

## Glossary

<b>Adams forward bend test</b>	the patient bends forward to emphasise any asymmetry in the rib cage or loin on the back for the clinical detection of scoliosis
<b>Aetiology</b>	the study of the cause(s) of a disease or condition
<b>Agonist</b>	the muscle that is carrying out the motion about a joint axis.
<b>Ambulation</b>	the act of walking
<b>Anisomelia</b>	leg length inequality
<b>Antagonist</b>	the muscle that opposes the action of a joint about an axis
<b>Antagonistic pelvic torsion</b>	occurs when one innominate is more anterior than the normal inclination and the contralateral innominate is more posterior than the normal inclination
<b>Anterior</b>	the front of the body, or towards the front
<b>Anterior superior iliac spine (ASIS)</b>	a bony prominence on the anterior superior margin of the pelvis
<b>Anthropometric measures</b>	measures of body dimensions
<b>Antiphase</b>	the part or parts of the gait cycle when joints move in the opposite direction
<b>Apparent LLI</b>	a leg length discrepancy, that is not a real bony difference
<b>A.S (Anterior Superior) ilium</b>	an A.S ilium occurs when an ilium misaligns in an anterior and superior direction away from its normal relationship with the sacrum. The ilium

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	travels in an arc, in an anterior and superior direction due to the auricular surfaces of the joint
<b>Bilateral</b>	on both sides
<b>Bipedalism</b>	to stand and walk on two legs
<b>Body vector</b>	mean line, which represents the alignment of the body weight relative to the joint of interest
<b>Bony LLI</b>	a leg length discrepancy, that is a real bony difference
<b>Cadence</b>	the number of steps per minute
<b>Central program generators</b>	the regions within the spinal cord which produce cyclic flexion and extension of the limbs
<b>Centre of mass (CoM)</b>	is the point at the exact centre of an object's mass
<b>Cervical vertebrae</b>	the upper seven vertebrae of the spine, usually denoted C1–C7, counting from the top; C7 is the vertebra prominens, the spinous process that is most easily seen at the top of the back/bottom of the neck
<b>Congenital scoliosis</b>	scoliosis due to congenitally anomalous vertebral development
<b>Contralateral</b>	on the opposite side of the body
<b>Coronal (frontal) plane</b>	a vertical plane from head to foot that separates the body into front and back halves allowing

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	inversion and eversion to occur perpendicular to it
<b>Counter-nutation</b>	the movement of the sacral base posteriorly and superiorly. An ilium or ilia then moves oppositely, in an anterior and superior direction.
<b>Coxa articulation</b>	the acetabulum of the hip joint which articulates with the head of the femur
<b>Digital pelvic inclinometer (DPI)</b>	a device used to measure sagittal plane inclination of an innominate bone between the posterior superior iliac spine and anterior superior iliac spine using a straight horizontal line as a starting reference
<b>Distal</b>	away from the centre of the body
<b>Double limb support</b>	both feet on the ground
<b>Double femoral pathway</b>	posterior rotation of both innominates
<b>Dorsiflexion</b>	movement of the foot towards the anterior surface of the lower leg usually occurring at the ankle joint
<b>Ectomorph</b>	an individual with tall slender posture
<b>Endomorph</b>	an individual with a 'pear' shaped posture
<b>EVA (Ethyl Vinyl Acetate)</b>	a thermoplastic material used in the construction of orthoses

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<b>Extension</b>	an unbending movement around a joint that increases the angle between the joined bones (for example, leaning backwards from the hip)
<b>Facet joint</b>	facet joints are the joint structures that connect the vertebrae to one another.
<b>Femoral pathway</b>	full kinetic chain compensation mechanisms
<b>Femoral rotation</b>	a motion about the axis of the thigh bone
<b>Flexion</b>	a bending movement around a joint that decreases the angle between the bones at the joint (for example, leaning forward from the hips)
<b>Flight phase</b>	neither foot is on the ground
<b>Functional pathways</b>	a series of musculoskeletal changes in the body, which occur as a result of compensation for LLI
<b>Gait cycle</b>	begins when the foot strikes the ground and ends when the same foot strikes the ground again
<b>Gravity</b>	the natural force of attraction exerted by a celestial body, such as Earth, upon objects at or near its surface, tending to draw them toward the centre of the body
<b>Gross motor functions</b>	the ability to perform large movements such as walking and running
<b>Ground reaction force</b>	occurs due to Newton's third law, which states that every action must have an equal and opposite reaction, therefore the downward force passing

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	through the foot when it bears weight must be matched by an equal and opposite upward force
<b>Heel strike</b>	the mode of initial contact when the heel strikes the ground first
<b>Hemiatrophy</b>	one side of the body deteriorates
<b>Hemihypertrophy</b>	one side of the body grows faster than the other side
<b>High subtalar joint axis</b>	the orientation of the subtalar joint axis of motion which is conducive for more supination than pronation
<b>Hyperextension</b>	over straightening
<b>Hyperflexion</b>	over bending
<b>Idiopathic scoliosis</b>	a lateral curvature of the spine $>10^\circ$ defined radiographically, of unknown origin
<b>Initial contact</b>	occurs at the immediate point when the foot strikes the ground
<b>Initial swing</b>	begins at toe-off and continues until maximum knee flexion (60 degrees) occurs
<b>Innominate bone</b>	is composed of the fused segments of the ilium, ischium and pubis
<b>Innominate inclination</b>	the angle in the sagittal plane between a horizontal line and a line passing through both the posterior

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superior iliac spine and the anterior superior iliac spine. Innominate inclination is +ve when the posterior superior iliac spine is higher than the anterior superior iliac spine. Innominate inclination is -ve when the anterior superior iliac spine is higher than the posterior superior iliac spine.

Normal innominate inclination is approximately 8 to 10° +ve, in an anterior inclination

**Ipsilateral**

on the same side of the body

**Joint axes**

about which motion occurs in joint

**Kinematics**

is the branch of classical mechanics that describes the motion of objects without consideration of the causes leading to the motion

**Kinetic**

of force

**Kinetic chain**

the numerous musculoskeletal components that make up the posture

**Kyphosis**

an excessive convex curvature of the spine in the sagittal plane, (apex backwards)

**Lateral**

from side to side

**Lateral pelvic tilt**

the angle in the frontal plane between a line connecting the right and left iliac crests and a horizontal line. A positive value of the angle occurs when one iliac crest is higher than the other

**Leg length inequality**

difference in length between the two legs

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<b>Ligamentous laxity</b>	a condition when the ligaments are less tight and more mobile than normal
<b>Limb advancement</b>	the forward motion of the swing limb
<b>Loading response</b>	the first part of the gait cycle when weight is accepted onto the stance limb
<b>Lordosis</b>	an excessive concave curvature of the spine in the sagittal plane, (apex forwards)
<b>Low subtalar joint axis</b>	the orientation of the subtalar joint axis of motion which, is conducive for more pronation than supination
<b>Lower limb</b>	leg
<b>Lumbar vertebrae</b>	the group of (usually five) vertebrae in the lower spine denoted L1–L5
<b>Lumbosacral</b>	joint between the sacrum and 5 <sup>th</sup> lumbar vertebrae
<b>Medial</b>	to the inner side
<b>Mesomorph</b>	an individual with a more muscular build
<b>Midstance</b>	begins with contralateral toe off and ends when the center of gravity is directly over the reference foot
<b>Mid-swing</b>	occurs from maximum knee flexion until the tibia is vertical or perpendicular to the ground
<b>Moment</b>	the rotational potential of the forces acting on a joint, also called torque
<b>Morphology (biology)</b>	the study of form and structure of organisms

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<b>Musculoskeletal system</b>	also known as the locomotor system is the system that gives animals (including humans) the ability to move using the muscular and skeletal systems. The musculoskeletal system provides form, support, stability, and movement to the body
<b>Nutation</b>	the anterior inferior motion of the sacral base. It is simultaneously accompanied by an ilium or ilia moving posteriorly and inferiorly, with the posterior superior iliac spine (PSIS) as the point of reference for the ilium. Normal sacral angle is 30 ° in the sagittal plane
<b>Orthotic insoles</b>	a prosthetic foot support which is worn inside the shoes
<b>Paediatric</b>	related to children
<b>Palpation</b>	examination by touch
<b>Pathology</b>	the diagnosis of disease
<b>Pathomechanics</b>	the term used to describe the abnormal movement of body parts, which may lead to repetitive injury
<b>Pelvic manipulation</b>	a therapy, which alters movement in the pelvis
<b>Pelvic mobilisation</b>	a therapy, which creates movement in the pelvis
<b>Pelvic rotation</b>	motion of the pelvis in the transverse plane
<b>Pelvic torsion</b>	is rotational asymmetry of the two halves of the pelvis in the sagittal plane. Pelvic torsion is



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positive when the inclination between the right and left innominates is asymmetrical

### **Phylogenetics**

is the study of evolutionary relatedness

### **P.I (Posterior Inferior) Ilium**

occurs when an ilium misaligns in a posterior and inferior direction away from its normal relationship with the sacrum. The ilium travels in an arc, in a posterior and inferior due to the auricular surfaces of the joint

### **Plantarflexion**

the motion of the foot away from the anterior surface of the leg with motion occurring at the ankle joint

### **Posterior**

the back of the body, or towards the back

**Posterior superior iliac spine (PSIS)** a bony prominence on the posterior superior margin of the pelvis

### **Postural asymmetry**

one side of the body being different in structure to the other side

### **Prognosis**

a forecast of the course of a disease

### **Prone**

lying face down

### **Proximal**

situated near the centre of the body

### **Reflex**

an autonomic response to a stimulus

### **Rotation**

angular displacement in the transverse plane (generally of a vertebral body)

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<b>Sacroiliac Joint (SIJ)</b>	The sacroiliac joint or SI joint is the joint in the bony pelvis between the sacrum and the ilium of the pelvis, which are joined together by strong ligaments
<b>Sacrum</b>	the triangular bone at the base of the spine formed from the fusion of the five sacral vertebrae
<b>Sagittal plane</b>	a vertical plane through the body from head to toes which separates the body into right and left portions allowing flexion and extension to occur perpendicular to it.
<b>Scoliosis</b>	a lateral curvature of the spine
<b>Single femoral pathway</b>	adaptive pelvic mechanism on the longer limb side
<b>Single limb support</b>	one foot on the ground
<b>Somatic dysfunction</b>	dysfunction within the musculoskeletal system
<b>Stability</b>	when referring to posture this term indicates the ability to maintain a posture
<b>Stance phase</b>	is 60% gait cycle - heel strike to toe off, including 2 periods of double stance 10% each - at these times the body's centre of gravity is at it's lowest. Divided into 5 phases: initial contact, loading response, midstance, terminal stance and toe-off
<b>Step length</b>	longitudinal distance between two feet
<b>Stride</b>	the advancement of both feet (one step by each side of your body)

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<b>stride length</b>	distance covered during 1 cycle = 2 step lengths
<b>Supine</b>	lying on the back
<b>Supraspinal centres</b>	the part of the nervous system above the spinal cord
<b>Swing phase</b>	occurs when the a limb swings through the air during gait, 40% of the gait cycle and divided into initial swing, mid-swing and terminal swing
<b>Temporal sequencing</b>	events occurring in order determined by time
<b>Terminal stance</b>	begins when the center of gravity is over the supporting foot and ends when the contralateral foot contacts the ground
<b>Terminal swing</b>	begins where the tibia is vertical and ends at initial contact
<b>Thoracic vertebrae</b>	a group of (usually twelve) vertebrae in the chest region of the spine denoted T1–T12, each carrying a rib
<b>Tibial rotation</b>	movement of the tibia in the transverse plane
<b>Toe-off</b>	begins at contralateral initial contact and ends at toe off
<b>Torque</b>	a term describing the effect of a force in rotating a structure about a pivot

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<b>Transverse plane</b>	a horizontal plane through the body parallel to the ground when standing which allows adduction, abduction and internal and external rotation to occur perpendicular to it.
<b>Unilateral</b>	on one side
<b>Velocity</b>	stride length/cycle time (m/s)
<b>Vertebral rotation</b>	the rotation of the vertebra about the axis of the spine
<b>Vestibular balance</b>	a complex balance mechanism between the brain and the body using the vestibular system
<b>Wolf's law</b>	the basic bony structure will be modified by the weight bearing and muscular forces it experiences.