Anatomy & Physiology Study Guide for Dental Nurses

NEBDN-aligned revision and refresher resource

DentalNurseHub.com

Edition 1.0 | 2025

1. Overview

Anatomy and physiology explain how the human body is structured and how its systems function together. For dental nurses, this knowledge underpins medical history assessment, recognition of systemic risk, safe patient management, and emergency preparedness. It is a core NEBDN topic and is integrated across multiple examination areas.

This guide supports NEBDN examination preparation and also serves as a professional refresher for qualified dental nurses. Assessment focuses on system function, interaction, and clinical relevance, rather than detailed pathology or advanced physiology.

2. Core Principles / Foundations

Key principles of anatomy and physiology include:

- **Organisation of the body**
  Cells → tissues → organs → systems

- **Homeostasis**
  The body's ability to maintain internal stability despite external change

- **Interdependence of systems**
  Dysfunction in one system can affect others

- **Structure–function relationship**
  Anatomy determines physiological capability

These principles are central to understanding patient health and risk.

3. Cardiovascular System

The cardiovascular system transports oxygen, nutrients, hormones, and waste products.

Key components:

- Heart

- Blood vessels (arteries, veins, capillaries)

- Blood

Functions:

- Oxygen delivery
- Blood pressure regulation
- Thermoregulation

Clinical relevance:

- Hypertension, angina, and myocardial infarction are frequently referenced in NEBDN questions
- Cardiovascular compromise increases dental treatment risk

4. Respiratory System

The respiratory system enables gas exchange.

Key structures:

- Nasal cavity
- Trachea
- Bronchi
- Lungs

Functions:

- Oxygen uptake
- Carbon dioxide removal

Clinical relevance:

- Asthma and breathing difficulties are commonly examined
- Anxiety can affect respiratory rate and pattern

5. Nervous System (Dental-Relevant Overview)

The nervous system controls sensation, movement, and autonomic regulation.

Divisions:

- Central nervous system (brain and spinal cord)
- Peripheral nervous system
- Autonomic nervous system (sympathetic and parasympathetic)

Clinical relevance:

- Stress and anxiety activate the sympathetic response
- Loss of consciousness and seizures relate directly to nervous system function

6. Endocrine System & Metabolic Control

The endocrine system regulates body functions via hormones.

Key glands:

- Pituitary
- Thyroid
- Pancreas
- Adrenal glands

Clinical relevance:

- Diabetes mellitus affects wound healing and infection risk
- Hormonal imbalance may influence oral health

NEBDN questions often test recognition of systemic conditions, not hormone mechanisms.

7. Immune System & Inflammation

The immune system protects against infection.

Components include:

- White blood cells
- Lymphatic system
- Inflammatory response

Clinical relevance:

- Inflammation is a key feature of periodontal disease
- Immunocompromised patients are at increased infection risk

Understanding immune response supports safe clinical decision-making.

8. Digestive System & Oral Function

The digestive system begins in the oral cavity.

Key oral roles:

- Mastication
- Saliva secretion
- Initiation of digestion

Clinical relevance:

- Saliva protects teeth and oral tissues
- Reduced salivary flow increases caries and mucosal disease risk

9. Clinical Relevance / Application

Anatomy and physiology inform dental nursing practice through:

- Understanding medical histories
- Recognising systemic risk factors

- Supporting safe treatment planning
- Identifying early warning signs of deterioration

NEBDN scenarios often integrate system knowledge with clinical judgement.

10. Dental Nurse Roles & Responsibilities

Dental nurses are responsible for:

- Understanding normal system function
- Recognising deviations that may affect dental care
- Communicating relevant findings to the dentist
- Supporting patient safety and monitoring

Dental nurses must not:

- Diagnose systemic disease
- Interpret test results independently

System knowledge supports safe teamwork and escalation.

11. Risks, Errors & Patient Safety Issues

Common errors include:

- Treating oral conditions in isolation
- Underestimating systemic disease impact
- Failing to recognise signs of systemic compromise

These errors can lead to unsafe care and are examinable.

12. UK Regulations & Professional Standards

Anatomy and physiology knowledge supports compliance with:

- **GDC Standards for the Dental Team**
    - Patient safety

    - Effective communication
    - Working within competence
- **Medical history and record-keeping requirements**

Dental nurses must apply physiological understanding clinically, not academically.

13. Exam-Focused Takeaways

- Body systems are interdependent
- Homeostasis maintains internal balance
- Cardiovascular and respiratory systems are high-yield topics
- Systemic disease affects dental care
- Dental nurses recognise and report, not diagnose
- System knowledge supports safe escalation

If a question asks:

- "Why is this condition relevant?" → Link system function to dental risk
- "What should the nurse do?" → Recognise, inform, document

14. How to Use This Guide

This guide should be used alongside:

- Anatomy & Physiology flashcards for system recall
- Online MCQs and OSCE practice for applied understanding

This resource supports revision and professional refreshment. It does not replace formal medical training or diagnosis.