Veterinary Technician's Large Animal Daily Reference Guide

Chapter 1

Anatomy

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INTRODUCTION

In relation to large animal species, anatomy plays an integral role in how the body works. As technicians, we should be familiar with how the body is put together and the vital functions of each structure. There are nine basic animal systems that we study: the integumentary system, the musculoskeletal system, the cardiovascular system, the lymphatic system, the respiratory system, the digestive system, the nervous system, and the genitourinary system.

This chapter will give a basic overview of each system and the specific anatomical structures that are important to recognize in various large animal species (Table 1.1). In addition, this chapter includes a detailed description of equine conformation and its relation to structural abnormalities.

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Table 1.1 / Systems Overviews

System Name	Anatomical Structures	Functions
Integumentary	• Epidermis • Dermis • Hypodermis or subcutaneous layer • Hair • Glands of the skin • Claws/dewclaws • Hooves • Horns	• One of the largest and most extensive organ systems in the body • Composed of 4 tissue types • Covers and protects underlying structures within the body • A critical barrier to the harsh outer world
Musculoskeletal	• Bone • Axial skeleton • Appendicular skeleton • Joints • Skeletal muscle • Cardiac muscle • Smooth muscle • Tendons	• The framework of the body that supports and protects soft tissues within the body • Provides movement and some body functions
Cardiovascular	• Heart • Blood • Arteries • Veins • Capillaries	• Regulates body functions and delivers oxygen, antibodies, inflammatory cells, and nutrients throughout the body • Removes waste from tissues • The heart pumps blood throughout the vessels to maintain body function.
Lymphatic	• Plasma • Red blood cells • Platelets • White blood cells • Lymphatic fluid • Immune components	• Transport system • Cellular metabolism • Assists in immune response • Aids in homeostasis
Respiratory	• Upper respiratory tract • Lower respiratory tract • Lungs • Thorax	• Responsible for the complex process of respiration and gas exchange within the body • Brings oxygen into the body and carries carbon dioxide out

(*Continued*)

Table 1.1 / Systems Overviews (Continued)

System Name	Anatomical Structures	Functions
Digestive	• Oral cavity • Esophagus • Stomach (monogastric/ruminant) • Small intestine • Cecum (horses) • Large intestine • Rectum and anus	• Breaks down complex foods, such as hay and concentrates, into nutrient molecules and absorbs the nutrients into the bloodstream for the body's use
Nervous	• Neurons • Central nervous system • Peripheral nervous system • Brain • Spinal cord	• A complex communication system that monitors the body's internal and external environments and directs the activities of the body
Genitourinary	• Kidneys • Ureters • Bladder • Urethra • Testes • Penis • Ovaries • Uterus • Cervix • Vagina • Vulva	• There are multiple, combined functions of this system that include filtering of waste products from the body and eliminating them in various ways, as well as reproduction.

Figure 1.1 Conformation of a normal side view.

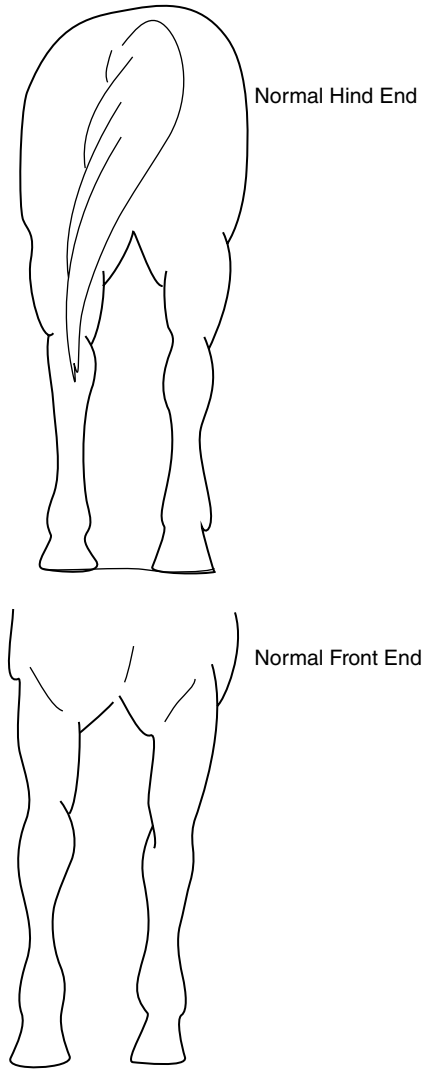

Figure 1.2 Conformation of a normal hind and front view.

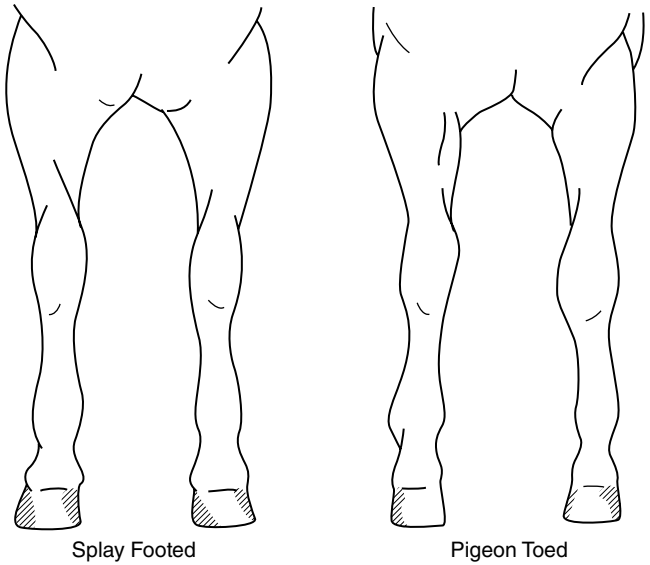

Figure 1.3 Conformation faults in the forelimb of the horse.

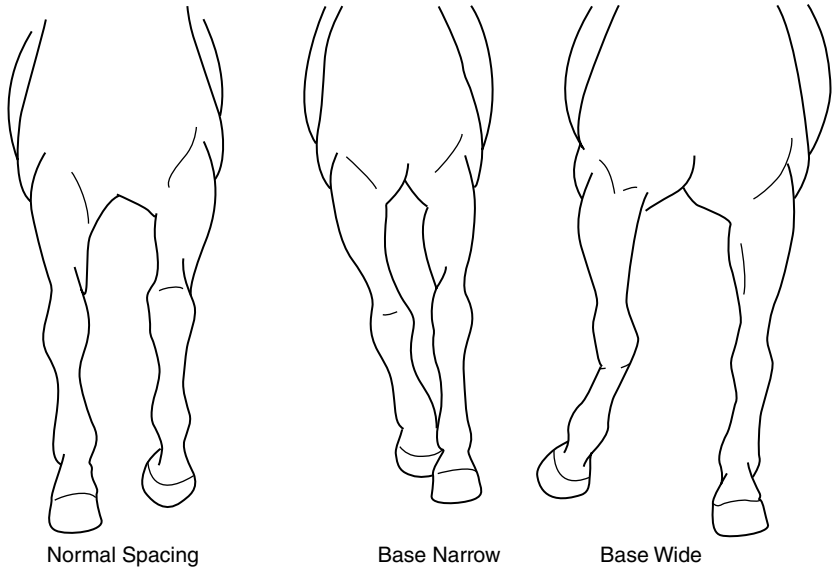

Figure 1.4 Conformation faults in the forelimb of the horse.

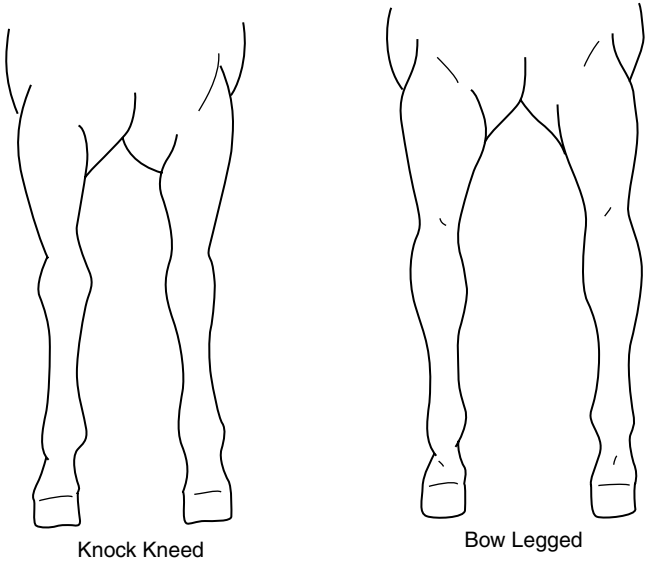

Figure 1.5 Conformation faults in the forelimb of a horse (frontal view).

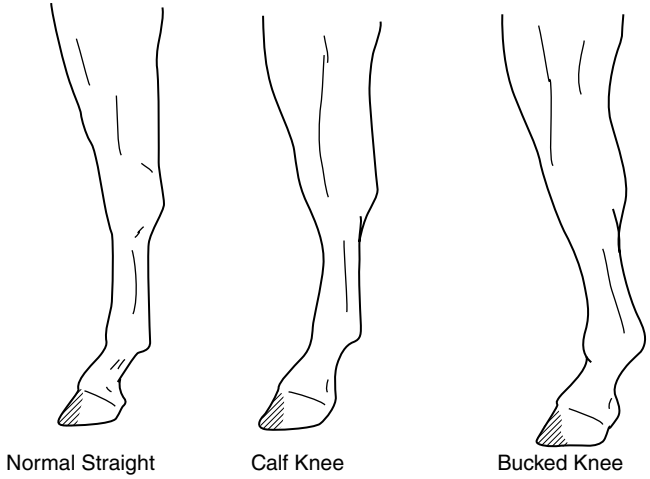

Figure 1.6 Conformation faults in the hind limb of the horse (side view).

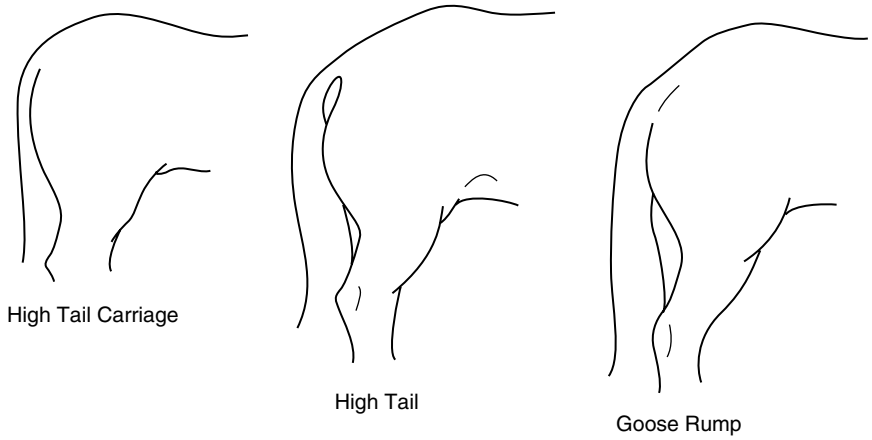

Figure 1.7 Conformation faults in the croup/hip of the horse (side view).

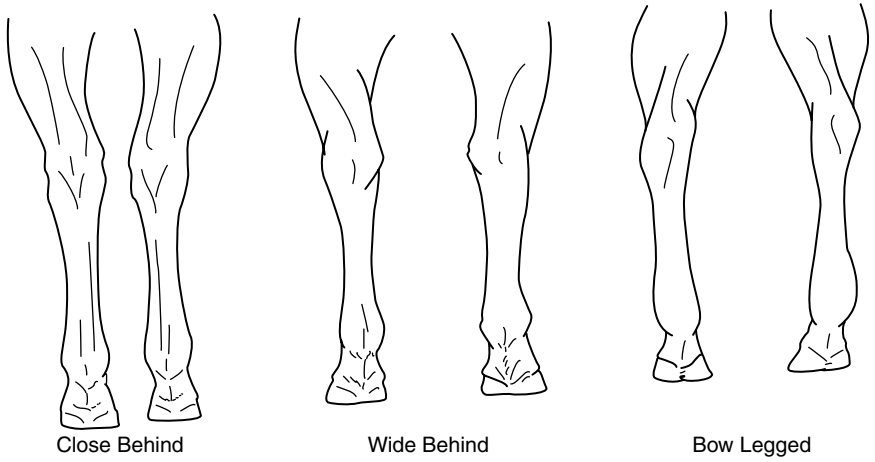

Figure 1.8 Conformation faults in the hind legs of a horse (back view).

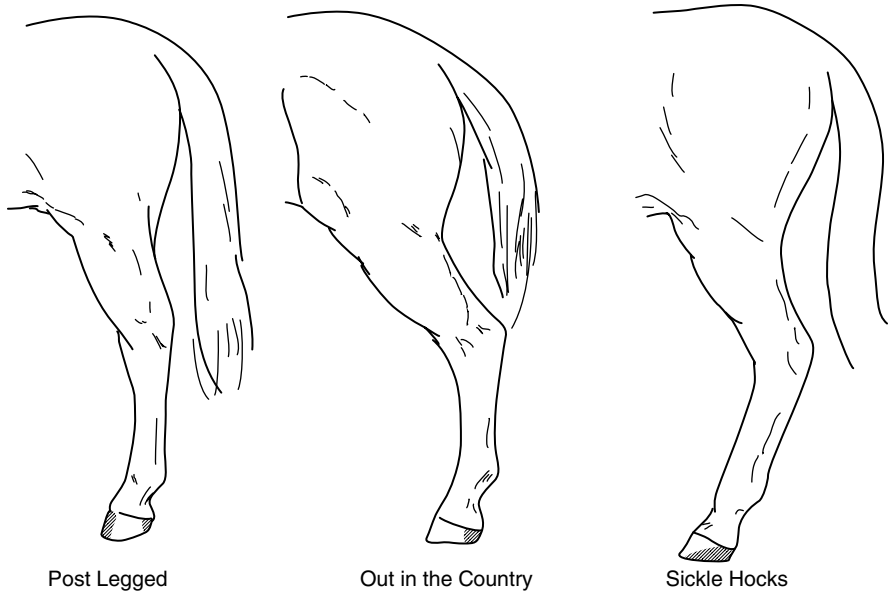

Figure 1.9 Conformation faults in the hind limbs of a horse (side view).

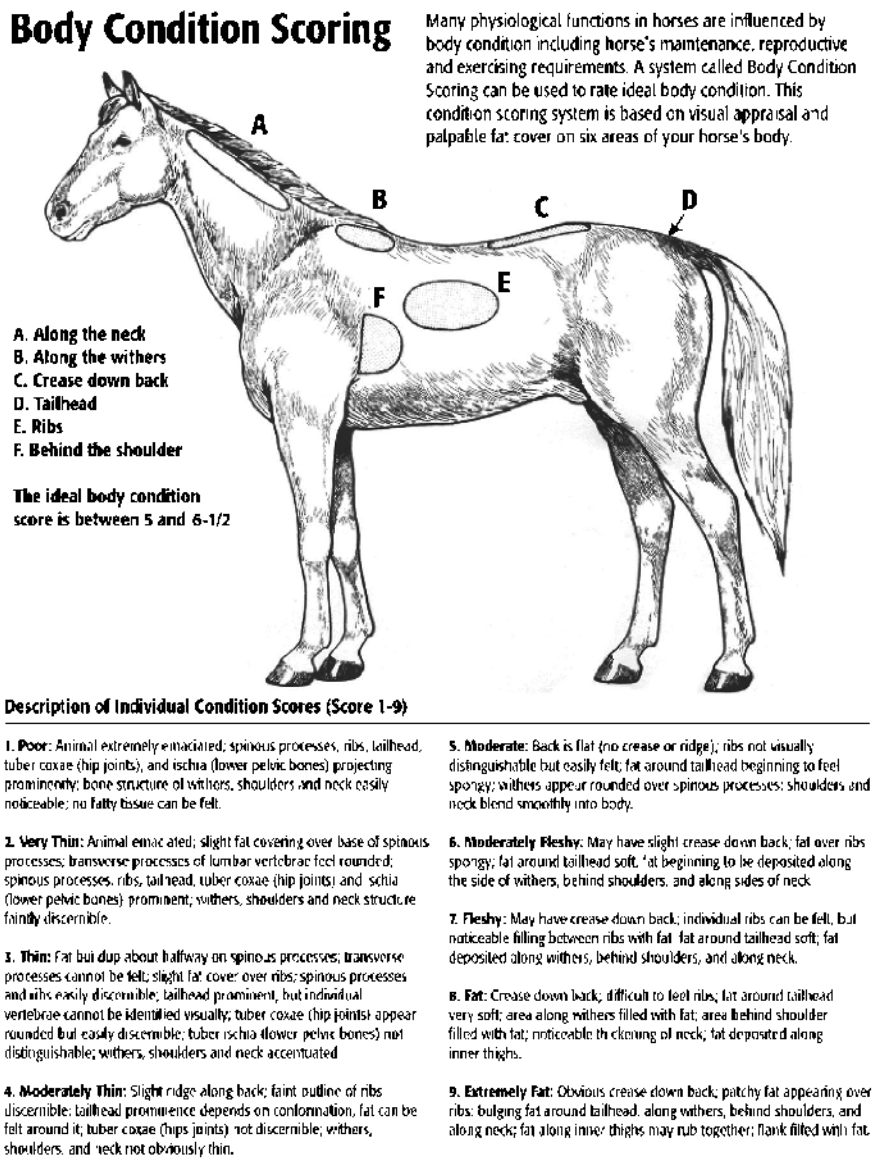

Figure 1.10 Body condition scoring of the horse. (Reprinted with permission from *AAEVT's Equine Manual for Veterinary Technicians*, published by Wiley Blackwell).

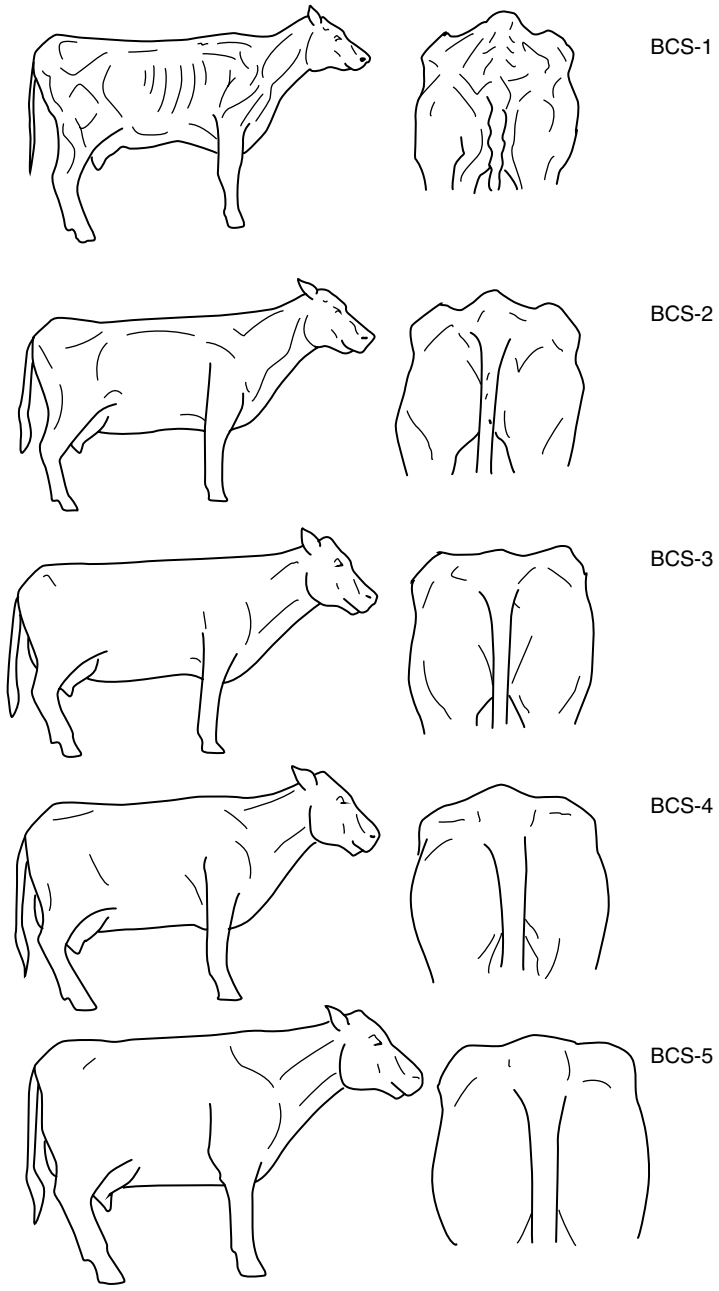

Figure 1.11 Body condition scoring chart of cattle.

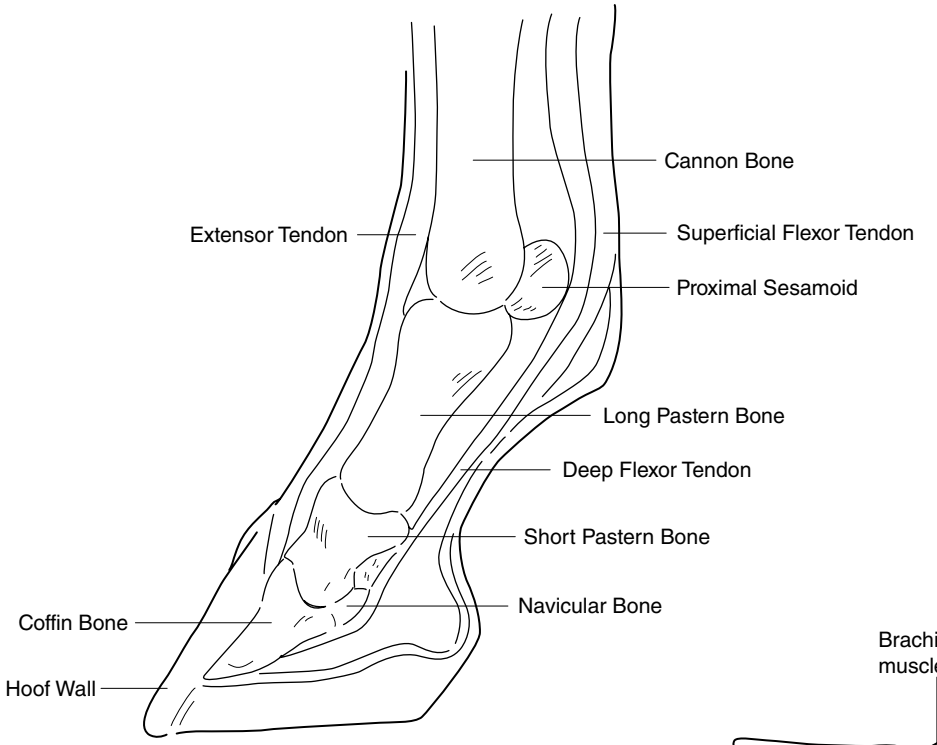

Figure 1.12 Lower limb bones of the horse.

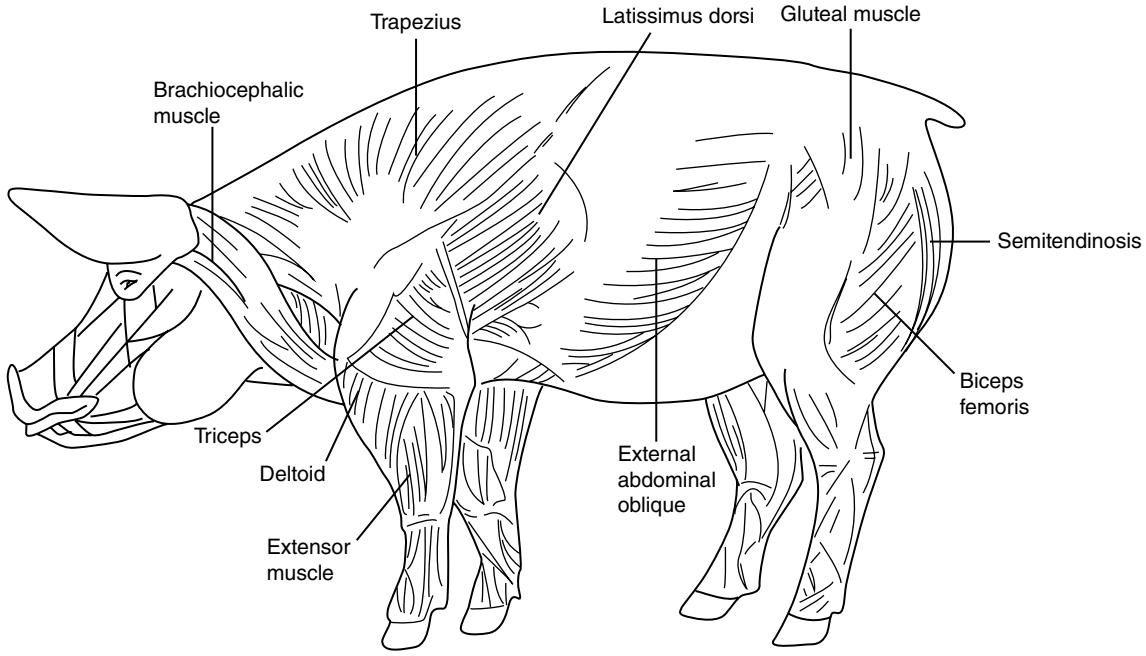

Figure 1.13 Diagram of the superficial muscles of the pig.

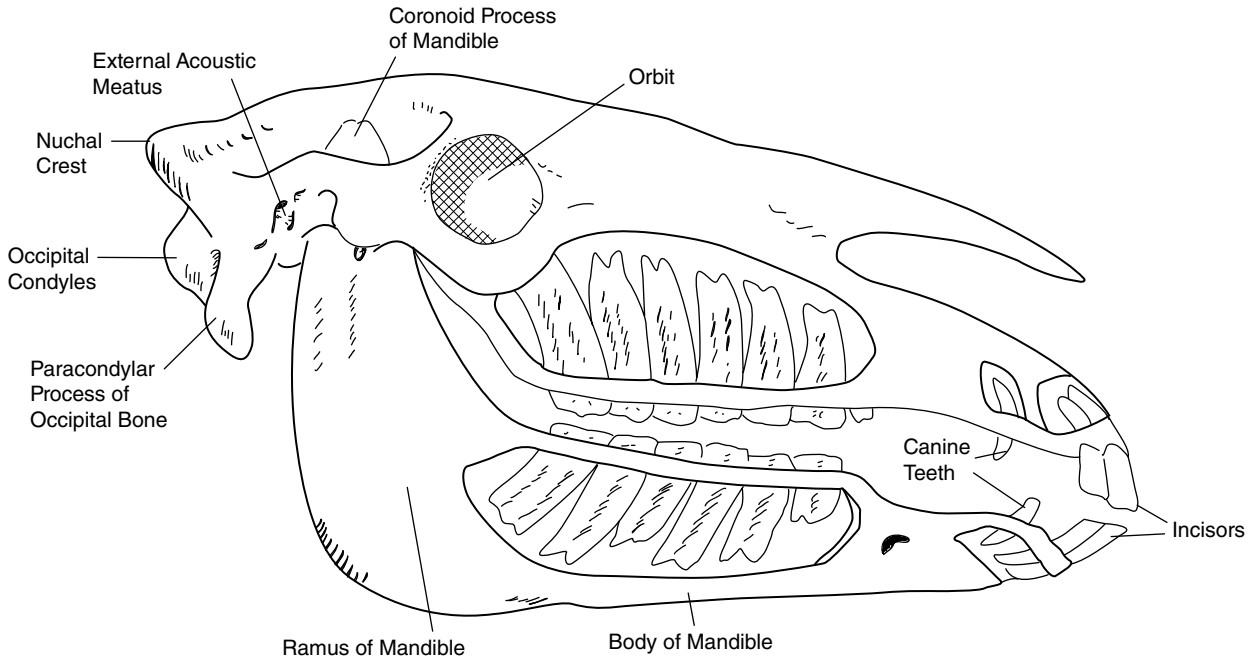

Figure 1.14 Equine skull.

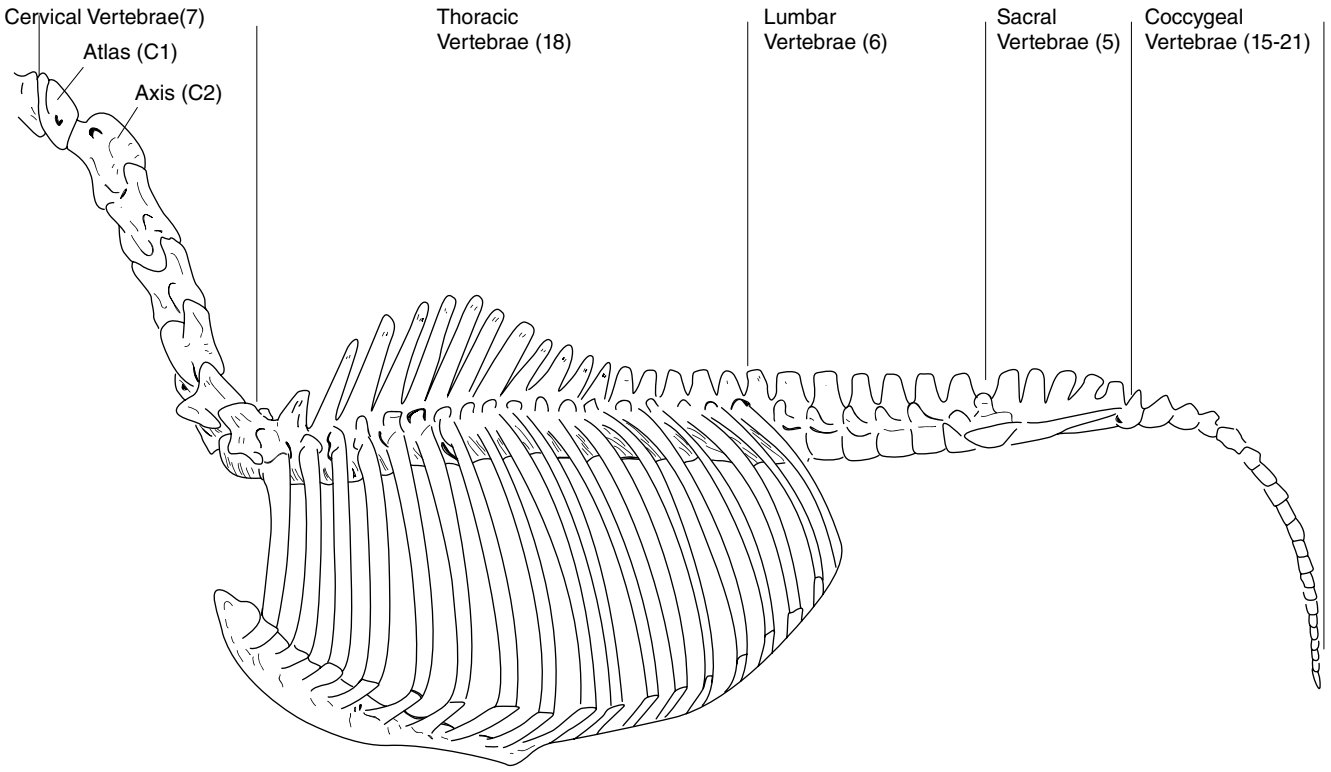

Figure 1.15 Equine spinal column.

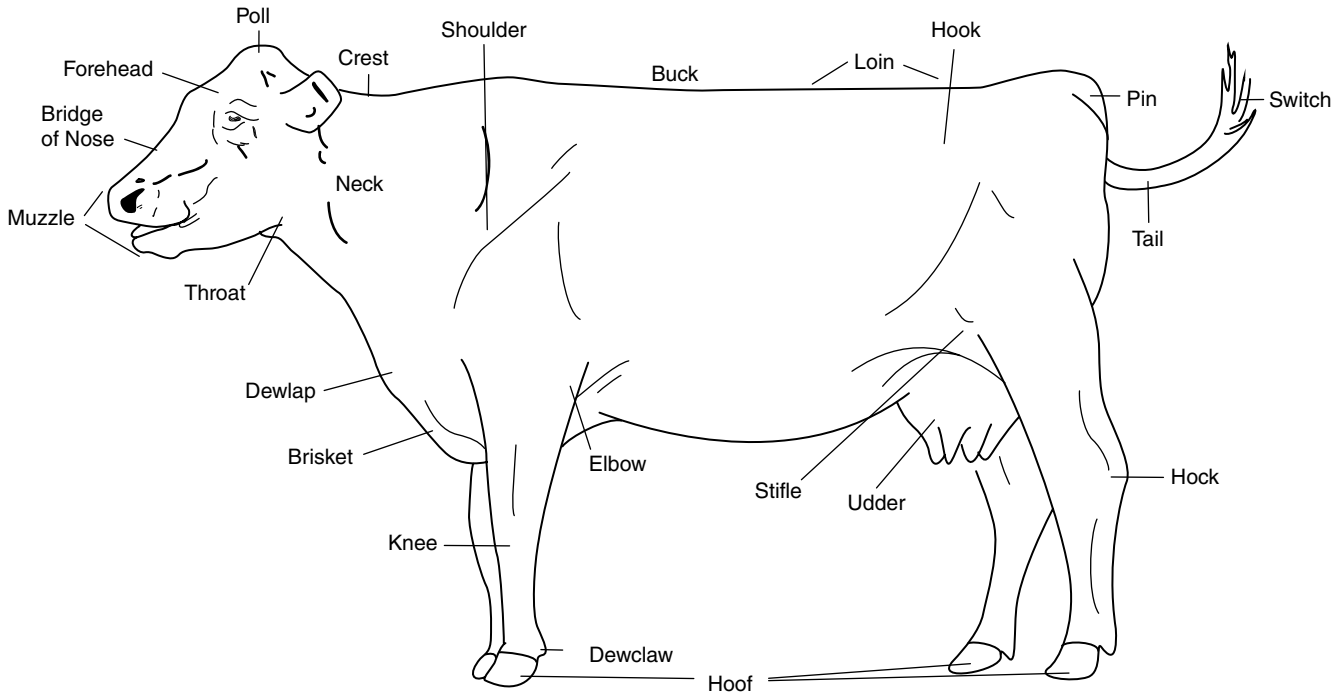

Figure 1.16 Diagram of the anatomy of the cow.

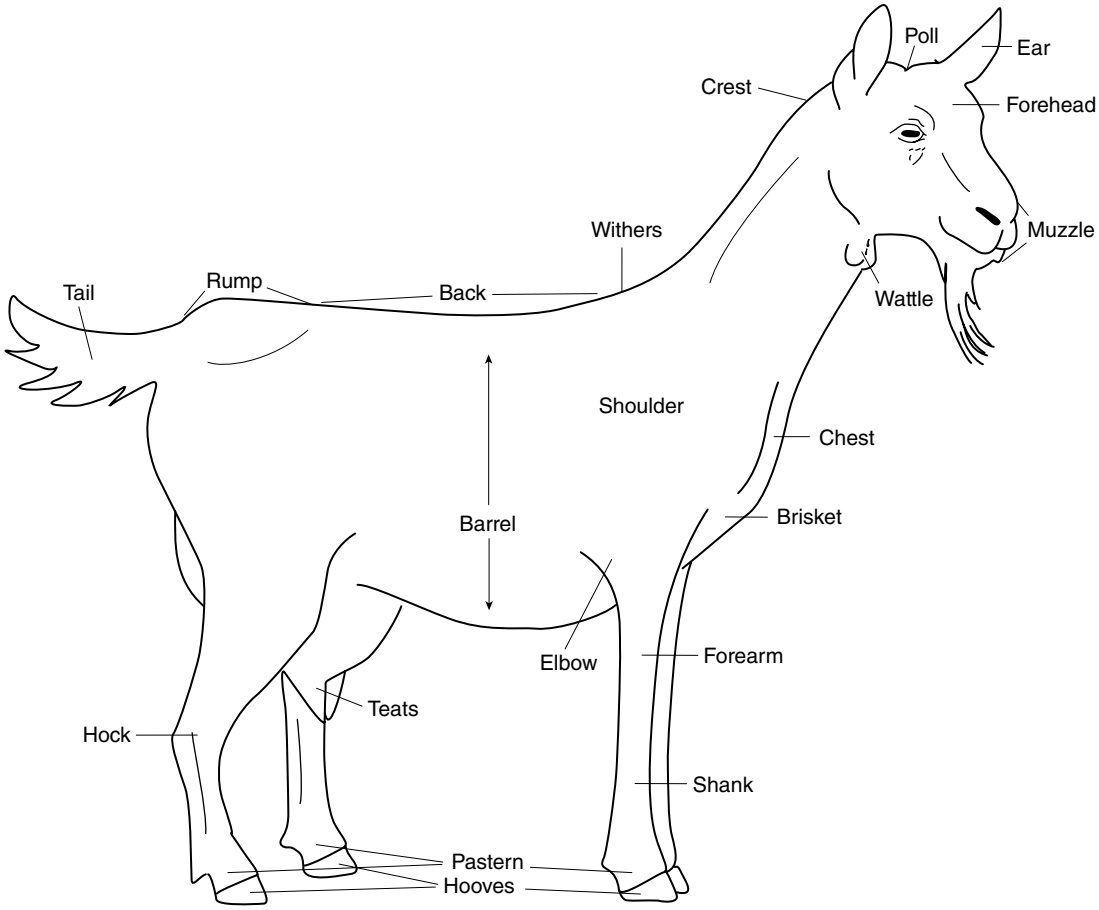

Figure 1.17 Diagram of the anatomy of the goat.

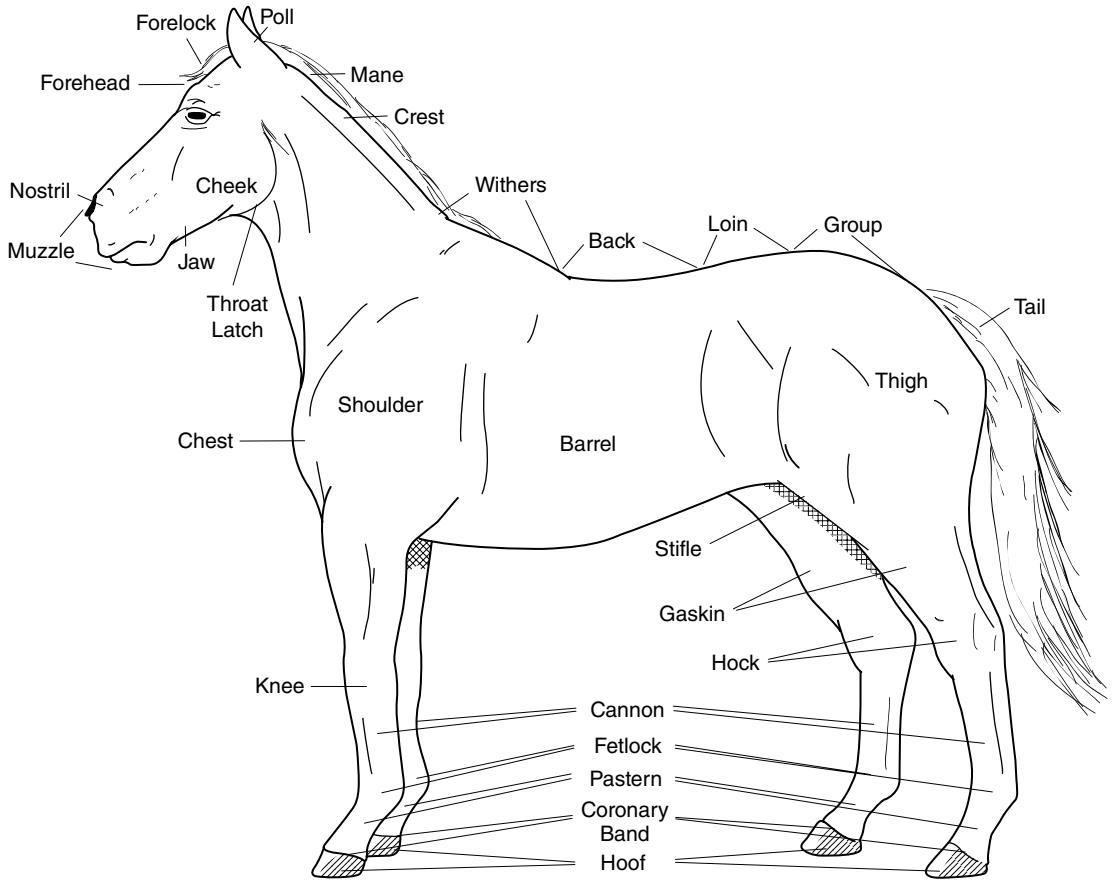

Figure 1.18 Diagram of the anatomy of the horse.

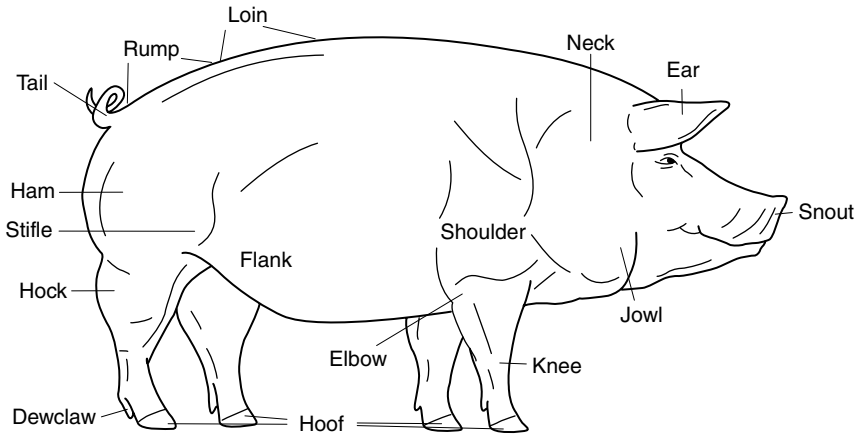

Figure 1.19 Diagram of the anatomy of the pig.

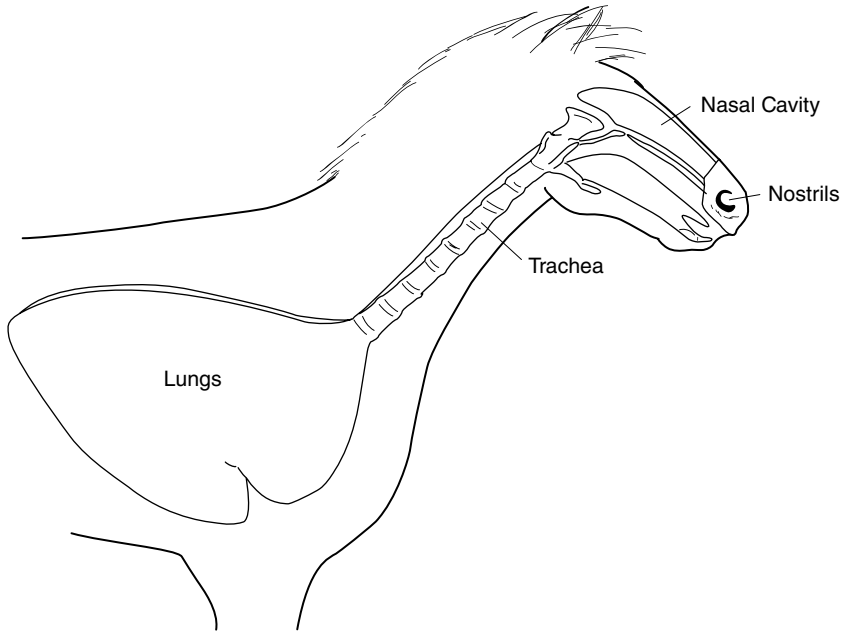

Figure 1.20 Lateral view of the respiratory tract of the horse.

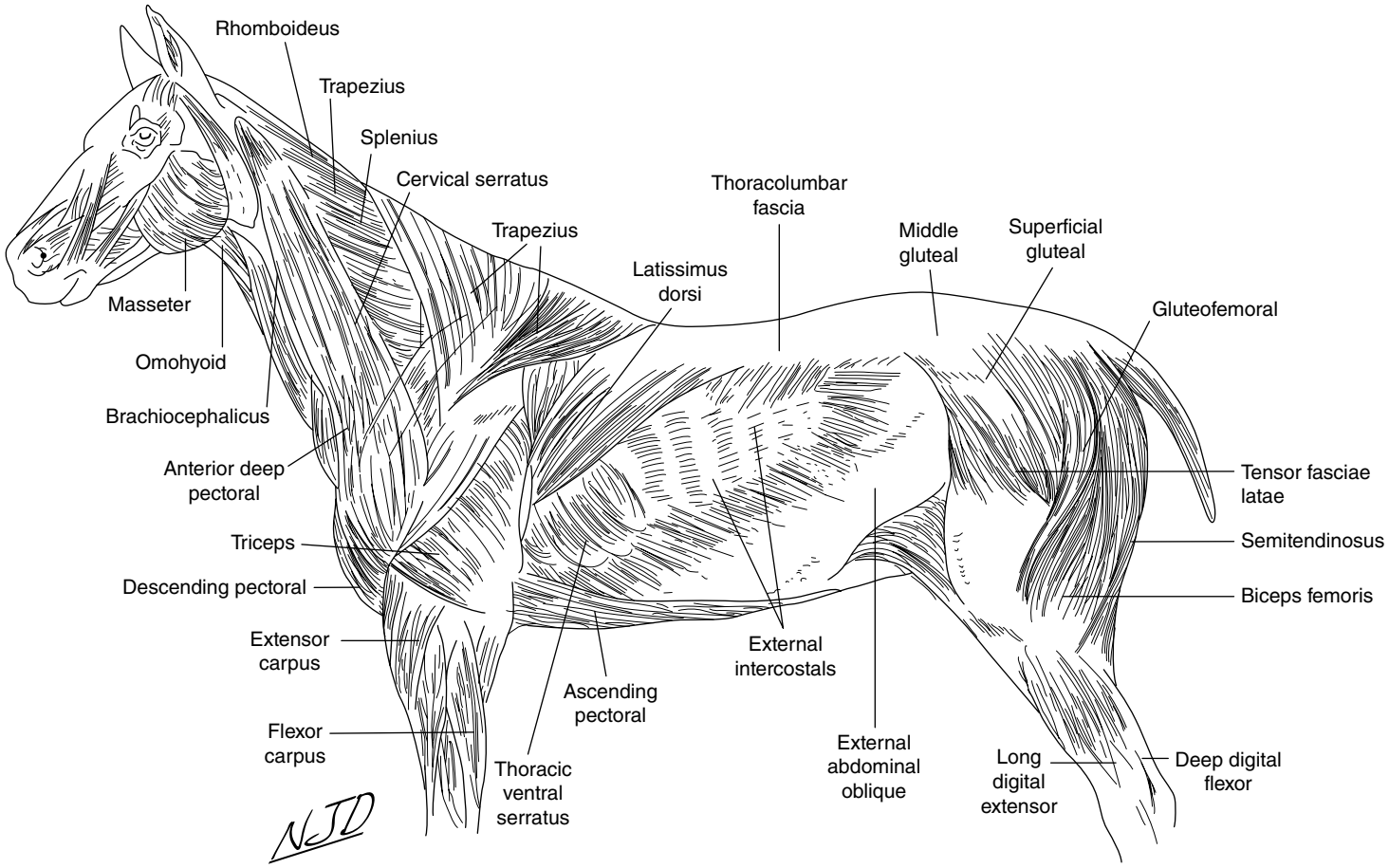

Figure 1.21 Equine muscles.

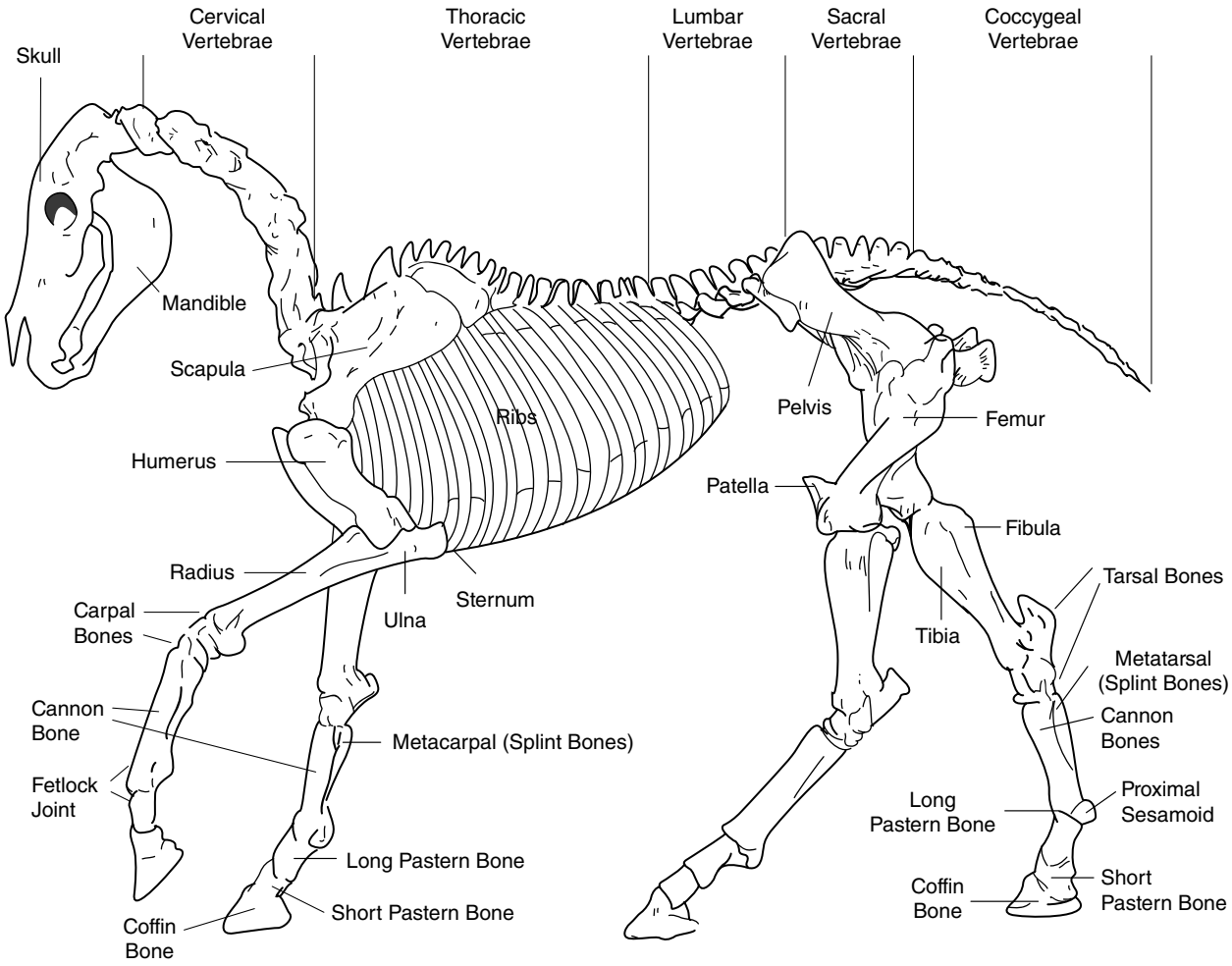

Figure 1.22 Equine skeleton.