CHAPTER 1

Learning the language: terminology

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LEARNING OUTCOMES

On completion of this chapter, the reader will be able to:

1. Discuss the terms 'anatomy' and 'physiology'.
2. Further understand prefixes and suffixes used in anatomy and physiology.
3. Understand directional terms.
4. Describe the anatomical planes, anatomical regions of the body and the body cavities.

Test your prior knowledge

1. What do you understand by the term 'pathology'?
2. What is the difference between a sign and a symptom?
3. How is the root word altered by a prefix or a suffix?
4. What are the contents of the thoracic cavity?

Introduction

Science, particularly terms used in the provision of healthcare, is inundated with Latin and Greek terminologies. For all parts of the body, Latin names are used and Greek terms are also common as the Greeks are said to be the founders of modern medicine. Nurses and other healthcare professionals apply pathophysiological concepts when providing care and treatment to individuals experiencing health conditions or disease.

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Clinical consideration

Like any country with its own language, healthcare has its own language also. This is important so communication between healthcare professionals can take place quickly and efficiently without the need for too much explanation. It is a specific language that is not just used by nurses, midwives, paramedics, doctors and other people who are actively involved in the medical arena but, it is important for all others who work in healthcare, for example, pharmacists, physiologists and dentists. Its correct use can have a significant impact on ensuring the best care experience.

What is important is that we are all speaking the same language; failure to do so or to make assumptions can lead to error and mistakes.

Anatomy and physiology

Anatomy discusses the study of the structure and location of body parts, while physiology is the study of the function of body parts; both of these two terms are interlinked. Understanding where the body parts are located can help you understand how they function. McGuiness (2018) explains that when thinking of the various functions of the heart and the four chambers along with the valves, this is the anatomy, and visualising these many structures can assist in understanding how blood flows through the heart and how the heart beats; this is related to its function and, as such, its physiology.

Anatomy

The body map

Learning anatomical terminology is like learning a new language. When your learning has developed and you understand more and add different terms to your vocabulary, this can help you talk confidently about the body. The anatomical directional terms and body planes present a universally recognised language of anatomy. When undertaking the study of anatomy and physiology, it is essential that you use key or directional terminology so that you are able to give a precise description as you or others refer to the exact location of a body part or structure.

Clinical consideration

When you are next on placement, identify how many times during a shift you hear the various clinicians describe and discuss the anatomy, physiology and pathophysiology of a person. Note the terminology being used, and how between the team there is a clearer understanding when using one language – anatomical and physiological terminology.

All parts of the body are described in relation to other body parts and a standardised body position known as the anatomical position is used in anatomical terminology. An anatomical position is established from an imaginary central line that runs down the centre or midline of the body. When in this position, the body is erect and it faces forward, with the arms to the side, palms facing forward with the thumbs to the side and the feet are slightly apart with the toes pointing forward.

Skills in practice

While you are encouraged to use the correct anatomical and physiological terms when conversing with other colleagues, caution must be exercised when speaking in front of and with patients and their families. Those who provide care and support to others can inadvertently use words and jargon that are strange to patients and their families; they may not realise that the meaning is not clear. While there are some concepts that are familiar and obvious to healthcare providers, they may be alien to those they offer care to.

Try first to establish what the person knows and understands before launching into a discussion that begins at a level that is either too complex or too simple for the person. Too often, healthcare environments can fail to recognise the needs of people with different levels of understanding about their health, and this can mean that people may fail to receive the right care at the right time.

Use of jargon can instil fear, cause confusion and result in poor care.

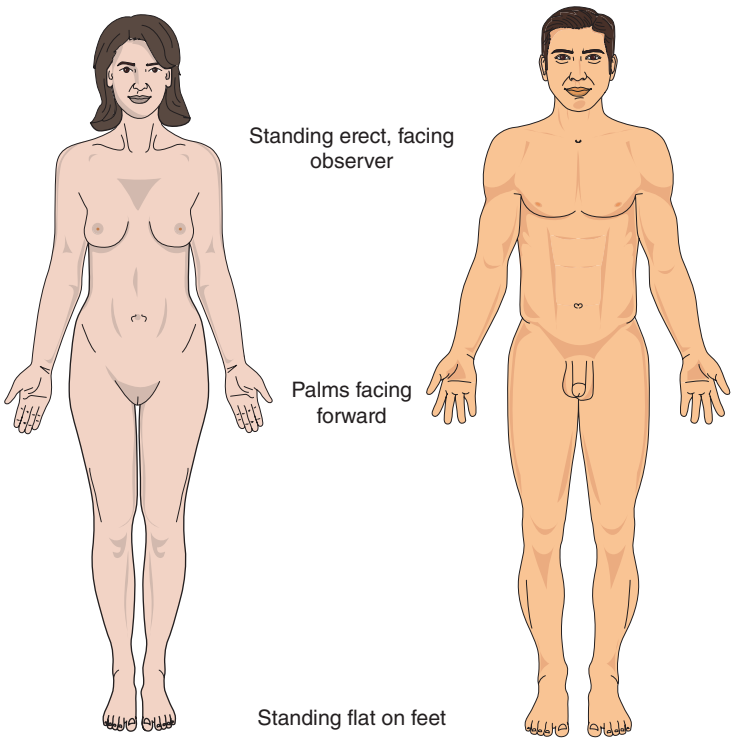

FIGURE 1.1 Anatomical position: anterior and posterior views of the body.

The standard body 'map' or anatomical position (just like a map) is that of the body standing upright (orientated with the north at the top), with the feet at shoulder width and parallel, toes forward (see Figure 1.1); humans are bilaterally symmetrical. This position is used to describe body parts and positions of people irrespective of whether they are lying down, lying on their side or facing down.

Additionally, understanding the anatomy and the physiology (the structure and function), understanding directional terms and understanding the position of various structures are also required. Table 1.1 lists common anatomical descriptive terms that you will need to become acquainted with.

Figure 1.2 depicts the anatomical positions.

Anatomical planes of the body

A plane is an imaginary two-dimensional surface that passes through the body. There are three planes that are generally referred to in anatomy and healthcare (see Figure 1.3).

- Sagittal
- Frontal
- Transverse

These are also words that you will also become familiar with in healthcare when referring to landmarks on the body.

The sagittal plane (the vertical plane) is the plane that divides the body or an organ vertically into the right and left sides. If this vertical plane runs directly down the middle of the body, this is known as the mid-sagittal or median plane. If it divides the body into unequal right and left sides, then it is called a parasagittal plane.

The frontal plane is the plane dividing the body or an organ into an anterior portion and a posterior portion. The frontal plane is often referred to as a coronal plane (the word 'corona' is Latin, for 'crown').

The transverse plane divides the body or organ horizontally into the upper (superior) and lower (inferior) portions.

Anatomical regions of the body

The body is divided into regions, like a map. The anatomical regions of the body refer to a particular area/region of the body, and this helps to compartmentalise. The body is divided into:

- the head and neck
- the trunk (thorax and abdomen)

TABLE 1.1 **Anatomical descriptive terms.**

Anatomical term	Relationship to the body
Anterior	Front surface of the body or structure
Posterior	Back surface of the body or structure
Deep	Further from the surface
Superficial	Close to the surface
Internal	Nearer the inside
External	Nearer the outside
Lateral	Away from the midline
Median	Midline of the body
Medial	In the direction of the midline
Superior	Located above or towards the upper part
Inferior	Located below or towards the lower part
Proximal	Nearest to the point of reference
Distal	Furthest away from the point of reference
Prone	Lying face down in a horizontal position
Supine	Lying face up in a horizontal position

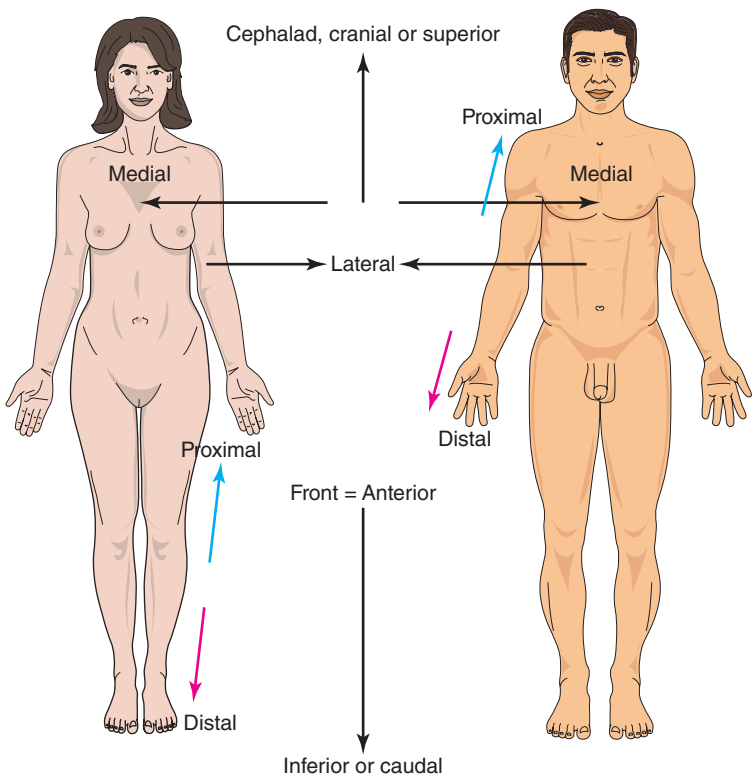

FIGURE 1.2 Anatomical positions.
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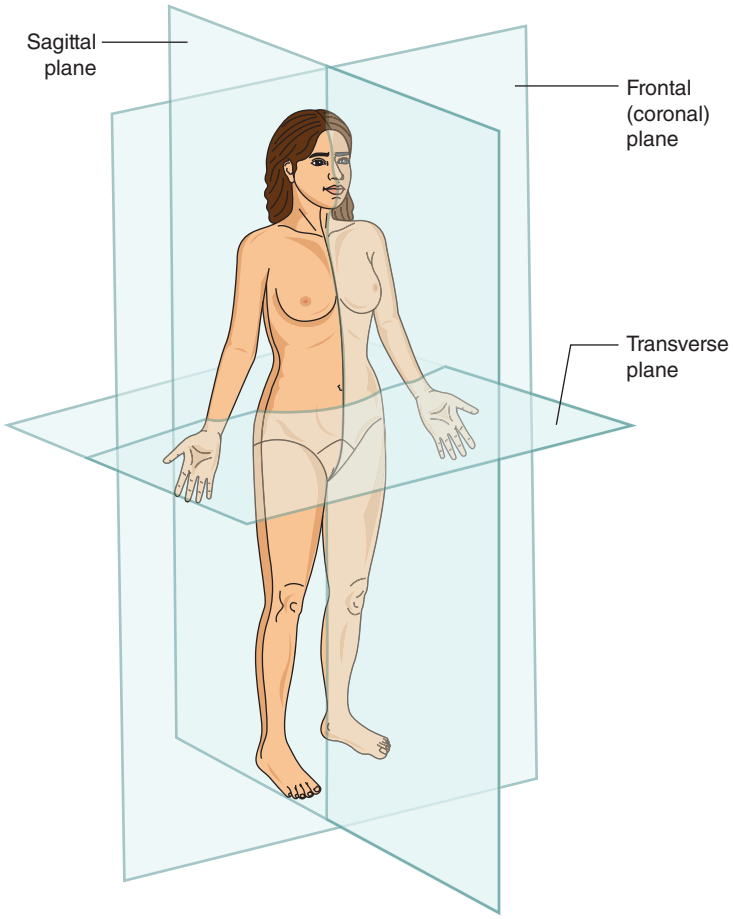

FIGURE 1.3 Anatomical planes.
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- the upper limbs (arms)
- the lower limbs (legs)

See Tables 1.2–1.5, which represent the correct terminology for each region.

Body cavities

Body cavities are spaces within the body that contain the internal organs. The cavity can be filled with air or with organs. Minor body cavities include the oral cavity (mouth), the nasal cavity, the orbital cavity (eye), middle ear cavity and the synovial cavities (these are spaces within synovial joints).

There are two main cavities in the body:

- the dorsal cavity located in the posterior region of the body

TABLE 1.2 **Anatomical regions of the head and neck.**

Anatomical phrase	Area of body related to
Cephalic	Head
Cervical*	Neck
Cranial	Skull
Frontal	Forehead
Occipital	Back of head
Ophthalmic	Eyes
Oral	Mouth
Nasal	Nose

* It should be noted that the cervical (neck) is different to any discussion concerning the cervix/cervical canal that relates to the reproductive organs.

TABLE 1.3 Anatomical regions of the trunk (thorax and abdomen).

Anatomical phrase	Area of body related to
Axillary	Armpit
Costal	Ribs
Mammary	Breast
Pectoral	Chest
Vertebral	Backbone
Abdominal	Abdomen
Gluteal	Buttocks
Inguinal	Groin
Lumbar	Lower back
Pelvic	Pelvis/lower part of abdomen
Umbilical	Navel
Perineal	Between anus and external genitalia
Pubic	Pubis

TABLE 1.4 Anatomical regions of the upper limbs.

Anatomical phrase	Area of body related to
Brachial	Upper arm
Carpal	Wrist
Cubital	Elbow
Forearm	Lower arm
Palmar	Palm
Digital	Fingers (also relates to toes)

- the ventral body cavity occupies the anterior region of the trunk.

The dorsal cavity is subdivided into two cavities:

1. **Cranial cavity**: Encloses the brain and is protected by the cranium (skull).
2. **Vertebral/spinal cavity**: Contains the spinal cord and is protected by the vertebrae.

TABLE 1.5 Anatomical regions of the lower limbs (legs).

Anatomical phrase	Area of body related to
Femoral	Thigh
Patella	Front of knee
Pedal	Foot
Plantar	Sole of foot
Popliteal	Hollow behind knee
Digital	Toes (also relates to fingers)

The ventral cavity is subdivided into:

1. **The thoracic cavity**: It is surrounded by the ribs and muscles and the intercostal muscles. The thoracic cavity contains the lungs, heart, trachea, oesophagus and thymus.

   Separated from the abdominal cavity by the diaphragm muscle.
2. The abdominopelvic cavity:
   a. **The abdominal cavity**: It contains the stomach, spleen, liver, gallbladder, pancreas, small intestine and most of the large intestine.

      The abdominal cavity is protected by the muscles of the abdominal wall and partly by the diaphragm and ribcage.
   b. **The abdominopelvic cavity**: It contains the urinary bladder, some of the reproductive organs and the rectum.

   The pelvic cavity is protected by the bones of the pelvis.

See Figure 1.4 for the body cavities.

Physiology

Human physiology is concerned with the study of the function of the body. Anatomy and physiology, therefore, relate to the study of the structure and the function of the human body.

The human body is organised in a most precise manner whereby atoms combine in appropriate ways forming molecules in the chemical organisation of the body. The molecules combine to form cells and cells organise themselves collectively as functioning masses that are known as tissues and then organs and systems. Chapter 2 of this text discusses cell physiology.

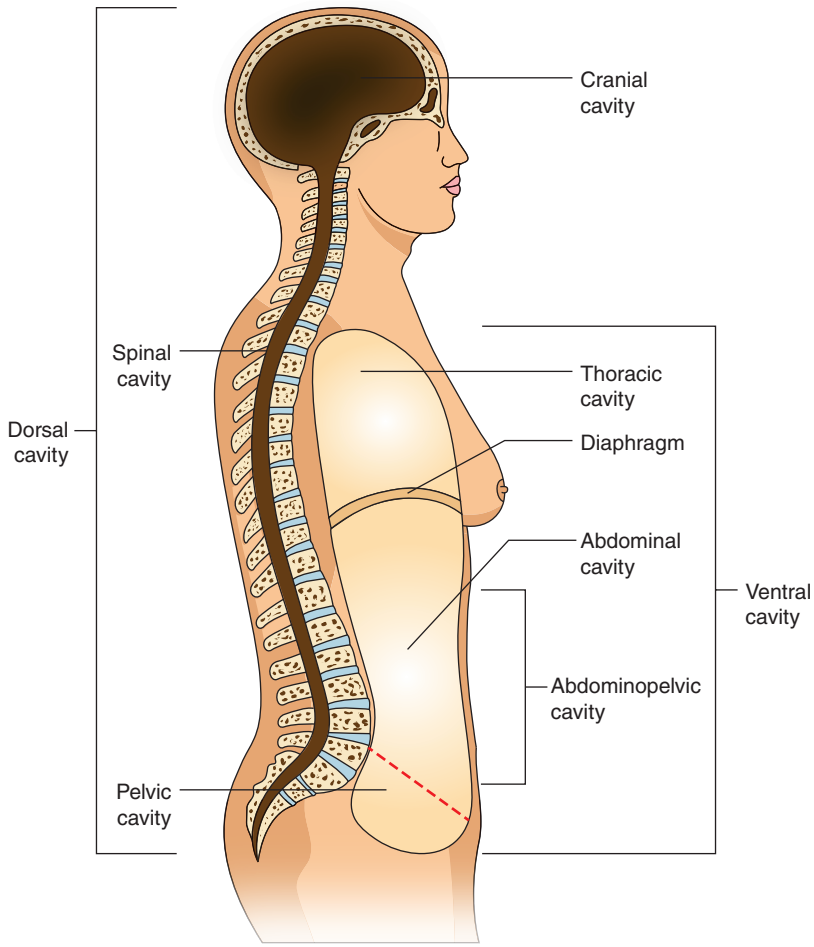

FIGURE 1.4 The cavities of the body.
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Terminology

Already in this chapter, you may have come across some complex terms. It is important to learn the language (the terminology) that is used in the provision of healthcare; this is an important part of safe and effective care. While it is not a pre-course requirement to be proficient in Latin or Greek in order to learn anatomical terminology to become a healthcare professional, it is essential that you understand and are able to use the terminology.

There are three basic parts associated with medical terms, see Table 1.6.

The word root is the core of the word, and this provides the basic meaning to the subject of the word, the prefixes and the suffixes that modify the word. In the word hepatitis, for example, the word root is *hepa* and this means liver; when the suffix *itis* (it means inflammation) is added, this then changes the word root and it becomes hepatitis – inflammation of the liver.

TABLE 1.6 **Basic components.**

Component	Description
Word root	This is usually found in the middle of the word and this is its central meaning
Prefix	The prefix comes at the beginning of the word and it usually identifies some subdivision or part of the central meaning
Suffix	This comes at the end and modifies the central meaning as to what or who is interacting with it or what is happening to it

The prefix is added to the beginning of the word root and this also changes the word. If the root word is *nutrition* and the prefix *mal* is added (this means bad), then malnutrition means bad or poor nutrition.

Look at this example:

Hypothermia

The word root is 'therm' (heat)

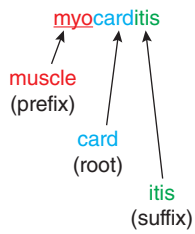
Hypo means low (this is the prefix).

Hypothermia = low heat

Take a look at this word:

myocarditis

Now let us break this up:



myo	card	itis	inflammation of heart muscle
muscle	heart	inflammation	

The prefix can change the word:

Myocarditis myo = inflammation of heart muscle
Endocarditis endo = inflammation of the inner layer of the heart
Pericarditis peri = inflammation of the outer layer of the heart

The suffix can also alter the word:

Cardiologist ologist = a practitioner specialising in the heart
Cardiomyopathy myopathy = damage to heart muscle
Cardiomegaly megaly = enlargement of the heart

In these examples, the prefix and suffix can change the word, but the root *cardio* stayed the same.

There are many frequently used prefixes and suffixes and you will already know some of them. See Table 1.7 for a list of some prefixes and suffixes that are used to make up a number of medical terms.

As is the case when learning any language, it can take time to learn all the words and, indeed, the learning will be lifelong. When you are in practice, you will be able to reinforce your learning, using your new vocabulary with confidence. Take your time, seek clarification if needed and be patient with yourself.

Knowing the various anatomical terms can make it easier to understand the many pathophysiological concepts that can help you provide care that is person-centred, safe and effective.

Pathophysiology

Pathophysiology brings together a blend of pathology and physiology that considers the connection between disordered physiology and disease or illness. Pathology defines the illness itself and physiology examines how injuries or diseases can change natural biological processes. The study of pathophysiology requires the use of clinical reasoning that is then used to make a diagnosis and prescribe treatment to address the effects of disease. Learning how pathology, physiology and anatomy interconnect can ensure that care provided is appropriate, safe and effective.

There are a number of terms and definitions that are used and related to pathophysiology (see Table 1.8).

Pathophysiology, according to Singh et al. (2017), is the study of the changes of normal mechanical, physical and biochemical functions, caused by a disease or resulting from an abnormal syndrome. Medical terminology is used to express and describe the various pathophysiological concepts.

Pathophysiology is a key component of practice, enabling those who offer care and support to take on a number of important responsibilities, such as understanding and ordering diagnostic tests, care of those with acute and chronic illnesses, managing medications and managing general health and well-being as well as disease prevention for patients. Healthcare practitioners who can recognise the pathophysiological signs and symptoms of the conditions affecting those they care for are better able to provide higher-quality, safer, and more effective care. Asking questions such as 'Why is the person experiencing this?' helps you to understand what is going on in a person's body at the cellular level and how to help them.

Pathophysiology is used to understand the progression of disease so as to identify the disease and implement treatment options for patients. Information gathered is used to identify the next course of the disease so that the most suitable path of action can be provided to the patient with the appropriate care needed. The care interventions, medical procedures and medications that are administered to patients will depend very much on the

TABLE 1.7 **Some prefixes, suffixes, their meaning and examples.**

Prefix/suffix	Meaning	Example
a/an	No, not, without, lack of	Anoxia (without oxygen), anuria (without urine), asepsis (without sepsis), asymptomatic (without symptoms)
ab	Away from	Abduction (to move away from the midline), abnormal (away from normal)
ad	Towards	Adduction (to move towards the midline), adrenal (towards the kidney), addiction (drawn towards or a strong dependence on a drug or substance)
aemia	Of blood	Leukaemia (cancer of blood cells), anaemia (lack of red blood cells)
algia	Pain	Cephalgia (headache), mastalgia (breast pain), myalgia (muscle pain)
ante	Before/in front of	Antepartum (before birth), anterior (to the form of the body), (anteprandial (before meals)
arthro	Joint	Arthroscope (an instrument used to look into a joint), arthritis (joint inflammation), arthrotomy (incision of a joint)
baro	Pressure/weight	Isobaric (having equal measure if pressure), bariatrics (the field of medicine that offers treatment to people who are obese/overweight), baroreceptor (a sensor reacting to pressure changes)
brady	Slow/delayed	Bradycardia (slow heart rate), bradykinesia (slowness in movement), bradylalia (abnormally slow speech)
cyto	Cell	Leucocyte (white blood cell), erythrocyte (red cell), cytology (study and function of cells)
derm	Skin	Dermatitis (inflammation of the skin), dermatome (a surgical instrument used for cutting slices of the skin), dermatology (the study of skin)
dys	Difficulty/impaired	Dysphasia (difficulty swallowing), dyspepsia (disordered digestion), dysuria (difficulty in urination)
ectomy	To cut out	Appendectomy (removal of the appendix), mastectomy (removal of the breast), prostatectomy (removal of the prostate)
endo	Inner	Endocardium (lining of the heart), endocarditis (inflammation of the heart), endotracheal (within the trachea)
erythro	Red	Erythrocyte (red blood cell), erythropaenia (reduction in the number of red blood cells), erythema (reddening of the skin)
haem	Blood	Haematogenesis (the formation of blood), haematology (the study of blood), haemarthrosis (bleeding within the joint)
hydro	Water	Hydrophobia (abnormal dread of water), hydrocephalus (accumulation of fluid within the cranium)
hyper	Above/beyond/excessive	Hypertension (high blood pressure), hyperflexion (movement of a muscle beyond its normal limit), hyperglycaemia (high blood glucose)

(*Continued*)

TABLE 1.7 (*Continued*)

Prefix/suffix	Meaning	Example
hypo	Below/under/deficient	Hypotension (low blood pressure), hypothermia (low temperature), hypoglycaemia (low blood glucose), hypovolaemia (reduction in blood volume – also known as oligaemia)
intra	Within	Intravenous (within the veins), intrauterine (within the uterus), intraocular (within the eye), intracerebral (within the brain)
ism	Condition/disease	Hirsutism (heavy/abnormal growth of hair), hyperthyroidism (overactivity of the thyroid gland)
itis	Inflammation	Appendicitis (inflammation of the appendix), mastitis (inflammation of the breast), myocarditis (inflammation of heart muscle)
osteo	Bone	Osteoporosis, (a condition that weakens the bones), osteopenia (a generalised reduction in bone mass), osteomalacia (pertaining to soft bones)
otomy	To cut into	Tracheotomy (cutting into the trachea), craniotomy (a hole made into the skull), thoracotomy (cutting into the chest)
ostomy	To make an opening (a mouth)	Colostomy (an opening into the colon), jejunostomy (an opening into the jejunum)
micro	Small	Microscopic (so small can only be seen with a microscope), microcephaly (small brain), microsomia (small body)
macro	Large	Macroscopic (large enough to be seen with the naked eye), macrocytic (an abnormally large cell), macroglossia (an abnormally large tongue)
mega/megaly	Enlarged	Cardiomegaly (enlarged heart), splenomegaly (enlarged spleen), hepatomegaly (enlarged heart)
myo	Muscle	Myocardium (heart muscle), myocyte (muscle cell), myometrium (uterine muscle)
neo	New	Neonate (new born), neoplasm (new growth [tumour]),
nephro	Kidney	Nephritis (inflammation of the kidneys), nephrostomy (an incision made into the kidney)
neuro	Nerve	Neuroma (a tumour growing from a nerve), neuralgia (pain felt along the length of a nerve), neuritis (inflammation of a nerve)
ology	Study of	Dermatology (study of the skin), neurology (study of the nervous system, cardiology (study of the heart)
oligo/olig	Few/Little	Oligohydramnios (deficiency in the volume of amniotic fluid around the fetus in utero), oliguria (deficiency in volume of urine)
oma	Tumour (swelling)	Melanoma (a cancer of melanocytes), carcinoma (a type of cancer), retinoblastoma (tumour of the eye)
ophth	Eye	Ophthalmology (study of the eye), ophthalmoscope (an instrument used to examine the inside of the eye), ophthalmotomy (an incision made into the eye)

TABLE 1.7 (*Continued*)

Prefix/suffix	Meaning	Example
osteo	Bone	Osteomyelitis (bone infection), osteosarcoma (bone cancer), osteoarthritis (inflammation of the joints)
oto	Ear	Otology (the study of the ear), otosclerosis (abnormal bone growth inside the ear)
patho	Disease	Neuropathy (disease of the nervous system), nephropathy (disease of the kidney), retinopathy (disease of the retina)
para	Beside/alongside	Parathyroid (adjacent to the thyroid), paraumbilical (alongside the umbilicus)
penia	Deficiency	Leucopoenia (deficiency of white cells), thrombocytopenia (deficiency of thrombocytes),
peri	Around	Pericardium, (the serous membrane around the heart) periosteum, (a covering enveloping the bones), peritoneum (the serous membrane lining the walls of the abdominal and pelvic cavities)
plasm	Substance	Plasma (liquid part of blood and lymphatic fluid), cytoplasm (substance of a cell lying outside of the nucleus)
plasty	Repair	Arthroplasty (surgical repair or replacement of a joint), myoplasty (surgical repair of a muscle)
pneumo	Breathing/air	Pneumonia (a type of chest infection), pneumothorax (a collapsed lung), pneumograph (a device used for recording respiratory movement)
poly	Many/much	Polycystic (many cysts), polyuria (much urine), polyarthritis (arthritis affecting more than four joints)
rhino	Nose	Rhinitis (inflammation of the mucous membrane of the nose), rhinoplasty (surgical repair of the nose)
rrhoea	Discharge	Diarrhoea (frequently discharged faeces), rhinorrhoea (excessive discharge of mucus from the nose), galactorrhoea (excessive production of breast milk)
sclero	Toughen/hard	Sclera (hard/tough layer of the eyeballs), scleroderma (hardening and contraction of the skin and connective tissue), sclerosis (abnormal hardening of body tissue)
sub	Under	Sublingual (underneath the tongue), subarachnoid (underneath the arachnoid [layer of the brain]), submucosa (tissue below mucus membrane)
tachy	Fast/rapid	Tachycardia (fast heart rate), tachypnoea (fast respiratory rate),
toxo	Poison	Cytotoxic (having a destructive action on cells), toxaemia (blood poisoning resulting from the presence of toxins), ototoxic (being toxic to the ear)
uria	Urine	Haematuria (presence of blood in the urine), nocturia (passing urine at night), pyuria (pus in the urine)
vaso	Vessel	Vaso constriction (narrowing of the vessel), vaso dilation (widening of the vessel), vaso spasm (sudden contraction of a vessel)

TABLE 1.8 Terms and definitions related to pathophysiology.

Term	Definition
Pathology	Study of structural alterations in cells, tissues and organs that help to identify the cause of disease
Pathogenesis	Pattern of tissue changes that are associated with the development of disease
Aetiology	Study of the cause(s) of disease and/or injury
Idiopathic	These are diseases with no identifiable cause
Iatrogenic	Diseases and/or injury that occur as a result of medical (or care) intervention
Clinical manifestations	Also known as signs and symptoms
Nosocomial	Diseases that are acquired as a consequence of being in a hospital environment
Diagnosis	The naming or identification of a disease
Prognosis	Expected outcome of a disease
Acute disease	Sudden appearance of signs and symptoms that last a short time
Chronic disease	Develops more slowly, lasting a long time or a lifetime
Remissions	Periods when clinical manifestations disappear or diminish significantly
Exacerbations	Periods when clinical manifestations become worse or more severe
Sequelae	Any abnormal conditions that follow on and are the result of a disease, treatment or injury

nature of the disease. The main objectives when understanding pathophysiology are to assist you to:

- Use critical thinking to understand the pathophysiological principles for care provision.
- Analyse and explain the effects of disease processes at a systemic and cellular level.
- Discuss the many variables that may be at play affecting the healing of the organ and tissue systems.
- Analyse the environmental risks of the progression and development of particular diseases.
- Explain how compensatory mechanisms can be used to make a response to physiological alterations.
- Compare and contrast the effects of culture, ethics and genetics and how these can have an impact on disease progression, treatment, health promotion as well as disease prevention.
- Evaluate and review diagnostic tests and determine if the evaluation and review have any relationship to signs and symptoms that the patient is experiencing.

The determinants of health

While it is important to understand the pathophysiological changes that patients may be experiencing, the socio-economic and cultural factors that can impact on care outcomes must also be given consideration. These 'non-medical' factors are as important as to whether the most appropriate test or diagnostic tool is being used or treatment prescribed. It is important to understand the molecular and genetic determinants of disease; however, the non-biological factors have the potential to influence interactions with patients and their families.

There are many factors that come together to impact the health of individuals and communities. Regardless of whether people are healthy or not, health is determined by a person's circumstances and environment. To a large extent, factors such as where we live, the state of our environment, genetics, our income and education level and our relationships with friends and family all have significant impacts on health, however the more commonly considered factors, for example, access and use of healthcare services may have less of an impact. The social

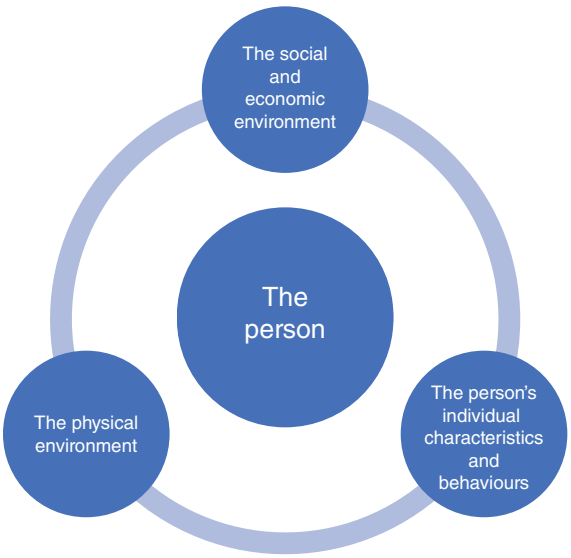


FIGURE 1.5 The determinants of health.
Source: Adapted from World Health Organization (2023a).

determinants of health are outlined in Figure 1.5. The determinants of health include political, social, economic, environmental and cultural factors which shape the conditions in which we are born, grow, live, work and age. Creating a healthy population requires greater action on these factors, not simply on treating ill health.

Using a nursing/medical dictionary, hints and tips

Learning to use a nursing/medical dictionary and other resources (be these electronic or hard copy) to help find the definition of a term is an important aspect of understanding the correct use of the numerous nursing and medical terms. When starting to work with an unfamiliar resource (print or otherwise), spend some time reviewing its user guide. The time spent at this stage can help later when you are looking up unfamiliar terms.

Accuracy in spelling health-related terms is extremely important; changing just one or two letters has the potential to completely change the meaning of a word and the consequences of this can be grave. Some frequently used terms and word parts are confusing because they look and sound alike; however, their meanings are very different (see Table 1.9). Beware, you may encounter alternative spellings used in the United Kingdom, Australia, Canada and the United States.

If you know how to spell the word

- With the first letter of the word, start in the appropriate section of the dictionary. Look at the top of the page for clues (there may be catch words there). The

TABLE 1.9 **Confusing terminology.**

Term/word	Means	Comments
arteri/o	Artery	Endarterial means pertaining to the interior or lining of an artery (end- means within, arteri means artery, and -al means pertaining to).
ather/o	Plaque or fatty substance	An atheroma is a fatty deposit within the wall of an artery (ather means fatty substance, and -oma means tumour).
arthr/o	Joint	Arthralgia means pain in a joint or joints (arthr means joint, and -algia means pain).
-ectomy	Surgical removal	A mastectomy is a surgical procedure in which all or part of a breast is removed, (mastos is from the Greek and means breast and -ectomy means surgical removal)
-oscopy	Visualisation with the use of a scope	Hysteroscopy is the examination of the inside of the uterus using a hysteroscope (hyster means uterus and -oscopy is the visualisation with the use of a scope)
-otomy	Cutting or a surgical incision	Myringotomy is the surgical procedure where an incision is made in the eardrum (tympanic membrane) (myring is from the Greek and means ear drum and -otomy means a surgical incision).

Source: Stansfield *et al.* (2017) / Jones & Bartlett Publishers.

top left word is the first term on the page and the top right word is the last term on that page.
- Now, search alphabetically for words that begin with the first and second letters of the word you are searching for. Continue looking through each letter until you have found the term that you are looking for.
- When you think you have found it, be sure to check the spelling, letter by letter, working from left to right. Terms with similar spellings have very different meanings (for example, endometriosis and endometritis).
- When the term has been located, carefully check all of the definitions.

If you do not know how to spell the word

Listen carefully to the term and then write it down. If you cannot find the word on the basis of your spelling, begin to look for alternative spellings based on the beginning sound, for example, F can sound like F but, the word may begin with Ph (such as pharynx, phlegm), K can sound like K but, the word may begin with Ch (cholera for example) or C (crepitus). Psychologist begins with P, but it sounds like it should begin with an S.

Look under categories

Nursing and medical dictionaries may use categories such as diseases and syndromes so as to group disorders with these terms in their titles:

- Venereal disease would be found under Disease, venereal.
- Fetal alcohol syndrome would be found under Syndrome, fetal alcohol.

Multiple-word terms

When searching for a term that includes more than one word, begin the search with the last term. If you do not find it there, then move forward to the next word. Congestive heart failure, for example, is sometimes listed under heart failure, congestive.

Searching for definitions on the internet and handheld devices

Internet search engines are helpful resources in locating definitions and details about healthcare conditions and terms. It is important however that you use a site, such as the National Institute for Health and Care Excellence (NICE) or Scottish Intercollegiate Guidelines Network (SIGN); these are known to be reputable information sources.

Beware of suggested search terms. If you do not spell a term correctly, a website might take a guess at what it is that you are searching for. Be sure to double-check that the term you are defining is the term intended.

Common abbreviations

In clinical practice, you will come across many abbreviations. It is important to recognise that you should not make up your own as these could be misunderstood and could affect the care pathway and decision-making process.

Abbreviations and acronyms

The use of abbreviations and acronyms in healthcare practice is not new. Abbreviations were primarily used in the writing of prescriptions; they have become very common in all aspects of care and medical documentation. There is no universal rule regarding which abbreviations and acronyms can be used and which ones cannot. The use of unnecessary abbreviations and acronyms has the real potential to result in confusion; abbreviations and acronyms may pose a danger to the patient.

The Nursing and Midwifery Council (2018) Code of Conduct requires all nurses to maintain clear and accurate records relevant to their practice. Similarly, the Health and Care Professions Council (2024) also mandates that registrants maintain clear and accurate records. All healthcare professionals must ensure that any entries made in any paper or electronic record are clearly written and do not include unnecessary abbreviations, jargon or speculation. Some of the more common abbreviations seen in healthcare practice can be found in Table 1.10.

Abbreviations that are well understood in a local setting can be misinterpreted when records are made available between agencies or through national systems. At all times, local policy and procedure must be adhered to with regard to the use of appropriate abbreviations and acronyms.

TABLE 1.10 **Common abbreviations used in healthcare.**

Abbreviation	Meaning
ABG	Arterial blood gas
AF	Atrial fibrillation
ALD	Alcoholic liver disease
bd	Twice daily
BO	Bowels open
BP	Blood pressure
BPM	Beats per minute
BMI	Body mass index
CNS	Central nervous system
COPD	Chronic obstructive pulmonary disease
DNA	Did not attend
DNR	Do not resuscitate
ECG	Electrocardiogram
EEG	Electroencephalogram
ENT	Ear, nose and throat
EOL	End-of-life care
GCS	Glasgow coma scale
Hb	Haemoglobin
HVS	High vaginal swab
Hx	History
IM	Intramuscular
IV	Intravenous
LFT	Liver function test
LMP	Last menstrual period
od	Once daily
NGT	Nasogastric tube
NSAID	Non-steroidal anti-inflammatory drug

(*Continued*)

TABLE 1.10 (*Continued*)

Abbreviation	Meaning
PR	Per rectum
PRN	As needed
PU	Pass urine
PV	Per vagina
qds	Four times daily
SBAR	Situation/Background/Assessment/Recommendation
SC	Subcutaneous
tds	Three times daily
TTO/TTA	To take out/To take away
US(S)	Ultrasound (scan)
UTI	Urinary tract infection
VE	Vaginal examination
VTE	Venous thromboembolism/Venous thrombosis

Summary points

- Use the appropriate anatomical terminology to identify key body structures, body regions and directions in the body.
- A standard reference position for mapping the body's structures is the normal anatomical position.
- The terminology used in anatomy and physiology can be bewildering; however, the purpose of this language is not to confuse but rather to increase precision and reduce errors.
- Anatomical terms are very often derived from ancient Greek and Latin words.
- Anatomical terms are made up of roots, prefixes and suffixes.
- It is critical to understand the pathophysiological changes that a patient may be experiencing. The socioeconomic and cultural factors that can impact on care outcomes, the determinants of health, must also be given consideration when offering people care and support.
- Learning how to use a nursing dictionary and other resources to find the definition of a term is an important aspect of understanding the correct use of the numerous terms. The time that is spent at this stage can help later when looking up any unfamiliar terms.
- Appropriate abbreviations and acronyms should only be used when necessary, and local policy and procedure must be adhered to.

Medications management

Look-alike, sound-alike (LASA) medicines

Medication errors are a significant contributor to patient harm worldwide, with look-alike, sound-alike (LASA) medicines being a well-recognised risk factor. These errors arise due to orthographic (visual) and phonetic (auditory) similarities between medications, increasing the likelihood of confusion among healthcare professionals. Look-alike medications resemble each other in terms of packaging, shape, colour and/or size, while sound-alike medicines have similar-sounding

names, doses or strengths, making them particularly susceptible to dispensing and administration errors.

To mitigate the risks associated with LASA medicines, the use of Tall Man Lettering has been widely adopted as a standard safety strategy. Tall Man Lettering involves the selective capitalisation of specific parts of drug names to highlight the differences between similar-looking or similar-sounding names, helping to reduce errors.

The use of Tall Man Lettering has the potential to enhance drug name recognition, particularly in high-risk settings such as hospitals and pharmacies, where medication errors can have severe consequences. Regulatory bodies, including the Institute for Safe Medication Practices and the World Health Organization (2023b), advocate for the use of Tall Man Lettering as part of broader medication safety initiatives. However, its effectiveness depends on standardisation, staff training and integration into electronic prescribing, labelling and dispensing systems.

Despite its benefits, Tall Man Lettering should be used in conjunction with other safety measures, such as barcoding, automated alerts in electronic prescribing systems and double-checking procedures by healthcare professionals. By combining these strategies, the risk of LASA medication errors can be significantly reduced, ultimately improving patient safety and care quality. Below are some commonly recognised examples of Tall Man Lettering:

- **DOPamine** vs. **DOBUTamine**: Used to differentiate two cardiovascular medications with distinct pharmacological effects.
- **hydroXYZINE** vs. **hydralAZINE**: One is an antihistamine, while the other is an antihypertensive, and confusion can lead to serious adverse effects.
- **predniSONE** vs. **prednisoLONE**: Both are corticosteroids, but they have different potencies and indications.
- **morphINE** vs. **hydromorphONE**: Strong opioids with different potencies; misadministration can result in overdose.
- **buPROPion** vs. **busPIRone**: One is an antidepressant, while the other is an anxiolytic, highlighting the importance of differentiation.
- **cloNIDine** vs. **cloZAPine**: One is an antihypertensive, while the other is an antipsychotic; errors can lead to severe cardiovascular or neurological effects.
- **vinBLAStine** vs. **vinCRIStine:** Chemotherapy drugs where incorrect administration can result in fatal toxicity.
- **ceFAZolin** vs. **cefTRIAXone**: Both are cephalosporin antibiotics, but they have different spectrums of activity.
- Be extra vigilant when dispensing medicines with commonly confused drug names to ensure that the intended medicine is supplied.
- If there are any doubts about which medicine is intended, contact the prescriber prior to administering the drug.
- Adhere to local and professional guidance in relation to checking that the right medicine has been administered to the patient.

Conclusion

The terminology used in healthcare practice may appear very intimidating and complicated; a number of terms used in healthcare and medicine are derived from Latin and Greek terminologies. In order to understand the terminology used, it is essential when learning to break it down into parts; when this is done, you can see how it all fits together – like the carriages of a train. In translating terms, it is important to understand the word root; the word root (the foundation of the term) can have a prefix and suffix attached to it.

So as to communicate safely with other healthcare professionals, it is imperative that there is a consistency in the language being used so as to reduce any risk of confusion. Learning the language requires practice.

It is vital to understand the pathophysiological changes that a patient may be experiencing to provide the most appropriate care intervention. It is equally important to have an understanding of the impact of socioeconomic and cultural factors that can impact on care outcomes, the 'non-medical' factors.

Activities

The answers to the multiple-choice questions appear at the end of the book. Further, self-test activities can be found at www.wiley.com/go/fundamentalsofanatomyphysio4e.

Glossary

Anterior	Towards the front of the body.
Anatomical Position	Standard body position: standing upright, facing forward, arms at the sides with palms facing forward.
Bilateral	Present on both sides of the body.
Caudal	Towards the lower part of the body or tail.
Distal	Further away from the point of attachment or the centre of the body.
Dorsal	Related to the back of the body or an organ.
Diaphragm	The muscle that separates the thoracic and abdominal cavities and aids in breathing.
Extension	Movement that increases the angle between two body parts.
Flexion	Bending a joint to decrease the angle between two body parts.
Frontal Plane	Divides the body into anterior (front) and posterior (back) sections.
Hyper-	Prefix meaning excessive or above normal (e.g. hypertension = high blood pressure).
Hypo-	Prefix meaning below normal (e.g. hypoglycaemia = low blood glucose).
Inferior	Below or towards the lower part of the body.
Joint	A point where two or more bones meet, allowing movement.
Lateral	Away from the midline of the body.
Lumbar	The lower back region between the thoracic spine and sacrum.
Medial	Closer to the midline of the body.
Mid-sagittal Plane	A vertical plane dividing the body into equal left and right halves.
Posterior	Towards the back of the body.
Proximal	Closer to the point of attachment or centre of the body
Sagittal Plane	A vertical plane dividing the body into left and right parts.
Superficial	Near the surface of the body.
Supine	Lying on the back, face up.
Ventral	Related to the front side of the body.

References

Health and Care Professions Council (2024) "Standards of Conduct, Performance and Ethics" Standards of conduct, performance and ethics | The HCPC . www.hcpc-uk.org/standards/standards-of-conduct-performance-and-ethics/ (accessed January 2026).

McGuiness, H. (2018) *Anatomy and Physiology*, 5th edn. Hodder Education London.

Nursing and Midwifery Council (2018) The Code. Professional Standards of Practice and Behaviour for Nurses, Midwives and Nursing Associate. www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-code.pdf (accessed March 2025).

Peate, I. (2021) *Fundamentals of Applied Pathophysiology: An Essential Guide for Nursing and Healthcare Students*, 4th edn. Oxford: John Wiley & Sons, Ltd.

Singh, I., Weston, A., Kundur, A., and Dobie, G. (2017) *Haematology Case Studies with Blood Cell Morphology and Pathophysiology*. Academic Press Elsevier London.

Stansfield, P., Hui, Y.H., and Cross, N. (2017) *Essential Medical Terminology*, 4th edn. Jones and Bartlett Chicago.

World Health Organization (2023a) Implementation of Health Impact Assessment and Health in Environmental Assessment Across the WHO European Region. HIA implementation and health in environmental assessment . www.who.int/europe/publications/i/item/WHO-EURO-2023-7370-47136-68982 (accessed January 20026).

World Health Organization (2023b) Medication Safety for Look-alike, Sound-alike Medicines. www.who.int/publications/i/item/9789240058897 (accessed January 2026).

Further resources

Health Information and Quality Authority www.hiqa.ie.

Lysanets, Y.V. and Bieliaieva, O.M. (2018) The use of latin terminology in medical case reports: quantitative, structural, and thematic analysis. *Journal of Medical Case Reports* **12**: 45. doi: 10.1186/s13256-018-1562-x.

National Health Services (2022) Abbreviations You May Find in Your Health Records. https://www.nhs.uk/using-the-nhs/nhs-services/the-nhs-app/abbreviations/ (accessed October 2022).

National Institute for Health and Care Excellence (NICE) www.nice.org.uk.

Activities

Multiple-choice questions

1. Bradycardia refers to:
   - A. Fast heart rate
   - B. Enlarged heart
   - C. Slow heart rate
   - D. Inflammation of the heart muscle

2. Abduct:
   - A. Is the same as adduct
   - B. Means to pull away from the body
   - C. Relates to the torso only
   - D. Is to pull towards the body

3. The term haematuria means
   - A. A blood disease
   - B. Presence of blood in the urine
   - C. Pus in the urine
   - D. Depletion of red blood cells

4. What are determinants of health?
   - A. They are the measures that are used by physiotherapists to determine prognosis
   - B. Determinants of health are only applicable in low-income countries
   - C. The determinants of health include the social and economic environment, the physical environment and the person's individual characteristics and behaviours
   - D. All of the above

5. The sagittal plane:
   - A. Divides the body top and bottom
   - B. Divides the abdomen only left and right
   - C. Divides the contents of thoracic cavity top and bottom only
   - D. Divides the body or an organ vertically into the left and right sides

6. The word 'corona' is Latin for:
   - A. Halo
   - B. Neck
   - C. Heart
   - D. Crown

7. The prefix is added to:
   - A. The end of the second letter of a sentence
   - B. The beginning of a word
   - C. The end of a word
   - D. Words beginning with a vowel only

8. Pathophysiology is:
   - A. Another term for renal failure
   - B. A mental health disorder
   - C. The study of functional changes in the body occurring in response to disease or injury
   - D. The term used to describe end-of-life care

9. The term cubital relates to:
   - A. The foot
   - B. The head
   - C. The abdomen
   - D. The elbow

10. Chronic disease is said to:
    - A. Develop more slowly and last for a long time
    - B. Is incurable
    - C. Appears suddenly and lasts a short time
    - D. Is only associated with the older person

11. The term hepatomegaly refers to:
    - A. An enlarged brain
    - B. An enlarged spleen
    - C. An enlarged kidney
    - D. An enlarged liver

12. An arthroplasty is:
    A. Surgical repair of an artery
    B. Surgical repair or replacement of a joint
    C. Another term for a coronary artery bypass
    D. Surgical intervention used to relieve arterial obstruction
13. The process of blood cell formation occurs in which part of the body?
    A. Liver
    B. Spleen
    C. Bone marrow
    D. Lymph nodes
14. What does the term ‘anterior’ refer to in anatomical positioning?
    A. Towards the back of the body
    B. Towards the front of the body
    C. Towards the side of the body
    D. Towards the head
15. Which of the following terms refers to a structure that is closer to the midline of the body?
    A. Lateral
    B. Medial
    C. Distal
    D. Superficial

True or false

1. The term ‘posterior’ refers to the front of the body.
2. The term ‘superior’ means closer to the head.
3. The prefix ‘brady-’ means fast.
4. The suffix ‘-ectomy’ means surgical removal of a structure.
5. The opposite of ‘proximal’ is ‘distal’.
6. The term ‘supine’ describes a body lying face down.
7. ‘Hyper-’ is a prefix that means above or excessive.
8. The suffix ‘-logy’ refers to the study of something.
9. The prefix ‘hypo-’ means below or deficient.
10. ‘Flexion’ refers to an increase in the angle of a joint.

Find out more

1. Define ‘medial’ and give an example of a medial structure in the body.
2. Explain the difference between ‘prone’ and ‘supine’ body positions.
3. What does the prefix ‘hypo-’ mean? Give an example of a medical term that includes it.
4. What does the suffix ‘-itis’ indicate in medical terminology?
5. Describe the meaning of ‘contralateral’ and provide an example.
6. What is the difference between ‘deep’ and ‘superficial’ structures?
7. What does the suffix ‘-ectomy’ refer to in surgical procedures?
8. What is the difference between ‘afferent’ and ‘efferent’ nerves?
9. What is the role of the diaphragm in respiration?
10. Describe the term ‘atrophy’ and give an example of when it might occur in the body.