Section II – Body Structures

For therapists to understand the location, position and function of the body parts, "anatomic reference systems" have been established. This is accomplished by defining body planes, body part directions, body cavities and body systems. This is basically an extremely small review of your anatomy and analysis of movement, but terms you will have to remember when discussing patient/client conditions. These terms are used daily by therapists and other health care professionals.

Positioning

- Anatomic position – standing erect, facing forward, hands at the sides with palms turned toward the front
- Supine – lying on the back, face up
- Prone – lying face down on the front of the body

Anatomic Body Planes

The body is divided into different planes by horizontal or vertical lines.

- Transverse plane – divides the body into upper & lower sections
- Sagittal plane – divides the body into left & right sides
- Frontal or coronal plane – divides the body into front and back portions

Body Part Directions

The direction of the body describes the front & back of the body.

- Anterior or ventral – front of the body
- Posterior or dorsal – back of the body
- Superior – towards the head or upper body
- Interior – towards the feet or lower body
- Proximal – nearest the midline or point of origin
- Distal – farthest from the midline or point or origin
- Medial – relating to the middle or center
- Lateral – on the side or away from the middle
- Abduction – moving away from the median plane of the body
- Adduction – moving towards the median plane of the body
- Cephalic – towards the head
- Caudal – towards the feet
- Superficial – toward the surface of the body
- Deep – away from the surface of the body
- Inversion – turning inward
- Eversion – turning outward

Body Cavities

The body cavity is the portion of the body that is designed to contain or protect the internal organs.

- Dorsal cavity – protects the nervous system
    - Cranial cavity – located in the skull protecting the brain
    - Spinal cavity – located within the column protecting the spinal cord

- Ventral cavity – contains the parts of the body that maintain homeostasis
  - Thoracic cavity – protects the heart & lungs
  - Abdominal cavity – protects the digestive organs
  - The diaphragm is a muscle that divides the thoracic cavity from the abdominal cavity
  - Pelvic cavity – protects the reproductive and excretory systems

Body Systems

- Skeletal system
  - Bones, joints, cartilage
  - Supports and shapes the body protecting the internal organs
- Muscular system
  - Muscles, fascia, tendons
  - Assists with holding the body erect, allows movement
- Cardiovascular system
  - Heart, arteries, veins, blood
  - Pumps blood with oxygen and nutrients to the various parts of the body
- Lymphatic and Immune systems
  - Lymph, lymph vessels, lymph nodes
  - Tonsils, spleen, thymus, specialized blood cells
  - Protects the body from harm by bringing in oxygen and nutrients, and eliminating wastes from the cells
- Respiratory system
  - Nose, pharynx, trachea, lungs
  - Brings oxygen to the body cells and removes carbon dioxide
- Digestive system
  - Mouth, esophagus, stomach, small intestines, large intestines, liver, pancreas
  - Digests food that is to be absorbed into the blood stream and eliminates solid wastes
- Urinary system
  - Kidneys, ureters, urinary bladder, urethra
  - Removes waste from the blood and maintains the body's electrolytes and fluid balance
- Nervous system
  - Nerves, brain, spinal cord, eyes, ears
  - Receives stimuli and transmits messages throughout the body
- Integumentary system
  - Skin, sebaceous glands, sweat glands
  - Protects the body from bacteria and regulates temperature and water content
- Endocrine system
  - Adrenals, gonads, pancreas, pineal, pituitary, thyroid, parathyroid, thymus
  - Integrates body functions
- Reproductive system
  - Males- testicles, females – ovaries and uterus
  - Reproduction of life

The Back

- Cervical – neck region
- Thoracic – chest region
- Lumbar – loin region
- Sacrum – lower back region
- Coccyx – tailbone region

Types of Diseases

There are many types of diseases that affect the health and performance of the body and the body's systems. Be aware of the following classifications of disease:

- Infectious diseases – illness caused by the invasion of the body by pathogenic organisms
- Idiopathic disorder – disease of an unknown cause
- Organic disorder – disease of a particular organ
- Functional disorder – disorder where there are no physical changes to explain the symptoms that are being experienced (panic attacks)
- Nosocomial infection – infection that is acquired after admission to the hospital or hospital acquired disease

Medical Specialties

- Anesthesiology – use of medication to relieve pain during surgery
- Cardiology – diagnosis and treatment of the heart and vascular disorders
- Dermatology – diagnosis and treatment of skin disorders
- Endocrinology – diagnosis and treatment of endocrine gland disorders
- Gastroenterology – diagnosis and treatment of diseases involving the stomach, intestines, gallbladder and bile duct
- Gerontology – diagnosis and treatment of diseases affecting the elderly
- Hematology – diagnosis and treatment of blood disorders
- Immunology – diagnosis and treatment of allergic disorders and management of the body's immune system
- Internal medicine – diagnosis and nonsurgical treatment of diseases and disorders in the adult population
- Neurology – diagnosis and treatment of the central nervous system
- Obstetrics and gynecology
    - Obstetrics – treatment of pregnant women and the fetus during pregnancy to after the birth
    - Gynecology – diagnosis and treatment of female diseases and disorders
- Ophthalmology – diagnosis and treatment of eye diseases and disorders
- Orthopedics – diagnosis and treatment of the musculoskeletal system
- Otorhinolarynology – diagnosis and treatment of ear, nose and throat disorders
- Pathology – diagnosis of diseases by analyzing cells obtained through a biopsy or autopsy
- Pediatrics – care and treatment of children
- Proctology – diagnosis and treatment of diseases and disorders of the colon, rectum and anus

- Pulmonary – diagnosis and treatment of diseases of the lungs and breathing disorders
- Radiology – use of x-rays for diagnosing and treating diseases
- Rheumatology – diagnosis and treatment of joint and muscles diseases and disorders
- Urology – diagnosis and treatment of the male urinary and reproductive systems and the female urinary system

Medical Words	**Meaning**
Combining Forms	
Cellular structures	
cyt/o	cell
hist/o	tissue
my/o	muscle
oste/o	bone
Anatomical directions	
anter/o	anterior, front
caud/o	tail
dist/o	farthest
dors/o	back of body
infer/o	lower, below
later/o	side
medi/o	middle
poster/o	back of body, behind, posterior
proxim/o	nearest
ventr/o	belly side
Regions of the body	
abdomin/o	abdomen
acr/o	extremity
lumb/o	loin
pelv/i, pelv/o	pelvis
Suffixes	
-genesis	forming, producing, origin
-gnosis	knowing
-gram	record, a writing
-graph	instrument for recording
-graphy	process of recording
-pathy	disease
Prefixes	
ab-	away from
ad-	toward
infra-, hypo-	below, under
inter-	between
epi-	above, upon
peri-	around
super-	upper, above

Abbreviations

@	at
A&O	alert and oriented
bid	twice a day
c/o	complains of
CNS	central nervous system
CV	cardiovascular
Dx	diagnosis
d/c	discharge
GI	gastrointestinal
Lat	lateral
Pt	patient
QD	once a day
q.i.d	four times a day
R/O	rule out
s/p	status post
SOB	short of breath
tid	three times a day
tx	treatment
vo	verbal order
yo	years old

Worksheet – Section II – Body Structures

Complete the following matching body part directions.

_____ 1.	medial	A.	the middle of the body
_____ 2.	distal	B.	towards the feet
_____ 3.	lateral	C.	towards the head
_____ 4.	proximal	D.	the side of the body
_____ 5.	caudal	E.	farthest away
_____ 6.	superior	F.	nearest
_____ 7.	ventral	G.	back of the body
_____ 8.	dorsal	H.	front of the body

Match the following planes of the body.

_____ 9.	transverse plane	A.	divides the body into left & right sides
_____ 10.	saggital	B.	divides the body into front & back
_____ 11.	coronal	C.	divides the body into upper & lower

Define the following areas of study.

12. Proctology –

13. Radiology –

14. Neurology –

15. Dermatology –

16. Endocrinology –

17. Gastroenterology –

18. Otorhinolarynology –

19. Rheumatology –

Identify the following abbreviations

20. yo –

21. tid –

22. A&O –

23. c/o –

24. tx –

25. CNS

Provide the abbreviations for the following words

26. diagnosis –

27. cardiovascular –

28. gastrointestinal –

29. at –

30. status post –

31. rule out –

Define the following medial terms.

32. pericardium –

33. otopathy –

34. myocyte –

35. osteitis –

36. epigastric –

Change the following words into medial terms.

33. moving away from the body –

34. study of tissue –

35. formation of the muscle –

36. pertaining to the loin –

37. under tension –

Vocabulary

38. homeostasis -

39. bilateral -

40. pathology -

41. organ -

42. peritoneum –