

The Appendicular Skeleton

Bones of the Pectoral Girdle and Upper Extremity

1. Match the bone names or markings in column B with the descriptions in column A.

Column A		Column B
<u>g; deltoid tuberosity</u>	1. raised area on lateral surface of humerus to which deltoid muscle attaches	a. acromion
<u>i; humerus</u>	2. arm bone	b. capitulum
<u>d; clavicle</u>	<u>p; scapula</u> 3. bones of the shoulder girdle	c. carpals
<u>o; radius</u>	<u>t; ulna</u> 4. forearm bones	d. clavicle
<u>a; acromion</u>	5. scapular region to which the clavicle connects	e. coracoid process
<u>p; scapula</u>	6. shoulder girdle bone that is unattached to the axial skeleton	f. coronoid fossa
<u>d; clavicle</u>	7. shoulder girdle bone that articulates with and transmits forces to the bony thorax	g. deltoid tuberosity
<u>h; glenoid cavity</u>	8. depression in the scapula that articulates with the humerus	h. glenoid cavity
<u>e; coracoid process</u>	9. process above the glenoid cavity that permits muscle attachment	i. humerus
<u>d; clavicle</u>	10. the "collarbone"	j. metacarpals
<u>s; trochlea</u>	11. distal condyle of the humerus that articulates with the ulna	k. olecranon fossa
<u>t; ulna</u>	12. medial bone of forearm in anatomical position	l. olecranon process
<u>b; capitulum</u>	13. rounded knob on the humerus; adjoins the radius	m. phalanges
<u>f; coronoid fossa</u>	14. anterior depression, superior to the trochlea, which receives part of the ulna when the forearm is flexed	n. radial tuberosity
<u>t; ulna</u>	15. forearm bone involved in formation of the elbow joint	o. radius
<u>c; carpals</u>	16. wrist bones	p. scapula
<u>m; phalanges</u>	17. finger bones	q. sternum
<u>j; metacarpals</u>	18. heads of these bones form the knuckles	r. styloid process
<u>p; scapula</u>	<u>q; sternum</u> 19. bones that articulate with the clavicle	s. trochlea
		t. ulna

2. How is the arm held clear of the widest dimension of the thoracic cage?

The clavicle acts as a strut to hold the glenoid cavity of the scapula (therefore the arm) laterally away from the narrowest dimension of the rib cage.

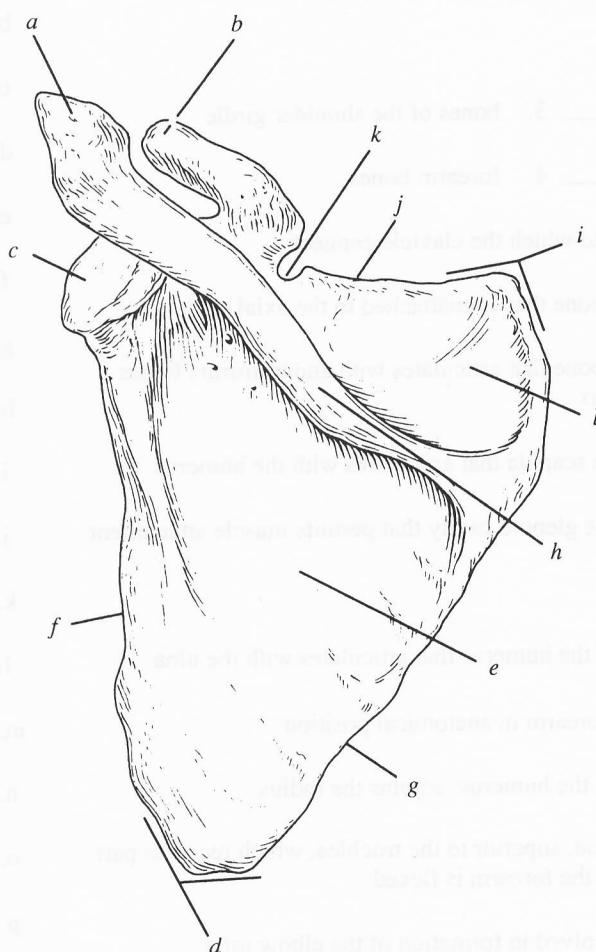
3. What is the total number of phalanges in the hand? 14

4. What is the total number of carpals in the wrist? 8

Name the carpals (medial to lateral) in the proximal row. pisiform, triangular, lunate, scaphoid

In the distal row, they are (medial to lateral) hamate, capitate, trapezoid, trapezium

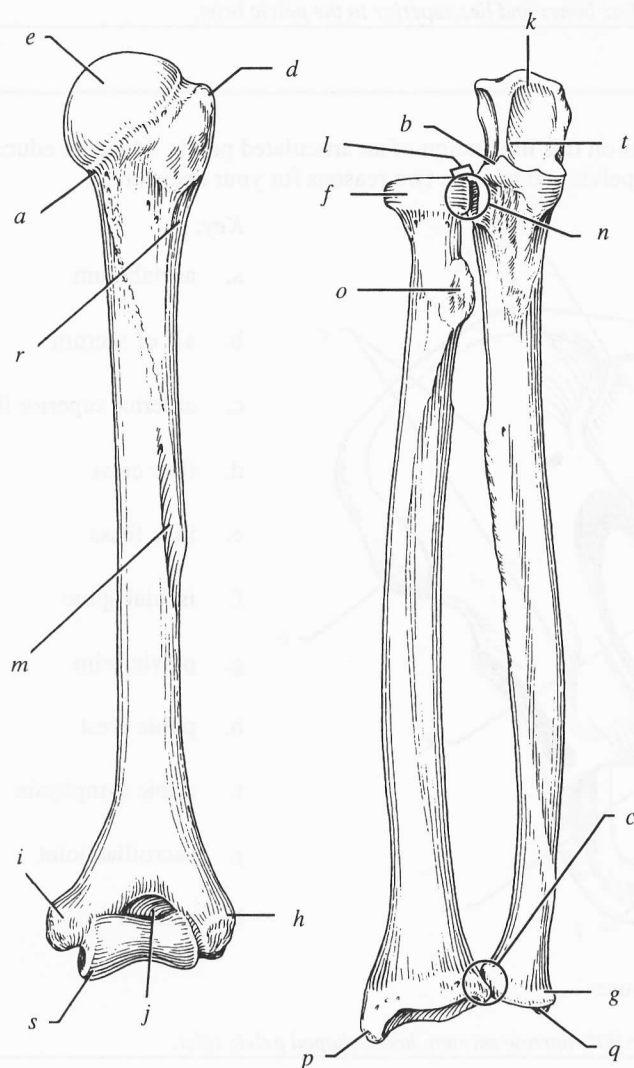
5. Using items from the list at the right, identify the anatomical landmarks and regions of the scapula.



Key:

- a. acromion
- b. coracoid process
- c. glenoid cavity
- d. inferior angle
- e. infraspinous fossa
- f. lateral border
- g. medial border
- h. spine
- i. superior angle
- j. superior border
- k. suprascapular notch
- l. supraspinous fossa

6. Match the terms in the key with the appropriate leader lines on the drawings of the humerus and the radius and ulna. Also decide whether the bones shown are right or left bones and whether the view shown is an anterior or a posterior view.



Key:

- a. anatomical neck
- b. coronoid process
- c. distal radioulnar joint
- d. greater tubercle
- e. head of humerus
- f. head of radius
- g. head of ulna
- h. lateral epicondyle
- i. medial epicondyle
- j. olecranon fossa
- k. olecranon process
- l. proximal radioulnar joint
- m. radial groove
- n. radial notch
- o. radial tuberosity
- p. styloid process of radius
- q. styloid process of ulna
- r. surgical neck
- s. trochlea
- t. trochlear notch

Circle the correct term for each pair in parentheses:

The humerus is a (right/left) bone in (an anterior/a posterior) view. The radius and ulna are (right/left) bones in (an anterior/a posterior) view.

Bones of the Pelvic Girdle and Lower Limb

7. Compare the pectoral and pelvic girdles by choosing appropriate descriptive terms from the key.

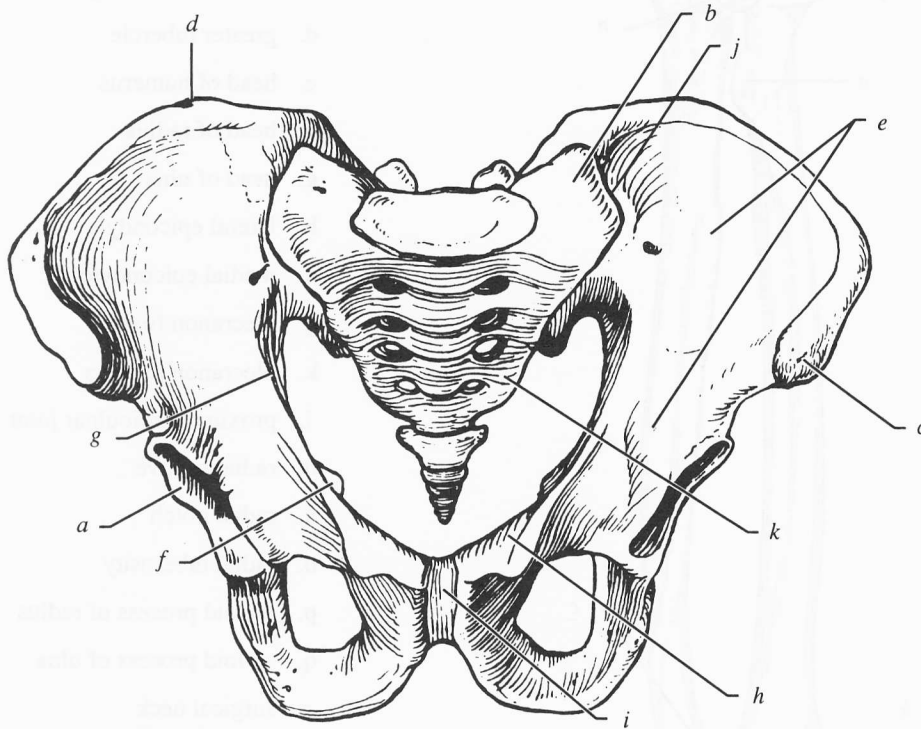
- Key: a. flexibility most important d. insecure axial and limb attachments
 b. massive e. secure axial and limb attachments
 c. lightweight f. weight-bearing most important

Pectoral: a, c, d Pelvic: b, e, f

8. What organs are protected, at least in part, by the pelvic girdle? Uterus (female), urinary bladder, small intestine, rectum

9. Distinguish between the true pelvis and the false pelvis. The true pelvis is the region inferior to the pelvic brim, which is encircled by bone. The false pelvis is the area medial to the flaring iliac bones and lies superior to the pelvic brim.

10. Use letters from the key to identify the bone markings on this illustration of an articulated pelvis. Make an educated guess as to whether the illustration shows a male or female pelvis and provide two reasons for your decision.



Key:

- a. acetabulum
- b. ala of sacrum
- c. anterior superior iliac spine
- d. iliac crest
- e. iliac fossa
- f. ischial spine
- g. pelvic brim
- h. pubic crest
- i. pubic symphysis
- j. sacroiliac joint
- k. sacrum

This is a male (female/male) pelvis because:

Acetabula are close together; pubic angle/arch is less than 90°; narrow sacrum, heart-shaped pelvic inlet.

11. Deduce why the pelvic bones of a four-legged animal such as the cat or pig are much less massive than those of the human.

The pelvic girdle does not have to carry the entire weight of the trunk in the quadruped animal.

12. A person instinctively curls over his abdominal area in times of danger. Why? Abdominal area organs receive the least protection from the skeletal system.

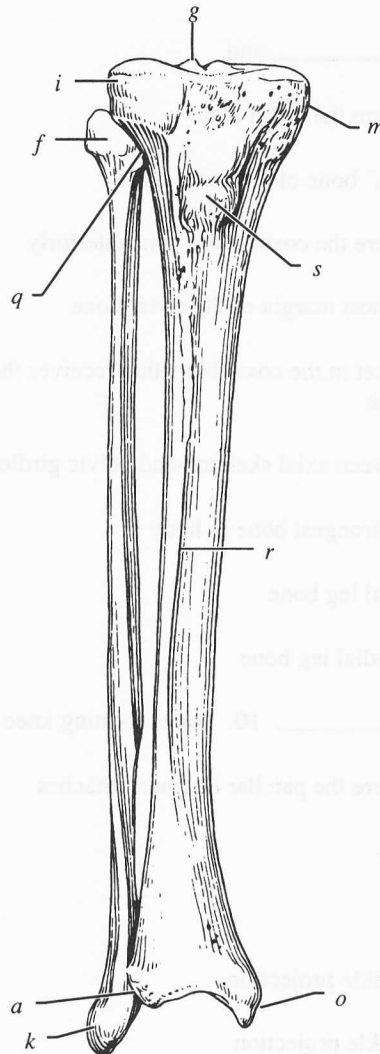
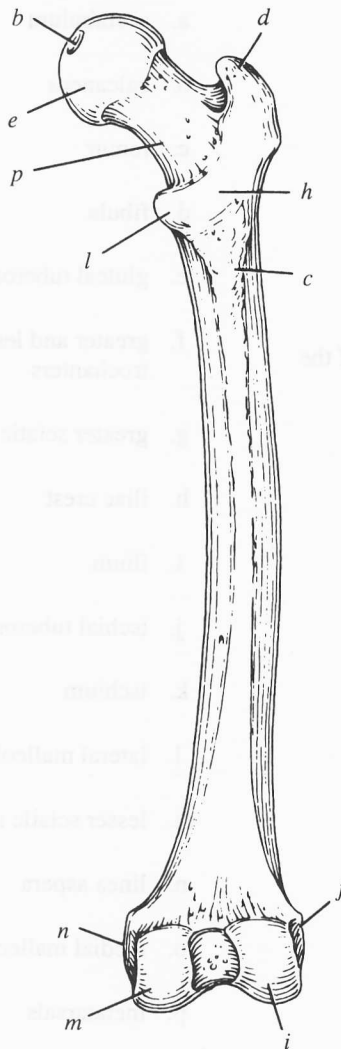
13. For what anatomical reason do many women appear to be slightly knock-kneed? The pelvis is broader and the acetabula and ilia are more laterally positioned. Thus, the femur runs downward to the knee more obliquely than in the male.

14. What does *fallen arches* mean? A weakening of the tendons and ligaments supporting the arches of the foot.

15. Match the bone names and markings in column B with the descriptions in column A.

Column A		Column B
<u>i; ilium</u>	<u>k; ischium</u> , and	a. acetabulum
<u>t; pubis</u>	1. fuse to form the coxal bone	b. calcaneus
<u>k; ischium</u>	2. "sit-down" bone of the coxal bone	c. femur
<u>s; pubic symphysis</u>	3. point where the coxal bones join anteriorly	d. fibula
<u>h; iliac crest</u>	4. superiormost margin of the coxal bone	e. gluteal tuberosity
<u>a; acetabulum</u>	5. deep socket in the coxal bone that receives the head of the thigh bone	f. greater and lesser trochanters
<u>u; sacroiliac joint</u>	6. joint between axial skeleton and pelvic girdle	g. greater sciatic notch
<u>c; femur</u>	7. longest, strongest bone in body	h. iliac crest
<u>d; fibula</u>	8. thin lateral leg bone	i. ilium
<u>x; tibia</u>	9. heavy medial leg bone	j. ischial tuberosity
<u>c; femur</u> , <u>x; tibia</u>	10. bones forming knee joint	k. ischium
<u>y; tibial tuberosity</u>	11. point where the patellar ligament attaches	l. lateral malleolus
<u>r; patella</u>	12. kneecap	m. lesser sciatic notch
<u>x; tibia</u>	13. shinbone	n. linea aspera
<u>o; medial malleolus</u>	14. medial ankle projection	o. medial malleolus
<u>l; lateral malleolus</u>	15. lateral ankle projection	p. metatarsals
<u>b; calcaneus</u>	16. largest tarsal bone	q. obturator foramen
<u>w; tarsals</u>	17. ankle bones	r. patella
<u>p; metatarsals</u>	18. bones forming the instep of the foot	s. pubic symphysis
<u>q; obturator foramen</u>	19. opening in hip bone formed by the pubic and ischial rami	t. pubis
<u>e; gluteal tuberosity</u> and <u>f; greater and lesser trochanters</u>	20. sites of muscle attachment on the proximal femur	u. sacroiliac joint
<u>v; talus</u>	21. tarsal bone that "sits" on the calcaneus	v. talus
<u>x; tibia</u>	22. weight-bearing bone of the leg	w. tarsals
<u>v; talus</u>	23. tarsal bone that articulates with the tibia	x. tibia
		y. tibial tuberosity

16. Match the terms in the key with the appropriate leader lines on the drawings of the femur and the tibia and fibula. Also decide if these bones are right or left bones and whether the view shown is an anterior or a posterior view.



Key:

- a. distal tibiofibular joint
- b. fovea capitis
- c. gluteal tuberosity
- d. greater trochanter
- e. head of femur
- f. head of fibula
- g. intercondylar eminence
- h. intertrochanteric crest
- i. lateral condyle
- j. lateral epicondyle
- k. lateral malleolus
- l. lesser trochanter
- m. medial condyle
- n. medial epicondyle
- o. medial malleolus
- p. neck of femur
- q. proximal tibiofibular joint
- r. tibial anterior border
- s. tibial tuberosity

Circle the correct term for each pair in parentheses:

The femur is a (right/left) bone in (an anterior/a posterior) view. The tibia and fibula are (right/left) bones in (an anterior/a posterior) view.

Summary of Skeleton

17. Identify all indicated bones (or groups of bones) in the diagram of the articulated skeleton on page 73.