

Qualification Unit

This unit forms part of a regulated qualification.

Unit Title: Equine Anatomy and Physiology

Unit Reference Number: T/651/4938

Level: Four (4)

Credit Value: 30

Minimum Guided Learning Hours: 70

The primary aim of this unit is:

- To introduce the principles of equine anatomy and physiology
- To provide an understanding of how the organ systems function, how they interact, communicate and integrate with each other.

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand equine physiological principles	1.1 Explain the importance and relevance of an understanding of the fundamentals of physiology to the practice of equine massage, rehabilitation and veterinary physiotherapy
2. Understand the structure and function of mammalian cells and tissues	2.1 Describe the structure and function of the mammalian cell and cellular organelles
	2.2 Explain the types of mammalian tissues, their adaptation to function and their distribution in the body
3. Understand anatomical structures in horses	3.1 Describe the structure and function of: a) skeleton and joints b) muscles, tendons and ligaments c) the foot
	3.2 Demonstrate an understanding of regional differences in joint range of motion
	3.3 Describe palpable skeletal landmarks and superficial muscles

	3.4	Describe the structures and functions of the nervous and sensory systems
4. Be able to evaluate variations in musculoskeletal structure and function	4.1	Evaluate skeletal and muscular symmetry within individual horses
	4.2	Assess the influence of conformational differences on structure and function between horses
	4.3	Interpret symmetry findings in relation to balance or imbalance

Mandatory Content

LO1	Principles of organic and physical chemistry relevant to biochemistry processes in horses. This must include organic molecules such as carbohydrates, lipids, proteins, phospholipids and enzymes. Cell membrane structure and function. Different cellular communication and transport systems relevant to equine anatomy and physiology. This must include cellular communication and transport systems such as the diffusion, facilitated diffusion, osmosis, active transport, endocytosis and exocytosis. Processes of homeostatic control in the horse. This must include the concepts of homeostasis, the internal environment, control mechanisms and how they apply to the principal body systems. AC 1.1 must include: fundamentals of physiology and biochemistry including SI units, atomic structure and bonding, elements and compounds, chemical reactions and partial pressures.
LO2	Mechanisms of indirect cell division, including mitosis. AC 2.1 must include: mammalian cells including cellular structure and function, components of a cell and their functions, nucleus. AC 2.2 must include: mammalian tissues including: tissue types - epithelium, connective tissue, nerves and muscle. Adaptation to function and distribution in the body.
LO3	Structure and function of the integument. Structure and functions of: a) the cardiovascular and lymphatic systems including the need for a circulatory system, heart and its function and control. b) the respiratory system mechanics of breathing, ventilation and gas exchange, blood gas transport and regulation of blood gases, cellular respiration and metabolism. c) the urogenital systems of the mare and stallion including osmoregulation and renal excretion. The function of the nephron, control of osmolarity, fluid, acid-base and electrolyte balance, excretion of urine. d) the endocrine system and the control of their secretion major endocrine organs, their hormones and the role of these hormones.

	e) the digestive system including the organs of the digestive tract, digestive processes. AC 3.1 Structural anatomy including: Skeletal anatomy and the function of bone and joints. The structure of bone and bone formation. Location and function of the major muscles, tendons and ligaments. Distinguish the layers of common muscles. Structure and function of the foot. Structure and function of the integument. AC 3.2 Learners must be able to demonstrate and understanding of regional differences in joint range motion, including the vertebral column AC 3.3 Learners must be able to Identify and describe anatomical structures through surface palpation. The location of anatomical structures using correct terminology to facilitate effective communication with the referring veterinary surgeon and other stakeholders AC 3.4 Structure and function of the Nerve function including: passive and active transmission, synaptic communication. The nervous system - central and peripheral nervous systems, the autonomic nervous system, sensory organs.
LO4	AC 4.1 Including comparison of left and right sides to evaluate evenness or otherwise of horses' skeletal structure and muscular development AC 4.2 Including effects of conformation on long term soundness and performance. AC 4.3 Identify and interpret symmetry and asymmetry in a range of horses and discuss how this may relate to musculoskeletal health and performance.