# COURSE CONTENT

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UNIT 1: INTRODUCTION TO MEDICAL TERMINOLOGY

CONTENT

Introduction to Medical Terminology
Word Parts Definitions
Overview of Combining Vowels and Combining Forms
Constructed Versus Unconstructed Medical Terms
Eponyms, Acronyms, and Abbreviations
The Importance of Correct Spelling
Word Parts in Depth
Identifying the Four Word Parts using Hyphens and Slashes
Word Roots
Combining Vowels
Where to Add Combining Vowels in a Term
Combining Forms
Learning the Combining Forms
Combining Forms for Body Structures
Combining Forms for Colour
Miscellaneous Combining Forms
Introduction to Prefixes
Prefixes for Specific Numbers
Prefixes for Quantity or Degree
Negative Prefixes
Prefixes for Direction
Prefixes for Position
Prefixes for Time/Position
Prefixes for Comparisons
Miscellaneous Descriptor Prefixes
Introduction to Suffixes
Common Suffixes
Singular and Plural Endings
Common Plural Endings
Words Ending in X
Some Exceptions to the Rules
Suffixes Beginning with rh
Silent Letters and Unusual Pronunciations
Deciphering Medical Terms
Constructing Medical Terms
UNIT 1: INTRODUCTION TO MEDICAL TERMINOLOGY

Three thousand years ago, Greek philosopher Aristotle described human illnesses and body parts. Many of the Greek words he used are present in the medical vocabulary that is still used today. After Aristotle, the Romans expanded the world’s knowledge of human anatomy, physiology, and pathology by adding Latin terms to those already created by Aristotle. More recently, medical language has grown to include French, Italian, and English words. By the end of the 1800s, medical science underwent significant growth and medical scholars decided to continue using Greek and Latin terms when naming new medical discoveries as a way of maintaining consistency. As a result of this decision, medical terminology is uniform throughout the world.

To learn medical terminology, it is not necessary to learn Latin and Greek. Rather, one must learn the meanings of a few hundred terms—word parts—that describe various body systems and medical conditions. The system used to create medical terms is efficient, simple, easy to learn and simply requires that the student understand four word parts: prefixes, word roots, combining vowels/combining forms, and suffixes.

OBJECTIVES

After completing this Unit, you will be able to:

1. Discuss the origins and purpose of medical terminology
2. Identify the four basic word parts that form many medical terms
3. Explain the differences between constructed medical terms and unconstructed medical terms
4. Define eponym and acronym
5. Explain the terms: word root, combining vowel, combining form, suffix, and prefix
6. Explain what combining vowels are and why they are used
7. Use combining forms for colors, body structures, and other items to write medical terms
8. Define prefix and explain how prefixes are used
9. Use prefixes for numbers, quantities, position, and direction to write medical terms
10. Define suffix and explain how suffixes are used
11. Recognize and apply plural suffixes used in medical terminology
12. Understand the rules for combining word parts to write medical terms correctly
13. Use the rules learned to write the singular or plural forms of medical terms
14. Decipher medical terms by analyzing word parts
15. Construct medical terms by assembling word parts
16. Write the meanings of, or match word parts with their meanings
17. Write the correct term when presented with its definition, or match terms with their definitions
18. Spell medical terms correctly

KEY CONCEPTS COVERED IN THIS UNIT

Greek and Latin Origins of Medical Terms
Prefixes
Word Roots
Combining Vowels/Combining Forms
Suffixes
Constructed and Unconstructed Medical Terms
Compound Words
Acronyms
Abbreviations
Eponyms
SYLLABUS

Introduction to Medical Language
Word Parts Definitions
The Four Word Elements
Combining Vowels and Combining Forms
Constructed Versus Unconstructed Medical Terms
Eponyms, Acronyms, and Abbreviations
The Importance of Correct Spelling

Medical Terminology in Depth
Identifying the Four Word Parts using Hyphens and Slashes
Word Roots
Combining Vowels
Where to Add Combining Vowels in a Term
Combining Forms
Learning Combining Forms
Combining Forms for Body Structures (includes tables)
Combining Forms for Colours (includes tables)
Additional Combining Forms (includes tables)

Introduction to Prefixes
Sample Prefixes with their Word Roots and Meanings
Prefixes for Specific Numbers (includes tables)
Prefixes for Quantity or Degree (includes tables)
Negative Prefixes (includes tables)
Prefixes for Direction (includes tables)
Prefixes for Position (includes tables)
Prefixes for Time/Position (includes tables)
Prefixes for Comparisons (includes tables)
Miscellaneous Descriptor Prefixes (includes tables)

Introduction to Suffixes
Common Suffixes (includes tables)

Singular and Plural Endings and Irregular Spellings and Pronunciations
Common Plural Endings
Singular and Plural Endings (includes tables)
Words Ending in X
Some Exceptions to the Rules
Silent Letters and Unusual Pronunciations
Suffixes Beginning with rh

Deciphering Medical Terms
Tip for Deciphering Medical Terms

Constructing Medical Terms
Rules for Word Building

Interactive: 37 quizzes
Eight review tests
Three sets of computer generated flash cards*:
169 components for combining forms
98 components for prefixes
147 components for suffixes
100 audio pronunciation prompts

* students can override random selection in order to see all components sequentially
UNIT 2: INTRODUCTION TO BODY SYSTEMS

CONTENT

Introduction to Body Systems
The Importance of Homeostasis
Body Organization
Building Blocks of the Body
Kinds of Tissue
Abnormal Tissue
Organs and Organ Systems
The Major Body Systems and their Functions
The Four Body Regions
Reference Planes
Abdominal Regions
Body Cavities
Word Parts
Supplemental Terms

INTRODUCTION TO BODY SYSTEMS

Anatomy and Physiology
The study of body structure is known as anatomy. The term is constructed of three word parts:

a) The prefix ana- means “up, toward, apart”
b) The word root tom means “to cut”
c) The suffix –y refers to “the process of”

If we put the meanings together we see that the term anatomy means the “process of cutting apart.” The ancient Greeks first used the term anatomy to describe the dissection of a cadaver. Today, however, the term is used more generally to describe the study of body structure and the relationships and locations of various body components to each other.

The study of body function is known as physiology. The term is constructed of two word parts:

a) The suffix –logy means “the study of”
b) The combining form physi/o means “nature”

Combined, the term physiology means “study of nature.” Thus, physiology refers to the study of body functions. So, while anatomy refers to the parts of the body, physiology refers to the functions of those parts.

OBJECTIVES

After completing this Unit, you will be able to:

1. Describe how cells and tissues form the building blocks of the human body
2. List the simplest to the most complex level of a living organism
3. Name and give the functions of the four basic types of tissues in the body
4. Define basic terms pertaining to the function of body tissues
5. Recognize terms for abnormal tissue development
6. Recognize roots and suffixes pertaining to tissues, organs and organ systems
7. Recognize and use word parts pertaining to body regions and abdominal regions
KEY CONCEPTS COVERED IN THIS UNIT

Any study of medical terminology must include learning about the human body in both healthy and diseased states. In this Unit, you will learn the necessary basics for understanding many medical terms. You will learn about the building blocks of the body and about body structure and function.

SYLLABUS

Anatomy and Physiology
The Importance of Homeostasis
Body Organization
The Six Building Blocks of the Body
The Four Primary Kinds of Tissue
Abnormal Tissue
Terms to Describe Abnormal Tissue

Organs and Organ Systems
Circulation
Nutrition and Fluid Balance
Production of Offspring
Body Structure and Movement
Body Covering
Central Control

The Eleven Major Body Systems and Their Functions
Muscular System
Skeletal System
Cardiovascular System
Lymphatic System
Respiratory System
Gastrointestinal System
Urinary System
Reproductive System
Integumentary System
Nervous System
Endocrine System

The Four Principal Body Regions

Reference Planes
Frontal Plane or Coronal Plane
Transverse Plane
Sagittal Plane
Anterior Plane
Lateral Plane
Posterior Plane
Positional Terms and their Meanings

Abdominal Regions

Body Cavities
Dorsal Cavity
Ventral Cavity
Word Parts
Combining Forms for Body Systems (includes tables)
Prefixes for Body Systems (includes tables)
Suffixes for Body Systems (includes tables)

Supplemental Terms
Body Planes and Cavities (includes tables)
Miscellaneous Body Structures (includes tables)
Cells, Tissues, and Organs (includes tables)
Body Positions and Positional Terms (includes tables)
Abbreviations (includes tables)

Interactive: Seven quizzes
Ten graphics
11 audio pronunciation prompts
UNIT 3: INTRODUCTION TO MAJOR MEDICAL SPECIALTIES

CONTENT

Introduction to Major Medical Specialties
Introduction to Types of Diseases
Pathogens and Infective Agents
Medical Examination Procedures
Signs, Symptoms, and Diagnostic Procedures
Common Medical Tests
Common Surgeries
Word Parts
Supplemental Terms

INTRODUCTION TO MAJOR MEDICAL SPECIALTIES

The term medicine has several meanings, including “a drug” or “a remedy for illness.” A second meaning of medicine is “the art and science of diagnosis, treatment, and prevention of disease.” In order to qualify as a doctor, physicians must undergo a number of years of general training that provides expertise across all body systems. Some physicians take further education in order to specialize in particular body systems. This involves several additional years of study.

There are additional specialty areas which are not included in this curriculum. For instance, some physicians specialize in sports medicine, which involves the prevention, diagnosis, and treatment of sports-related injuries. Sports medicine specialists are often assisted by a physical therapist. Physicians who specialize in the care of patients in intensive care are called intensivists. The intensive care unit (ICU) is a place in the hospital that contains sophisticated monitoring devices and equipment for patients requiring close monitoring and care by specially trained personnel.

Preventive medicine is the branch of medicine involving the prevention of disease and methods for increasing the abilities of the patient and community to resist disease and prolong life. A physician or scientist who studies the incidence, prevalence, spread, prevention, and control of disease in a community or a specific group of individuals is an epidemiologist. An epidemic is a disease that attacks several people in a region at the same time. In a hospital, physicians who specialize in epidemiology may have the responsibility of directing infection control programs. A specialist in forensic medicine deals with the legal aspects of health care; while aerospace medicine is concerned with the effects of living and working in an artificial environment beyond the earth’s atmosphere and the forces of gravity.

OBJECTIVES

After completing this Unit, you will be able to:

1. List medical specialties
2. List the major categories of diseases
3. List and define the major manifestations of disease
4. Compare the common types of infectious organisms
5. Describe the common responses to disease
6. Explain the difference between signs and symptoms
7. List the vital signs and the four basic examination procedures
8. List the main components of patient histories
9. Name and describe nine imaging techniques
10. Name and describe possible forms of treatment
11. Define basic terms pertaining to medical examination, diagnosis, and treatment
12. Identify and use word parts pertaining to diseases
13. Identify and use the roots and suffixes pertaining to symptoms, diagnosis, and surgery
14. Interpret abbreviations used in diagnosis and treatment
KEY CONCEPTS COVERED IN THIS UNIT

This Unit will introduce you to the most common medical specialties. Some medical specialties have further sub-specialties; for instance, a gastroenterologist is an expert in the entire digestive system, however, some gastroenterologists might specialize in particular sections—for instance, proctology.

Unit three also introduces you to classifications of illness and disease; medical examination procedures; common medical tests; and, common surgeries.

SYLLABUS

The Primary Medical Specialties
Anaesthesiology
Cardiology
Dermatology
Emergency Medicine
Endocrinology
Family Practice
Gastroenterology
Gerontology
Obstetrics (OB)
Gynecology (GYN)
Hematology
Immunology
Infectious Diseases
Internal Medicine
Neonatology
Neurology
Oncology
Ophthalmology
Orthopedics
Otolaryngology (ear, nose and throat – ENT)
Pathology
Pediatrics
Plastic Surgery
Psychiatry
Pulmonology
Radiology
Rheumatology (Immunology)
Rhinology
Surgery
Urology

Introduction to the Seven Principal Types of Diseases
Infectious Diseases
Degenerative Diseases
Neoplastic Diseases
Immune Disorders
Metabolic Disorders
Hormonal Disorders
Mental and Emotional Disorders

Pathogens and Infective Agents
Signs and Symptoms in Diagnostic Procedures
Acute Versus Chronic Illness
Signs Versus Symptoms

Pain Evaluation
Location of the Pain
Intensity of the Pain
Degree of Impairment
Pattern, Duration, and Frequency of the Pain
Moderating Factors
Associated Symptoms

Common Pain Descriptors used by Patients

The Body’s Response to Disease

Diagnosis through Physical Examination

Four Techniques to Evaluate Health Status

Understanding the Three Vital Signs

The 80 Most Commonly Used Diagnostic Tests and Procedures

Common Medical Treatments

Surgery
The Four Primary Reasons for Surgical Interventions
The Six Most Common Surgical Procedures

Word Parts
Combining Forms for Medical Specialties and Practice (includes tables)
Suffixes for Medical Specialties and Practice (includes tables)
Combining Forms for Signs of Disease (includes tables)
Prefixes for Signs of Disease (includes tables)
Suffixes for Signs of Disease (includes tables)
Suffixes for Symptoms of Disease (includes tables)
Combining Forms for Medical Tests and Instruments (includes tables)
Prefixes for Medical Tests and Instruments (includes tables)
Suffixes for Medical Tests and Instruments (includes tables)
Combining Forms for Disease-Causing Agents (includes tables)
Combining Forms for Cancer (includes tables)
Suffixes for Cancer (includes tables)
Suffixes for Surgical and Other Treatments (includes tables)
Combining Forms for Drugs (includes tables)
Suffixes for Drugs (includes tables)
Prefixes for Disease Descriptors (includes tables)
Suffixes for Disease Descriptors (includes tables)

Supplemental Terms
Symptoms and Signs of Disease (includes tables)
Diseases and Disorders (includes tables)
Diagnosis, Treatments, Procedures, and Devices (includes tables)
Additional Terms (includes tables)
Abbreviations (includes tables)

Interactive:
29 quizzes
Four graphics
19 audio pronunciation prompts
UNIT 4: INTRODUCTION TO BODY FLUIDS, LYMPHATIC SYSTEM, AND IMMUNITY

CONTENT

Introduction to Body Fluids
Introduction to Blood
Blood Components
Introduction to Blood Cells
Blood Types
The Lymphatic System
Organ and Tissue Components of the Lymphatic System
Principal Lymphocytes and Other Lymphatic Agents
Diseases and Disorders of the Blood, Lymphatic, and Immune Systems
Immunodeficiency Disorders
Autoimmune Disorders
Autoinflammatory Disorders
Tests and Treatments
Word Parts
Supplemental Terms

INTRODUCTION TO BODY FLUIDS, LYMPHATIC SYSTEM, AND IMMUNITY

In the human body, fluids constitute more than 60% of an adult’s weight under normal conditions. These fluids are vital in the transport of nutrients to all cells and the removal of wastes from the body. Fluid balance is maintained through intake and output of water.

Water (hydr/o) leaves the body by way of urine (ur/o), feces, sweat (hidr/o), tears (lacrim/o), and other fluid discharges; some examples of these are pus (py/o), sputum, mucus (muc/o), and saliva (sial/o).

Blood (hem/o, hemat/o) and lymph (lymph/o), two of the body’s main fluids, are circulated through two separate but interconnected networks: the lymphatic system (lymph), and the circulatory system (blood).

Fluids are not distributed evenly throughout the body. They move back and forth between compartments that are separated by cell (cyt/o) membranes. Body fluids are found either within the cells (intracellular) or outside the cells (extracellular). Approximately one fourth of extracellular fluid is plasma (plasm/o), the fluid part of the blood. Another type of fluid, called interstitial fluid, fills the spaces between most cells of the body. Abnormal accumulation of fluid in the extracellular compartments results in a condition called edema. Intra-, extra-, and interstitial fluids are important from a pharmacological point of view. For instance, the drug, acetaminophen, is transported through the body via extracellular fluids, whereas warfarin is carried in the intracellular fluid within a cell.

The human body has two circulatory systems. These are the cardiovascular system, which circulates blood through the body, and the lymphatic system, which passively circulates lymph through a complex network of vessels and lymph nodes. For the purposes of this section, we will deal with blood and lymph under separate headings.

OBJECTIVES

After completing this Unit, you will be able to:

1. Name the various fluids in the body and explain their importance
2. Describe the functions of the three types of blood cells
3. Describe the composition of blood plasma
4. Explain the basis of blood types
5. List and describe the major disorders of the blood
6. Describe the tests used to study blood
7. Define terms related to body fluids and blood disorders
8. Define common medical terms used for blood
9. Define common medical terms used for symptoms, signs, diseases, disorders, procedures, treatments, and devices for fluid systems
10. Identify and use word roots pertaining to the blood
11. Identify the organs of the lymphatic system and describe their structure and function
12. Define common medical terms used for the lymphatic system
13. Describe the main disorders that affect the lymphatic system
14. Explain surgical and therapeutic interventions for the lymphatic system
15. Identify and use the word roots pertaining to the lymphatic system
16. Define immunity and list the possible sources of immunity
17. Describe the most common autoimmune disorders and their signs and symptoms

**KEY CONCEPTS COVERED IN THIS UNIT**

In this Unit, we will assemble the word parts covered earlier in the curriculum to form medical terms. We will also present some additional key terms that are not built from word parts. The terms are listed alphabetically within categorical groupings at the end of the Unit.

**SYLLABUS**

**Introduction to Body Fluids**

**Introduction to Blood**
The Three Principal Cell Types in Blood
Erythrocytes
Leukocytes
Thrombocytes (Platelets)

**Blood Components**
Blood Plasma
Blood Cells
Erythrocytes
Leukocytes
The Two Principal Kinds of Lymphocytes
The Three Granular Leukocytes
Neutrophils
Eosinophils
Basophils
The Two Agranular Leukocytes
Monocytes
Lymphocytes (T and B Cells)
The Action of White Blood Cells
Phagocytes and Phagocytosis
Platelets (Thrombocytes)
The Formed Elements of Blood

**Blood Types**
Blood Typing For Transfusions
Universal Donor
Universal Recipient
The Lymphatic System

Organ and Tissue Components of the Lymphatic System
Components of Lymph and their Actions
- Lymphatic Capillaries
- Lymphatic Vessels
- Lymph Nodes
- Peyer’s Patches
- Thymus Gland
- Tonsils
- Spleen
- Vermiform Appendix

Principal Lymphocytes and Other Lymphatic Agents

Immunity
The Body’s Lines of Defense
Innate Immunity
Acquired Immunity
Active and Passive Immunity
Immunization

Immune Tolerance

Diseases and Disorders of the Blood, Lymphatic, and Immune Systems

Anemias
The Nine Principal Kinds of Anemia

Coagulation Disorders

Neoplastic Disorders
The Leukemias
The Two Main Categories of Leukemia
The Acute Leukemias
The Chronic Leukemias
Additional Neoplastic Diseases

Hypersensitivity

Immunodeficiency Disorders

Autoimmune and Autoimmune-Related Disorders

Autoinflammatory Disorders

Tests and Treatments

Word Parts
Combining Forms for Body Fluids (includes tables)
Combining Forms for Blood and Lymph System (includes tables)
Combining Forms for the Lymphatic System (includes tables)
Prefixes (includes tables)
Suffixes (includes tables)
Supplemental Terms

Anatomy and Physiology of Fluid, Blood, and Lymph Systems (includes tables)
Symptoms and Signs of the Blood and Lymph Systems (includes tables)
Diseases and Disorders of the Blood and Lymph Systems (includes tables)
Tests, Treatments, Procedures, and Devices for Disorders of the Blood and Lymph Systems (includes tables)
Immunity Terminology (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 23 quizzes
One review test
12 graphics
45 audio pronunciation prompts
UNIT 5: INTRODUCTION TO THE CARDIOVASCULAR SYSTEM

CONTENT

Introduction to the Cardiovascular System
Structure of the Cardiovascular System: Anatomy, Physiology, and Function
The Heart
The Vascular System
Disorders of the Cardiovascular System
Signs and Symptoms of Cardiovascular System Disorders
Diagnostic Tests
Surgical and Therapeutic Interventions
Surgery and Common Surgical Procedures
Word Parts
Supplemental Terms

INTRODUCTION TO THE CARDIOVASCULAR SYSTEM

Body cells must have a constant supply of food, oxygen (ox/o), and other substances to function properly. Blood circulates through the heart and blood vessels, carrying oxygen, nutrients, vitamins, antibodies, and other substances. The cardiovascular system supplies body cells with these needed substances, transports waste products for disposal, maintains the acid-base balance of the body, prevents hemorrhage through blood clotting, protects against disease, and helps regulate body temperature.

The circulatory system consists of the cardiovascular system (heart and blood vessels) and the lymphatic system (structures involved in the conveyance of the lymph). In Unit 4, we looked at the lymphatic system. The circulatory system cooperates with other body systems to maintain homeostasis, or equilibrium of the internal environment of the body.

The cardiovascular system actively circulates blood throughout the body. Blood is pushed along by contractions of the heart and is transported through blood vessels. The continuous flow of oxygenated blood is vital to a body’s functioning. If the supply of oxygen and nutrients or the removal of waste materials is reduced or cut off, even for a few minutes, the affected cells may die. Thus, a disease or disorder of the cardiovascular system can pose life-threatening risks, many of which you will learn about in this Unit.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the organs of the cardiovascular system and describe their structure and function
2. Trace the path of blood flow through the heart
3. Trace the path of electrical conduction through the heart
4. Differentiate among arteries, arterioles, capillaries, venules, and veins
5. Describe the main disorders that affect the cardiovascular system
6. Match surgical and therapeutic interventions for the cardiovascular system
7. Identify the components of an electrocardiogram
8. Explain blood pressure and describe how blood pressure is measured
9. Define common medical terms used for the cardiovascular system
10. Explain the meanings of terms for selected structures of the cardiovascular system
11. Write the names of the diagnostic terms and pathologies related to the cardiovascular system
12. Identify and use the roots pertaining to the cardiovascular system
13. Define medical terms pertaining to the cardiovascular system
14. Define the word parts used to create medical terms for the cardiovascular system
15. Break down and define common medical terms used for symptoms, diseases, disorders, diagnostic procedures, treatments, and devices for the cardiovascular system
KEY CONCEPTS COVERED IN THIS UNIT

This Unit will introduce you to the cardiovascular system by first looking at the heart’s anatomy, function and its most common disorders. It will then examine the vascular system that supports circulation and heart function, as well as examining its most common disorders. Both cardiac and vascular system vocabulary will be studied.

SYLLABUS

The Structure of the Cardiovascular System

The Heart
The Four Membranes of the Heart
The Heart’s Chambers
The Movement of Blood through the Heart’s Chambers
The Heart’s Four Valves and Their Functions
Heart Sounds
The Heartbeat/Cardiac Cycle
The Heart’s Electrical Conduction System
  Sinoatrial (SA) Node
  Atrioventricular (AV) Node
  AV Bundle
  Left and Right Bundle Branches
  Purkinje Fibres

The Vascular System

Components of the Vascular System
Arteries
Arterioles
Capillaries
Venules
Veins

The Pulmonary Trunk

Blood Pressure (BP)

The Ten Most Common Disorders of the Cardiovascular System

The Three Types of Stroke

Congenital Heart Disease

Heart Disease
Congestive Heart Failure (CHF)
Coronary Artery Disease (CAD)
Coronary Heart Disease (CHD)
Coronary Occlusion/Thrombosis
Endocarditis
Fibrillation
Heart Block
Heart Failure
Heart Murmur
Hypertension
Hypotension
Myocardial Infarction (MI)
Disorders of the Veins
Hyperlipidemia

Diagnostic Tests
The 13 Most Common Diagnostic Tests

Surgical and Therapeutic Interventions

Word Parts
Combining Forms for the Cardiovascular System (includes tables)
Prefixes Common to the Cardiovascular System (includes tables)
Suffixes Common to the Cardiovascular System (includes tables)

Supplemental Terms
Cardiovascular System Anatomy and Physiology (includes tables)
Circulatory System Tests and Treatments (includes tables)
Cardiac Symptoms and Signs (includes tables)
Circulatory System Diseases and Disorders (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 17 quizzes
50 graphics
23 audio pronunciation prompts
UNIT 6: INTRODUCTION TO THE RESPIRATORY SYSTEM

CONTENT

Introduction to the Respiratory System
Internal and External Respiration
Anatomy and Physiology of the Respiratory System
The Upper and Lower Respiratory Systems
The Conducting Portion of the Upper Respiratory System
The Conducting Portion of the Lower Respiratory System
Diseases and Disorders of the Respiratory System
Diagnostic Tests
Surgical and Therapeutic Interventions
Word Parts
Supplemental Terms

INTRODUCTION TO THE RESPIRATORY SYSTEM

Respiration is the combined activity of various processes that supply oxygen to all body cells and remove carbon dioxide. Breathing is external respiration, the absorption of oxygen (oxy/o) from the air and the removal of carbon dioxide by the lungs. Breathing is often called pulmonary ventilation or simply ventilation. The respiratory system consists of a series of passages that bring outside air into contact with special structures that lie close to blood capillaries. Oxygen and carbon dioxide are exchanged at the interface between these special structures and the capillaries. This exchange of gases is part of homeostasis, a state of equilibrium of the internal environment of the body. Breathing consists of the inspiration of air into and the expiration of air out of the lungs. Inspiration is also called inhalation, and expiration is called exhalation.

Because oxygen and carbon dioxide must be carried to and from the cells in the blood, the respiratory system works closely with the cardiovascular system to accomplish gas exchange. This activity has two phases:

1. **External gas exchange occurs between the outside atmosphere and the blood, at the capillary/alveolar junction**
2. **Internal gas exchange occurs between the oxygenated blood and the tissues**

External exchange takes place in the lungs, located in the thoracic cavity. The remainder of the respiratory tract consists of a series of passageways that conduct air to and from the lungs. No gas exchange occurs in these regions. The respiratory system brings oxygen into the bloodstream, which then carries it to all body cells. The organs of the respiratory system include the lungs and the numerous organs between the nose and lungs that carry inhaled oxygen and exhaled carbon dioxide.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the organs of the respiratory system and describe their structure and function
2. Explain the roles of oxygen and carbon dioxide in the body and describe how each is carried in the blood
3. Describe the mechanism of breathing, including the roles of the diaphragm and phrenic nerve
4. Discuss the major disorders of the respiratory system
5. Define common medical terms used for the respiratory system
6. Define word parts used to create medical terms for the respiratory system
7. Define medical terms related to breathing and diseases of the respiratory system
8. Write the names of the diagnostic terms and pathologies related to the respiratory system
9. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices for the respiratory system
10. Describe surgical and therapeutic interventions for the respiratory system
KEY CONCEPTS COVERED IN THIS UNIT

The primary function of the respiratory system is to supply the blood with oxygen in order for the blood to deliver oxygen to all parts of the body. The respiratory system does this through breathing. When we breathe, we inhale oxygen and exhale carbon dioxide. This exchange of gases is the respiratory system’s means of getting oxygen to the blood.

SYLLABUS

External, Internal and Cellular Respiration

Anatomy and Physiology of the Respiratory System
The Three Stages of Ventilation
The Upper and Lower Respiratory Systems
The Conducting Portion of the Upper Respiratory System
  The Nose
  The Sinuses or Nasal Cavity
  The Pharynx
  The Larynx
  The Trachea
The Conducting Portion of the Lower Respiratory System
  The Bronchial System
  The Alveoli
  The Lungs

Diseases and Disorders of the Respiratory System
Acidosis
Dyspnea
Bradypnea
Infections
Pleural Disorders
Neoplasms
Other Disorders

The Eight Most Common Methods for Diagnosing Respiratory Disorders

Surgical and Therapeutic Interventions

Word Parts
Combining Forms for the Respiratory System (includes tables)
Prefixes That Apply to the Respiratory System (includes tables)
Suffixes That Apply to the Respiratory System (includes tables)

Supplemental Terms
Anatomy and Physiology of the Respiratory System (includes tables)
Symptoms and Signs Related to the Respiratory System (includes tables)
Diseases and Disorders of the Respiratory System (includes tables)
Treatments, Procedures, and Devices Related to the Respiratory System (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 26 quizzes
31 graphics
25 audio pronunciation prompts
UNIT 7: INTRODUCTION TO THE GASTROINTESTINAL SYSTEM

CONTENT

Introduction to the Gastrointestinal System
The Six Primary Metabolic Processes
The Principal Structures of the Gastrointestinal Tract
The Mouth, Pharynx and Esophagus
The Stomach
The Small Intestine
The Large Intestine (Colon)
The Accessory Organs of Digestion
The Salivary Glands, Liver, Gallbladder and Pancreas
Nutrient Breakdown through Enzymes
Digestive Organ Disease
Diagnostic Procedures
Surgical and Therapeutic Interventions
Word Parts
Supplemental Terms

INTRODUCTION TO THE GASTROINTESTINAL SYSTEM

The main purpose of the gastrointestinal system is to prepare food nutrients for intake by body cells. Nutrients must be broken down by mechanical and chemical means into molecules that are small enough to be absorbed into the circulation. Within cells, the nutrients are used for growth, energy, and rebuilding vital cell components. When the body digests food, it divides and dissolves it into simpler parts which provide the fuel that empowers other body functions.

In addition to the main function of digestion, the gastrointestinal tract (also called the alimentary tract) performs additional functions. Each of these functions is important in the processing of food; and each function is performed by a specialized organ that is part of the gastrointestinal system. All of these processes result in what we generally refer to as metabolism.

The chemical breakdown of food begins in the mouth and is completed in the stomach (gastr/o). Absorption takes place when the digested food molecules pass through the lining of the small intestine (enter/o) into the blood or lymph capillaries. The final activity, elimination, is the removal of undigested food particles. The elimination of wastes through the anus in the form of feces is called defecation.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the organs of the gastrointestinal system and describe their structure and function
2. Define common medical terms used for the gastrointestinal system
3. Label a diagram of the gastrointestinal tract, and describe the function of each part
4. Label a diagram of the accessory organs, and explain the role of each part
5. Describe the major disorders of the gastrointestinal system
6. Write terms for selected structures of the gastrointestinal system
7. Write the names of the diagnostic terms and pathologies related to the gastrointestinal system
8. Explain the surgical and therapeutic interventions for the gastrointestinal system
9. Define word parts used to create medical terms for the gastrointestinal system
10. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices for the gastrointestinal system
11. Interpret abbreviations used in referring to the gastrointestinal system
KEY CONCEPTS COVERED IN THIS UNIT

This Unit will look at the anatomy and physiology of the primary and accessory organs of digestion along with their most common disorders and treatments.

SYLLABUS

Introduction to the Gastrointestinal (GI) System

The Six Primary Metabolic Processes of the Gastrointestinal system

The Principal Structures of the Gastrointestinal Tract
The Structures of the Upper Gastrointestinal Tract
  Mouth
  Pharynx
  Esophagus
  Stomach

The Functions of the Mouth, Pharynx and Esophagus and Stomach in Digestion

The Structures of the Lower Gastrointestinal Tract
Small Intestines
Large Intestines (Colon and Rectum)

The Small Intestine

The Four Segments of the Colon
Ascending Colon
Transverse Colon
Descending Colon
Sigmoid Colon

The Accessory Organs of Digestion

Nutrient Breakdown through Enzymes
The Enzymes that Break Down Carbohydrates, Proteins, and Lipids

The 13 Most Common Digestive Organ Diseases

Accessory Organ Diseases
The 18 Most Common Accessory Organ Disorders

Surgical and Therapeutic Interventions
Common Medical Procedures
  Appendectomy
  Cholecystectomy
  Colostomy
  Gastrectomy
  Gastrostomy
  Hemorrhoidectomy
  Ileostomy
  Laparoscopy
  Liver Biopsy
  Pancreatolithectomy
  Vagotony
Word Parts
Combining Forms for the Gastrointestinal Tract (Except the Mouth) (includes tables)
Combining Forms for the Accessory Organs of Digestion and their Products, Processes and Disorders (includes tables)
Prefixes Common to the Gastrointestinal Tract (includes tables)
Suffixes Common to the Gastrointestinal Tract (includes tables)

Supplementa Terms
Anatomy and Physiology (includes tables)
Diseases and Disorders (includes tables)
Symptoms and Signs (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 22 quizzes
48 graphics
28 audio pronunciation prompts
UNIT 8: INTRODUCTION TO THE ENDOCRINE SYSTEM

CONTENT

Introduction to the Endocrine System
The Structures and Functions of the Endocrine System
The Endocrine Hormones
The Pituitary Gland
The Thyroid and Parathyroid Glands
The Adrenal Glands
The Pancreas
The Pineal Gland
The Thymus Gland
The Gonads
Other Organs that Produce Hormones
Disorders of Select Endocrine System Glands
Diagnosing and Treating Endocrine Disorders
Word Parts
Supplemental Terms

INTRODUCTION TO THE ENDOCRINE SYSTEM

The endocrine system coordinates with the nervous system to regulate body activities. This is accomplished by endocrine hormones that affect various processes throughout the body, such as growth, metabolism, and secretions from other organs. Dysfunctional hormone production may involve either a deficiency, hyposecretion, or an excess, hypersecretion.

Because hormones are released into the blood, the endocrine glands that secrete hormones are known as the ductless glands (aden/o means “gland”), as compared to glands that secrete through ducts, such as sweat glands and digestive glands. Despite the fact that hormones circulating in the blood reach all parts of the body, only certain tissues respond to a specific hormone. The tissue that is influenced by a specific hormone is called the target tissue. The cells in a target tissue have specific receptors on their membranes or within the cells to which the hormone attaches, enabling it to act.

Like the nervous system, the endocrine system provides a method of control to keep the body functioning despite changing conditions in the environment. Thus, the primary role of the endocrine system is to achieve homeostasis, a state in which the body's equilibrium is maintained. When the endocrine system becomes deficient due to disease, the result is a homeostatic imbalance that often affects overall health.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the major organs of the endocrine system and describe their structure and function
2. Describe hormones and their actions
3. Compare steroid and amino acid hormones
4. Describe the main disorders of the endocrine system
5. Write the names of pathologies related to the endocrine system
6. List surgical and therapeutic interventions for the endocrine system
7. Interpret abbreviations used in endocrinology
8. Define the word parts used to create terms for the endocrine system
9. Build medical terms from the word parts associated with the endocrine system
10. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the endocrine system
KEY CONCEPTS COVERED IN THIS UNIT

This Unit will introduce you to the endocrine system. The endocrine system is comprised of a group of eight ductless glands that secrete hormones via the blood: the master gland is the pituitary, which is located in the brain and which regulates many of the body’s other glands; the others are: the thyroid, the parathyroid(s), the thymus gland, the pancreatic islets of Langerhans, the pineal gland, the adrenal glands and the male and female gonads. Some hormones are made of steroids (from fats) and the others are made up of amino acids. Some hormones are secreted in response to stimuli from the nervous system (i.e., adrenaline and noradrenaline).

SYLLABUS

Structures and Functions of the Endocrine System

Endocrine Hormone Pathways
Nervous System Mediated Hormone
Pituitary Mediated Hormones

The Nine Glands of the Endocrine System

The Endocrine Hormones
The Two Categories of Hormones
Steroid Hormones
Amino Acid Hormones

The Endocrine Glands and their Hormones
The 23 Principal Endocrine Hormones and Their Functions
The Pituitary Gland (Nine Hormones)
Thyroid and Parathyroid Glands (Three Hormones)
The Adrenal Glands (Four Hormones)
The Pancreas (Two Hormones)
The Pineal Gland (One Hormone)
The Thymus Gland (One Hormone)
The Gonads (Three Hormones)
Other Organs That Produce Hormones

Disorders of Select Endocrine System Glands
Pituitary Disorders
Pancreatic Islet Disorders
Metabolic Syndrome
Types of Diabetes Mellitus
Type 1 Diabetes Mellitus (T1DM)
Type 2 Diabetes Mellitus (T2DM)
Comparison of Diabetes Insipidus with Diabetes Mellitus
Monitoring and Treatment of Diabetes
Thyroid Disorders
Parathyroid Gland Disorders

Diagnosing and Treating Endocrine Disorders
Surgical and Therapeutic Interventions

Word Parts
Combining Forms Pertaining to the Endocrine System (includes tables)
Prefixes for the Endocrine System (includes tables)
Suffixes for the Endocrine System (includes tables)
Supplemental Terms
Anatomy and Physiology (includes tables)
Signs, Symptoms, and Disorders (includes tables)
Tests and Treatments (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive:  
29 quizzes
15 graphics
Nine audio pronunciation prompts
UNIT 9: INTRODUCTION TO THE INTEGUMENTARY SYSTEM

CONTENT

Introduction to the Integumentary System
The Anatomy of the Skin
The Epidermis, Dermis, and Subcutaneous Tissue
The Accessory Organs of the Skin
Hair, Nails, Sebaceous, and Sweat Glands, and Sensory Receptors
Diseases, Disorders and Diagnostic Tests of the Integumentary System
Surgical and Medical Treatments
Word Parts
Supplemental Terms

INTRODUCTION TO THE INTEGUMENTARY SYSTEM

The word integumentary comes from the Latin word *tegere*, which means “to cover.” The integumentary system includes the body’s largest organ: its skin. The integumentary system also includes smaller accessory organs and other structures that lie within or extend through the skin, such as hair and hair follicles, nails, oil glands, sweat glands, and sensory receptors. Medical terminology related to the integumentary system is extensive, largely due to the fact that the skin and its accessory glands are engaged in a constant battle with infectious agents.

The word roots *derm/o* and *dermat/o* mean “skin” and are used as an ending in words pertaining to the skin, such as *xeroderma* (*xer/o* means “dry”) and *scleroderma* (*scler/o* means “hardened”). The adjective, cutaneous, refers to the skin and is derived from the Latin word *cutis* (*cutane/o*).

The integumentary system can experience many types of challenges to its homeostasis. As the outermost organ of the body, the skin is more subject to extremes in temperature, damage by injury and damage by infections than any other organ. This body-covering system protects against infection, dehydration, ultraviolet radiation, and injury. Many types of inherited and acquired diseases may also afflict the skin. In many cases, the skin is the first part of the body to display symptoms of an internal condition. The protection that the skin provides to overall health is significant: a loss of skin, such as that which occurs from a serious burn, can lead to death due to dehydration and infection.

Like the eyes, the skin is a readily visible reflection of one’s health. Its color, texture, and resilience reveal much, as does the condition of the hair and nails. Extensive damage to the skin, can result in a host of dangerous complications.

The skin helps to regulate temperature by evaporation of sweat and by changes in the diameter of surface blood vessels, which control how much heat is lost to the environment. The skin also contains receptors for the sensory perceptions of touch, temperature, pressure, and pain. Medication can be delivered through the skin from patches. The sweat glands assist in temperature regulation when it is hot outside, as well as helping to remove waste materials. Meanwhile, sensory receptors in the skin provide you with valuable information about the outside environment, such as heat, cold, touch, pressure, and pain.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the major organs of the integumentary system and describe their structure and function
2. Compare the epidermis, dermis, and subcutaneous tissue
3. Describe the roles of keratin and melanin in the skin
4. Describe the glands in the skin
5. Describe the structure of hair and nails
6. Describe the main disorders that affect the skin
7. Provide diagnostic terms and pathologies related to the integumentary system
8. Describe surgical and therapeutic interventions for the integumentary system
9. Recognize the meanings of word parts and use them to build and analyze terms
10. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the integumentary system

KEY CONCEPTS COVERED IN THIS UNIT

In this Unit, we will assemble word parts to form medical terms related to the integumentary system. We will also present some additional key terms that are not built from word parts. These terms are listed alphabetically within categorical groupings.

SYLLABUS

The Four Principal Functions of the Skin

The Anatomy of the Skin
The Three Layers of Skin and their Key Properties
   The Dermis
   The Epidermis
   The Subcutaneous Tissue

The Accessory Organs of the Skin: Hair, Nails, Sebaceous Glands, Sweat Glands and Sensory Receptors
The Five Accessory Skin Structures
   Hair
   Nails
   Sebaceous Glands
   Sweat Glands
   Sensory Receptors

Diseases, Disorders, and Diagnostic Terms
Disorders of the Integumentary System
   Primary Skin Lesions
   Secondary Lesions
Injuries to the Skin
   The Five Kinds of Skin Wounds
Burn Categorization System for Determining Degree of Tissue Destruction
Allergic and Immune-Mediated Skin Diseases
Infectious Diseases of the Skin and their Manifestations
Ischemic Diseases of the Skin
Dysplasias
Miscellaneous Skin Diseases
Vasculitis, Purpura, and Other Vascular Diseases

Testing and Diagnosing Skin Disorders

Surgical and Therapeutic Interventions
Topical Medications
Systemic Drugs
**Word Parts**
Combining Forms Pertaining to the Skin and Accessory Organs and Conditions (includes tables)
Prefixes Pertaining to the Skin and the Integumentary System (includes tables)
Suffixes Pertaining to the Skin and the Integumentary System (includes tables)

**Supplementary Terms**
The Skin's Anatomy and Physiology (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Symptoms and Signs (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

**Interactive:**
- 23 quizzes
- 43 graphics
- 28 audio pronunciation prompts
UNIT 10: INTRODUCTION TO THE MUSCULOSKELETAL SYSTEM

CONTENT

Introduction to the Musculoskeletal System
The Structure and Function of the Skeletal System
Divisions of the Skeleton
Disorders of the Musculoskeletal System
Diagnosis and Treatments of Bone and Associated Tissue Illnesses
Introduction to Muscles
The Structure and Function of Muscles
Types of Muscles
Diagnosis and Treatment of Muscular Disorders
Word Parts
Supplemental Terms

INTRODUCTION TO THE MUSCULOSKELETAL SYSTEM

The skeletal and muscular systems are combined in this Unit because the medical terminology of the two systems is associated very closely. The bones (oste/o) and muscles (my/o) work hand in hand to support the body and produce body movement. Indeed, nearly every one of the 206 bones in the body is attached to muscles. As a result, the medical terminology of bones and muscles is closely related, and medical treatment is usually provided in a clinical setting that addresses both systems. When the two systems are combined in a medical treatment program, they are usually referred to as the musculoskeletal system.

The musculoskeletal system provides protection, support, and movement for the body. Bones store mineral salts and are important in the production of blood. They provide storage of fat (lip/o) in the bone marrow (myel/o), and storage and release of minerals, especially calcium (calc/i). Muscles move an organ or part of the body by contracting and relaxing. Muscles are closely related to the nervous system because nerve impulses stimulate the muscles to contract. The musculoskeletal system is comprised of bones, joints (arthr/o), muscles, and supporting structures including fascia (fasci/o), tendons (ten/o or tend/o), and ligaments.

The muscular system includes all types of muscle. The skeletal system consists of the bones and cartilage (chondr/o) of the body, which collectively provide the supporting framework for the muscles and organs as well as places for the attachment of tendons, ligaments, and muscles. A good example of this is the knee (gen/u), the joint that connects the thigh bone (femer/o) with the lower leg.

The skeleton forms the framework of the body, protects vital organs, and works with the muscular system to produce movement at the joints. The human adult skeleton is composed of 206 bones.

OBJECTIVES

After completing this Unit, you will be able to:

1. Describe the functions of the musculoskeletal system
2. Compare the axial skeleton and the appendicular skeleton
3. Describe the structure of a long bone
4. Compare a suture, a symphysis, and a synovial joint
5. Describe the main disorders that affect the skeleton and joints
6. Describe the common methods used to diagnose and treat disorders of the skeleton
7. Interpret abbreviations used in relation to the skeleton
8. Describe the anatomy and function of smooth, cardiac, and skeletal muscles
9. Describe the main disorders that affect muscles
10. Describe the diagnostic terms and pathologies related to the musculoskeletal system
11. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices for the skeletal and muscular systems
12. Identify and use roots pertaining to the musculoskeletal system
13. Construct terms from word parts associated with the skeletal and muscular systems

**KEY CONCEPTS COVERED IN THIS UNIT**

Orthopedics is the branch of medicine involved in the prevention and correction of deformities or diseases of the musculoskeletal system, especially those of the bones, muscles, joints, ligaments, and tendons. Orthopedics was so named because the orthopedist originally aligned children’s bones and corrected deformities. Today, however, an orthopedist specializes in disorders of the bones and associated structures in people of all ages. This section will explore the musculoskeletal system, its disorders and treatments.

**SYLLABUS**

**Naming Bones, Joints, and Muscles**

**Structure and Function of the Skeletal System**

**The Structure of Long Bones**

**The Seven Principal Sections and Functions of Long Bones**
- Diaphysis
- Epiphyses
- Periosteum
- Medullary Cavity
- Endosteum
- Bone Matrix
- Metaphysic (Epiphyseal Plate)

**Other Bones of the Body**
- Flat Bones
- Short Bones
- Irregular Bones

**Divisions of the Skeleton**
- The Three Parts of the Axial Skeleton
- The Four Parts of the Appendicular Skeleton

**Bone Formation**
- The Three Types of Bone Cells

**The Joints**
- The Three Types of Joints and their Ranges of Motion

**Disorders of the Musculoskeletal System**
- Disorders of the Bones, Joints, Ligaments, Tendons, and Cartilage
- Skeletal Disorders and Spinal Deformities
- The Three Kinds of Bone Fractures
- Injuries to Bones, Joints, Tendons, and Ligaments
- Metabolic Disturbances
- Connective Tissue Disease and its Impact on Bones
Diagnosis and Treatments for Bone and Associated Tissue Illnesses
Interventions Used To Reduce Fractures
Surgical Interventions

Introduction to Muscles
Muscles and Associated Structures
Naming Of Muscles
The Three Types of Muscle
The Skeletal Muscles
Muscle Action

Diagnosis and Treatment of Muscular Disorders
Muscular Disorders

Word Parts
Combining Forms for Bones and Joints (includes tables)
Combining Forms Pertaining to Muscles and Soft Tissue (includes tables)
Additional Combining Forms (includes tables)
Prefixes (includes tables)
Suffixes (includes tables)

Supplemental Terms
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive:
17 quizzes
49 graphics
15 audio pronunciation prompts
UNIT 11: INTRODUCTION TO NEUROLOGY AND MENTAL HEALTH SYSTEMS

CONTENT

Introduction to Neurology and Mental Health Systems
Structures and Organization of the Nervous System
Organization of the Cells of the Nervous System
Functional Organization of the Nervous System
The Brain
The Peripheral Nervous System and the Sense Organs
Protecting the Brain
The Spinal Cord
The Autonomic Nervous System
Signs, Symptoms, Disorders and Diagnostic Procedures
Common Medical Tests
Therapies and Common Surgeries
Introduction to Psychological, and Behavioural Disorders
Drug Treatments
Word Parts
Supplemental Terms

INTRODUCTION TO NEUROLOGY AND MENTAL HEALTH SYSTEMS

Each body system has a specific function, yet all work together to sustain life. The nervous system serves as the control center and the body’s central communications network. The nervous system stores and processes information and stimulates movement. Working with the endocrine system, the nervous system helps maintain homeostasis—an internal equilibrium within the body. Where the endocrine system performs its functions by circulating hormones, the nervous system functions by means of electric impulses and locally released chemicals called neurotransmitters. The nervous system influences other body systems; for example, damage to certain nerves may result in respiratory arrest.

Sensory receptors within the nervous system detect changes that occur inside and outside the body and convey this information to the brain. Some receptors monitor changes in the outside environment, such as room temperature, and other receptors monitor changes within the body, such as body temperature. The nervous system’s integrative functions create sensations, produce thoughts and memory, and make decisions based on what is received from the sensory receptors. The nervous system also sends signals from the brain to muscles and glands to cause an effect. The part of the nervous system that is under voluntary control is called the somatic nervous system. The part of the nervous system that relates to involuntary or automatic body functions is called the autonomic nervous system.

The nervous system is comprised of the brain (encephal/o, cerebr/o), spinal cord (myel/o), and nerves (neur/o). Working together, these organs enable people to sense the world around them, integrate this information to form thoughts and memories, and control body movements and other internal functions. Because of the important roles performed by the nervous system, such as control and regulation of numerous body functions, nervous system diseases can have a profound effect on physical well-being and mental health.

The nervous system provides communication between its primary organ, the brain, and the distant parts of the body. The nervous system does all of this by way of electrochemical messages called nerve impulses. Nerve impulses travel along special routes, or nerves, at high speeds. As a whole, the nervous system is a complex group of organs and structures that extends throughout the body. In addition to the brain, its organs include the spinal cord and millions of nerves.
OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the major organs of the nervous system and describe their structure and function
2. Compare the sympathetic and parasympathetic systems
3. Describe how the central nervous system is protected
4. Describe the major disorders of the nervous system
5. List some common symptoms of neurologic disorders
6. Define the names of the diagnostic terms and pathologies related to the nervous system
7. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the nervous system
8. Describe the surgical and therapeutic interventions for the nervous system
9. Identify and use word parts pertaining to the nervous system
10. Understand the meanings of nervous system word parts and use them to build and analyze terms
11. Describe the major psychological and behavioural disorders
12. Define the word parts used to create terms for mental health
13. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with mental health
14. Build medical terms from the word parts associated with mental health
15. Define diagnostic terms used for psychological and behavioural disorders
16. Describe therapeutic interventions for psychological and behavioural disorders

KEY CONCEPTS COVERED IN THIS UNIT

The neurological, or nervous, system is closely involved with many body systems. Because brain function falls within the domain of the nervous system, mental health issues are often combined with neurological studies. Much of psychiatry has moved toward biological etiologies, which, again, supports the combining of the two medical specialties. In this Unit, we will first look at the nervous system; then the mental health one.

SYLLABUS

The Two Parts of the Nervous System and their Functions
The Central Nervous System (CNS)
The Peripheral Nervous System (PNS)

The Organization of the Cells of the Nervous System
Neurons
Neuroglia

The Functional Organization of the Nervous System
The Somatic Nervous System
The Visceral or Autonomic Nervous System (ANS)

The Brain

The Four Major Structures of the Brain and their Component Parts
The Cerebrum
  The Frontal Lobe
  The Parietal Lobe
  The Occipital Lobe
  The Temporal Lobe
The Diencephalon
The Cerebellum
The Brainstem
  The Midbrain
  The Pons
  The Medulla Oblongata

The Peripheral Nervous System and the Sense Organs

Protecting the Brain
  Dura Mater
  Arachnoid Mater
  Pia Mater

The Twelve Pairs of Cranial Nerves, their Control Regions and their Nerve Functions

The Spinal Cord: Its Five Principal Regions and their Spinal Nerves
  Cervical
  Thoracic
  Coccygeal
  Sacral
  Lumbar

Reflexes

The Autonomic Nervous System
  The Sympathetic Nervous System
  The Parasympathetic Nervous System
  Divisions of the Autonomic (Involuntary) Nervous System

Diseases, Disorders and Diagnostic Terms
  Disorders of the Flow of Cerebrospinal Fluid
  Brain Trauma
  Fractures and Spinal Cord Injury
  Infection
  Neoplasms
  Degenerative Diseases

The Five Principal Medical Tests for Diagnosing Nervous System Disorders

Therapies and Surgical Interventions for the Nervous System

Introduction to Psychological and Behavioural Disorders
  Psychologic Disorders
  Psychosis
  Bipolar Disorders
  Schizophrenia
  Impulse Control Disorders
  Mood Disorders
  Personality Disorders
  Alzheimer’s Disease
  Anxiety Disorders
  Phobias
  Obsessive-compulsive Disorder (OCD)
  Posttraumatic Stress Disorder (PTSD)
  Eating Disorders
  Other Psychological and Behavioural Disorders
Childhood Onset Disorders and Pervasive Developmental Disorders
Pervasive Developmental Disorder (PDD)
Asperger Syndrome
Autism
ADHD

Word Parts
Combining Forms for the Brain, Nervous System, the Spinal Cord, and Mental Health (includes tables)
Prefixes for the Brain, Nervous System, the Spinal Cord, and Mental Health (includes tables)
Suffixes for the Brain, Nervous System, the Spinal Cord, and Mental Health (includes tables)

Supplemental Terms
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 26 quizzes
31 graphics
28 audio pronunciation prompts
UNIT 12: INTRODUCTION TO THE MALE REPRODUCTIVE SYSTEM

CONTENT

Introduction to the Male Reproductive System
Anatomy and Physiology
The Internal and External Organs
The Testis
The Male Glands
The Male Tubules
The Transport of Spermatazoa
Secondary Sex Characteristics
Signs, Symptoms, and Diagnostic Procedures
Disorders of the Male Reproductive System
Common Medical Tests
Therapies and Common Surgeries
Word Parts
Supplemental Terms

INTRODUCTION TO THE MALE REPRODUCTIVE SYSTEM

The male reproductive system produces the sex cells, or gametes, of the male. Male gametes are called spermatozoa (sperm/o, spermat/o) or sperm cells, which are sustained and transported by the male urogenital system (ur/o means “urinary system” and genit/o means “reproductive system”). In addition, the male reproductive system secretes the hormone testosterone, which regulates sperm cell production and the expression of secondary sexual characteristics, such as hair distribution, bone (oste/o) and muscle (my/o) development, and enlargement of the larynx (laryng/o).

The function of the sex cells, called the gonads (gonad/o), in both males and females is to produce the reproductive cells, the gametes, and to produce hormones. The gametes, or sex cells, are generated by meiosis, a process of cell division that halves the chromosome number from 46 to 23. When male and female gametes unite in fertilization, the original chromosome number is restored.

The reproductive tract develops in close association with the urinary tract. In females, the two systems become completely separate, whereas the male reproductive and urinary tracts share a common passage, the urethra (urethr/o). Thus, the two systems are referred to together as the genitourinary (GU) or urogenital (UG) tract, and urologists treat disorders of the male reproductive system as well as those of the urinary system.

A properly functioning male reproductive system has the capability of transmitting sperm cells to a female during sexual intercourse, or coitus, which is Latin for a sexual union. The release of sperm cells is called ejaculation, and it usually accompanies sexual climax, or orgasm.

The primary organs of the male reproductive system are the paired testes that produce sperm cells and secrete testosterone. Other organs either transport the sperm cells or produce substances that support the sperm. The organs that transport sperm are tubules (tub/o, tubulo-) that include the epididymis (epididym/o), vas deferens (vas/o), and urethra; and the male glands that provide supportive secretions are the seminal vesicles (vesicul/o), the prostate gland (prostat/o), and the bulbourethral glands. The male reproductive organs are divided into the external organs and internal organs.
OBJECTIVES

After completing this Unit, you will be able to:

1. Identify and describe the major organs of the male reproductive system and describe their structures and functions
2. Describe the main disorders of the male reproductive system
3. Describe diagnostic terms related to the male reproductive system
4. Define terms for sexually transmitted infections (STIs)
5. Interpret abbreviations used in referring to the reproductive system
6. Describe appropriate surgical and therapeutic interventions for the male reproductive system
7. Identify and use roots and combining forms pertaining to the male reproductive system
8. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the male reproductive system
9. Use word parts to build and analyze terms

KEY CONCEPTS COVERED IN THIS UNIT

The male reproductive system overlaps with the male urinary system. Consequently, it is often referred to as the urogenital system. This Unit concentrates on the reproductive functions of the system, its anatomical structures and functions, and its most common disorders and their respective therapies.

SYLLABUS

Anatomy and Physiology of the Male Reproductive Organs

The External Organs
The Penis
The Scrotum
The Urethra

The Internal Organs
The Gonads/Testes
The Epididymis
The Vas Deferens
The Seminal Vesicles
The Ejaculatory Ducts
The Prostate Gland
The Bulbourethral Glands

Anatomy of the Testes

The Male Glands

The Male Tubules

Transport of Spermatozoa

The 15 Secondary Sex Characteristics

Signs, Symptoms, and Diagnostic Procedures
Bacteria Mediated Sexually Transmitted Infections
Virus Mediated Sexually Transmitted Infections
Other Infective Agents
Neoplasia and Hyperplasia
The TNM System for Staging Prostate Cancer
Other Disorders of the Male Reproductive System
The 11 Most Common Surgical and Therapeutic Interventions

**Word Parts**
Combining Forms Pertaining to the Male Reproductive System (includes tables)
Prefixes Pertaining to the Male Reproductive System (includes tables)
Suffixes Pertaining to the Male Reproductive System (includes tables)

**Supplemental Terms**
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

**Interactive:**
17 quizzes
Four graphics
19 audio pronunciation prompts
UNIT 13: INTRODUCTION TO THE FEMALE REPRODUCTIVE SYSTEM

CONTENT

Introduction to the Female Reproductive System
The Accessory Organs of the Female Reproductive System
The External Accessory Structures
The Internal Accessory Structures
The Principal Organs of the Female Reproductive System
The Menstrual Cycle
Diseases, Disorders, and Diagnostic Terms
Therapeutic and Surgical Interventions
Introduction to Obstetrics and Human Development
Pregnancy and Childbirth
Postnatal Development
Obstetrical Diseases, Disorders, Diagnoses, and Interventions
Word Parts
Supplemental Terms

INTRODUCTION TO THE FEMALE REPRODUCTIVE SYSTEM

Reproduction is the process by which genetic material is passed from one generation to the next. The major function of the reproductive system is to produce offspring. The female reproductive system aids in the creation of new life and provides an environment and support for the developing child.

The female reproductive system produces the sex cells, or gametes, of the female—the egg cells, called ova (ov/o, ovul/o, oo) (ovum is the singular form), or oocytes (-cyte means “cell”). The female system also provides support for the developing embryo and fetus once fertilization has occurred. In addition, the female reproductive system secretes the hormones estrogen and progesterone, which regulate female cycles. Estrogen also regulates the expression of secondary female characteristics, including fat distribution, bone and muscle development, and hair distribution.

The primary organs of the female reproductive system are the ovaries (ovari/o, oophor/o). Other female organs support embryonic (embry/o) and fetal (fet/o) development and the internal process of fertilization. These other organs include the fallopian tubes (salping/o), uterus (uter/o), vagina (colp/o, vagin/o), and external genitalia (vulv/o). Although the breasts, or mammary glands (mamm/o, mast/o), are not part of the reproductive system, they are considered to be an accessory organ and are usually included with a discussion of this system, as their purpose is to nourish an infant.

In contrast to the continuous gametogenesis (sperm cell production) in males, formation of the female gamete is cyclic, with an egg released midway in the menstrual cycle. Each month, the uterus is prepared to receive a fertilized egg. If fertilization occurs, the developing offspring is nourished and protected by the placenta and surrounding fluids until birth. If the released egg is not fertilized, the lining of the uterus is sloughed off in menstruation.

Gynecology (gynec/o) is the study of diseases of the female reproductive organs, and a gynecologist is a specialist in the study of these diseases. Female genitalia include both external and internal structures. Obstetrics (obstetr/o) is the field of medicine that deals with pregnancy and birth. Often the two specialties are combined into obstetrics-gynecology, abbreviated as OB-GYN.
**Objectives**

*After completing this Unit, you will be able to:*

1. Describe the organs and functions of the female reproductive system and label a diagram of the female reproductive tract
2. Outline the events in the menstrual cycle
3. Describe the structure and function of the mammary glands
4. Describe the main disorders of the female reproductive system
5. Describe sexually transmitted infections and their causative agents
6. Describe therapeutic interventions for the female reproductive system
7. Describe the stages of childbirth
8. Identify and use roots pertaining to the female reproductive system, pregnancy, and birth
9. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the female reproductive system
10. Define the word parts used to create terms for obstetrics and human development

**KEY CONCEPTS COVERED IN THIS UNIT**

The organs of the female reproductive system produce and maintain the female sex cells, or egg cells; and transport these cells to the site of fertilization to provide an environment for a developing offspring. The organs move the offspring outside during birth. Additionally, the organs produce female sex hormones.

**SYLLABUS**

**The Primary Organs of the Female Reproductive System**

The Ovaries

**The Accessory Organs of the Female Reproductive System**

**The External Accessory Structures**

The Mons Pubis
The Labia Majora
The Labia Minora
The Vestibule
Bartholin’s glands
The Clitoris
The Mammary Glands

**The Internal Accessory Structures**

The Vagina
The Uterus
The Fallopian Tubes or the Oviducts

**The Three Layers of the Uterus and their Functions**

Endometrium
Myometrium
Perimetrium

**The Three Layers of the Vagina and their Functions**

The Inner Mucosal Layer
The Middle Muscular Layer
The Lower, Soft Tissue, Layer

**The Menstrual Cycle**
The 17 Most Common Methods of Birth Control

Diseases, Disorders, and Diagnostic Terms
The 23 Most Common Gynecological Disorders

Common Causes of Female Infertility
Infection
Gynecological Diseases and Disorders
Cancers of the Female Reproductive Tract and Breasts

The 13 Most Common Surgical and Therapeutic Interventions

Introduction to Obstetrics and Human Development
Pregnancy and Childbirth
Describing Pregnancy and Birth Numbers
Pregnancy Number References: Gravid
Viable Birth Number References: Para
The Placenta and Fetal Circulation
Labour
The Four Stages of Vaginal Labour
Caesarean Section
Lactation
Postnatal Development

Diseases, Disorders, Diagnosis, and Therapeutic Interventions
The Seven Most Common Pregnancy- and Birth-Related Problems
Congenital Disorders

Diagnosis of Specific Disorders

Therapeutic and Surgical Interventions

Word Parts
Combining Forms for Female Reproduction and the Ovaries (includes tables)
Combining Forms for the Female Accessory Structures (includes tables)
Combining Forms Pertaining to Pregnancy and Birth (includes tables)
Prefixes Pertaining to the Female Reproductive System (includes tables)
Suffixes Pertaining to the Female Reproductive System (includes tables)

Supplemental Terms
Anatomy and Physiology (includes tables)
Diseases and Disorders (includes tables)
Symptoms and Signs (includes tables)
Tests, Treatments and Surgical Interventions (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 29 quizzes
25 graphics
19 audio pronunciation prompts
UNIT 14: INTRODUCTION TO THE URINARY SYSTEM

INTRODUCTION TO THE URINARY SYSTEM

The urinary system functions as the sanitary engineer of the body, maintaining the health of the body’s fluids by removing unwanted waste materials and recycling other materials. The most important organs of the urinary system are the kidneys (nephr/o, ren/o), which filter gallons of fluids from the bloodstream every day. The kidneys remove metabolic wastes, toxins (toxic/o), excess ions, and water (hydr/o), which leave the body as urine (ur/o, urin/o), while returning needed materials back to the blood. This function is called excretion, a term that means to eliminate waste from the body. In addition to performing excretion, the kidneys also help regulate blood pressure, pH, and red blood cell production (hematopoiesis). Because these functions are essential for survival, the kidneys are vital organs; a loss of both kidneys requires medical intervention in order to sustain life.

The body eliminates waste in several ways. The lungs and other parts of the respiratory system eliminate carbon dioxide; the digestive system rids the body of solid waste; and the skin eliminates wastes through perspiration. Through urination, the urinary system eliminates waste products that accumulate as a result of cellular metabolism. Urination is the act of voiding urine.

In forming and eliminating urine, the urinary system also regulates the composition, volume, and acid-base balance (pH) of body fluids. Kidney activity affects the circulation. The urinary system is thus of critical importance in maintaining homeostasis, the state of internal balance.

OBJECTIVES

After completing this Unit, you will be able to:

1. Identify the major organs of the urinary system and describe their structure and function
2. Explain how urine is formed and eliminated
3. Explain the relationship between the kidney and the blood circulation
4. Describe the major disorders of the urinary system
5. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the urinary system
6. Write the meanings of urinary system word parts and use them to build and analyze terms
7. Write the names of the diagnostic terms and pathologies related to the urinary system
KEY CONCEPTS COVERED IN THIS UNIT

In this Unit we will study the urinary system. The urinary system or renal system is the organ system that produces, stores, and eliminates urine. In humans it includes two kidneys, two ureters, the bladder, and the urethra. The female and male urinary system are very similar, they differ only in the length of the urethra. The urinary system is crucial for the elimination of waste matter, the regulation of blood pH, the regulation of blood pressure, and the development of red blood cells.

SYLLABUS

The Organs and Functions of the Urinary System
Two Kidneys
Two Ureters
The Urinary Bladder
The Urethra

The Main Functions of the Kidneys
Maintenance of an Appropriate Blood Volume
Maintenance of the Chemical Composition of Blood
Maintenance of Blood pH
Excretion of Waste Products of Protein Metabolism
Regulation of Blood Pressure
Stimulation of Erythrocyte Production

The Kidney
The Nephrons
Urine Formation
The Three Processes of Urine Formation
Transport and Removal of Urine
The Ureters
The Urinary Bladder
The Urethra
The Micturition Reflex
Blood Supply to the Kidneys

Diseases, Disorders, and Diagnostic Procedures
Infection
Inflammation
Nephrotic Syndrome
Nephritic Syndrome
Urinary Stones
Neoplasms

Tests and Evaluation Procedures

Surgical and Therapeutic Interventions
The Two Primary Methods of Dialysis
Hemodialysis
Peritoneal Dialysis

Word Parts
Combining Forms for the Kidney and Renal Pelvis (includes tables)
Combining Forms That Apply to the Anatomy and Physiology of the Urinary Tract (Except the Kidney) (includes tables)
Prefixes That Apply to the Urinary System (includes tables)
Suffixes That Apply to the Urinary System (includes tables)
Supplemental Terms
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 29 quizzes
23 graphics
Seven audio pronunciation prompts
UNIT 15: INTRODUCTION TO THE EYES AND EARS

CONTENT

Introduction to the Senses: the Eyes and Ears
The Principal Senses and their Receptors
The Five Special Senses
Introduction to the Eye and Vision
Anatomy and Physiology of the Eye
Diseases, Disorders and Diagnostic Terms: the Eye and Vision
Anatomy and Physiology of the Ear
The Three Principal Sections of the Ear
Equilibrium
Diseases, Disorders and Diagnostic Terms: the Ear and Audition
Word Parts
Supplemental Terms

INTRODUCTION TO SENSES

The sensory system is our network for detecting stimuli from both internal and external environments. It is needed to maintain homeostasis and protect us from harm. The senses alert us to pain and also provide us with pleasure. Pain is an important warning sign of tissue damage. The signals generated in the various receptors of the sensory system must be transmitted to the central nervous system for interpretation.

The senses are divided according to whether they are widely distributed or localized in special sense organs. The receptors for the general senses are found throughout the body. Many are located in the skin. The special senses are localized within complex sense organs in the head. The special senses provide the brain with information about the outside environment. There are five special senses: taste (gustation), smell (olfaction), hearing (audition), equilibrium (balance), and vision. The special senses are perceived with the help of highly specialized organs, which include the eyes (sight), the ears (hearing and equilibrium), organs on the tongue (taste), and sensory patches within the nose (smell). In each case, the special sensory organ contains sensory receptors. The sensory receptors are sensitive to a particular stimulus and generate a nerve impulse when the stimulus is sufficiently strong. The nerve impulse then travels to the brain to be interpreted as something you see, hear, taste, or smell. In this section, we will study the eyes and ears and their special senses.

OBJECTIVES

After completing this Unit, you will be able to:

1. Explain the role of the sensory system
2. Identify the anatomic parts of the eyes and ears and describe their structures and functions
3. Define common medical terms used for the eyes and ears
4. Define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices for the eyes and ears
5. Identify and use word parts pertaining to the senses

KEY CONCEPTS COVERED IN THIS UNIT

The special senses are localized within complex sense organs in the head. The special senses provide the brain with information about the outside environment. There are five special senses: taste (gustation), smell (olfaction), hearing (audition), equilibrium (balance), and vision. In this Unit we will be looking at vision, hearing, and equilibrium. Recently, there has been a movement away from including taste as one of the special senses.
SYLLABUS

The Five Principal Senses and their Receptors

Physiology of the Senses

Introduction to the Eye and Vision

Anatomy and Physiology of the Eye
The Fibrous Layer
The Vascular Layer
The Nervous Layer
The Three Layers of the Eye’s Wall
Vision

Diseases, Disorders and Diagnostic Terms: The Eyes and Vision

Introduction to the Ear and Hearing

Anatomy and Physiology of the Ear
The Three Sections of the Ear
The Parts of the Outer Ear
The Parts of the Middle Ear
The Parts of the Inner Ear
Equilibrium

Diseases, Disorders, and Diagnostic Terms: The Ears And Audition

Word Parts
Combining Forms Pertaining to the Ear and Hearing (includes tables)
Combining Forms Pertaining to the Eye and Vision (includes tables)
Common Prefixes Applied to the Eye, Vision, Ear and Hearing (includes tables)
Common Suffixes Applied to the Eye, Vision, Ear, and Hearing (includes tables)
Miscellaneous Suffixes that Apply to the Senses (includes tables)

Supplemental Terms
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Treatments, Procedures, and Devices (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: 21 quizzes
28 graphics
13 audio pronunciation prompts
UNIT 16: INTRODUCTION TO CANCER

CONTENT

Introduction to Cancer
Cancer Diagnosis
Cancer Treatments
Word Parts
Supplemental Terms

INTRODUCTION TO CANCER

Cancer is a disease of cells and tissues. It is currently one of the most life-threatening diseases among adults. Cancer is characterized by an abnormal growth of cells. The disease begins when the DNA within a cell undergoes a change, or mutation, which results in the loss of regulated cell division, in many cases forming a cluster of non-functional cells called a tumour or neoplasm.

If the cells grow slowly into a mass without spreading to other body tissues, the tumour usually is not life threatening and is called benign. On the other hand, if the tumour cells grow quickly and spread, the tumour is malignant and the condition of cancer can be diagnosed. The word malignant is derived from the Latin word root “mal,” which means bad. Cells spread from a malignant tumour along blood and lymphatic pathways during the process called metastasis, which leads to the establishment of secondary tumours in other areas of the body.

Benign means “favourable for recovery” and “not having a tendency to spread.” Malignant means tending to grow worse, to spread, and possibly become life threatening. Cancer cells are malignant, exhibiting the properties of invasion and metastasis. Cancer cells metastasize by several means, including the bloodstream, lymphatic system, and direct extension to neighboring tissue. The immune system acts against cancer cells to block or impede their spread and invasion of sites distant from their source.

Cancers may arise from epithelial tissue, connective tissue, muscle tissue, or even nervous tissue. Cancers are named primarily from the tissue of origin. A cancer type may also be named by colour characteristics or certain other distinguishing features. The use of the word root carcin/o indicates that the tumour is malignant.

The combining form onc/o means “tumour.” Similarly, the suffix –oma can also mean tumour. The word tumour is used in different ways. It sometimes means a swelling or enlargement, but it often refers to a spontaneous new growth of tissue that forms an abnormal mass. This latter definition is also called a neoplasm. A benign tumour is not cancerous, so it does not spread to other parts of the body. Benign is the opposite of malignant. A benign neoplasm may, however, cause damage at the site where it grows. A physician who specializes in the treatment of cancer is an oncologist.

The constructed terms pertaining to cancer are formed from word parts which are assembled according to some basic rules. As a general rule, benign tumours that arise from connective tissue or muscle tissue are usually named by adding the suffix –oma. Malignant tumours (cancers) of connective or muscle tissue origin are often named by adding the term sarcoma, because sarcomas are almost always malignant. For example, a myoma is a benign tumour of muscle, whereas a myosarcoma is a malignant tumour of muscle. A lipoma is a benign tumour of fat, while a liposarcoma is a malignant tumour of fat. For tumours that arise from epithelial and nervous tissue, the suffix –oma is used to describe both benign and malignant tumours. If the tumour arises in glandular epithelium, it is an adenocarcinoma (the root aden/o means “gland”); a cancer of pigmented epithelial cells (melanocytes) is a melanoma. A neuroma is a tumour of nervous tissue, but it might be benign or malignant. A neurocarcinoma is a malignant tumour, or cancer, of nervous tissue.

Often mistaken for a malignancy is a cyst, a sac, or pouch filled with fluid or semisolid material that is abnormal but not cancerous. Common sites for cyst formation are the breasts, the skin’s sebaceous glands, and the ovaries. Causes of cyst formation include infection or blockage of a duct.
OBJECTIVES

After completing this Unit, you will be able to:

1. Define and give examples of various neoplasms
2. Define common medical terms used for cancer
3. Define medical terms pertaining to cancer
4. Define the word parts used to create medical terms for cancer
5. Define common medical terms used for symptoms, diagnostic procedures, and treatments for cancer

KEY CONCEPTS COVERED IN THIS UNIT

This Unit takes a brief look at cancer, particularly the ways in which cancers are named. Because each of the course's individual units contains information about cancers that are specific to their particular field, this section is a corollary to those.

SYLLABUS

Introduction to Cancer

Naming Cancers

Cancer Diagnosis

Cancer Treatments

Word Parts
Combining Forms for Cells, Tissue, and Cancer (includes tables)
Prefixes for Cells, Tissue, and Cancer (includes tables)
Suffixes for Cells, Tissue, and Cancer (includes tables)

Supplemental Terms
Anatomy, Physiology, and General Terms Related to Cancer (includes tables)
Cancer Related Diseases and Disorders (includes tables)
Signs, Symptoms, and Diagnosis (includes tables)
Treatments for Cancer (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive: Nine quizzes
UNIT 17: INTRODUCTION TO PEDIATRIC MEDICINE

CONTENT

Introduction to Pediatric Medicine
Neonates
Allergies and Asthma
Pediatric Diabetes
Congenital and Inherited Disorders
Childhood Cancers
Eye Conditions
Infections Common in Childhood
Vaccines
Autoimmune Juvenile Arthritis
Mental Health, Developmental, and Nervous System Conditions
Urinary System Disorders
Gastrointestinal Conditions

INTRODUCTION TO PEDIATRIC MEDICINE

Infants and children are not simply small adults. As such, their medical care should rest in the hands of experts in the fields of child medicine. While in some cases, children may develop the same diseases that adults do, the course of their illnesses and the outcomes may be very different from those of adults.

The smaller body of a child is substantially different physiologically from that of an adult. Congenital defects, genetic variance, and developmental issues are of greater concern to pediatricians than they often are to adult physicians.

A newborn up to the age of one month is referred to as a neonate. Generally, an infant is a baby between the ages of one month and 12 months. Childhood is often divided into three parts: toddlerhood, early childhood (pre-school), and middle childhood (school age). Adolescence is the transitional period between puberty (the onset of fertility) and the fully developed young adult.

A key difference between pediatrics and adult medicine is that children cannot make decisions for themselves. The issues of guardianship, privacy, legal responsibility and informed consent must always be considered in every pediatric procedure. In a sense, pediatricians often have to treat the parents and sometimes, the family, rather than just the child. Adolescents are in their own legal class, having rights to their own health care decisions in certain circumstances. In basic terms, pediatricians take care of all of the children's needs from emotional support to medical support.

OBJECTIVES

After completing this Unit, you will be able to:

1. List the meaning of each letter of the APGAR and describe how it is used to evaluate neonatal health
2. Describe the neonate’s body systems and related anatomies that are evaluated immediately after birth
3. List the different stages of development from birth to adulthood
4. Explain the differences between Type 1 and Type 2 Diabetes
5. Describe the relationship between allergy and asthma
6. Explain the ways in which allergy medicines are delivered
7. Explain the meaning of “congenital”
8. List and describe the congenital disorders that are most commonly found in children
9. List and describe the 12 most common cancers found in the pediatric population
10. Describe the most common pediatric eye conditions
11. List and describe the infections that are most commonly seen in babies and older children
12. List the vaccines that are routinely given to infants and older children
13. Describe the different forms of Juvenile Arthritis that can affect children
14. Describe the disorders that are mental/emotional, neurological, or developmental in origin.
15. List and describe the urinary and gastrointestinal conditions that affect children.

**KEY CONCEPTS COVERED IN THIS UNIT**

In this section, we will assemble the word parts to form medical terms related to the pediatric medicine. You will already have come across many of these terms and word parts in previous sections. We will also present some additional key terms that are not built from word parts. These terms are listed within the categorical groupings in the Supplemental Terms.

**SYLLABUS**

**The Neonates**
- Newborn History Taking
- Examining the Neonate
- The Apgar Score
- Common Terms that Describe a Child's Developmental Age

**Allergies and Asthma**
- Common Symptoms and Signs of Allergic Reaction
- Food Allergies
- Anaphylaxis
- Asthma and the Link Between Allergic Rhinitis
- Reactive Airways Disease
- Medications that Can Help Ease Asthma
- A metered Dose Inhaler
- Nebulizers
- Eczema

**Pediatric Diabetes**
- Diabetes Mellitus (DM) Type 1
- Potential Long-Term Complications of Type 1 Diabetes
- Types of Insulin Therapy

**Congenital and Inherited Disorders**
- Congenital Heart Defects
- Septal Defects
- Two Types of Congenital Septal Defects
- Valve Defects
- Three Principal Causes of Congenital Valve Defects
- Muscular Dystrophy
- Forms of Childhood-Onset Muscular Dystrophy
- Cystic Fibrosis
- Respiratory Effects of Cystic Fibrosis
- Common Respiratory Signs and Symptoms in Cystic Fibrosis
- Digestive Effects of Cystic Fibrosis
- Common Digestive signs and Symptoms in Cystic Fibrosis
- Down Syndrome
- Spina Bifida / Neural Tube Defects
- Spina Bifida Occulta
- Meningocele
- Myelomeningocele
Cerebral Palsy
The Three Main Types of Cerebral Palsy
Cleft Lip and Cleft Palate
Management and Treatment
Birth Marks
Salmon Patch Birthmark
Port Wine Birthmark
Strawberry Hemangioma Birthmark
Cavernous Hemangioma Birthmark
Pigmented Nevi Birthmark (Moles)
Dysplastic Nevi (Atypical Moles)
Mongolian Spots
Café au Lait Macules

Childhood Cancers
Cancers Found in Children
Leukemias
Brain and Intracranial Tumours
Lymphomas
Soft Tissue Sarcoma
Bone Sarcoma
Embyryonal Tumours
Renal Tumours
Sympathetic Nervous System (SNS) Tumours
Retinoblastoma
Hepatic Tumours
Carcinomas and Malignant Melanoma
Germ Cell and Gonadal Tumours
Cancer Five-Year Survival Rates

Eye Conditions
Eye and Vision Disorders Found in the Pediatric Population

Infections Common to Childhood
Respiratory Syncytial Virus (RSV)
Fifth Disease
Hand-Foot-And-Mouth Disease (HFMD)
Roseola
Impetigo
Pediatric Candidiasis
Pediatric Aseptic Meningitis
Otitis Media (OM)
The Three Types of Otitis Media
Pharyngitis and Tonsillitis
Croup
Epiglottitis

Vaccines
Vaccines Given to Children
Tetanus Vaccine
Varicella-Zoster Virus (VZV) - Chicken Pox Vaccine
Diphtheria Vaccine
Rubella - German Measles Vaccine
Pertussis (Whooping Cough) Vaccine
Mumps Vaccine
Measles (Rubeola) Vaccine
Pediatric Bacterial Meningitis Vaccine

Autoimmunity Juvenile Arthritis
Juvenile Idiopathic Arthritis (JIA) or Juvenile Rheumatoid Arthritis (JRA)
The Seven Major Types of Juvenile Idiopathic Arthritis

Mental Health, Developmental, and Nervous System Conditions
Attention-Deficit / Hyperactivity Disorder (ADHD)
Three Types of ADHD
Eating Disorders
Anorexia Nervosa
Bulimia Nervosa
Three Forms of Anorexic Behaviours
Learning Disorders
Autism Spectrum Disorder
Epilepsy

Urinary System Disorders
Bedwetting (Enuresis) or Urinary Incontinence
The Four Categories of Enuresis
Urinary Tract Infections (UTI)
Parts of the Urinary Track that May Be Involved in UTIs

Gastrointestinal Conditions
Colic
Intussusception
Pyloric Stenosis

Word Parts
Combining Forms Pertaining to Pediatric Medicine (includes tables)
Prefixes Pertaining to Pediatric Medicine (includes tables)
Suffixes Pertaining to Pediatric Medicine (includes tables)

Supplemental Terms
Anatomy and Physiology (includes tables)
Symptoms and Signs (includes tables)
Diseases and Disorders (includes tables)
Tests and Treatments (includes tables)
Pharmacology (includes tables)
Abbreviations (includes tables)

Interactive
9 quizzes
48 graphics