

## CHAPTER 7

### SKELETAL SYSTEM: GROSS ANATOMY

**CHAPTER OVERVIEW:** This chapter gives a general orientation to the organization of the human skeleton. The axial skeleton is considered first, followed by the pectoral girdle and upper limb, and then the pelvic girdle and lower limb. The skull is treated in detail. All bony landmarks are correlated to the soft tissue structures such as muscles, nerves, and blood vessels most closely associated with them. Relationships between the structure and the function of bones and bone structures are stressed.

**OUTLINE** (two or three fifty-min. lectures):  
Seeley, A&P, 5/e

Chapt. Object.	Topic Outline, Chapter 7	Figures & Tables	Transparency Acetates
1	I. General Considerations, p. 184 A. Number and Category of Bones B. The Complete Skeleton	Table 7.1, p.185 Fig. 7.1, p.186 Table 7.2, p.187	TA-121 TA-122
	II. Axial Skeleton, p. 184 A. The Skull		
2, 3	a. Cranial Vault Bones (8 total)	Fig. 7.2, p. 188	
4	b. Facial Bones (14)		
4	1. Unit Skull	Table 7.3, p.188	
	2. Superior View of the Skull	Fig. 7.2, p. 188 Predict Quest. 1	TA-123
4	a. Parietal Bones	Clinical Note, p.184	
	b. Frontal Bones		
	c. Sagittal Suture	Fig. 7.6, p.190	TA-125
	d. Coronal Suture		
	3. Posterior View of the Skull		
	a. Occipital Bone	Fig. 7.3, p. 188	TA-123
	b. Lambdoid Suture		
	c. Sutural Bones		
	d. External Occipital Protuberance		
	e. Ligamentum Nuchae & Nuchal Lines	Clinical Note, p.185	
4	4. Lateral View of the Skull	Fig. 7.4, p.189	TA-124
	a. Squamous Suture	Clinical Note, p. 189	
	b. External Auditory Meatus		
	c. Mastoid Process		
	d. Mastoid Air Cells		

	d. Temporal Lines		
	e. Sphenoid Bone		
	f. Zygomatic Bone		
	g. Zygomatic Arch		
	h. Maxilla		
	i. Mandible		
4	5. Frontal View of the Skull	Fig. 7.6 p.190 Clinical Notes, p. 190	TA-125
	a. Orbit	Table 7.4, p. 191 Fig. 7.7, p. 191 Fig. 7.8 p.191 Predict Quest. 2	TA-124
3	6. Interior of the Cranial Vault	Fig. 7.10, p.193 Fig. 7.11, p.194	TA-128
	c. Paranasal Sinuses		
	a. Crista Galli		
	b. Cribriform Plate		
	c. Olfactory Foramina		
	d. Sella Turcica		
	e. Foramen Magnum		
4	7. Inferior View of the Skull	Fig. 7.12, p.196	TA-129
	a. Occipital Condyles		
	b. Carotid Canals		
	c. Foramen Lacerum		
	d. Jugular Foramina		
	e. Styloid Processes		
	f. Mandibular Fossa		
	g. Medial & Lateral Pterygoid Plates		
	h. Hard Palate	Clinical Note, p.195	
5	B. The Vertebral Column	Fig. 7.15, p.204	TA-130
	1. General Organization		
6	a. Cervical Vertebrae (7)		
6	b. Thoracic Vertebrae (12)		
6	c. Lumbar Vertebrae (5)		
6	d. Sacrum (1)		
	e. Coccygeal Bone (1)	Clinical Note, p.204	
	2. General Plan of the Vertebrae		
	a. Functions	Table 7.7, p.205	
	b. General Structure	Fig. 7.17, p.205	TA-131
	1). Body	Clinical Note, p.206	
	2). Intervertebral Disks	Fig. 7.18, p.206	TA-132

		a) anulus fibrosus		
		b) nucleus pulposus		
		3). Vertebral Arch		
		4). Vertebral Foramen & Vertebral Canal	Clinical Note, p.203	
		5). Transverse Process		
		6). Spinous Process	Fig. 7.20, p.206	
		7). Intervertebral Foramina		
		8). Superior & Inferior Articular Processes		
6	3. Regional Differences			
	1). Cervical Vertebrae	Fig. 7.21a-c, p.207	Clinical Note, p.208	TA-133
	2). Thoracic Vertebrae	Fig. 7.21d, p.207		TA-134
	3). Lumbar Vertebrae	Fig. 7.21e, p.207	Predict Quest. 3	TA-134
	4). Single Fused Sacrum	Fig. 7.21f, p.207	Clinical Note, p.208	TA-135
	5). Single Fused Coccyx	Clinical Note, p.208		
7	C. The Thoracic Cage		Fig. 7.22, p.209	TA-136
	1. Ribs and Costal Cartilages			
	a. Ribs (12 pairs)			
	1). True or Vertebrosteral Ribs (7 pairs)			
	2). False Ribs			
	a) Vertebrochondral Ribs (3 pairs)			
	b) Floating or Vertebral Ribs (2 pairs)			
	3). Parts: Head, Neck, Body, Angle	Fig. 7.22b, p.209	Clinical Note, p.209	TA-136
8	2. Sternum		Fig. 7.22, p.209; Fig. 7.23, p.210	TA-136
	a. Manubrium, Body, Xiphoid Process		Clinical Note, p.210	
	III. Appendicular Skeleton			
	A. Upper Limb			
9	1. Pectoral Girdle			
	a. Scapula		Fig. 7.24, p.211	TA-137
	1). Processes			

		2). Other Landmarks	
		b. Clavicle	Fig. 7.22, p.209 Predict Quest. 4 TA-136
10	2. Arm	a. Processes	Fig. 7.25, p.212 Clinical Note, p.211 TA-138
		b. Other Landmarks	
11	3. Forearm		Fig. 7.26, p.213; Predict Quest. 5 Clinical Note, p.213 TA-139
		a. Processes	
		b. Other Landmarks	Fig. 7.27, p.213
12	4. Wrist	a. Bones	Fig. 7.28, p.214 TA-140
		b. Articulations	
		c. Carpal Tunnel	Clinical Note, p.214
13	5. Hand		Fig. 7.28, p.214; Predict Quest. 6 TA-140
	B. Lower Limb		
	1. Pelvic Girdle		Fig. 7.29, p.215; Clinical Note, p.216 TA-141
14		a. Os Coxae	Fig. 7.30, p.215 TA-142
		b. Processes	Fig. 7.31, p.216
		c. Other Landmarks	
15		d. Differences Between Male and Female Pelvis	Table 7.8, p. 218 Fig. 7.32, p.217; Clinical Note, p. 213 TA-143
16	2. Thigh	a. Processes	Fig. 7.33, p.218 TA-144
		b. Patella	Fig. 7.34, p.219 Predict Quest. 7 Clinical note, p.216-217
17	3. Leg	a. Processes	Fig. 7.35, p.219 TA-145
		b. Other Landmarks	Fig. 7.36, p.219 Predict Quest. 8
18	4. Ankle		Fig. 7.37, p.220 TA-146
		a. Bones	
		b. Articulations	
	5. Foot		Fig. 7.37b, p.220 TA-146

**IMPORTANT CONSIDERATIONS:** The instructor must decide how much of this material to present in a formal lecture/discussion setting and how much may be covered more meaningfully for students when they can interact with specimens in the laboratory. The material logically separates

into three parts, an introduction to bones and ligaments with a discussion of the normal functions and pathologies of the skeleton, a section on the skull and axial skeleton, and a section on the appendicular skeleton. The relationship between the structure of a particular bone and possible interactions with the soft tissues around it is an important idea for students to begin to use in development of an understanding of the skeleton.

**SEE INSTRUCTOR'S MANUAL AND COURSE SOLUTIONS MANUAL FOR  
ADDITIONAL REFERENCES.**