

Terminology in Physiotherapy

Important! Please note that this is not the best way to experience this e-Book, and is simply an offline PDF. For the full, interactive e-Book, please visit <https://tinyurl.com/terminologyinphysio>

Welcome to Physiotherapy

Your browser does not support the video tag.

Welcome to the profession of Physiotherapy(PT). This site will provide a platform for students to learn the language of PT and communicate appropriately, effectively, using the correct and precise terminology. This site forms a guide that students can use to communicate using the correct terminology in their under-graduate training assessments and exams. The interactive nature of the site provides opportunity for students to practice, correct and perfect the correct use of the terminology in Physiotherapy language discourse.

This site contains the following:

- Simple, descriptions of the PT terminology
- Images, photos, graphics, and other visuals can help further
- Illustrate the core points.
- Quizzes, audio recordings, activities
- Links: Link to other tools or resources that can help the reader.
- This site is Peer Reviewed by lecturers in each specialty

The aim of this online textbook is to introduce non-English first Language speakers and New Physiotherapy students to the language of Physiotherapy.

The best way to interact with this eBook is:

- Read each term and its description in the specific chapter
- Attempt the Activities, Quizzes, Audio Challenges and Confidence Builders on the right-side panel of the page by clicking on the titles
- Read each term and its description in depth again and complete the Activities, Quizzes, Confidence builders and Audio Challenges
- Engage with the course notes with greater ease once a chapter is complete

Table of Contents

- Chapter 1: Introduction to Physiotherapy and Anatomy Terms
 - Chapter 2: Joint Movement
 - Chapter 3: Posture and Movement Analysis
 - Chapter 4: Development Across the Lifespan
 - Chapter 5: Exercise and Physical Activity
- Chapter 6: Terms used in Assessments Explained
 - FAQ



Created by Gian Wilson Lay
from Noun Project



What is a Physiotherapist?

"Physiotherapists (PT) assess, plan and implement rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments" - WHO

[Learn More](#)

About Nomusa Ntinga

Ms Nomusa Ntinga, a lecturer in the physiotherapy division at UCT. Miss Ntinga is an academic with clinical experience in Paediatric physiotherapy. She has used her experience to inform policy using current evidence-based practices in her profession. She has 12 years clinical experience and 1 year academic experience.

She is efficient in areas of academic involvement which is evident in her ability to articulate her professional scope to health specialists in the

Disclaimer

This site is not meant to replace lectures but is an additional tool to facilitate teaching and learning of the language discourse used in the under-graduate Physiotherapy curriculum. University of Cape Town reserves the copy writes of this site.

field and to the care of her patients. She can hold her own in the formative assessments of students and has imparted her professionalism and shown herself be a knowledgeable lecturer. Her passion for her role in education is expressing itself in research collaboration projects in evidence based in teaching and learning in physiotherapy

“Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments” - WHO

License



by is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

Permissions beyond the scope of this license may be available at <http://www.healthedu.uct.ac.za/Contact-Us-Edu>.

Design: TEMPLATED Images: Unsplash (CC0)



Terminology in Physiotherapy

Chapter One - Human Movement

Your browser does not support the video tag.

What is Physiotherapy

Physiotherapists study the science of movement. They learn how to pinpoint an injury's root causes.

Physiotherapy is treatment to restore, maintain, and make the most of a patient's mobility, function, and well-being.

Physiotherapy helps through physical rehabilitation, injury prevention, and health and fitness.

Physiotherapists

Physiotherapists focus on both prevention and rehabilitation. Treatment can be for problems caused by injury, disease or disability. Here are some examples:

- **Musculoskeletal Rehabilitation:** Neck and back pain caused by problems in the muscles and skeleton.
- **Sports Rehabilitation:** Sports Injuries Problems in the bones, joints, muscles and ligaments, such as arthritis and the after-effects of amputation.
- **Cardiopulmonary Rehabilitation:** Lung problems such as asthma.
- **Disability as a result of heart problems.**
- **Women's Health:** Pelvic issues, such as bladder and bowel problems related to childbirth.
- **Neurological Rehabilitation:** Loss of mobility because of trauma to the brain or spine, or due to diseases such as Parkinson's disease and multiple sclerosis.
- **Fatigue, pain, swelling, stiffness and loss of muscle strength,** for example during cancer treatment, or palliative care.
- **Paediatric Rehabilitation:** Treat children with Cerebral Palsy, with growth deficiencies.

Topics

[What is Physiotherapy](#)

[Physiotherapists](#)

[International Classification of Functioning, Disability and Health \(ICF\)](#)

[Terms used in ICF](#)

[ICF Terms](#)

[The Point of ICF is problem solvers/clinical reasoners](#)

[Unilateral vs Bilateral](#)

[CanMeds roles in Physiotherapy](#)

[Medical Terms](#)

[Anatomical position](#)

[Midline](#)

[Appendicular vs Axial Skeleton](#)

[Major bones of the Axial Skeleton](#)

[Major Bones of the Appendicular Skeleton](#)

[Bony Landmarks](#)

[Anterior Bony Landmarks](#)

[Posterior Bony Landmarks](#)

[Lateral Bony Landmarks](#)

[Synovial Joints](#)

[Uniaxial Joints](#)

[Biaxial Joints](#)

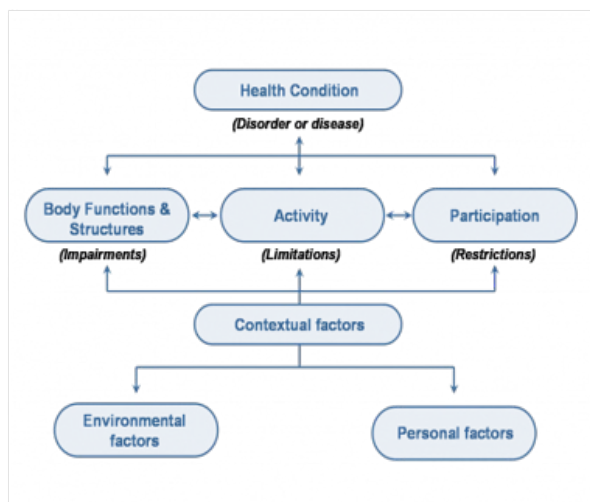
[Multi-axial joints](#)

[Major Joints](#)

International Classification of Functioning, Disability and Health (ICF)

The International Classification of Functioning, Disability and Health, known more commonly as ICF, is a classification of health and health-related domains. As the functioning and disability of an individual occurs in a context, ICF also includes a list of environmental factors.

ICF is the WHO framework for measuring health and disability at both individual and population levels.



The ICF provides a common language for disability.

Terms used in ICF

- **Functioning** is an umbrella term for body functions, body structures, activities and participation.
- It denotes the positive aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).
- **Disability** is an umbrella term for impairments, activity limitations and participation restrictions.
- It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).
- **Body functions** - The physiological functions of body systems (including psychological functions).
- **Body structures** - Anatomical parts of the body such as organs, limbs and their components.
- **Impairments** - Problems in body function and structure such as significant deviation or loss.
- **Activity** - The execution of a task or action by an individual. E.g., walking, completing an assignment, running, swimming
- **Activity level** - is the starting position/s in which the activity is performed
- **Participation** - Involvement in a life situation.
- **Activity limitations** - Difficulties an individual may have in executing activities.
- **Participation restrictions** - Problems an individual may experience in involvement in life situations.
- **Environmental factors** - The physical, social and attitudinal environment in which people live and conduct their lives. These are either barriers to or facilitators of the person's functioning.

ICF Terms

Contextual factors:

- A range of factors that can influence health, safety, wellbeing and participation in physical activity. These factors include personal, social, cultural, economic and political factors that exist in differing ways and have varying impacts across population groups.

Anterior vs

Posterior

Superior vs Inferior

Lateral vs Medial

Proximal vs Distal

Superficial vs Deep

Unilateral vs

Bilateral

Major Muscle groups

Atrophy and Hypertrophy

Swelling

Scenarios

QUIZ 1

Practice the PT terms learnt by replacing the words highlighted in red with correct terms and fill in the missing words in the following activity.

Your browser does not support the video tag.

AUDIO CHALLENGE 1

Your browser does not support the audio tag.



Your browser does not support the video tag.

QUIZ 2

This quiz will assess the knowledge of the terms covered this chapter.

Your browser does not support the video tag.

Personal and environmental factors.

Missing components:

- If a part of something is missing, it has been removed or has come off, and has not been replaced.
- It is the deviation from the typical/normal way the activity would be performed as result of disease or pain.

The Point of ICF is problem solvers/clinical reasoners

Problem List

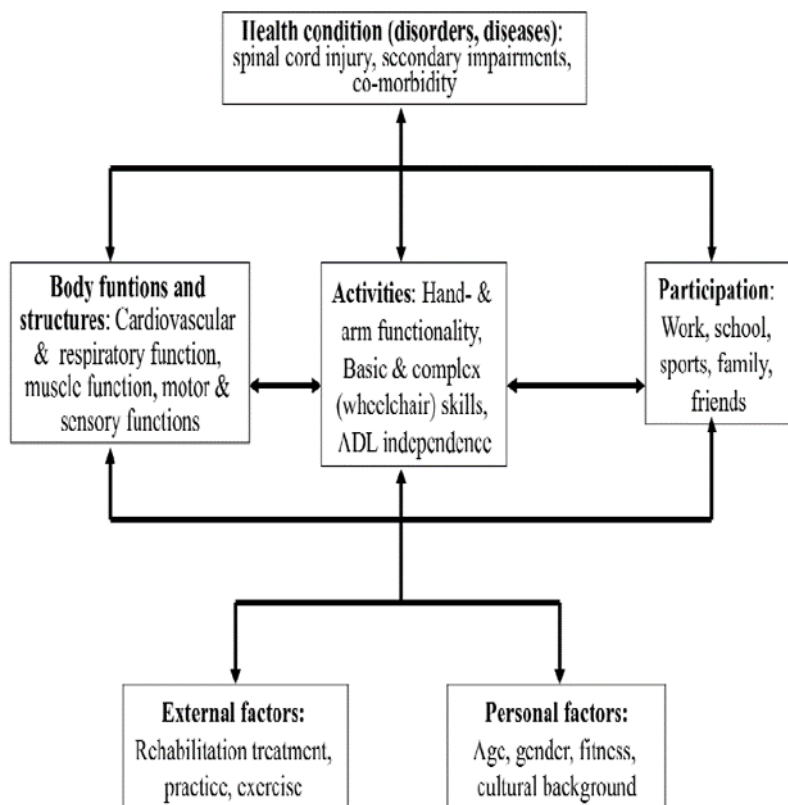
Once the analysis has been done, the most important FUNCTIONAL problems should be identified and documented.

Prioritise the most important problems and analyse completely, using the following table.

Functional Problems	Missing Components	Underlying reasons	Intervention indicator
Usually activity or participation (but could be pain or respiratory function)	Is necessary for movement analysis, deviations from typical movement components	Usually impairments of body function	Either for impairments (e.g. pain VAS) or activities (e.g. AIMS)

ICF Example

Health status in Spinal Cord Injury



CanMeds roles in Physiotherapy

The Canadian Medical Education Directions (CanMEDS) Physician Competency framework (Frank, Snell & Sherbino, 2015). Competency is defined in CanMEDS as "an observable ability of a

CONFIDENCE BUILDER 1

Please give an example of each component of the ICF in the list below.

Your browser does not support the audio tag.

1. Body structure and functions
2. Impairment
3. Activity
4. Participation
5. Environmental factors
6. Personal factors

Your browser does not support the video tag.

QUIZ 3

Click here to practice the PT terms learnt by replacing the words highlighted in red with PT terms in this activity.

Your browser does not support the video tag.

QUIZ 4

Practice the PT terms learnt by replacing the words highlighted in red with PT terms in the following activity.

Your browser does not support the video tag.

AUDIO CHALLENGE 2

Your browser does not support the audio tag.



Terminology in Physiotherapy

health professional that develops through stages of expertise from novice to master clinician” (Frank, Snell & Sherbino, 2014, p.7). The Competence Framework structure is:

- i. Role
- ii. Definition of role
- iii. Key competencies
- iv. Enabling competencies

The Competence Framework principally reflects the roles undertaken by physiotherapists interacting with clients. Physiotherapists may also work entirely in non-client contact roles, such as management/ administration, policy and planning, teaching and research.

The CanMEDS seven roles are Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar and Professional. The Medical Expert role has been changed to Physiotherapy Practitioner in the Physiotherapy Competence Framework.

Medical Terms

Morbidity: Refers to having a disease or a symptom of disease, or to the amount of disease within a population. Morbidity also refers to medical problems caused by a treatment.

Mortality: Mortality rate, or death rate, is a measure of the number of deaths in a particular population, scaled to the size of that population, per unit of time.

Musculoskeletal: Musculoskeletal Medicine (MSK medicine) is the diagnosis and treatment of problems arising from the musculoskeletal system. This includes injuries and diseases affecting the muscles, bones and joints of the limbs and spine.

Therapy: Defined as the prescription of and assistance with specific physical, cognitive, social, and spiritual activities to increase the range, frequency, or duration of an individual's (or group's) activity.

Precautions:

- A measure taken in advance to prevent something dangerous, unpleasant, or inconvenient from happening.
- A precaution is a measure taken in advance to prevent something dangerous or unpleasant from happening when a drug is administered, or a warning about something dangerous or unpleasant that could happen.

Contra-indications:

- A contraindication is a specific situation in which a drug, procedure, or surgery should not be used because it may be harmful to the person. There are two types of contraindications:
 - Relative contraindication means that caution should be used when two drugs or procedures are used together.

Body Structures

Anatomical position

Defined as a position used as a reference when describing parts of the body in relation to each other.

Your browser does not support the video tag.

QUIZ 5

Fill in the missing words.

Your browser does not support the video tag.

CONFIDENCE BUILDER 2

Your browser does not support the audio tag.

Translate the above description into your mother tongue.

Your browser does not support the video tag.

QUIZ 6

Practice the PT terms learnt by replacing the words highlighted in red with PT terms in the following scenarios.

Your browser does not support the video tag.

AUDIO CHALLENGE 3

Your browser does not support the audio tag.

Position with the body erect with the arms at the sides and the palms and feet forward.

Anatomical terms such as anterior and posterior, medial and lateral, abduction and adduction, and so on apply to the body when it is in the anatomical position



Your browser does not support the video tag.

QUIZ 7

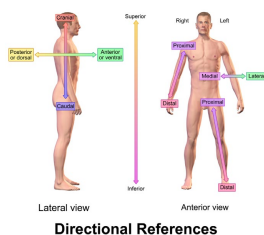
Please answer True or False and motivate your answer.

Your browser does not support the video tag.

Anterior vs Posterior

Anterior: the front surface/direction of the body

Posterior: the back surface/direction of the body



CONFIDENCE BUILDER 3

Your browser does not support the audio tag.

Demonstrate and speak out loud to a family member/friend.

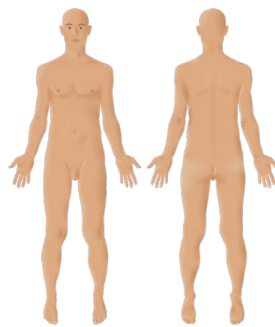
Your browser does not support the video tag.

Superior vs Inferior

Superior: meaning 'above' is used to refer to what is above something

Inferior: (from Latin, meaning 'below') to what is below it.

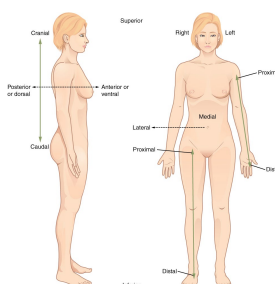
For example, in the anatomical position the most superior part of the human body is the head, and the most inferior is the feet.



Lateral vs Medial

Lateral is the side of the body or part of the body that is away/furthest from the middle.

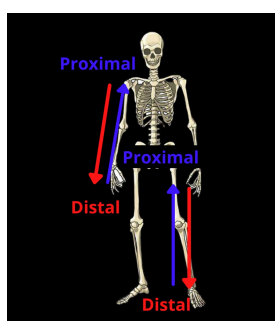
Medial side of a part of the body is the inside part or side nearest to the centre of the body.



Proximal vs Distal

Proximal: Closer to the trunk or closer to the point of origin. The shoulder is proximal to the elbow.

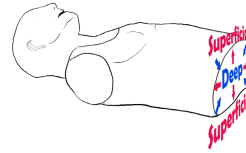
Distal: Farther from the trunk or from the point of origin. The elbow is distal to the shoulder.



Superficial vs Deep

Superficial: Closer to the surface. For instance, the skin is superficial to the muscles.

Intermediate: In between. The abdominal muscles are



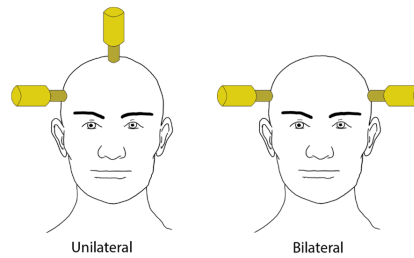
intermediate between the skin and the small intestines.

Deep: Farther from the surface. The abdominal muscles are deep to the skin.

Unilateral vs Bilateral

Unilateral: On only one side of the body, like the stomach and liver.

Bilateral: On both the left and right sides of the body, such as the eyes, the kidneys, and the arms and legs

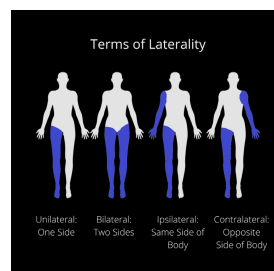


Ipsilateral vs Contralateral

Ipsilateral: On the same side of the body. For example, the right ear and the right eye are ipsilateral.

Contralateral: On opposite sides of the body. The right ear is contralateral to the left ear.

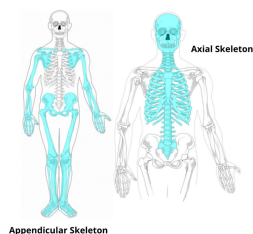
Ipsilateral and contralateral always must be relative to something



Midline

It's an imaginary line that divides the body into two equal halves.

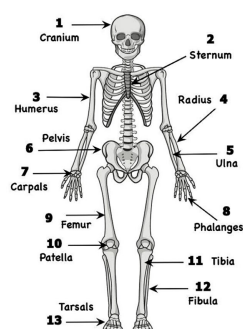
The spine is in the body's **midline**. It runs from the base of the skull through all 24 vertebrae to the sacrum, ending at the coccyx. It connects the top, middle, and bottom of the body and is the body's structural and functional center.



Appendicular vs Axial Skeleton

Axial(central) Region makes up the main axis of the human body and includes the head, neck, chest, and trunk.

Appendicular(attachments) Region makes up the parts of the human body that connect to the axial region. This includes the limbs and appendages.



Major bones of the Axial Skeleton

Skull – (cranium)including the jawbone.

Spine – Divides into four parts

- Cervical(neck),
- Thoracic (chest),
- Lumbar vertebrae (waist),
- Sacrum and tailbone (coccyx)

Chest – ribs and breastbone (sternum)

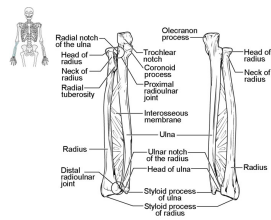
Pelvis – hip bones, femur



Major Bones of the Appendicular Skeleton

Arms – shoulder blade (scapula), collar bone (clavicle), humerus, radius and ulna.

Hands – wrist bones (carpals), metacarpals and phalanges.



Legs: femur, Patella, Tibia, Radius

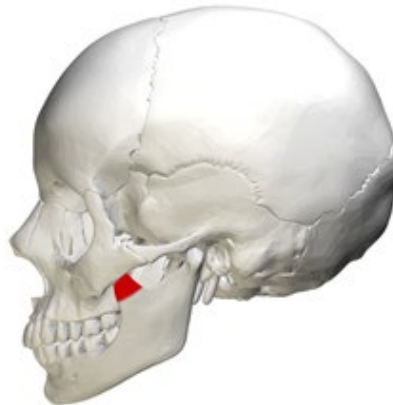
Feet- ankle bones(talus), metatarsals

Bony Landmarks

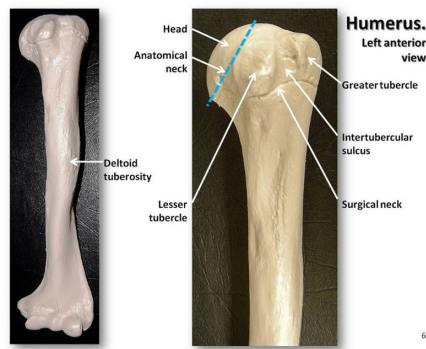
Condyle: A rounded protuberance at the end of some bones, forming an articulation with another bone.



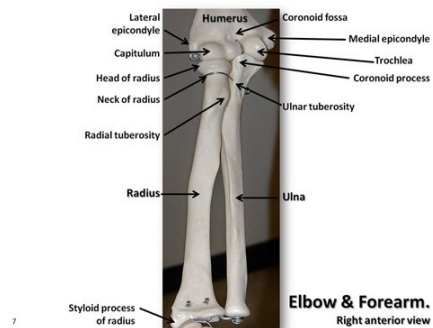
Epicondyle: An epicondyle is a rounded eminence on a bone that lies upon a condyle.



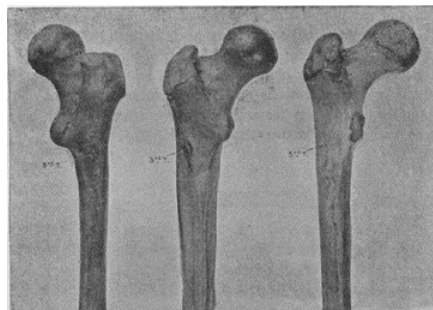
Head: The head of a bone usually refers to the proximal end of the bone. The shaft refers to the elongated sections of long bone, and the neck the segment between the head and shaft (or body). The end of the long bone opposite to the head is known as the base.



Malleolus: Is the bony prominence on each side of the human ankle. Each leg is supported by two bones, the tibia on the inner side (medial) of the leg and the fibula on the outer side (lateral) of the leg. The medial malleolus is the prominence on the inner side of the ankle, formed by the lower end of the tibia.



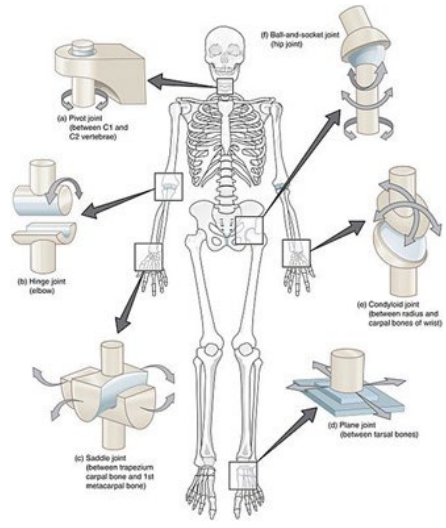
Process: Derived from Latin is a projection or outgrowth of tissue from a larger body.



Tubercle: A tubercle is a small, rounded point of a bone. It also refers to a nodule attached to bone,

Terminology in Physiotherapy

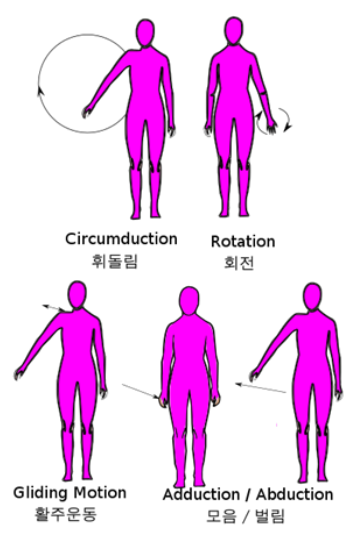
mucous membrane (moist layer lining parts of the body), or skin.



Tuberosity: A moderate prominence where muscles and connective tissues attach. Its function is similar to that of a trochanter. Examples include the tibial tuberosity, deltoid tuberosity, and ischial tuberosity.

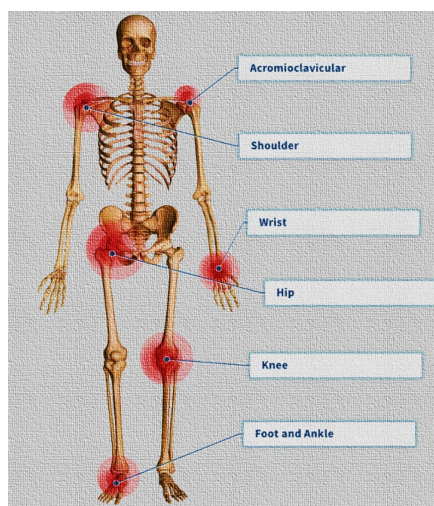


Trochanter: A trochanter is a tubercle of the femur near its joint with the hip bone. In humans and most mammals, the trochanters serve as important muscle attachment sites.



Notch: A depression in a bone which often, but not always, provides stabilization to an adjacent articulating bone. The articulating bone will slide into and out of the notch, guiding the range of

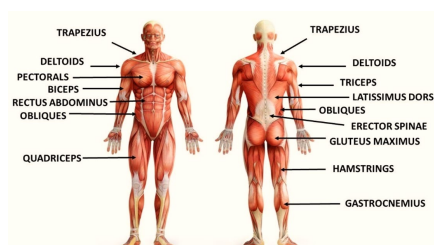
motion of the joint.



Anterior Bony Landmarks

Major Anterior Landmarks:

- Sternal notch,
- Xiphoid process,
- Lateral Epicondyle,
- Anterior Superior iliac crest,
- Pubic Symphysis,
- Patella,
- Medial Malleolus



Posterior Bony Landmarks

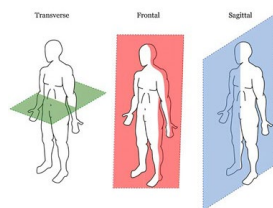
Major Posterior landmarks:

- C7 spinous process,
- Lateral Epicondyle of Humerus,
- Olecranon Process of ulna,
- Styloid Process of Radius,
- Iliac crest,
- Posterior Superior Iliac Spine,
- Ischial Tuberosity,
- Medial Epicondyle,
- Calcaneus



Lateral Bony Landmarks

- Coracoid process of the scapula
- Lateral Epicondyle
- Head of Radius
- Greater trochanter
- Head of Fibula
- Lateral Malleolus

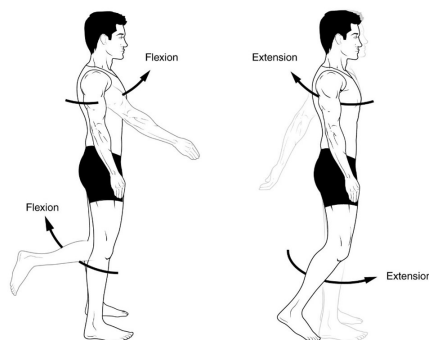


Synovial Joints

Synovial Joints (consists of a capsule, cavity, synovial fluid)

Types of Synovial Joints:

- **Ball and socket joint:** Permitting movement in all directions, the ball and socket joint features the rounded head of one bone sitting in the cup of another bone. Examples include your shoulder joint and your hip joint.
- **Pivot joint:** The pivot joint, also called the rotary joint or trochoid joint, is characterized by one bone that can swivel in a ring formed from a second bone. Examples are the joints between your **ulna** and **radius** bones that rotate your forearm, and the joint between the first and second vertebrae in your neck.
- **Hinge joint:** The hinge joint is like a door, opening and closing in one direction, along one plane. Examples include your elbow joint and your knee joint.
- **Condyloid joint:** The condyloid joint allows movement, but no rotation. Examples include your finger joints and your jaw.
- **Gliding joint:** The gliding joint is also called the plane joint. Although it only permits limited movement, it is characterized by smooth surfaces that can slip over one another. An example is the joint in your wrist.
- **Saddle joint:** Although the **saddle joint** does not allow rotation, it does enable movement back and forth and side to side. An example is the joint at the base of your thumb.



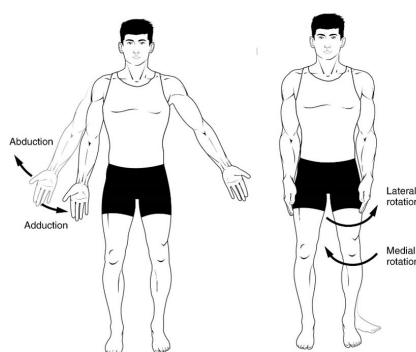
Uniaxial Joints

Uniaxial joints (one degree of motion): flexion and extension.



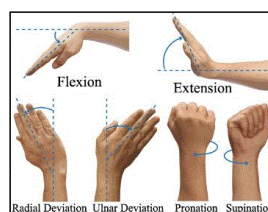
Biaxial Joints

Biaxial joints (two degree of motion) radiocarpal joint: wrist flexion and extension as well as ulnar and radial deviation.



Multi-axial joints

Multi-axial joints: three degrees of motion: shoulder joint: flexion/extension, abduction/adduction, internal rotation/external rotation

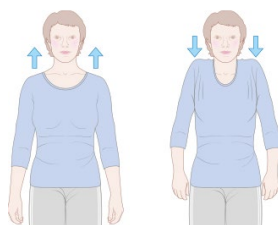


Major Joints

Major Joints:

- Acromio clavicular joint

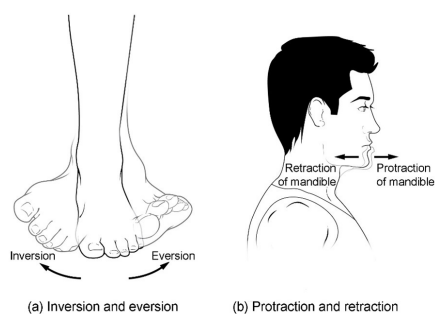
- Shoulder (glenohumeral joint)
- Elbow
- Lumbosacral joint
- Sacro-iliac joint
- Hip
- Knee
- Ankle joint



Major Muscle groups

Major Muscle groups:

- Trapezius
- Deltoids
- Erector spinae
- Pectoralis muscle
- Rectus Abdominus, latissimus dorsi
- Obliques, Triceps, Bicep's muscle
- Gluteas muscles
- Gastrocnemius
- Quadriceps



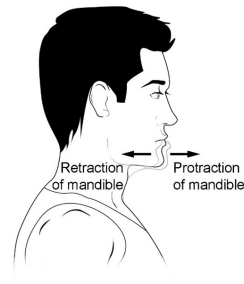
Atrophy and Hypertrophy

Atrophy decrease in size of a body part, cell, organ, or other tissue. The term implies that the atrophied part was of a size normal for the individual, considering age and circumstance, prior to the diminution.

Hypertrophy is an increase and growth of muscle cells. Hypertrophy refers to an increase in muscular size achieved through exercise. When you work out, if you want to tone or improve muscle definition, lifting weights is the most common way to increase hypertrophy.

Swelling

Edema is swelling caused by excess fluid trapped in your body's tissues. Although edema can affect any part of your body, you may notice it more in your hands, arms, feet, ankles and legs.



(b) Protraction and retraction

Activity is a series of movements to accomplish a task/function

Terms to describe muscle, movements

Normal Tone: Defined as slight constant tension of healthy muscles (Kandel, Schwartz & Jessel 1991).

Range of motion: is the measurement of movement around a joint.

Passive range: of motion requires full assistance for an individual to move their joint.

Active-assistive requires partial assistance, and **active range of motion** is when the client is able to move their joint independently.

Hypertonia: Muscle overactivity that occurs when communication between the brain and nerves is affected by injury or illness. The neural component is called spasticity and is the inability to turn off the electromyographic at rest (no inhibitory stimuli) which results in hyper-reflexia, can't modulate force. Results in altered muscle length (shortening) due non-neural components and joint alignment.

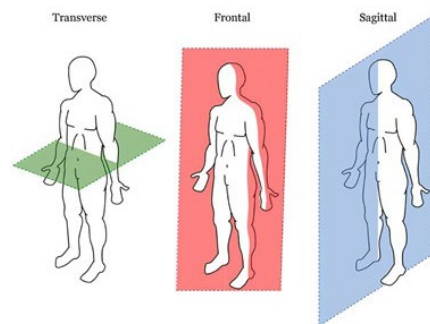
Axis and planes

A **plane** is an imaginary flat surface running through the body. An **axis** is an imaginary line at right angles to the plane, about which the body rotates or spins.

An **axis** is a straight line around which an object rotates. Movement at a joint takes place in a plane about an axis. There are three axes of rotation. ... The frontal axis passes horizontally from left to right and is formed by the intersection of the frontal and transverse planes.

Terms to describe PLANES of movement

Sagittal plane - a vertical plane that divides the body into left and right sides. Flexion and extension types of movement occur in this plane, eg kicking a football, chest pass in netball, walking, jumping, squatting. **Frontal plane** - passes from side to side and divides the body into the front and back.



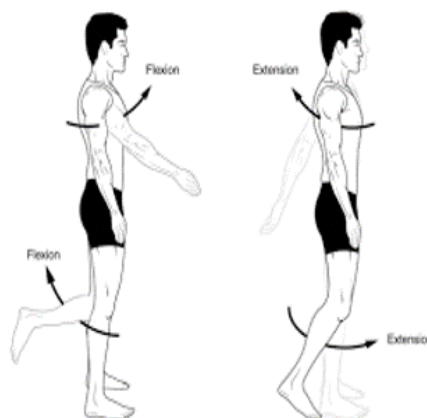
Transverse(horizontal) plane: divides into body into top&bottom half, superior and inferior halves, movement in this plane are rotations, dissociations.

Frontal plane: divides body into anterior and posterior halves, movements in this plane are abduction/adduction.

Sagittal plane: divides human body into left and right halves, movements in this plane are flexion/extension.

Movement

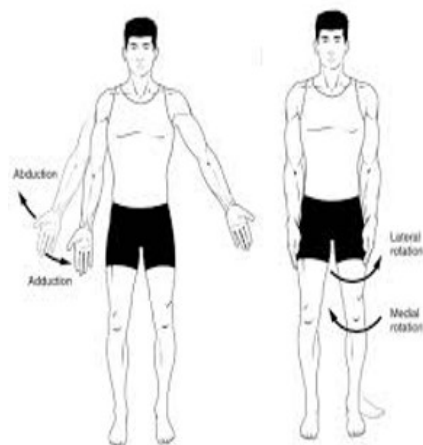
- Flexion is the medical term for bending an arm or leg. Technically speaking, it's a physical position that decreases the angle between the bones of the limb at a joint. It occurs when muscles contract and move your bones and joints into a bent position. Sagittal plane.
- Extension Extension refers to a movement that increases the angle between two body parts. Extension at the elbow is increasing the angle between the ulna and the humerus. Extension of the knee straightens the lower limb. Sagittal plane.



- Movement of a body part to the side is called lateral flexion. For example, when you move your head toward one of your shoulders or bend your body sideways, you're performing a lateral flexion. Frontal plane.
- Abduction and adduction are two terms that are used to describe movements towards or away from the midline of the body. Abduction is a movement away from the midline – just as abducting someone is to take them away. For example, abduction of the shoulder raises the arms out to the sides of the body. Frontal plane.



- Body structures - Anatomical parts of the body such as organs, limbs and their components.
- Rotation is movement in which something, e.g. a bone or a whole limb, pivots or revolves around a single long axis.



Horizontal/transverse plane.

- **Medial and lateral rotation** describe movement of the limbs around their long axis: Medial rotation is a rotational movement towards the midline. ... This is internal rotation of the shoulder. Lateral rotation is a rotating movement away from the midline. Horizontal/transverse plane.

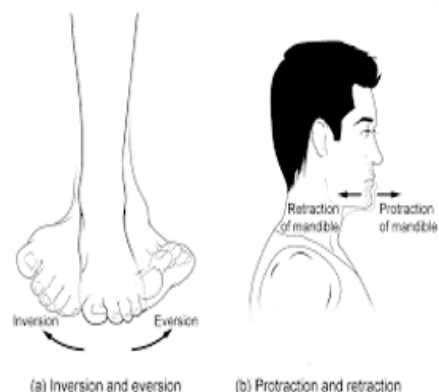
- **Supination and pronation** are used to describe action at the feet or forearm. In the feet, supination refers to excessive outward action; pronation refers to the ankle turning in. With the forearm, supination refers to turning the palm up; pronation refers to turning the palm down Horizontal/transverse plane.



- **Elevation** is movement in a superior direction. For example, shrugging is an example of elevation of the scapula. **Depression** is movement in an inferior direction, the opposite of elevation. Frontal Plane.



- **Inversion and eversion** refer to movements that tilt the sole of the foot away from (eversion) or towards (inversion) the midline of the body. Eversion is the movement of the sole of the foot away from the median plane. Inversion is the movement of the sole towards the median plane. Frontal Plane.



- **Scapular retraction** refers to moving the shoulder blades (scapula) towards the spine. The opposite is **protraction** – moving the

shoulder blades away from the spine. For the mandible, protraction occurs when the lower jaw is pushed forward, to stick out the chin, while retraction pulls the lower jaw backward. Sagittal Plane.

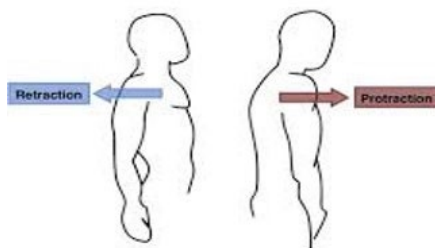
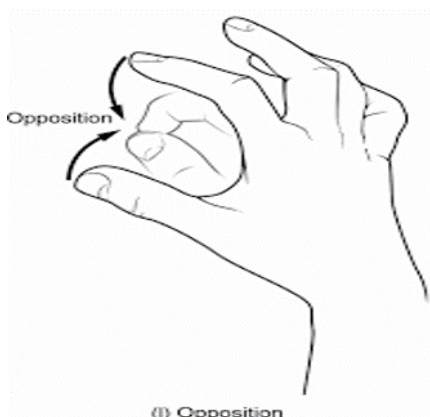


Image Credit: Wiki User: Osteomyomare. License CC BY 3.0. commons.wikimedia.org/wiki/File:Protraction_Retraction.png

- **Thumb Opposition** refers to the ability to turn and rotate the thumb so that it can touch each fingertip of the same hand. This allows us to grasp objects.



(I) Opposition

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.

- **Circumduction** is the movement of a body region in a circular manner, in which one end of the body region being moved stays relatively stationary while the other end describes a circle. It involves the sequential combination of flexion, adduction, extension, and abduction at a joint. This type of motion is found at biaxial condyloid and saddle joints, and at multiaxial ball-and-sockets joint.



Planes and Movements that Occur

Sagittal Plane:

- **Flexion:** Decreasing the angle between two bones.
- **Extension:** Increasing the angle between two bones.
- **Dorsiflexion:** Moving the top of the foot toward the shin (only at the ankle).
- **Plantarflexion:** Moving the sole of the foot downward (pointing the toes).

Frontal Plane:

- **Adduction:** Motion toward the midline.
- **Abduction:** Motion away from the midline of the body.
- **Elevation:** Moving to a superior position (only at the scapula).
- **Depression:** Moving to an inferior position (only at the scapula).
- **Inversion:** Lifting the medial border of the foot.
- **Eversion:** Lifting the lateral border of the foot.

Transverse/horizontal Plane:

- Rotation: Internal (inward) or external (outward) turning about the vertical axis of the bone.
- Pronation: Rotating the hand and wrist medially from the bone.
- Supination: Supination-Rotating the hand and wrist laterally from the bone.
- Horizontal Flexion (adduction): From the 90-degree abducted arm position, the humerus is flexed (adducted) in toward the midline of the body in the transverse plane.
- Horizontal Extension (abduction): Return of the humerus from horizontal flexion.

Reactions

Protective reactions are required to prevent injury if the equilibrium reactions are unable to restore balance. Protective reactions emerge first to the front, then the side and then backwards.

Equilibrium reactions are patterns which maintain balance of the whole body in the dynamic relationship between the shifting of one's centre of gravity through space and one's base of support.

Balance

Balance: an even distribution of weight enabling someone or something to remain upright and steady. In biomechanics, balance is an ability to maintain the line of gravity of a body within the base of support with minimal postural sway. Sway is the horizontal movement of the centre of gravity even when a person is standing still.

Static balance is the ability to maintain postural stability and orientation with centre of mass over the base of support and body at rest... Dynamic balance is the ability to maintain postural stability and orientation with centre of mass over the base of support while the body parts are in motion.

Nerves Surface Anatomy

Embryology: The branch of biology and medicine concerned with the study of embryos and their development.

The lateral wall of each somite in a vertebrate embryo, giving rise to the connective tissue of the skin.

Dermatome: An area of the skin supplied by nerves from a single spinal root.

Myotome: Muscles that originate from single spinal root.



Dermatome, Myotome

Myotome is the group of muscles that a single spinal nerve innervates. Similarly...

Dermatome is an area of skin that a single nerve innervates. In vertebrate embryonic development, a myotome is the part of a somite that develops into the muscles.

C1, C2	Cervical flexion
C3	Cervical side flexion
C4	Scapula elevation
C5	Shoulder abduction
C6	Elbow flexion and wrist extension
C7	Elbow extension and wrist flexion
C8	Thumb extension
T1	Finger abduction
L1, L2	Hip flexion
L3	Knee extension
L4	Ankle dorsiflexion
L5	Big toe extension
S1	Ankle plantiflexion
S2	Knee flexion

PRODUCED BY www.sportCX.net

“Physiotherapists (PT) assess, plan and implement rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments” - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)



Terminology in Physiotherapy

Chapter Two – Joint Movement

Your browser does not support the video tag.

Joint Movement

Observation of movement indicates a complex and seemingly infinite variety of positional changes which are controlled by a variety of internal and external factors.

Internal structures are the type of joint, the planes in which movement can occur at a joint and the muscles and nerves supplying the joint.

The external structures are the lever arm, the centre of mass, the gravity influencing the movement at the joints.

Range of Motion

During dynamic contraction or muscle stretching, the muscle involved will change length.

If a muscle contract from its lengthened position and continues contracting until its short as possible= full range of motion.

Full range of muscle excursion is subjectively described using three subdivisions:

- Outer range : longest length the midpoint
- Inner range : shortest length and the

Topics

[Joint Movement](#)

[Range of Motion](#)

[Muscle Length](#)

[Goniometry](#)

[Active Movement](#)

[Free Movement](#)

[Passive Movement](#)

[Physiological vs Accessory Movement](#)

[Terms Associated with Movement](#)

[End-feels](#)

[Stabilisation](#)

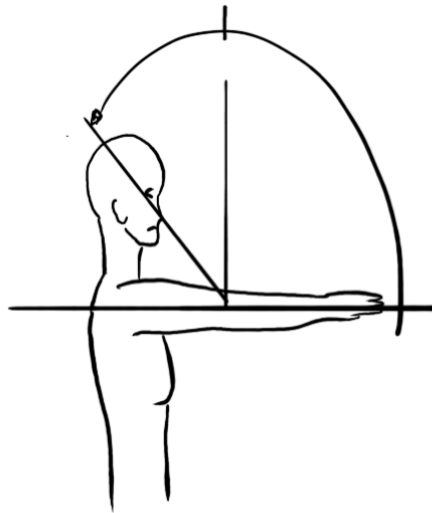
Scenarios

QUIZ 1

Practice the PT terms learnt by replacing the words highlighted in red with PT terms in the following activity.

Your browser does not support the video tag.

QUIZ 2



midpoint

- Middle range from middle positions of the inner and outer ranges

Muscle Length

Muscle length is skeletal muscle in your body, when at resting length, is at its optimal length for development of force, testing involves elongating the muscle in the direction opposite of its action while assessing its resistance to passive lengthening. In other words, muscle length testing assesses the resistance/ease to passive movement. This is in contrast to typical flexibility or ROM testing.

Goniometry

A goniometer is an instrument that measures an angle that a joint moves in active range of motion or passive range of motion.

The term goniometry derives from two Greek words, *gōnia*, meaning angle, and *metron*, meaning measure

Active Movement

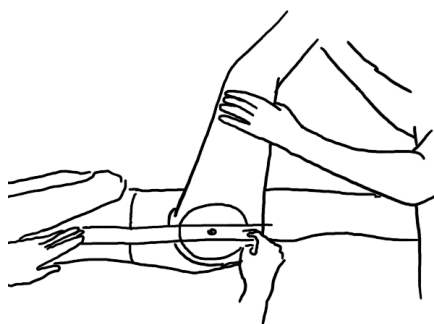
Active Movement: The patient performs the movement.

Active Assisted Range of Motion (AAROM)

Movement of a joint or limb in which the patient provides some effort, but also receives some assist from an outside force.

Mechanical Assistance: When the assistance is applied by mechanical tools as. slings. Pulleys.

Free Movement



Match the Terms with the correct explanation.

Your browser does not support the video tag.

CONFIDENCE BUILDER 1

Your browser does not support the audio tag.

Read out loud to a Family member/friend and Translate into your mother tongue.

Your browser does not support the video tag.

Free Active Exercises/Movement:

- An exercise in which muscle actions work only against the forces of gravity acting upon the part being moved.

Passive Movement

Passive movements produced entirely by an external force):

- Relaxed passive movements (performed within the unrestricted range of motion by an external force and involve no muscle work).

Physiological vs Accessory Movement

Physiological movement can only be achieved actively through the contracting of the patient's muscles to produce normal movement.

Accessory movements are movements that can only be achieved by an external force, these movements cannot be achieved through muscle contraction BUT by manipulating the joint to produce this movement.

Terms Associated with Movement

Balance The ability to align body segments against gravity to maintain or move the body (centre of mass) within the available base of support without falling; the ability to move the body in equilibrium with gravity via interaction of the sensory and motor systems.

Cardiopulmonary fitness The ability to perform low intensity, repetitive, total body movements (walking, jogging, cycling, swimming) over an extended period of time.

Coordination The correct timing and sequencing of muscle firing combined with the appropriate intensity of muscular contraction leading to the effective initiation, guiding, and grading of movement. It is the basis of smooth, accurate, efficient movement and occurs at a conscious or automatic level.

Flexibility The ability to move freely, without restriction; used interchangeably with mobility.

Mobility The ability of structures or segments of the body to move or be moved in order to allow the occurrence of range of motion (ROM) for functional activities (functional ROM). Passive mobility is dependent on soft tissue (contractile and noncontractile) extensibility; in addition, active mobility requires neuromuscular activation.

Muscle performance The capacity of muscle to produce tension and do physical work. Muscle performance encompasses strength, power, and muscular endurance.

Neuromuscular control Interaction of the sensory and motor systems that enables synergists, agonists and antagonists, as well as stabilizers and neutralizers to anticipate.

Stability, and equilibrium: Used interchangeably with static (balance in a stationary position) or dynamic balance (balance in motion/whilst moving).

Stability The ability of the neuromuscular system through synergistic muscle actions to hold a proximal or distal body segment in a stationary position or to control a stable base during superimposed movement. Joint stability is the maintenance of proper alignment (tendency of structures to be in a straight line) of bony partners of a joint by means of passive and dynamic components.

Terminology in Physiotherapy

Agonist or Prime Mover: refer to muscles that play a major role in initiating, carrying out and maintaining a particular movement. E.g. Psoas major in hip flexion.

Antagonist: refers to muscles that act in direction opposite the agonist. E.g. gluteus maximus, hamstring group.

Assistant movers: muscles which perform movement similar to agonist but play a less significant role. E.g. sartorius or rectus femoris in hip flexion.

Stabiliser or Fixator: contract to control the position of the bone so that it act as a base from which the agonist can contract. E.g. trunk muscles stabilising the pelvis during hip flexion.

A synergist: act together or to produce combined action. True synergist vs helping synergist.

End-feels

An end feel is defined as the sensation or feeling which the therapist detects when the joint is at the end of its available PROM. There are several end feels that are used. ... In a pathological joint with a bony end feel, the sensation will happen before the expected end range of motion.

Stabilisation

Is to make stable, steadfast, or firm, to hold steady: such as to maintain the stability of (something, such as an airplane) by means of a stabilizer.

Stabilization training is an active form of physical therapy designed to strengthen muscles to support the spine and help prevent lower back pain. Through a regimen of exercises prescribed by a physical therapist, the patient is trained to find and maintain his/her "neutral spine" position.

"Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments" - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)

Terminology in Physiotherapy

Chapter Three - Observation of Posture and Movement

Your browser does not support the video tag.

Posture

The position in which someone holds their body when standing or sitting.

Good posture refers to the "three natural curves [that] are present in a healthy spine." It is also called neutral spine. Looking directly at the front or back of the body, the 33 vertebrae in the spinal column should appear completely vertical.

Posture Terms

COG: Centre of Gravity in the Human Body.

In the anatomical position, the COG lies approximately anterior to the second sacral vertebra. However, since human beings do not remain fixed in the anatomical position, the precise location of the COG changes constantly with every new position of the body and limbs.



Topics

[Posture](#)

[Posture Terms](#)

[COG](#)

[Line of Gravity](#)

[Base of Support](#)

[Different Postures](#)

[Flat Back](#)

[Kyphosis](#)

[Movement](#)

[Analysis](#)

[Joint Kinematics](#)

Scenarios

QUIZ 1

Practice the PT terms learnt in this chapter by replacing the words highlighted in red with PT terms in the following scenarios.

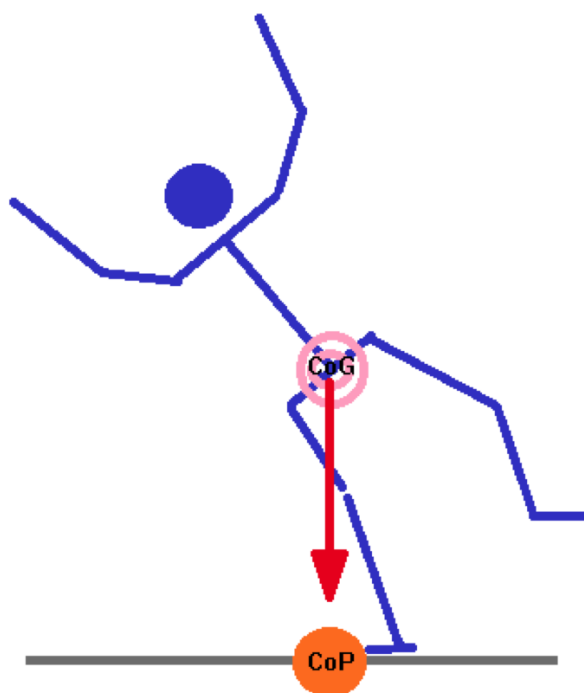
Your browser does not support the video tag.

QUIZ 2

This quiz will assess the knowledge of the terms covered this chapter.

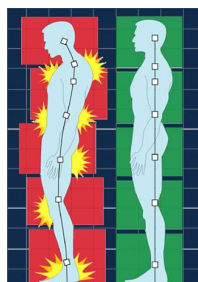
COG

Center of gravity is imaginary balancing point where the body weight can be assumed to be concentrated and equally distributed. Can also be called Center of mass.



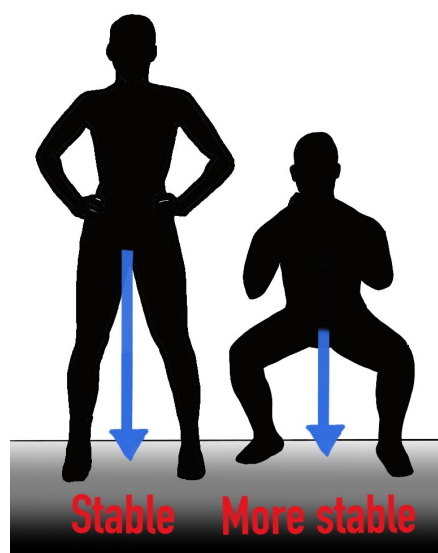
Line of Gravity

The line of gravity is an imaginary vertical line from the centre of gravity to the ground or surface the object or person is on. It is the direction that gravity is acting upon the person or object. ... The location of this line in relation to the base of support has a huge influence on balance and stability.



Base of Support

The base of support (BOS) refers to the area beneath an object or person that includes every point of contact that the object or person makes with the supporting surface. These points of contact may be body parts e.g. feet or hands, or they may include things like crutches or the chair a person is sitting in. An increase in BOS increases the stability of a position whilst the decrease in BOS destabilises the starting position.



Your browser does not support the video tag.

CONFIDENCE BUILDER 1

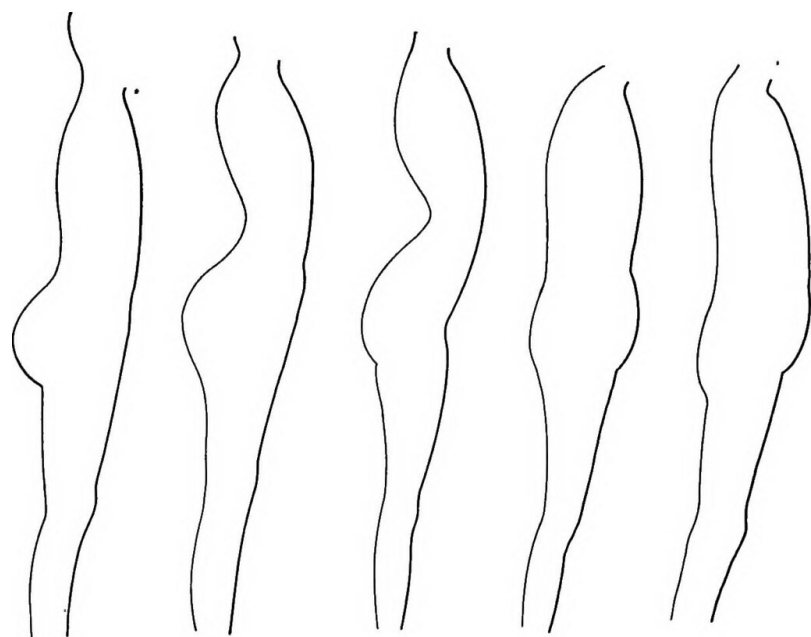
Your browser does not support the audio tag.

Read the following out loud to a Family member/friend and Translate into your mother tongue.

Posture as the stance that is attained "when the joints are not bent and the spine is aligned and not twisted. Neutral posture has given rise to the idea of achieving ideal posture. Ideal posture indicates proper alignment of the body's segments such that the least amount of energy is required to maintain a desired position. The benefit of achieving this ideal position would be that the least amount of stress is placed on the body's tissue. Human movement analysis aims at gathering quantitative information about the mechanics of the musculo-skeletal system during the execution of a motor task. In particular, information is sought concerning the movement of the whole-body centre of mass; the relative movement between adjacent bones, or joint kinematics; the forces exchanged with the environment; the resultant loads transmitted across sections of body segments or between body segments, or transmitted by individual body tissues such as muscles, tendons, ligaments, and bones; and body segment energy variation and muscular work.

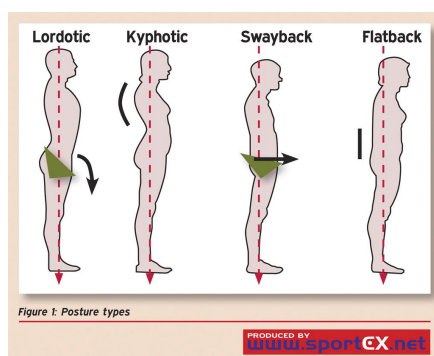
Your browser does not support the video tag.

Different Postures



Flat Back

As mentioned before, the spine has a natural curve. It has two curves forming an "S" like shape. When you have flat back syndrome the spine loses the lower curve and becomes flat. This causes the spine to become imbalanced and the patient tends to lean forward.



Kyphosis

Kyphosis is a common condition that results in forward rounding of your upper back region. This causes your spine to hunch over and make you appear to be slouching or have a hunchback. Kyphosis can be seen at any age but is most commonly seen in older women after osteoporosis weakens the bones in the spine.



Movement Analysis

Information about the mechanics of the musculo-skeletal system

during the execution of a motor task.



Joint Kinematics

Joint kinematics is the study of the relative motion between two consecutive segments of the human body.

Body segments are linked to each other at the joints. The joint structure determines the types of joint motions allowed at the joint. Joint motion is actually the relative motion of the distal segment to the proximal that together form a joint. Analytically speaking, it is advantageous to view joint motions as the relative motions between the rigid bodies.

"Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments" - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)

Terminology in Physiotherapy

Chapter Four - Development across the life Span

Your browser does not support the video tag.

Cognitive Development

Cognitive development refers to how a person perceives, thinks, and gains understanding of his or her world through the interaction of genetic and learned factors. Among the areas of cognitive development are information processing, intelligence, reasoning, language development, and memory.



Psychosocial Development

Early childhood is a time of forming an initial

Topics

[Cognitive
Development](#)

[Psychosocial
Development](#)

[Physical Growth
and Development](#)

[Summary of
Development](#)

[ICF Terms](#)

[Somites](#)

[Stages of
Development in the
Uterus](#)

[Germinal Stage \(in
the womb\)](#)

[Germ Layers](#)

[In utero Terms](#)

[Definitions: Normal
Motor
Development](#)

[New Born Terms](#)

[What is Apgars and
Foetus](#)

[Positions: Terms
unique to Paeds](#)

[Prone](#)

[Starting Positions](#)

[Terms Treatment
in Paeds](#)

[Terms used in
Treatment of
Paeds](#)

[Outcome Measure](#)

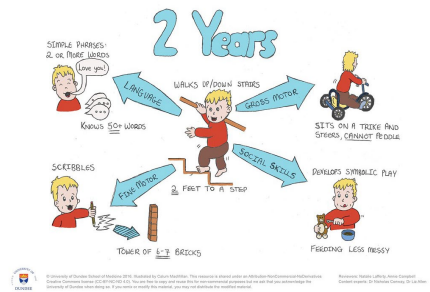
[Terms for
Observation](#)

[Terms Tone](#)

[Three Aspect of
Motor
Performance](#)

[COG](#)

sense of self. A self-concept or idea of who we are, what we are capable of doing, and how we think and feel is a social process that involves taking into consideration how others view us.



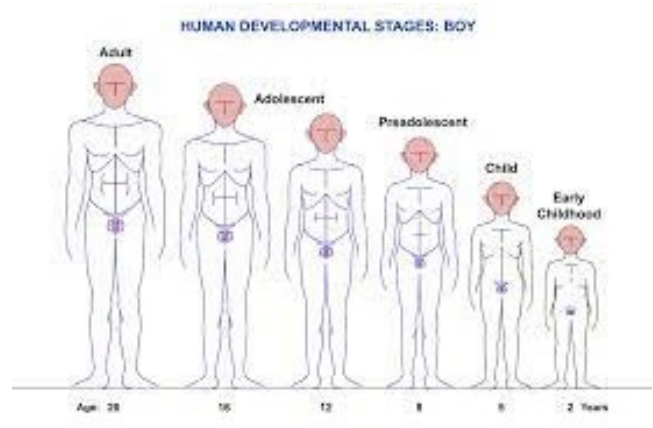
Movement of the Fetus	Balance
Age and Development	Terms in Developmental Delay
Pregnancy Terms	Teens
Types of Fetal Presentation	Puberty
Types of Delivery	

Physical Growth and Development

Physical growth refers to an increase in body size (length or height and weight) and in the size of organs. From birth to about age 1 or 2 years, children grow rapidly. After this time, growth slows.

Physical developmental Milestones are the physical attributes that one forms and they progress from gross motors skills (large movements of large joints) and fine motor skills (small movements involving small joints).

Summary of Development



QUIZ 1

Practice the PT terms learnt by replacing the words highlighted in red with PT terms in the following Activity.

Your browser does not support the video tag.

QUIZ 2

This quiz will assess the knowledge of the terms covered this chapter.

Your browser does not support the video tag.

CONFIDENCE BUILDER 1

Your browser does not support the audio tag.

Read out loud, the words below to a Family member/friend and Translate the explanation of the term into your mother tongue.

1. Hypertonia
2. Weight-bearing
3. Developmental delay
4. Chronological age
5. Adjusted/Corrected Age
6. Outcome measure
7. Puppy prone

Your browser does not support the video

Embryology

Embryology: The branch of biology and medicine concerned with the study of embryos and their development.

The lateral wall of each somite in a vertebrate embryo, giving rise to the connective tissue of the skin.

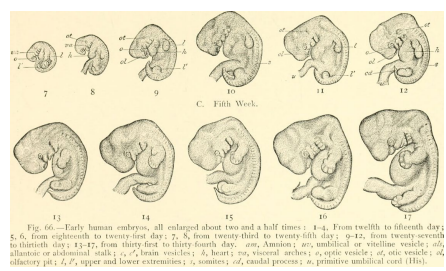
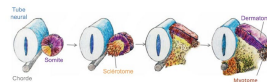


Fig. 66. —Early human embryos, all enlarged about two and a half times: 7-8, from twelfth to fifteenth days; 9, 6, from eighteenth to twenty-first day; 2, 8, from twenty-third to twenty-fifth day; 9-12, from twenty-seventh to thirtieth day; 13-17, from thirty-first to thirty-fourth day. a, amnion; an, umbilical or chorionic vesicle; al, allantois or adnexal stalk; b, c, brain vesicles; d, heart; e, visceral arches; f, optic vesicle; g, otic vesicle; h, olfactory pit; i, j, k, upper and lower extremities; l, m, somites; n, caudal process; o, primitive umbilical cord (116).

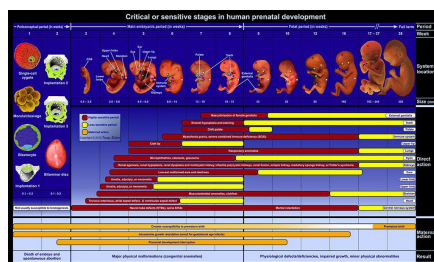
Somites

Somites (primitive segments) are precursor populations of cells that give rise to important structures associated with the vertebrate body plan and will eventually differentiate into dermis, skeletal muscle, cartilage, tendons, and vertebrae.



Stages of Development in the Uterus

An embryo is an early stage of development of a multicellular diploid eukaryotic organism. In general, in organisms that reproduce sexually, an embryo develops from a zygote, the single cell resulting from the fertilization of the female egg cell by the male sperm cell.



Germinal Stage (in the womb)

Conception is the time when sperm travels up through the vagina, into the uterus, and fertilizes an egg found in the fallopian tube. Conception – and ultimately, pregnancy.

Zygote is the union of the sperm cell and the egg cell. Also known as a fertilized ovum, the zygote begins as a single cell but divides rapidly in the days following fertilization. After this two-week period of cell division, the zygote eventually becomes an embryo.

Mitosis (my-TOH-sis) is the dividing of all other cells in the body. It's how a baby in the womb grows. Mitosis causes the number of chromosomes to double to 92, and then split in half back to 46. This process repeats constantly in the cells as the baby grows.

Implantation is the stage of pregnancy at which the embryo adheres to the wall of the uterus. At this stage of prenatal development, the conceptus is called a blastocyst. It is by this adhesion that the embryo receives oxygen and nutrients from the mother to be able to grow.

Germ Layers

A germ layer is a group of cells in an embryo that interact with each other as the embryo develops and contribute to the formation of all organs and tissues. All animals, except perhaps sponges, form two or three germ layers. The germ layers develop early in embryonic life.

Endoderm is one of the germ layers formed during animal embryonic development. Cells migrating inward along the archenteron form the inner layer of the gastrula, which develops into the endoderm. Endoderm cells give rise to certain organs, among them the colon, the stomach, the intestines, the lungs, the liver, and the pancreas.

Mesoderm (middle), which lies between the endoderm and the ectoderm, give rise to all other tissues of the body, including the dermis of the skin, the heart, the muscle system, the urogenital system, the bones, skeleton, and the bone marrow (and therefore the blood).

Ectoderm(outside) The ectoderm, on the other hand, eventually forms certain "outer linings" of the body, including the epidermis (outermost skin layer) and hair and nervous system i.e neural cells.

In utero Terms

Teratogen: An agent or factor which causes malformation of an embryo.

Physiological Flexion: As babies develop and grow in the uterus they become folded up with their arms and legs flexed in towards their body. This position, along with the baby pushing against the walls of the uterus, creates what is called physiological flexion and provides the baby with flexed muscle tone in their limbs shortly after birth which slowly goes away outside of the womb. Gravity will influence the flexed position.

Pregnancy lasts for about 280 days or 40 weeks. A preterm or premature baby is delivered before 37 weeks of your pregnancy. Extremely preterm infants are born 23 through 28 weeks.

Neurogenesis is the process by which new neurons are formed in the **brain**. During the process, neural stem cells differentiate—that is, they become any one of a number of specialised cell types—at specific times and regions in the brain.

Definitions: Normal Motor Development

Motor development refers to the development of a child's bones, muscles and ability to move around and manipulate his or her environment. Motor development can be divided into two sections: gross motor development and fine motor development.

Motor learning is a loosely defined term that encompasses motor adaptation, skill acquisition, and decision-making (Shadmehr and Wise, 2005; Krakauer, 2006).

Motor control is the regulation of movement in organisms that possess a nervous system. Motor control includes reflexes as well as directed movement.

Movement of the Fetus

General movements (GMs): Are the most frequently occurring specific movement patterns of the fetus and young infant are the GMs are movements in which all parts of the body participate. During the past decade, it became increasingly clear that the quality of GMs reflects the integrity of the young nervous system.

The mid and term fetus develops in an environment where the effect of gravity is diminished by the presence of amniotic fluid.

Antigravity movements: any movements against gravity, planes of movement of the head, shoulder girdle, trunk, pelvis, limbs in the presence of gravity.

Age and Development

Chronological age refers to the actual amount of time a person has been alive. In other words, the number of days, months or years a person has been alive does not change, regardless of how healthy a lifestyle – even one filled with great exercise and nutrition habits – they are living.

Gestational age is the number of weeks that a baby has been in the uterus. A full-term pregnancy is usually 40 weeks. It's important to **assess** if **gestational age** is uncertain or if your baby is smaller or larger than expected. The new Ballard score is commonly used to determine **gestational age**.

Corrected age is a **term** most appropriately used to describe children up to 2 years of **age** who were born preterm (Fig 1). This **term** is preferred to "corrected gestational age" or "gestational age" and represents the **age** of the child from the expected date of delivery.

Developmental milestones are behaviours or physical skills seen in infants and children as they grow and develop. Rolling over, crawling, walking, and talking are all considered milestones. The milestones are different for each age range. There is a normal range in which a child may reach each milestone.

Birth History: Gestational age at birth weeks. Weight at birth (kg). Multiple birth Yes No Details: Pregnancy, delivery and Any maternal insults [alcohol, smoking] or illnesses during gestation. Where born: city, hospital. Mode of delivery, difficulties in delivery. Resuscitation, intensive care requirement at birth. Cyanosis, pallor, jaundice, convulsions, birthmarks, malformations, feeding or respiratory difficulties. Apgar score at birth if known. How baby was fed in first few days. Whether child went home with mother. Nutritional history.

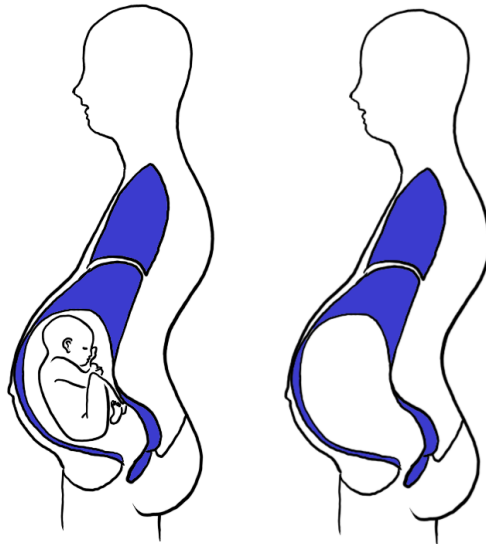
Pregnancy Terms

Pregnancy lasts for about 280 days or 40 weeks. A preterm or premature baby is delivered before 37 weeks of your pregnancy. Extremely preterm infants are born 23 through 28 weeks.

1000 days of human development The first 1000 days of life the spanning from conception until second birthday, a unique period of opportunity when the foundations of optimum health, growth and neuro developmental across the lifespan are established, includes pregnancy.

Types of Fetal Presentation

Most babies get into a vertex, or head down, position near the end of your pregnancy, between 33 and 36 weeks normal vertex delivery: In a vertex delivery, the top of the baby's head comes first. The vertex here refers to the top of the head. A normal delivery is, in other words, a completely natural delivery of a baby by the mother without any medical intervention. During normal/vaginal delivery the



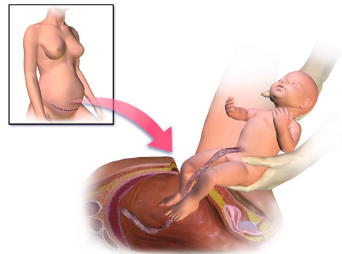
primary focus is on how and in which position will the mother be comfortable delivering the baby.

Types of Delivery

Breech: About 3-4 percent of all pregnancies will result in the baby being breech. A breech pregnancy occurs when the baby (or babies!) is positioned head-up in the woman's uterus, so the feet are pointed toward the birth canal.

Natural method of birth is when the foetus comes through the birth canal out the vagina, The average length of a hospital stay for a normal vaginal delivery is 36–48 hours or with an episiotomy (a surgical cut to widen the vaginal canal) 48–60 hours, whereas a C-section is 72–108 hours.

Cesarean delivery (C-section) is a surgical procedure used to deliver a baby through incisions in the abdomen and uterus. A C-section might be planned ahead of time if you develop pregnancy complications or you've had a previous C-section.



New Born Terms

Prematurity is a term for the broad category of neonates born at less than 37 weeks' gestation. ... For premature infants born with a weight below 1000 g, the three primary causes of mortality are respiratory failure, infection, and congenital malformation.

Neuroplasticity, also known as brain plasticity, neuroplasticity, or neural plasticity, is the ability of the brain to change continuously throughout an individual's life, e.g., brain activity associated with a given function can be transferred to a different location, new neural pathways may and do form with repeated stimulation.

What is Apgars and Foetus

APGAR score: Is a method to quickly summarize the health of new-born children against infant mortality. s a test given to new-borns soon after birth. This test checks a baby's heart rate,

Terminology in Physiotherapy

muscle tone, and other signs to see if extra medical care or emergency care is needed. The test is usually given twice: once at 1 minute after birth, and again at 5 minutes after birth.

Foetus: is the unborn offspring of an animal that develops from an embryo. Following embryonic development the fetal stage of development takes place. In human prenatal development, fetal development begins from the ninth week after fertilisation and continues until birth.

Positions: Terms unique to Paeds

Tummy time - It is essential for babies to be placed in prone position, as children who lack sufficient time in prone present with motor delays Especially head control, rolling, sitting, creeping, crawling and pulling up to standing are delayed in children who don't spend enough time on their tummy. - Importance of tummy time on development of hand-eye coordination, fine motor skills and balance in later life - Sensory input: prone position also stimulates vision and interaction with the environment. - Prevention of torticollis and/or plagiocephaly (flattened skull).

Cruising: Within a few weeks of learning to pull himself to a standing position, the baby will probably start shuffling along while holding onto furniture; this can start anywhere from 8 to 11 months. Called cruising, it's one of the last steps on the journey toward walking independently.

Pull to sit: The child assists the mom to pull himself into a sitting position using both or one of his arms.

Pull to stand: The child assists the mom to pull himself into a standing position using furniture/ both or one of his arms and legs to assist him to stand.

Prone

Prone lying: Is when the child is lying on their tummy with chest in contact with the surface.



Starting Positions

Puppy prone: Position in prone while weight bearing on the elbows, great starting position to strengthen neck, trunk extensors.



Terms Treatment in Paeds

Facilitation: use of the therapists hands ,voice or environment to make active movements easier or to make them possible.

Starting positions: means the position of the body relative to the supporting surface at the

Terminology in Physiotherapy

beginning of an intervention and where the desired ending position of the body will be once task is completed will determine the difficulty/ease of the activity. 5 fundamental starting positions: lying prone or supine, side lying, sitting (ring, half, w-sit, long sit) four point or two point kneeling, standing.

Key Points of Control: parts of the human body (head, pelvis, trunk, shoulder girdle) from where the therapist can most effectively control and change patterns of movement in other parts of the body. They can be used for modification, facilitation, or stimulation. E.g placing therapists hand on the flexed knee(dissociation at pelvis) to facilitate rolling.

Terms used in Treatment of Paeds

Reciprocity: the practice of exchanging things with others for mutual benefit, especially privileges granted by one country or organization to another. By imitating and talking with the baby, the parent allows their mutual exchanges to become a synchronized play of signals. This helps the baby to **develop reciprocal** skills. By continually being exposed to his parent's varied visual and verbal input, the baby learns to direct his or her attention to the outside world.

Gross motor skills involve movements of the large muscles of the arms, legs and torso. Kids rely on gross motor skills for everyday activities at school, at home and in the community. Kids who struggle with gross motor skills have trouble doing whole-body movements like climbing.

Outcome Measure

Outcome measure: is a tool used to assess a patient's current status. **Outcome measures** may provide a score, an interpretation of results and at times a risk categorization of the patient. Prior to providing any intervention, an outcome measure provides baseline data.

Population group: known as a well-defined collection of individuals or objects known to have similar characteristics.

Immunization: or immunisation, is the process by which an individual's immune system becomes fortified against an agent.

Terms for Observation

Weight-bearing is defined as the ability of the body to hold or bear its own weight in any given position. The gross motor development of the healthy child progresses from the horizontal position-supine/prone to the upright standing position. This weightbearing occurs initially involving large surface area of the infant's body, in large surfaces/bases of support progressing to smaller or several points of contact with the infant's body to smaller base of support/surface area.

Posture observe head, shoulder, trunk, pelvis and limbs in each position. Posture begins in the newborn is in flexion of the extremities closely adducted to the trunk(physiological flexion in supine. Posture progresses from positions that require less support from body surface area, greater muscle strength, muscle co-ordination and balance.

Terms Tone

Normal Tone: Defined as slight constant tension of healthy muscles (Kandel, Schwartz& Jessel 1991).

Range of motion: is the measurement of movement around a joint.

Passive range: of motion requires full assistance for an individual to move their joint.

Active-assistive requires partial assistance, and active range of motion is when the client is able to move their joint independently.

Hypertonia: Muscle overactivity that occurs when communication between the brain and nerves is affected by injury or illness. The neural component is called spasticity and is the inability to turn off the electromyographic at rest (no inhibitory stimuli) which results in hyper-reflexia, can't modulate force. Results in altered muscle length (shortening) due non-neural components and joint alignment.

Three Aspect of Motor Performance

Weight-bearing is defined as the ability of the body to hold or bear its own weight in any given position. The gross motor development of the healthy child progresses from the horizontal position-supine/prone to the upright standing position. This weightbearing occurs initially involving large surface area of the infants body, in large surfaces/bases of support progressing to smaller or several points of contact with the infants body to smaller base of support/surface area.

Posture observe head, shoulder, trunk, pelvis and limbs in each position. Posture begins in the new-born is in flexion of the extremities closely adducted to the trunk (physiological flexion) in supine. Posture progresses from positions that require less support from body surface area, greater muscle strength, muscle co-ordination and balance.

Antigravity movements: any movements against gravity, planes of movement of the head, shoulder girdle, trunk, pelvis, limbs. Poor selective motor control. Abnormal motor sequences and synergies. Absent or poorly developed postural reactions: The abnormal interaction between three systems - somatosensory, visual and vestibular - is believed to be the cause of abnormal postural reactions.

COG

Centre of gravity is imaginary balancing point where the body weight can be assumed to be concentrated and equally distributed. Can also be called Centre of mass.

Balance

Balance: an even distribution of weight enabling someone or something to remain upright and steady. In biomechanics, balance is an ability to maintain the line of gravity of a body within the base of support with minimal postural sway. Sway is the horizontal movement of the centre of gravity even when a person is standing still.

Static balance is the ability to maintain postural stability and orientation with centre of mass over the base of support and body at rest.

Dynamic balance is the ability to maintain postural stability and orientation with centre of mass

over the base of support while the body parts are in motion.

Balance: Static (when person is stationary) or Dynamic (when person is in motion) Equilibrium reactions provide balance when the centre of gravity is disturbed.

Protective reactions are required to prevent injury if the equilibrium reactions are unable to restore balance. Protective reactions emerge first to the front, then the side and then backwards.

Equilibrium reactions are patterns which maintain balance of the whole body in the dynamic relationship between the shifting of one's centre of gravity through space and one's base of support.

Terms in Developmental Delay

Developmental delay: means a delay in one or more of the following areas: physical (gross motor, fine motor) development; cognitive development; communication; social or emotional development; or adaptive [behavioural] development.

The condition of a child being less developed than is normal for child's age (range of acquiring developmental milestones)

It is usually temporary if reason for delay is reversible but may be permanent if reason for delay persists even with treatment (developmental disability).

Age-appropriate Toy: Toys are physical items used by children in play,

- Physical skills: Can the child manipulate and play with the features of the toy as it was designed?
- Understanding: Can the child understand how to use the toy?
- Interest: Is the toy of interest to a child of a particular age?
- Safety: Is the toy safe for a child at this stage?

Teens

Adolescence is used to describe the transition from childhood to adulthood.

Puberty on the other hand refers to the time period during which physical changes occur.

Puberty

Period during which adolescents reach sexual maturity and become capable of sexual reproduction.

"Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments" - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)



Terminology in Physiotherapy

Chapter Five - Exercise and Physical Activity

Your browser does not support the video tag.

Physical Activity

Physical Activity (PA): "Any bodily movement produced by the contraction of skeletal muscles that results in a substantial increase in energy expenditure."

Physical Fitness

Physical Fitness: "Multidimensional concept defined as a set of attributes/skills that people possess or achieve that relates to the ability to perform physical activity."

Exercise

Exercise: "Type of Physical Activity consisting of planned, structured, and repetitive bodily movement done to improve and/or maintain one or more components of physical fitness." - Caspersen et al 1985

Muscle Strength

The ability of contractile tissue to produce tension and a resultant force according to the demands placed on that muscle.

The greatest measurable force exerted by a muscle to overcome resistance during a single maximum effort.

Topics

[Physical Activity](#)

[Physical Fitness](#)

[Exercise](#)

[Muscle Strength](#)

[Muscle Power](#)

[Manual Muscle Testing](#)

[Types of Muscle Work/Contraction](#)

[Muscle Work in Context](#)

[Closed Chain Exercises](#)

[Open Chain Exercises](#)

[Types of Muscle Activity](#)

[Endurance](#)

[Anaerobic Exercise](#)

[Endurance Exercise](#)

[Resistance Training](#)

[Stretching Exercises](#)

Scenarios

QUIZ 1

Practice the PT terms learnt by replacing the words highlighted in red with PT terms in

Muscle Power

The maximum force that a muscle or muscle group can generate in a minimum time. Its development depends on the right balance between speed and strength on a specific skill that requires explosiveness.

$$\text{Work} = (\text{force} \times \text{distance}) / \text{time}$$

Manual Muscle Testing

Manual testing: Application of increasing resistance to produce a concentric contraction of the muscle tested until a maximum contraction is reached.

Isometric testing allows for structural differentiation because joint motion is prevented and the test is isolated to the muscle.

Types of Muscle Work/Contraction

Eccentric contraction

- The force of the muscle is **not** sufficient to lift or hold up the load. The muscle extends and slows down the lowering of the load.
- Can be damaging.
- Can produce maximal dynamic force beyond maximal isometric force.
- Reflex action of the nervous system to control movement.

Eccentric contraction

- Force of the muscle is sufficient to lift or raise the load.
- Muscle shortens.

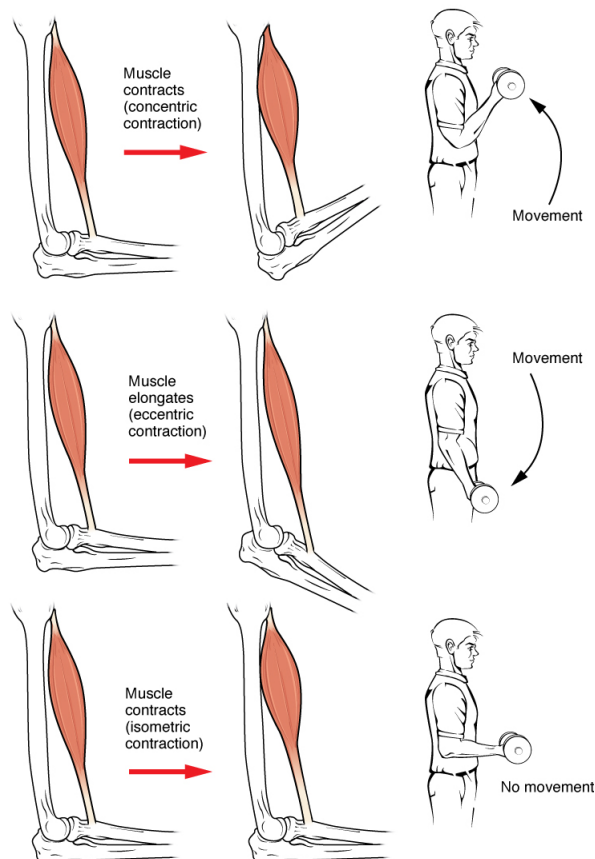
Isokinetic contraction is one in which a muscle shortens as it contracts but, unlike an isotonic contraction, (consistent speed).

Isometric contraction, the static contraction of a muscle without any visible movement in the angle of the joint. (the muscle is in consistent length)

Muscle Work in Context

Isotonic contraction: putting a constant amount of weight or tension on your muscles while moving your joints through a full range of motion.

- concentric (shortening; common)
- eccentric (control or deceleration)



the following quiz.

Your browser does not support the video tag.

QUIZ 2

This quiz will assess the knowledge of the terms covered this chapter.

Your browser does not support the video tag.

AUDIO CHALLENGE 1

Your browser does not support the audio tag.

Explain to a peer Out loud, first in your mother tongue then in English what these terms mean.

1. Exercise
2. Endurance Exercise
3. Physical Activity
4. Physical Fitness
5. Resistance Exercises

Your browser does not support the video tag.

CONFIDENCE BUILDER 1

Your browser does not support the audio tag.

Record an audio clip of you describing what exercises are happening in this image in the Upper Limb and Lower limbs.



Your browser does not support the video

Closed Chain Exercises

When WB position is assumed, and body moves over a fixed distal segment i.e., the hand (for arm mvt) or foot (for leg mvt) is fixed in space and cannot move. The extremity remains in constant contact with the immobile surface, usually the ground or base of a machine.



Open Chain Exercises

When Non-Weight Bearing (NWB) position is assumed, and the distal segment (hand or foot) moves freely during exercise.

Limb movement occurs distal to moving joint due to contraction of muscles that cross the joint.



Types of Muscle Activity

- Concentric: Shortening
- Eccentric: Lengthening
- Isometric: No change in length

Endurance

Endurance: The ability to perform low intensity, repetitive or sustained activities over a prolonged period of time.

Anaerobic Exercise

Anaerobic Exercise: Anaerobic exercise is a type of exercise that breaks down glucose in the body without using oxygen; anaerobic means "without oxygen". In practical terms, this means that anaerobic exercise is more intense, but shorter in duration than aerobic exercise.

Endurance Exercise

Endurance Exercise: Endurance training is the act of exercising to increase endurance. The term endurance training generally refers to training the aerobic system as opposed to the anaerobic system.



Resistance Training

Resistance Training: Strength training or resistance training involves the performance of physical exercises which are designed to improve strength and endurance. It is often associated with the use of weights but can take a variety of different forms.



Stretching Exercises

Stretching is a form of physical exercise in which a specific muscle or tendon is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve comfortable muscle tone. The result is a feeling of increased muscle control, flexibility, and range of motion.



"Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with

injuries, diseases and other impairments" - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)



Terminology in Physiotherapy

Chapter Six - Assessment Terminology

Your browser does not support the video tag.

Assessment Terms

Identify:

- Name, or point out, something specific.
- Knowledge - This type of question is testing how well you remember the information you have learned.

Explain:

- Make a particular scenario or topic more understandable by giving reasons.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

List:

- Provide concise, specific, and factual information about a particular scenario or topic.

Indicate/Identify:

- Name, or point out, something specific.
- Knowledge - This type of question is testing how well you remember the information you have learned.

Analyse:

- Break a particular scenario or topic down into its constituent parts and explain.
- Competence - This type of question is testing if you can apply your knowledge to a particular

Topics

[Assessment Terms](#)

[CALL-TO-ACTION](#)

Scenarios

QUIZ 1

Practice the assessment terms learnt by replacing the words highlighted in red with PT terms in the following scenarios.

Your browser does not support the video tag.

QUIZ 2

This quiz will assess the knowledge of the terms covered this chapter.

Your browser does not support the video tag.

CONFIDENCE BUILDER 1

Your browser does not support the audio tag.

Explain to a peer in your mother tongue how

scenario and make a judgement or decision.

Apply:

- Use theoretical knowledge to better understand a particular scenario or topic.
- Knowledge - This type of question is testing how well you remember the information you have learned.

Argue:

- Defend a particular position by providing reasons in support of the position AND refuting objections to the position AND providing objections to the opposing position.
- Performance – This type of question is asking you why and how you have applied your knowledge to a particular scenario, so your thought process is clear.

Assess:

- Estimate the value or state of a particular scenario or topic by considering both positive AND negative attributes.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Critique or Evaluate:

- Identify both positive AND negative aspects of a particular scenario or topic.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Define:

- State an exact and clear Definition.
- Knowledge - This type of question is testing how well you remember the information you have learned.

Describe:

- Draw a picture using words.
- Knowledge - This type of question is testing how well you remember the information you have learned.

Differentiate:

- Identify the differences between two or more things.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Discuss:

- Explore theoretical principals relating to practical applications.
- Performance – This type of question is asking you why and how you have applied your knowledge to a particular scenario, so your thought process is clear.

Interpret:

- Explain the meaning AND implication of something.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Account for:

- Meaning: Give reasons AND phenomena which explain a particular scenario or topic, such as behaviour, sign, or action.

you would answer a question with the term.

1. Explain
2. State
3. List
4. Summarise
5. Justify
6. Outline

Your browser does not support the video tag.

FEEDBACK



PT E-book of Terminology Evaluation

Please submit feedback regarding the e-book you have just completed, including feedback on e-book structure, content, and Author.

*Required

- What is this question trying to test?
- Knowledge - This type of question is testing how well you remember the information you have learned.

Summarise:

- Give a brief account of a particular scenario or topic, by only writing about the most important features.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Suggest:

- Present your opinion on a particular scenario or topic and defend your opinion using examples and/or evidence.
- Performance – This type of question is asking you why and how you have applied your knowledge to a particular scenario, so your thought process is clear.

State:

- Give precise information about a particular scenario or topic. Knowledge or Competence.

Relate:

- Show how ideas or events are connected.
- Competence - This type of question is testing if you can apply your knowledge to a particular scenario and make a judgement or decision.

Outline:

- A generalised description of the most important features of a particular scenario or topic. Knowledge or Competence.

Justify:

- Give reasons.
- Performance – This type of question is asking you why and how you have applied your knowledge to a particular scenario, so your thought process is clear.

CALL-TO-ACTION

Your browser does not support the video tag.

“Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments” - WHO

Get in touch



Design: TEMPLATED Images: Unsplash (CC0)

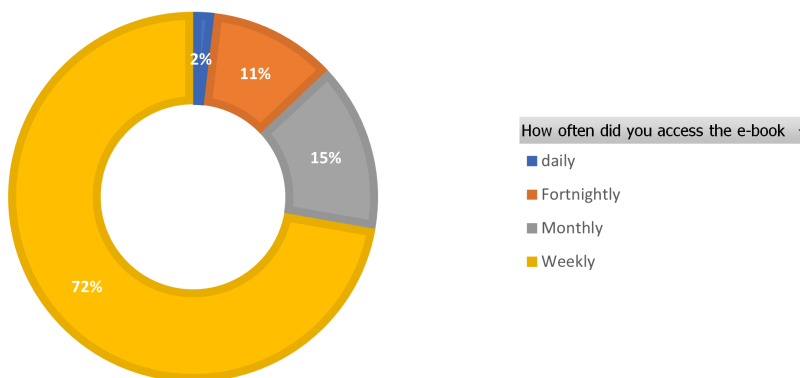


Terminology in Physiotherapy

FAQ (based on feedback)

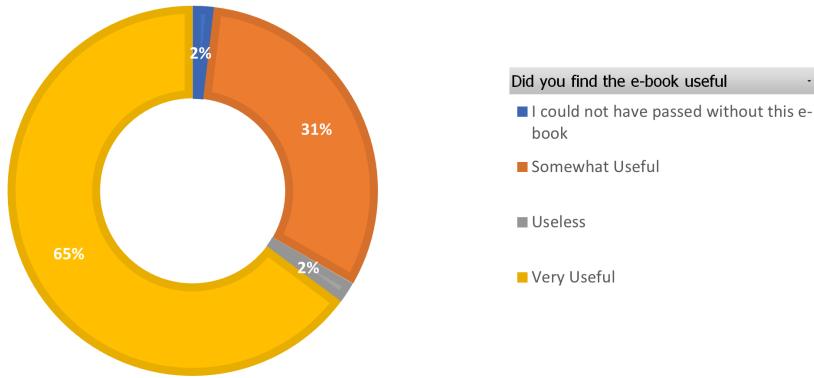
Count of How often did you access the e-book

HOW OFTEN DID YOU ACCESS THE E-BOOK



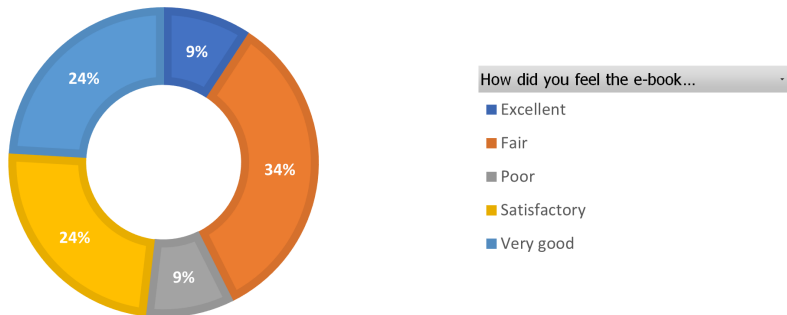
Count of Did you find the e-book useful

DID YOU FIND THE E-BOOK USEFUL



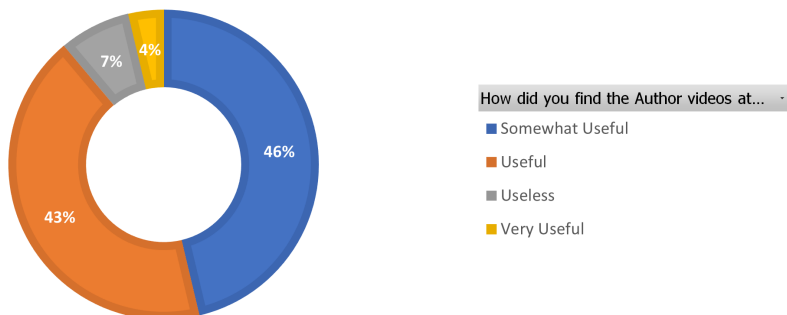
Count of How did you feel the e-book Contributed to your learning [Level of skill/knowledge at start of e-...

HOW DID YOU FEEL THE E-BOOK CONTRIBUTED TO YOUR LEARNING [LEVEL OF SKILL/KNOWLEDGE AT START OF E-BOOK]



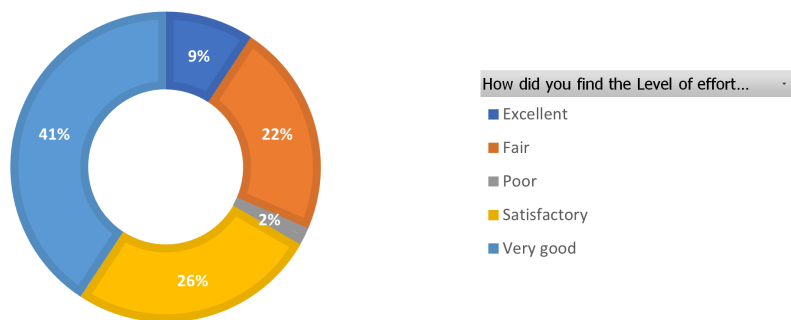
Count of How did you find the Author videos at the beginning of every Chapter and/activity/confidence builder/Quizz/audio...

HOW DID YOU FIND THE AUTHOR VIDEOS AT THE BEGINNING OF EVERY CHAPTER AND/ACTIVITY/CONFIDENCE BUILDER/QUIZZ/AUDIO CHALLENGE



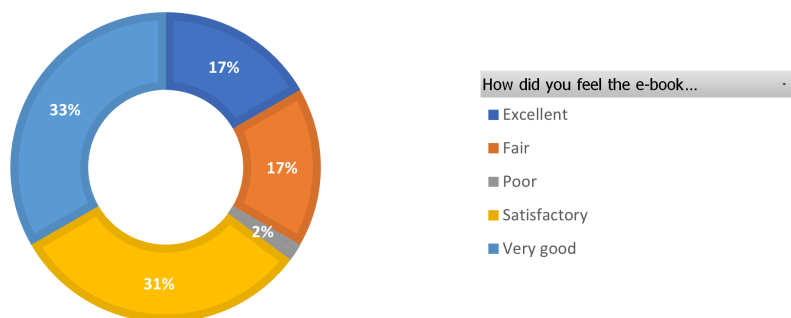
Count of How did you find the Level of effort you needed to navigate the e-book [Level of effort you put into the...

HOW DID YOU FIND THE LEVEL OF EFFORT YOU NEEDED TO NAVIGATE THE E-BOOK [LEVEL OF EFFORT YOU PUT INTO THE COURSE]



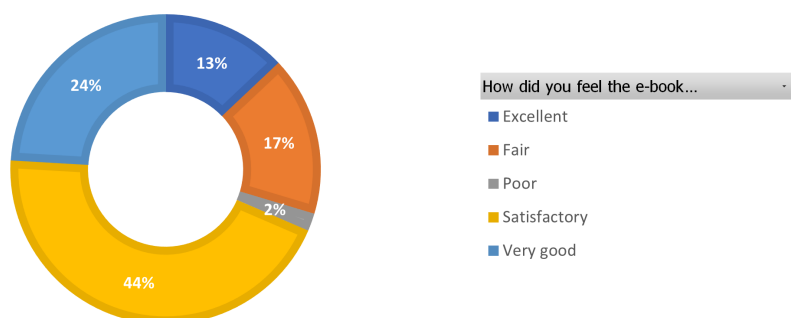
Count of How did you feel the e-book Contributed to your learning [Level of skill/knowledge at end of e-...

HOW DID YOU FEEL THE E-BOOK CONTRIBUTED TO YOUR LEARNING [LEVEL OF SKILL/KNOWLEDGE AT END OF E-BOOK]



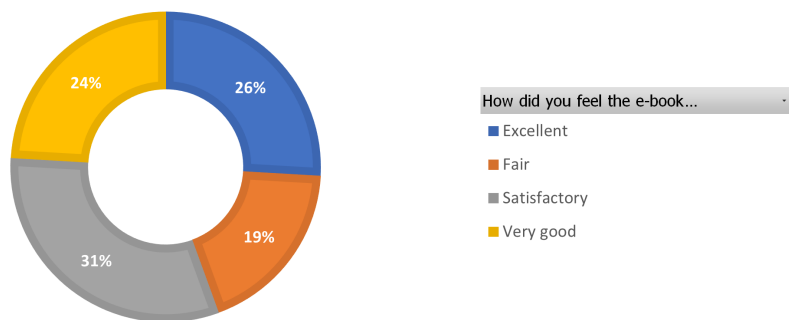
Count of How did you feel the e-book Contributed to your learning [Level of skill/knowledge required to complete the e-...

HOW DID YOU FEEL THE E-BOOK CONTRIBUTED TO YOUR LEARNING [LEVEL OF SKILL/KNOWLEDGE REQUIRED TO COMPLETE THE E-BOOK]



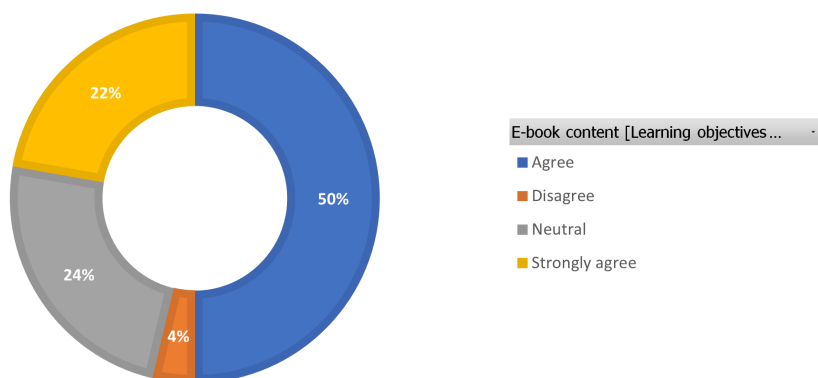
Count of How did you feel the e-book Contributed to your learning [Contribution of e-book to your...

HOW DID YOU FEEL THE E-BOOK CONTRIBUTED TO YOUR LEARNING [CONTRIBUTION OF E-BOOK TO YOUR SKILL/KNOWLEDGE]



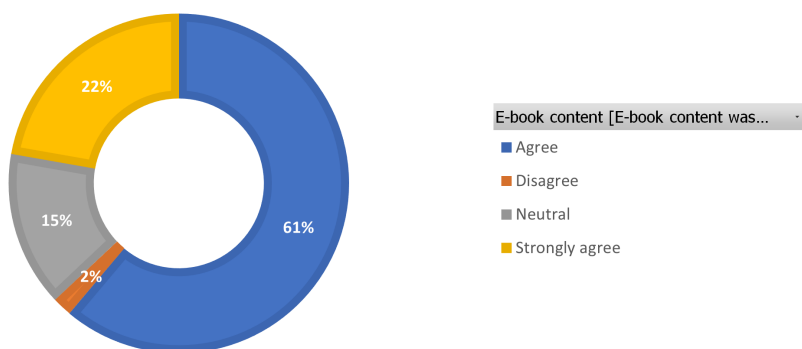
Count of E-book content [Learning objectives were clear]

E-BOOK CONTENT [LEARNING OBJECTIVES WERE CLEAR]



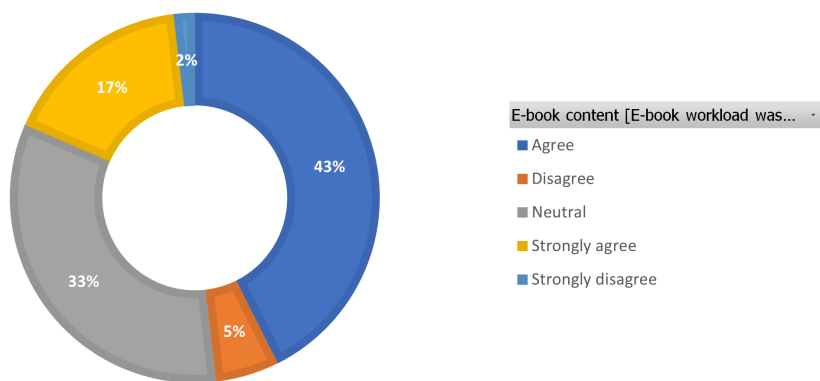
Count of E-book content [E-book content was organized and well planned]

E-BOOK CONTENT [E-BOOK CONTENT WAS ORGANIZED AND WELL PLANNED]



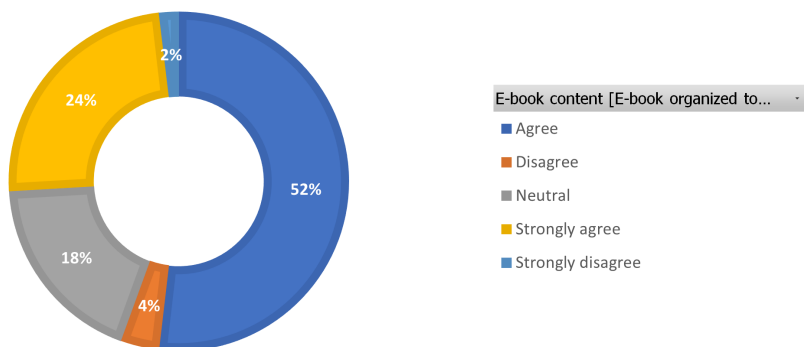
Count of E-book content [E-book workload was appropriate]

E-BOOK CONTENT [E-BOOK WORKLOAD WAS APPROPRIATE]



Count of E-book content [E-book organized to allow all students to participate...]

E-BOOK CONTENT [E-BOOK ORGANIZED TO ALLOW ALL STUDENTS TO PARTICIPATE FULLY]



“Physiotherapists (PT) assess, plan and implement. rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments” - WHO

License



by is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.
Permissions beyond the scope of this license may be available at <http://www.healthedu.uct.ac.za/Contact-Us-Edu>.

Design: TEMPLATED Images: Unsplash (CC0)