

ATLAS

B

## Surface Anatomy

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## The Importance of External Anatomy

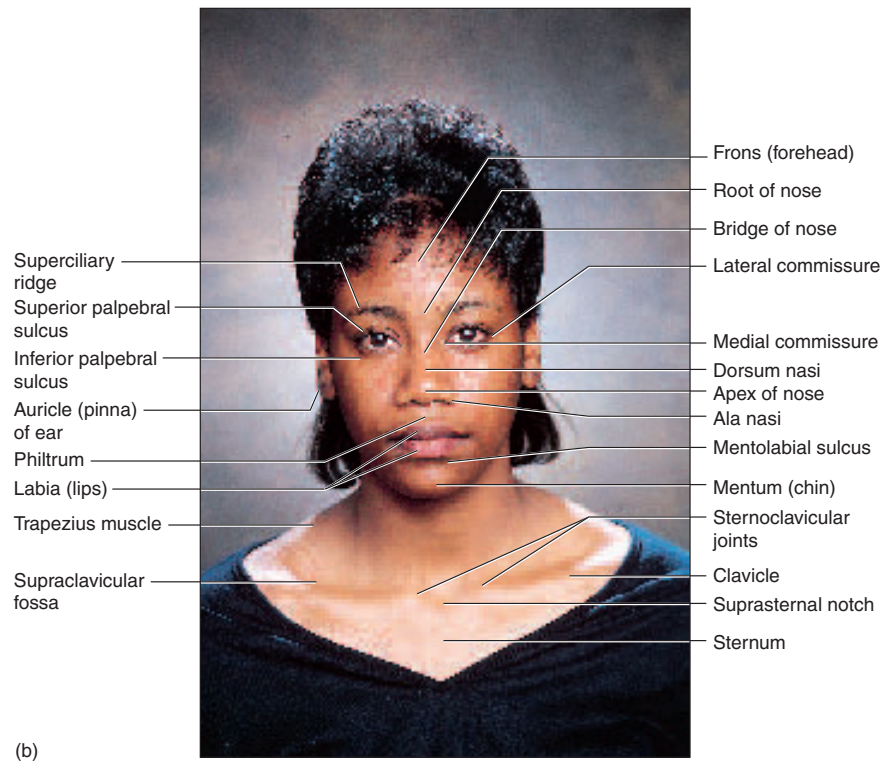
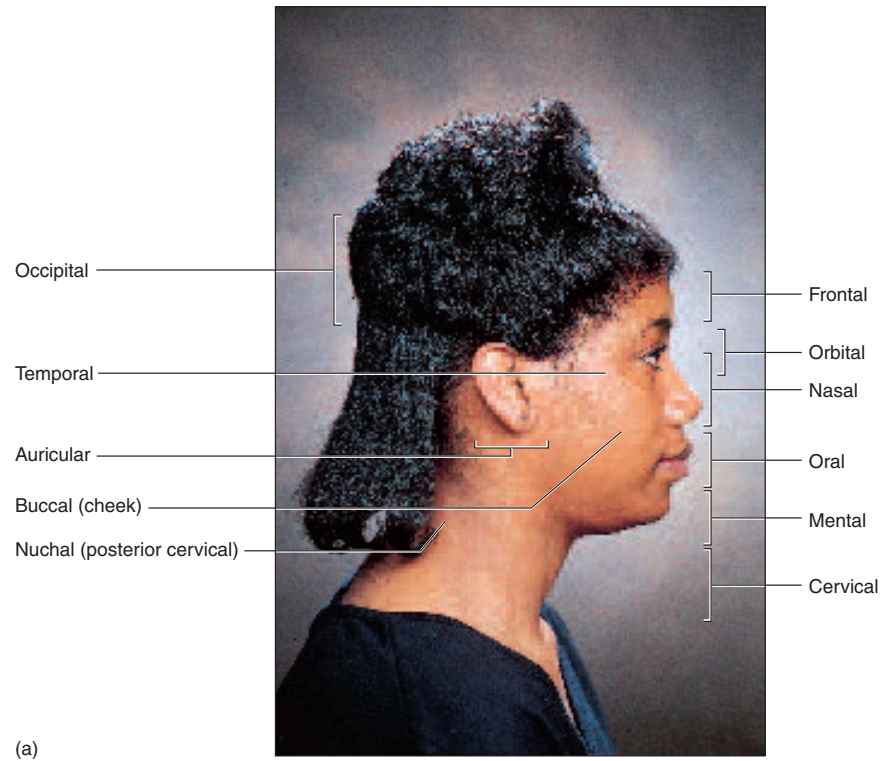
In the study of human anatomy, it is easy to become so preoccupied with internal structure that we forget the importance of what we can see and feel externally. Yet external anatomy and appearance are major concerns in giving a physical examination and in many aspects of patient care. A knowledge of the body's surface landmarks is essential to one's competence in physical therapy, cardiopulmonary resuscitation, surgery, making X rays and electrocardiograms, giving injections, drawing blood, listening to heart and respiratory sounds, measuring the pulse and blood pressure, and finding pressure points to stop arterial bleeding, among other procedures. A misguided attempt to perform some of these procedures while disregarding or misunderstanding external anatomy can be very harmful and even fatal to a patient.

Having just studied skeletal and muscular anatomy in the preceding chapters, this is an opportune time for you to study the body surface. Much of what we see there reflects the underlying structure of the superficial bones and muscles. A broad photographic overview of surface anatomy is given in atlas A (see fig. A.5). In the following pages, we examine the body literally from head (fig. B.1) to toe (fig. B.14), studying its regions in more detail. To make the most profitable use of this atlas, refer to the skeletal and muscular anatomy in chapters 8 to 10. Relate drawings of the clavicles in chapter 8 to the photograph in figure B.1, for example. Study the shape of the scapula in chapter 8 and see how much of it you can trace on the photographs in figure B.3. See if you can relate the tendons

visible on the hand (fig. B.8) to the muscles of the forearm illustrated in chapter 10, and the external markings of the pelvis (fig. B.4) to bone structure in chapter 8.

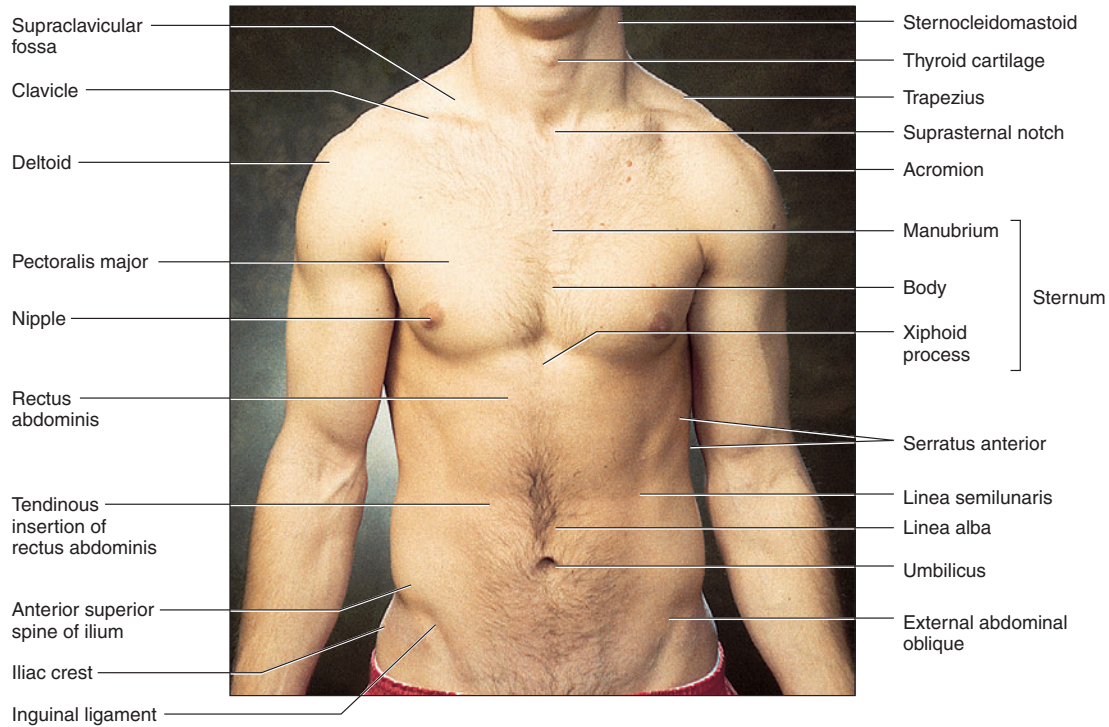
For learning surface anatomy, there is a resource available to you that is far more valuable than any laboratory model or textbook illustration—your own body. For the best understanding of human structure, compare the art and photographs in this book with your body or with structures visible on a study partner. In addition to bones and muscles, you can palpate a number of superficial arteries, veins, tendons, ligaments, and cartilages, among other structures. By palpating regions such as the shoulder, elbow, or ankle, you can develop a mental image of the subsurface structures better than you can obtain by looking at two-dimensional textbook images. And the more you can study with other people, the more you will appreciate the variations in human structure and be able to apply your knowledge to your future patients or clients, who will not look quite like any textbook diagram or photograph you have ever seen. Through comparisons of art, photography, and the living body, you will get a much deeper understanding of the body than if you were to study this atlas in isolation from the earlier chapters.

At the end of this atlas, you can test your knowledge of externally visible muscle anatomy. The two photographs in figure B.15 have 30 numbered muscles and a list of 26 names, some of which are shown more than once in the photographs and some of which are not shown at all. Identify the muscles to your best ability without looking back at the previous illustrations, and then check your answers in appendix B at the back of the book.

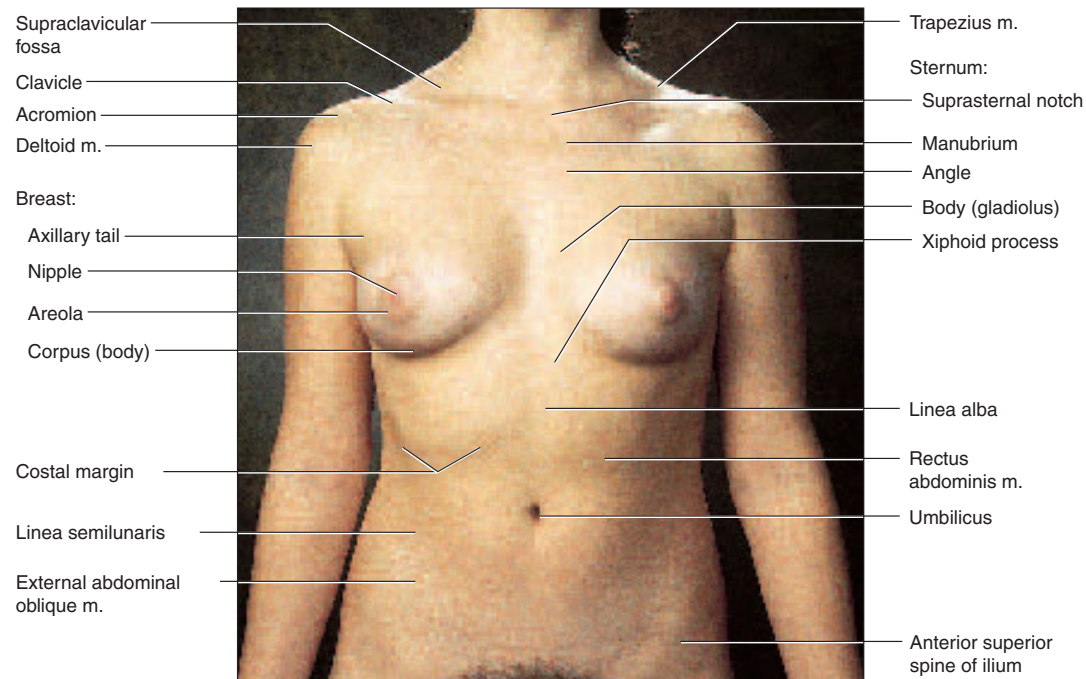


**Figure B.1** The Head and Neck. (a) Anatomical regions of the head, lateral aspect. (b) Features of the facial region and upper thorax.

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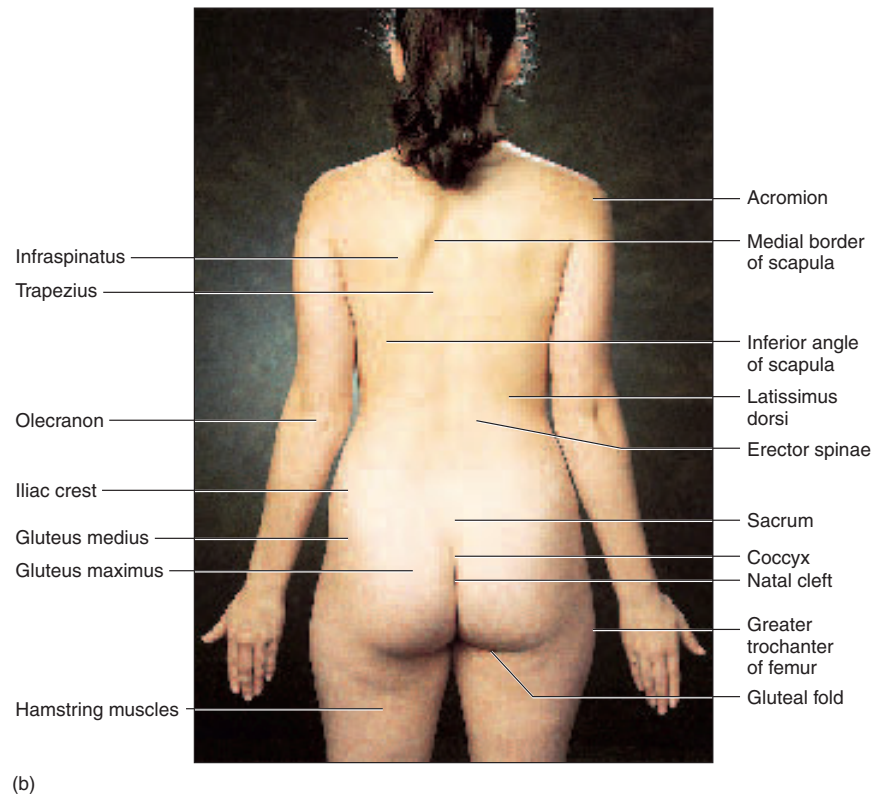
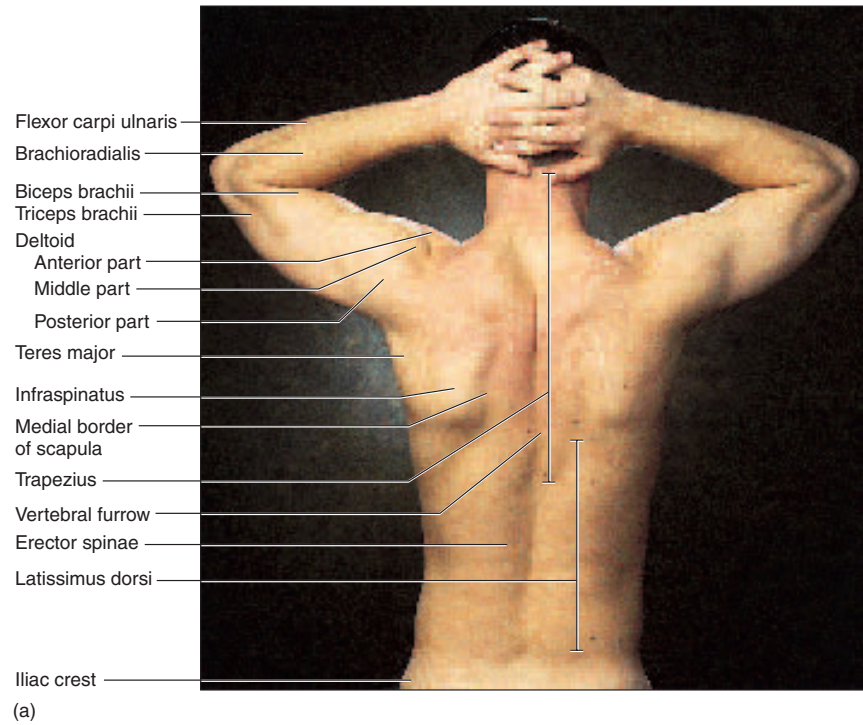
(a)



(b)

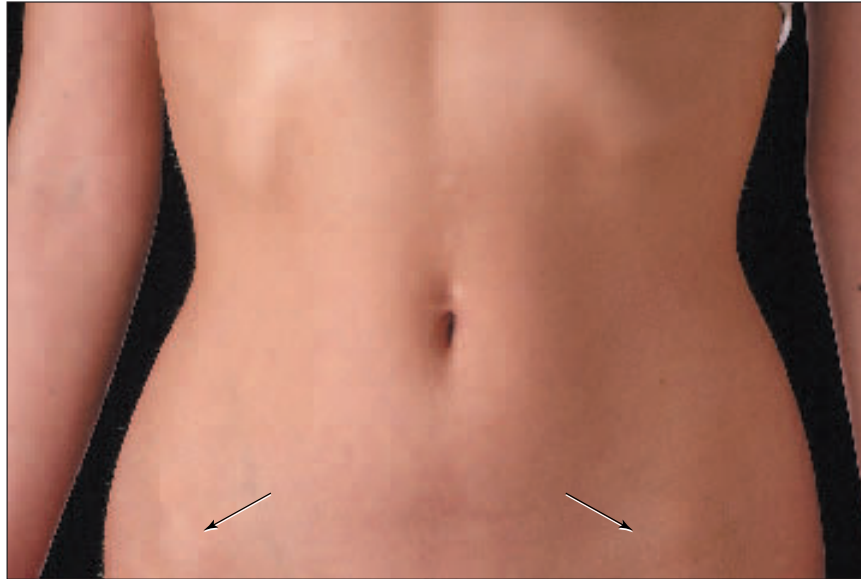
**Figure B.2 The Thorax and Abdomen, Ventral Aspect.** (a) Male; (b) female. All of the features labeled are common to both sexes, though some are labeled only on the photograph that shows them best.



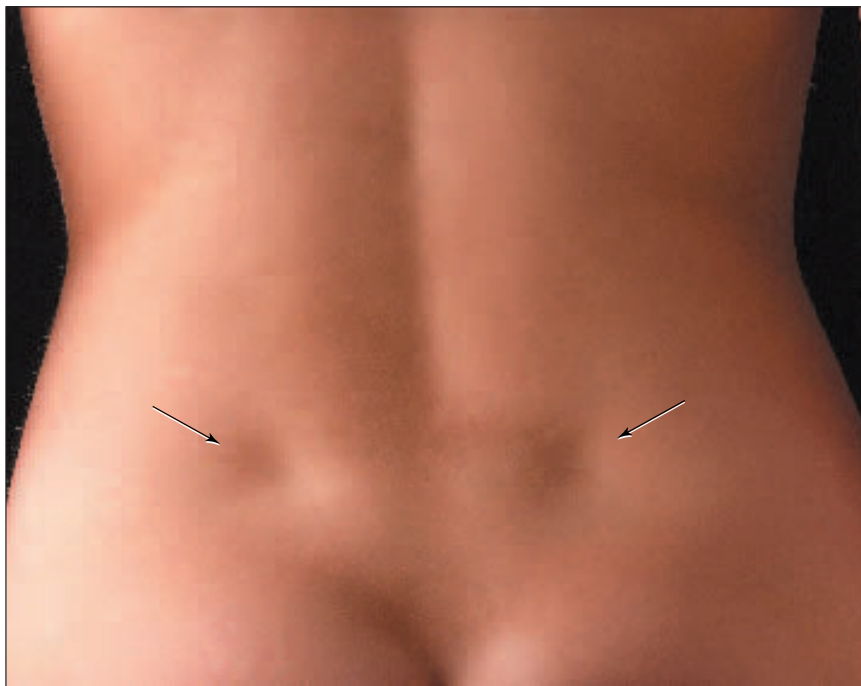


**Figure B.3 The Back and Gluteal Region.** (a) Male; (b) female. All of the features labeled are common to both sexes, though some are labeled only on the photograph that shows them best.

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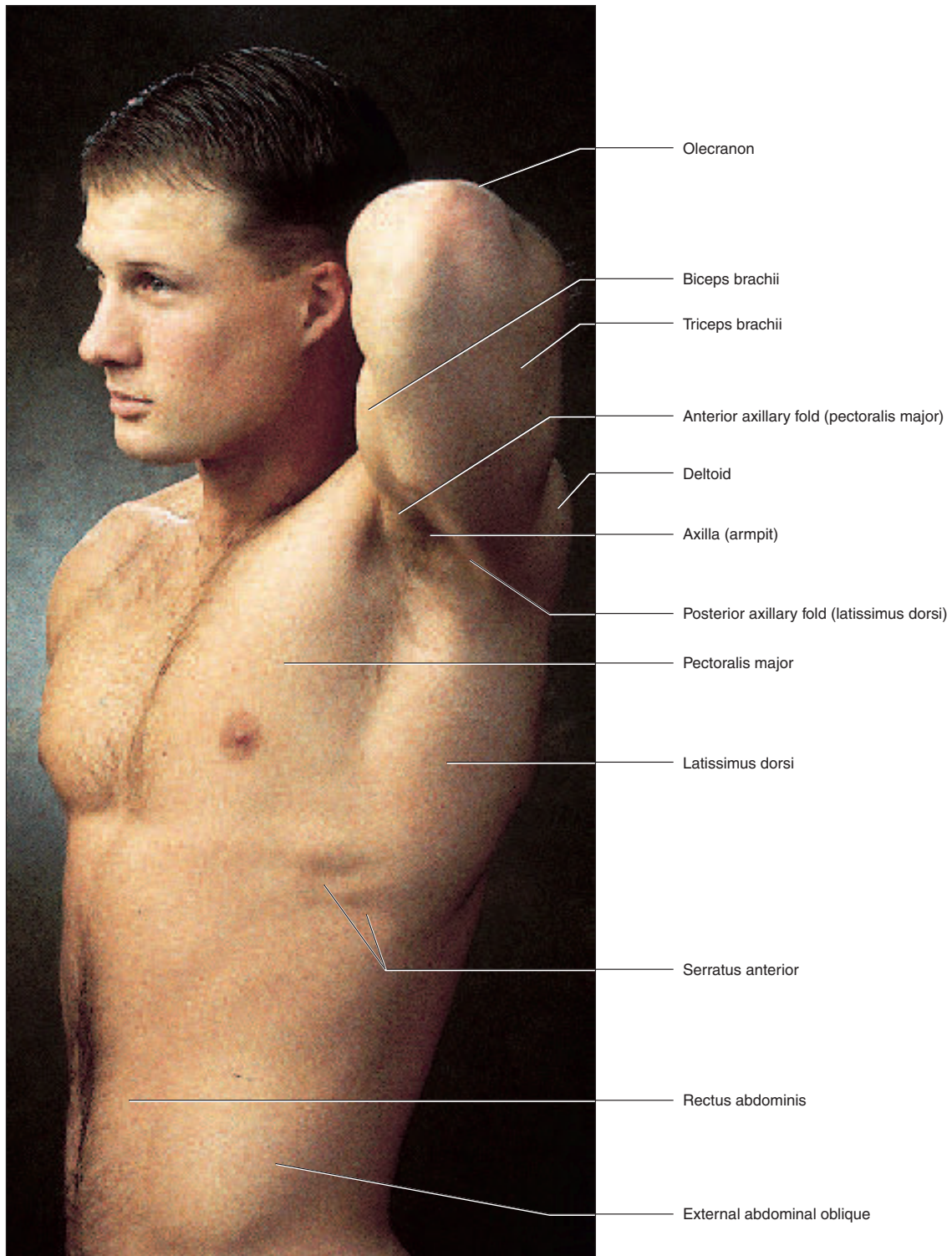


(a)



(b)

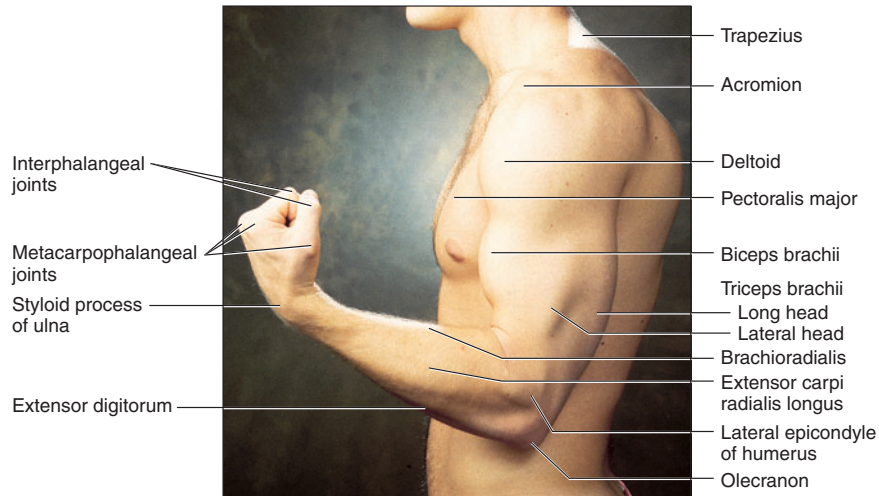
**Figure B.4 The Pelvic Region.** (a) The anterior superior spines of the ilium are marked by anterolateral protuberances (*arrows*). (b) The posterior superior spines are marked in some people by dimples in the sacral region (*arrows*).



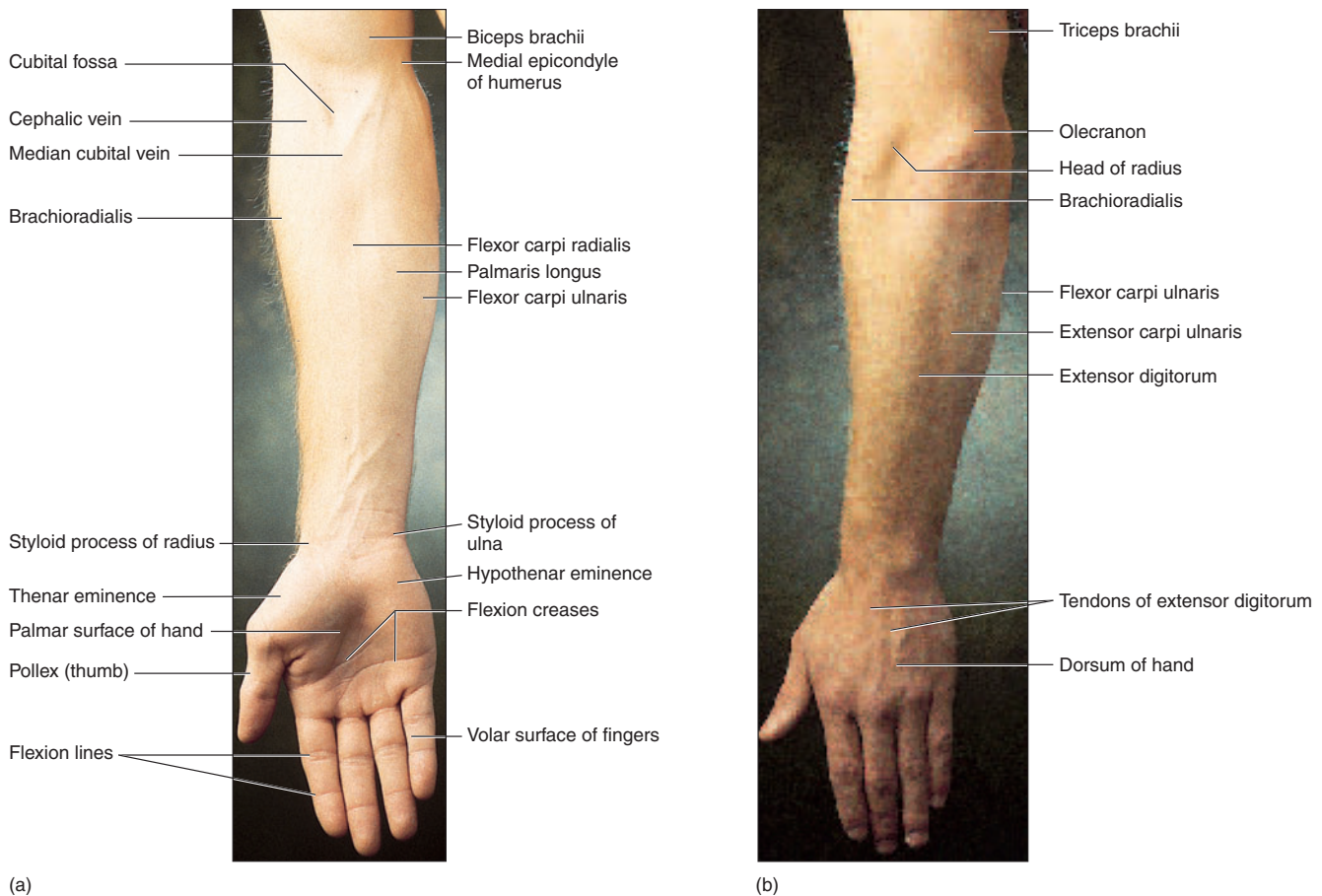
**Figure B.5** The Axillary Region.



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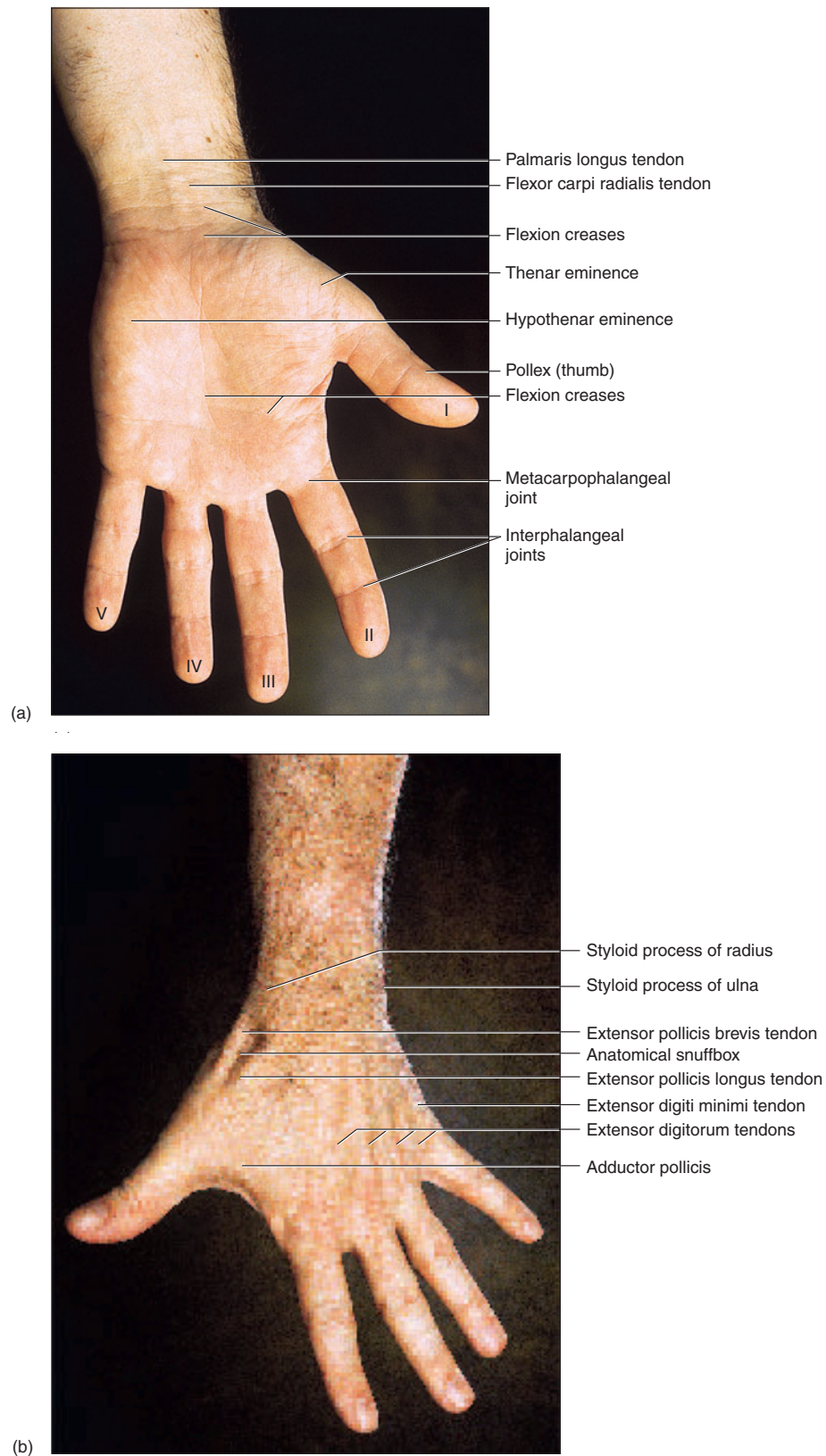


**Figure B.6** The Upper Limb, Lateral Aspect.



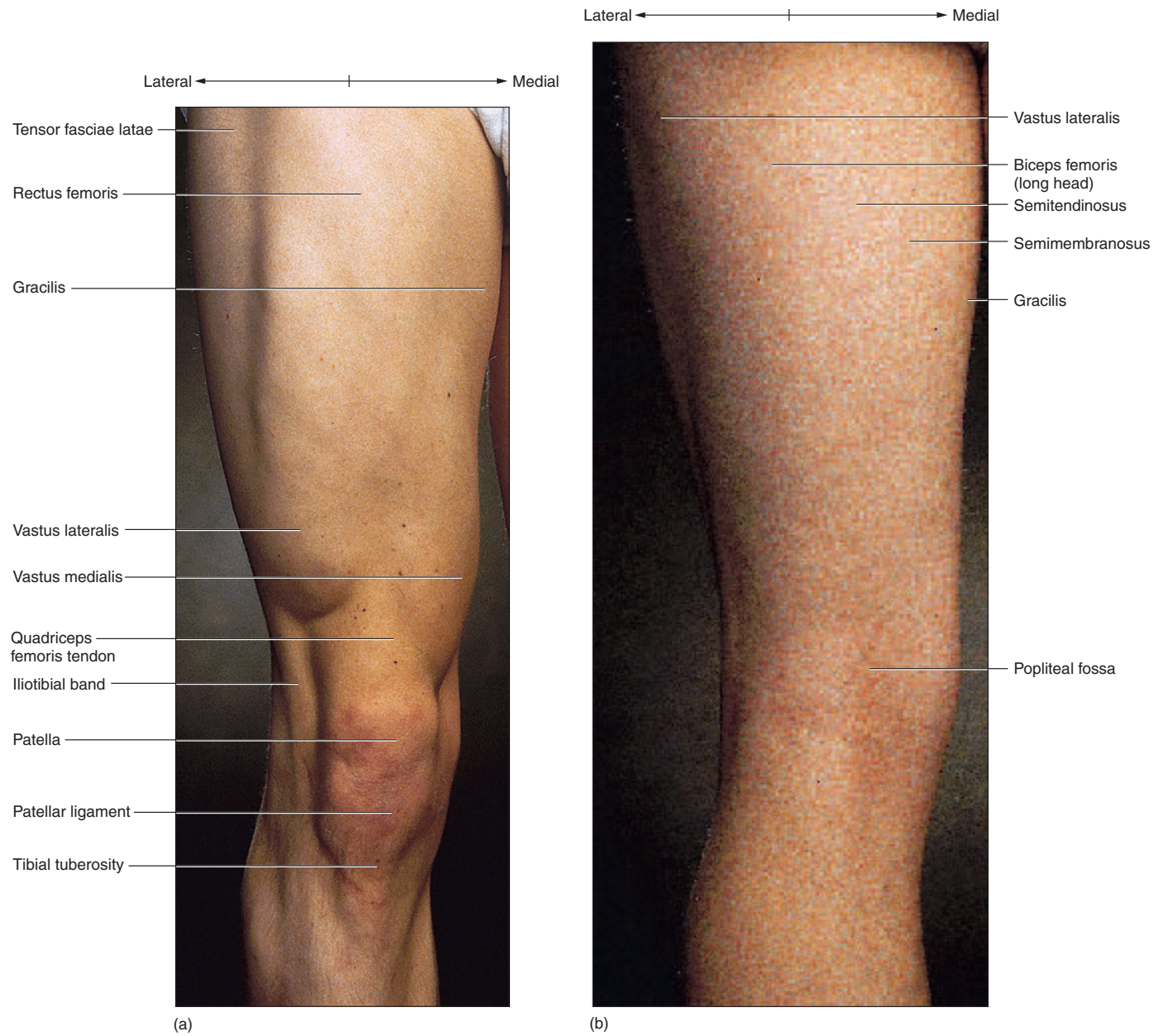
**Figure B.7** The Antebrachium (forearm). (a) Ventral aspect; (b) dorsal aspect.



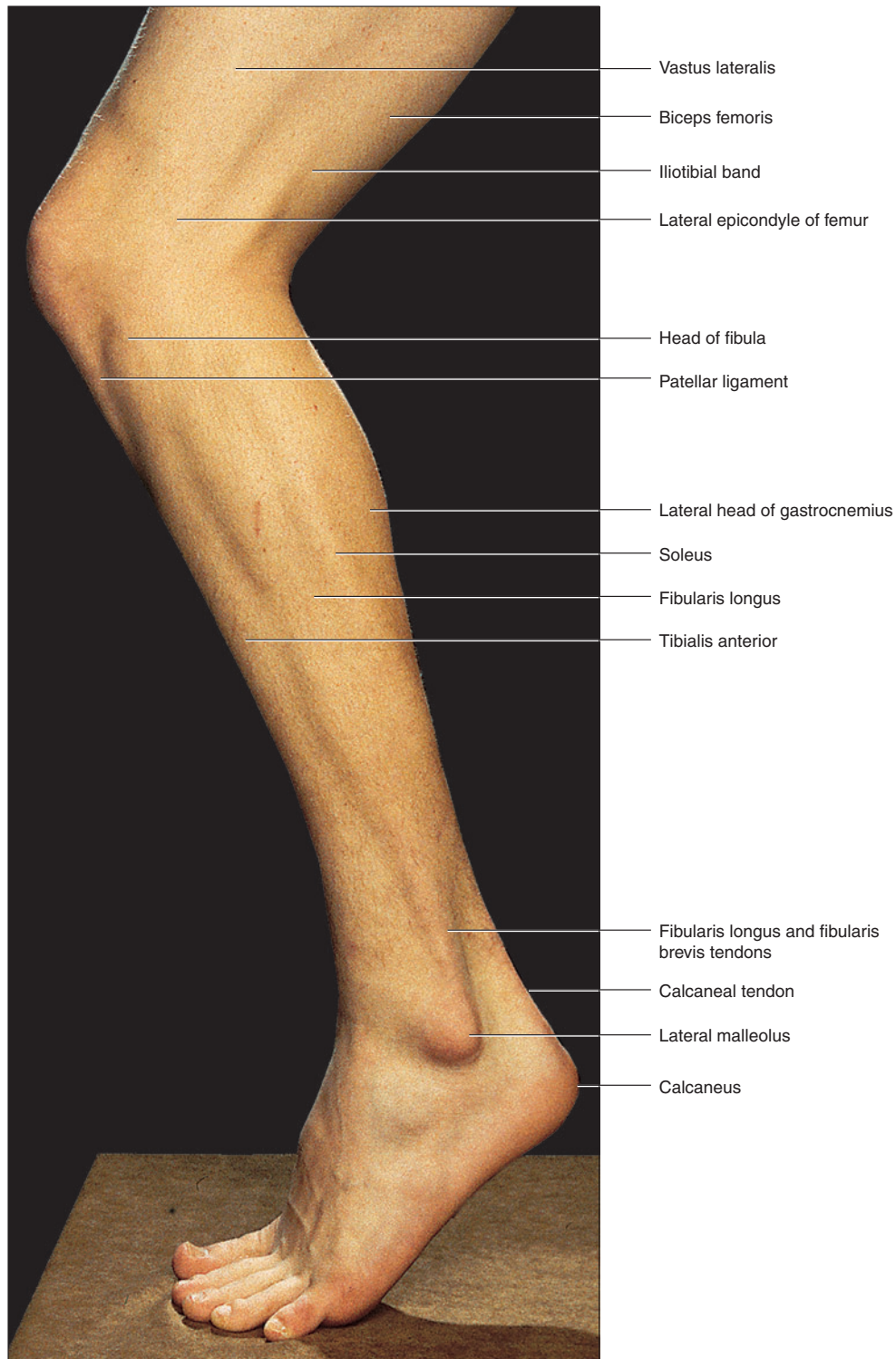


**Figure B.8** The Wrist and Hand. (a) Ventral aspect; (b) dorsal aspect.

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**Figure B.9** The Thigh and Knee. (a) Ventral aspect; (b) dorsal aspect.



**Figure B.10** The Leg and Foot, Lateral Aspect.



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Semimembranosus

Semimembranosus tendon

Patella

Medial epicondyle of femur

Semitendinosus tendon

Medial condyle of tibia

Medial head of gastrocnemius

Tibia

Soleus

Medial malleolus

Extensor hallucis longus tendon

Medial longitudinal arch

Head of metatarsal I

Abductor hallucis

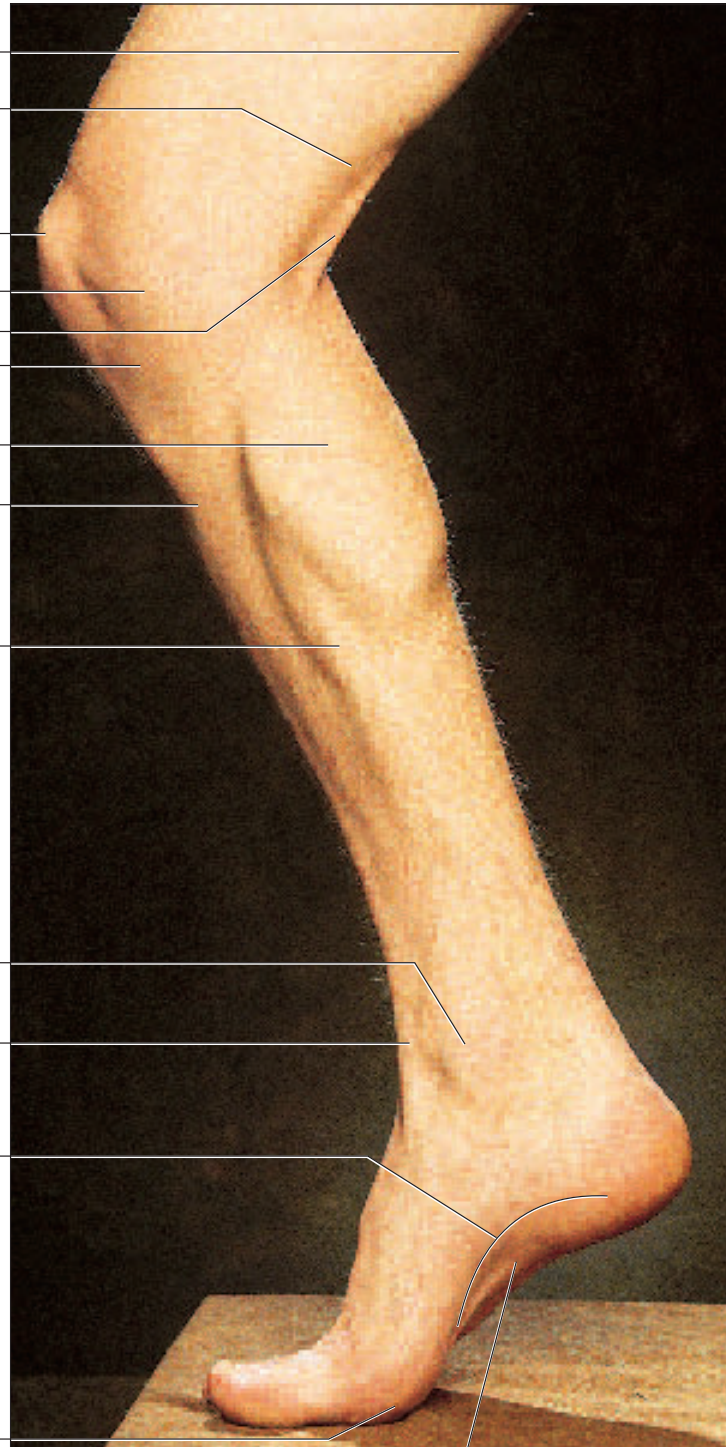
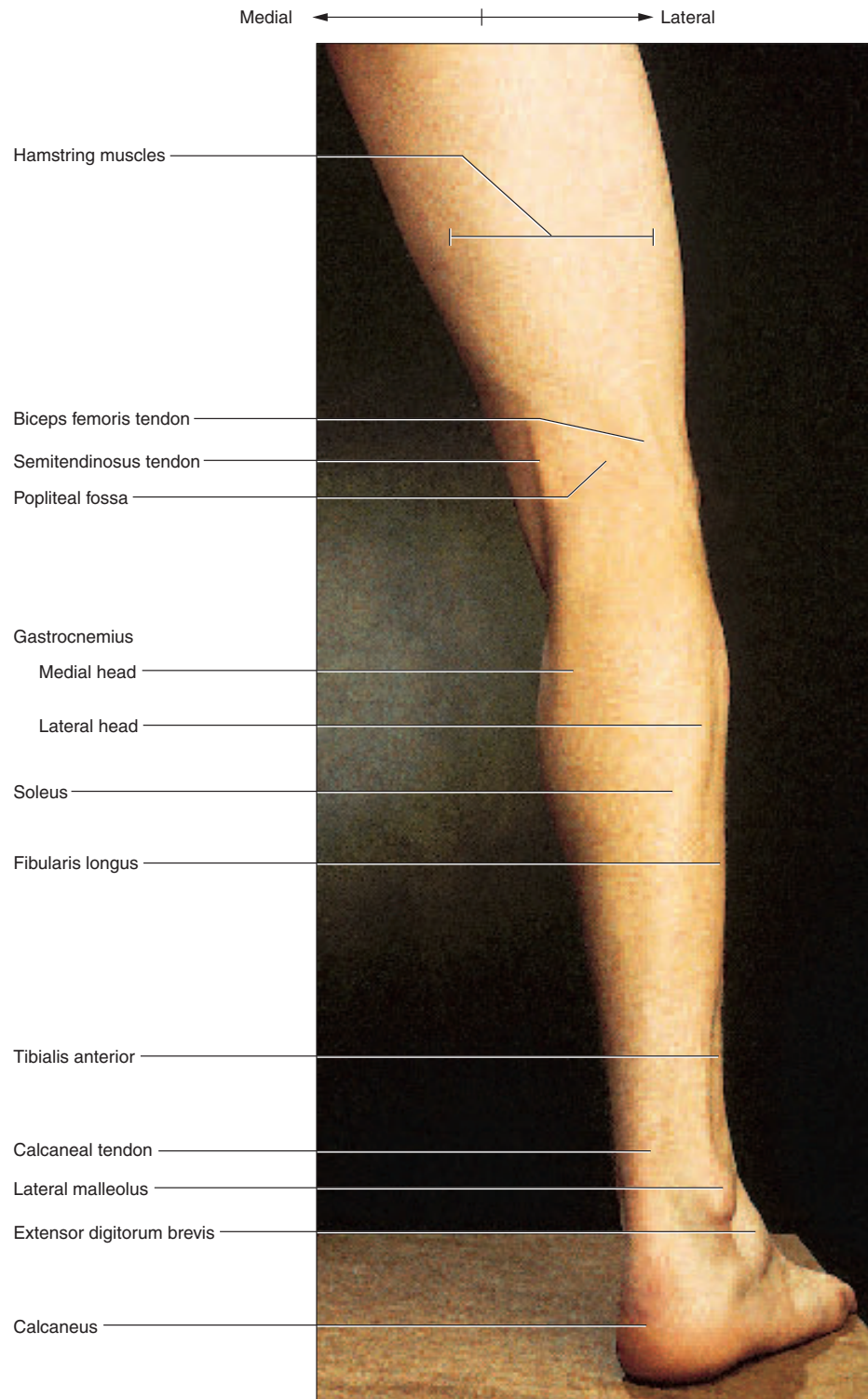


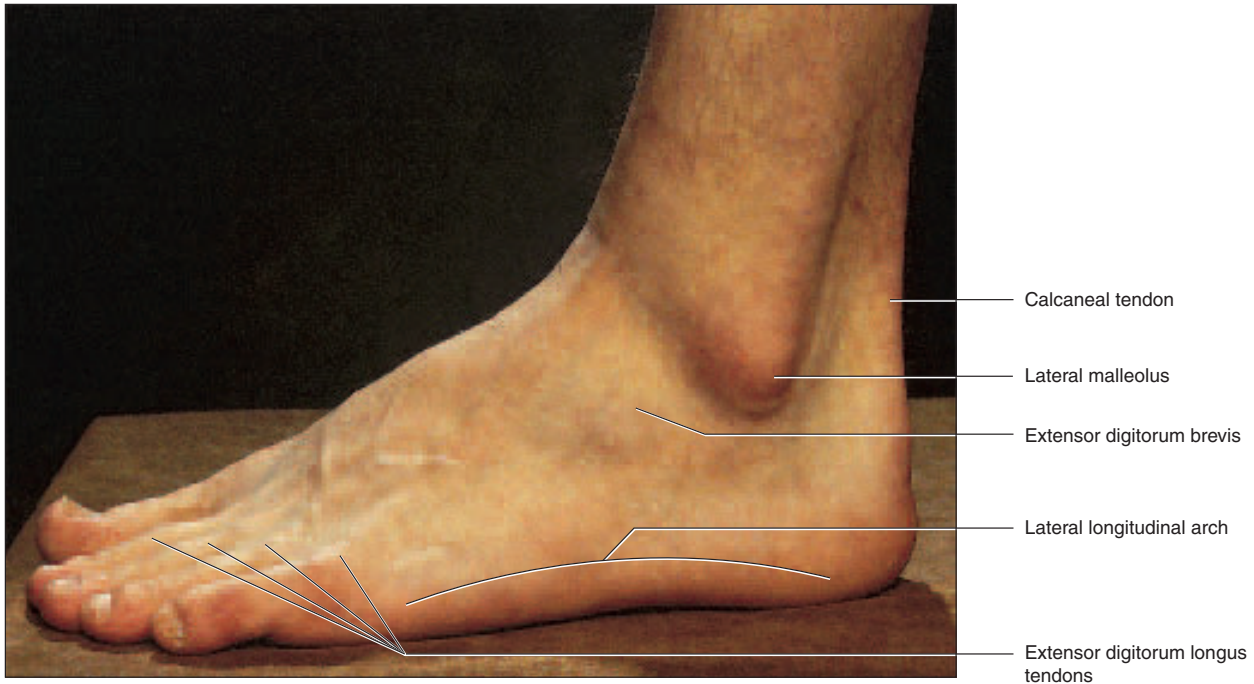
Figure B.11 The Leg and Foot, Medial Aspect.



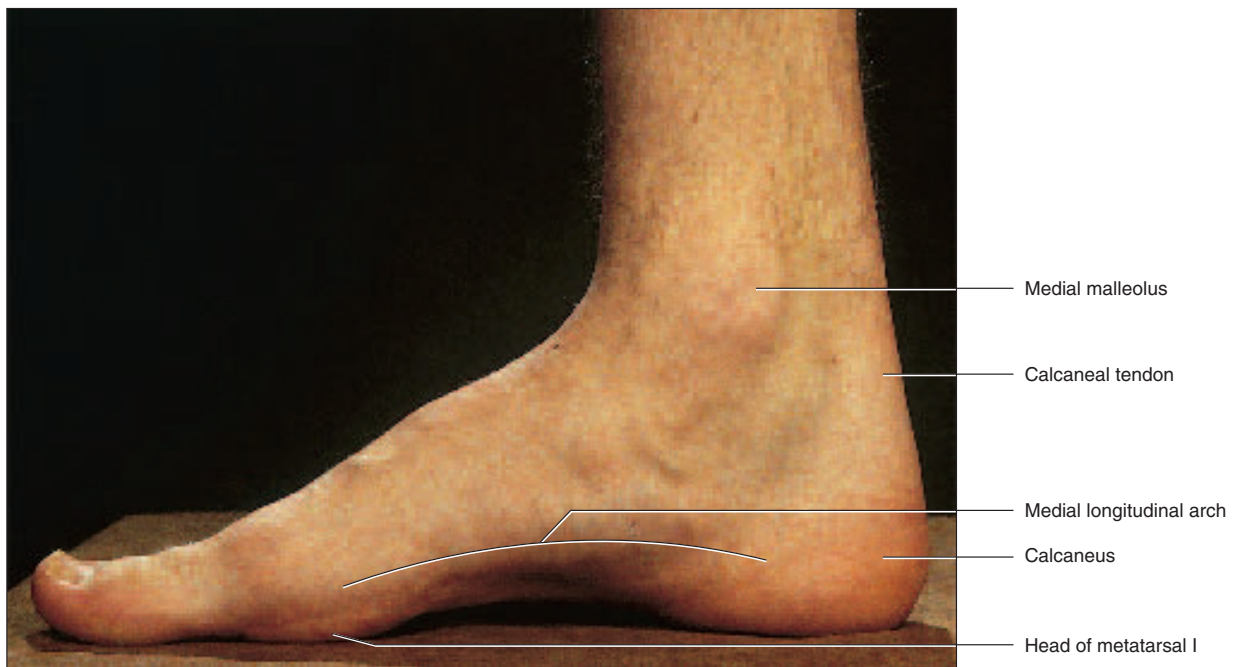


**Figure B.12** The Leg and Foot, Dorsal Aspect.

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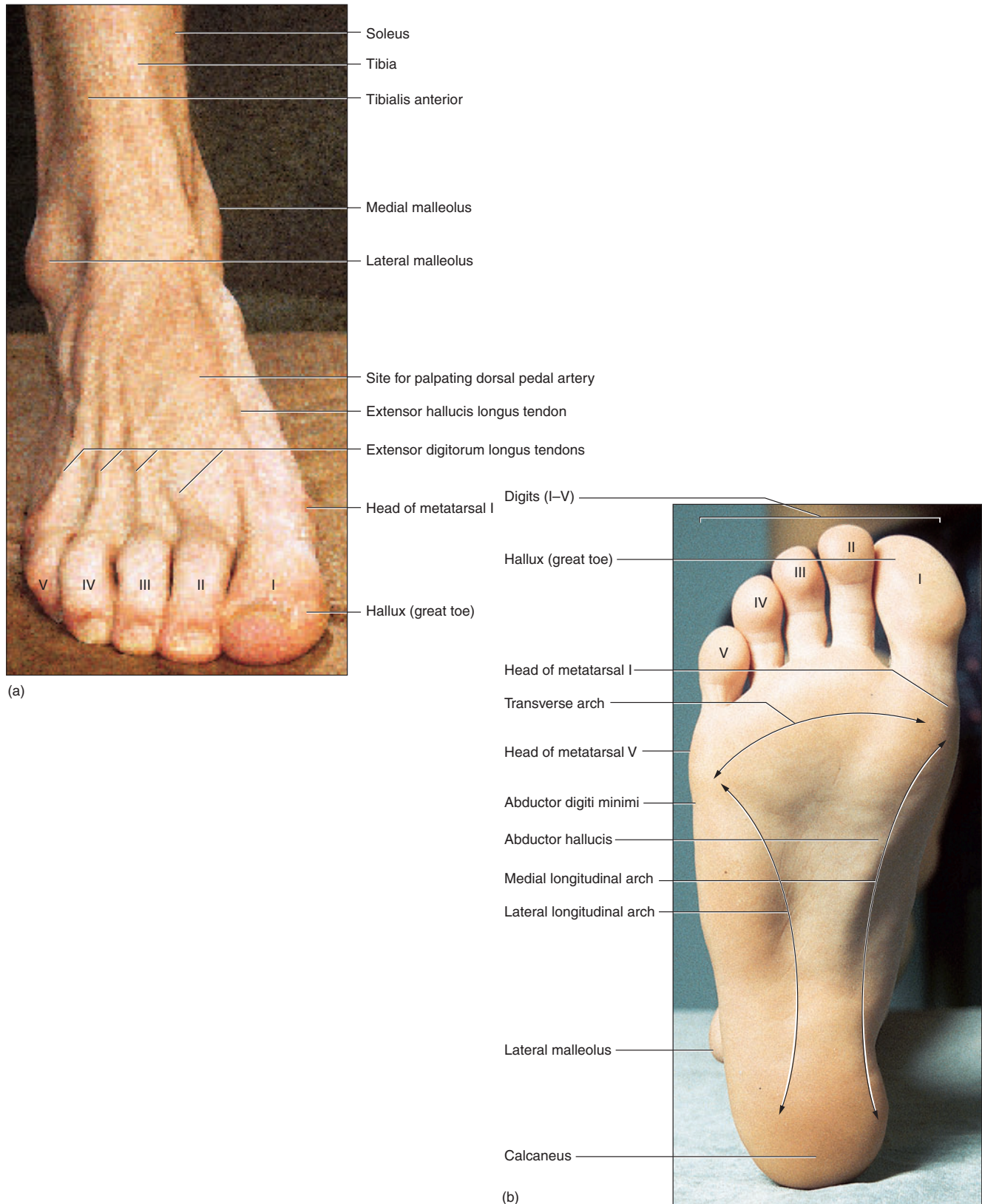


(a)



(b)

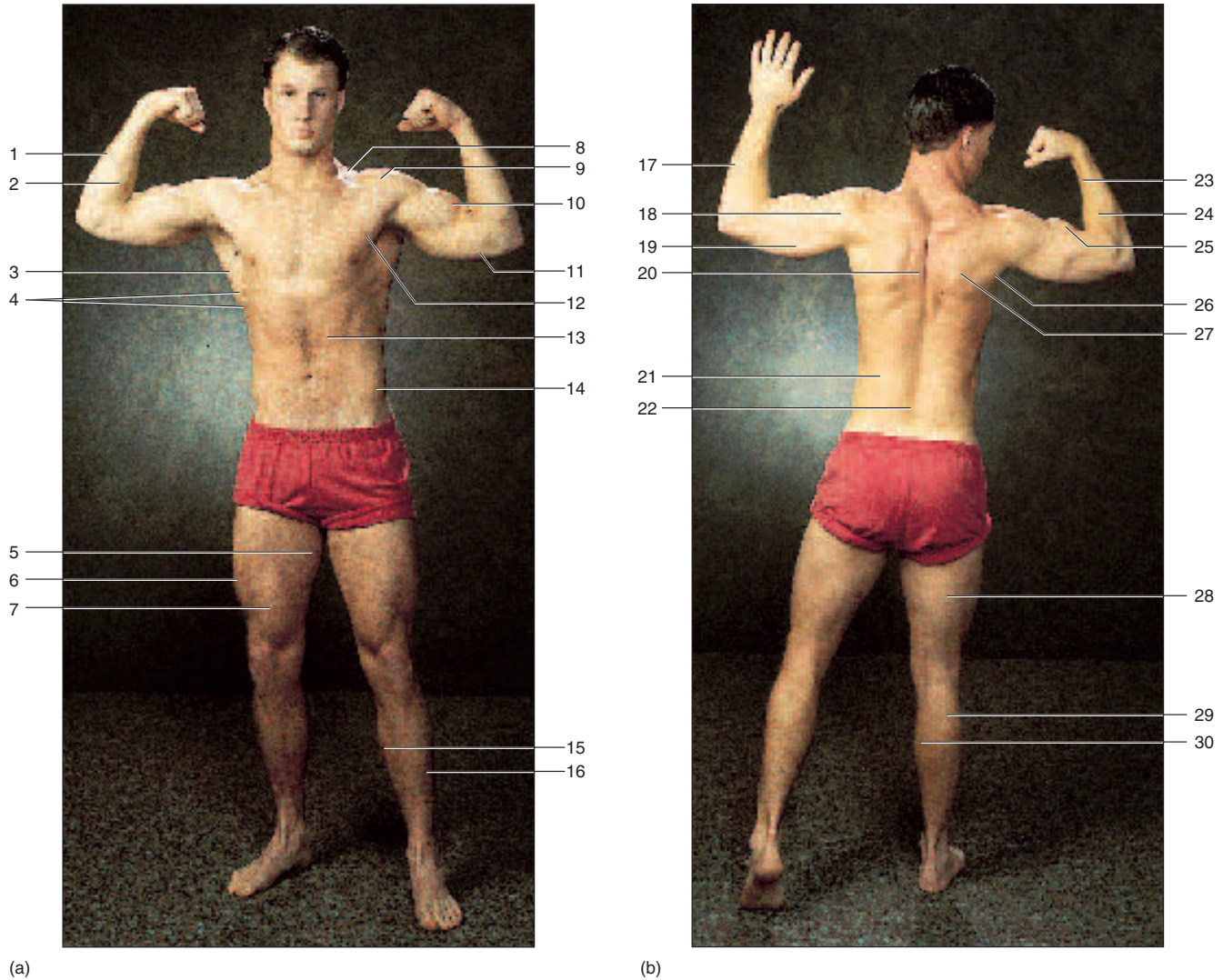
**Figure B.13** The Foot. (a) Lateral aspect; (b) medial aspect.



**Figure B.14** The Right Foot. (a) Dorsal aspect, (b) plantar aspect.



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**Figure B.15 Muscle Test.** To test your knowledge of muscle anatomy, match the 30 labeled muscles on these photographs to the alphabetical list of muscles below. Answer as many as possible without referring to the previous illustrations. Some of these names will be used more than once, since the same muscle may be shown from different perspectives, and some of these names will not be used at all. The answers are in appendix B.

- |                               |                      |                          |
|-------------------------------|----------------------|--------------------------|
| a. biceps brachii             | j. infraspinatus     | s. sternocleidomastoid   |
| b. brachioradialis            | k. latissimus dorsi  | t. subscapularis         |
| c. deltoid                    | l. pectineus         | u. teres major           |
| d. erector spinae             | m. pectoralis major  | v. tibialis anterior     |
| e. external abdominal oblique | n. rectus abdominis  | w. transversus abdominis |
| f. flexor carpi ulnaris       | o. rectus femoris    | x. trapezius             |
| g. gastrocnemius              | p. serratus anterior | y. triceps brachii       |
| h. gracilis                   | q. soleus            | z. vastus lateralis      |
| i. hamstrings                 | r. splenius capitis  |                          |