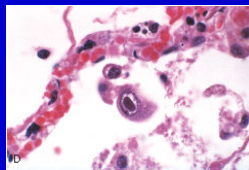
Courtesy of Lynne Garcia, LSG and Associates, Santa Monica, CA. In Kumar V, Abbas AK, Fausto N, Robbins & Cotran pathologic basis of disease, ed 7, 2005, Philadelphia, Saunders.

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Agents of Disease: Viruses

- Nonliving entities
- Viruses inject their genetic material into host cells, then use host cells to replicate
- Viruses cannot be killed by antibiotics



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Agents of Disease: Other

- Parasites – rely on host for nourishment
- Plant resins such as poison oak can cause disease
- Prions cause a few diseases in mammals and humans
 - Affect the central nervous system
 - Untreatable and fatal
 - Extremely rare

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Lesson 1.2 Objectives

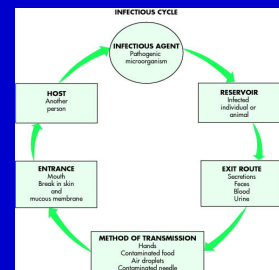
- Explain modes of disease transmission.
- Discuss host-pathogen relationships.
- List ways therapists can reduce disease transmission.
- List examples of universal precautions.
- Discuss glove use in massage therapy.
- Explain and demonstrate hand-washing procedure.

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Modes of Transmission

- Direct physical contact
 - Mucous membranes
 - Intact skin
 - Broken skin
- Indirect physical contact
 - Inhalation
 - Ingestion



From Christensen BL, Kockrow ED. Foundations of nursing, ed 5, 2006, St. Louis, Mosby.

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Host-Pathogen Relationship

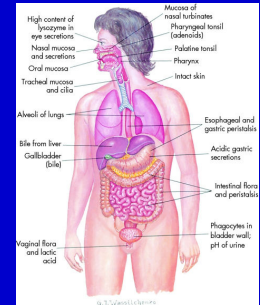
- A pathogen's success depends on:
 - Ability to gain access
 - Areas of body attacked
 - Ability to spread and replicate
 - Resistance to host defenses

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Host-Pathogen Relationship (cont'd.)

- Defense mechanisms:
 - Physical and chemical barriers
 - Inflammation (helps contain infection)
 - Immune response



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Host-Pathogen Relationship (cont'd.)

- Immune system can be suppressed by chronic stress, malnutrition, some medications, and illnesses already present
- Various signs and symptoms show that the immune system is fighting infection
 - Fever
 - Nausea
 - Elevated white blood cell count
 - General feeling of low energy

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Host-Pathogen Relationship (cont'd.)

- Disease process includes:
 - Course of infection
 - Incubation (time between exposure and symptom onset)
 - Exacerbation (period of symptoms)
 - Remission (partial or complete symptom disappearance)

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Infection Control in a Massage Practice

- Infectious agents can be spread through contact with:
 - Contaminated linens
 - Contaminated massage tools
 - Open containers of contaminated lubricant

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Infection Control in a Massage Practice

- Have a plan to prevent cross-contamination (passing of microorganism from one person to another)
- Apply sanitation (measures to promote a healthful, disease-free environment)
- Receive recommended or required vaccinations

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Infection Control in a Massage Practice

- Universal Precautions
 - Established by the Centers for Disease Control and Prevention (CDC)
 - Requires health care providers to prescribe to a plan that helps prevent exposure to and spreading of blood-borne and fluid-borne pathogens
 - These reduce transmission of communicable diseases

Sanitary Guidelines

- Use an approved hand-washing procedure
- Avoid wearing jewelry
- Keep nails clean, short, and without polish
- Keep hair clean and away from face
- Use clean linens and launder after use
- Prescribe to a safe method of handling contaminated linens and massage tools

Sanitary Guidelines (cont'd.)

- Treat any substance that cannot be identified as unsafe
- Wear a clean uniform each day
- Use a pump dispenser or clean single-use dish for massage lubricant
- Use gloves when appropriate
- Do not perform massage when ill

Sanitary Guidelines (cont'd.)

- Avoid working under the influence of alcohol or recreational drugs
- Avoid massaging clients who are ill
- Be prepared for emergency situations

Glove Use

- Use gloves when:
 - Handling any form of blood or other body fluid or secretions
 - Any time the therapist has a break in the skin or skin infection on the hands
 - When working in the oral cavity
 - When the client requests it

Glove Use (cont'd.)

- Latex gloves
 - Are thin, strong, and conform to therapist's hands
 - Requires water-based lubricants
 - Some people have latex allergies
- Vinyl gloves
 - Are thicker and more expensive
 - Can be used with oil-based lubricants

Glove Use (cont'd.)

- Removing gloves:



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Hand Washing Procedure



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Hand Washing Procedure (cont'd.)



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