

SNS COLLEGE OF PHYSIOTHERAPY

COIMBATORE-35



SUBJECT: BIOMECHANICS

TOPIC:BIOMECHANICS OF POSTURE

Definition of Posture



Posture = the alignment of body parts in relation to each other and the environment

It can be static (still) or dynamic (moving)

Types of Posture



- Static posture: standing, sitting, lying
- Dynamic posture: walking, running, lifting, sports

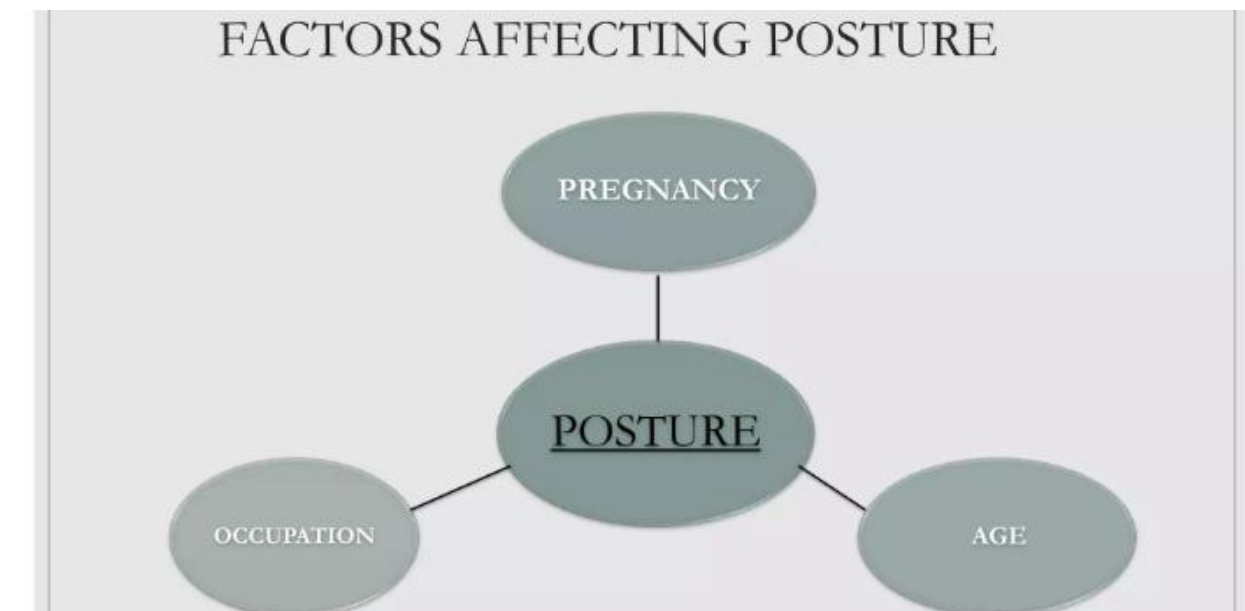
Importance of Good Posture

- Maintains balance and stability
- Reduces stress on joints and ligaments
- Prevents muscle fatigue and pain
- Improves appearance and confidence



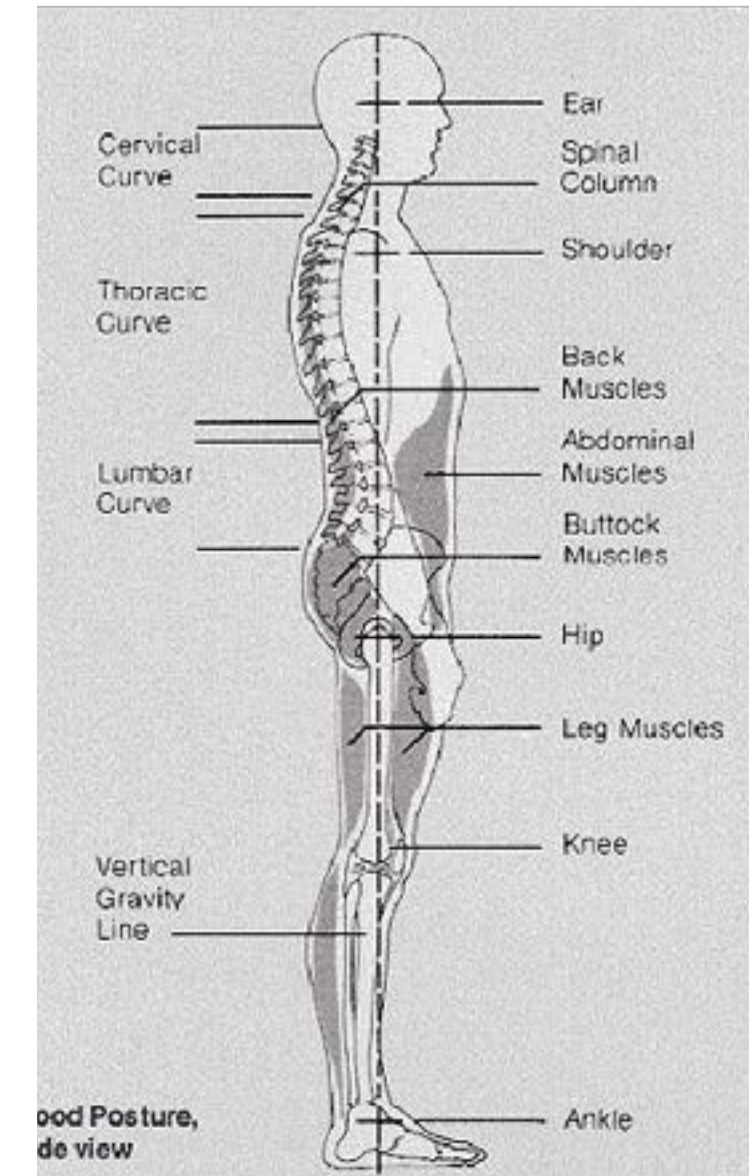
Factors Affecting Posture

- Muscular strength and flexibility
- Joint mobility
- Neurological control
- Habits & lifestyle (e.g., long sitting, phone use)
- Emotions and stress



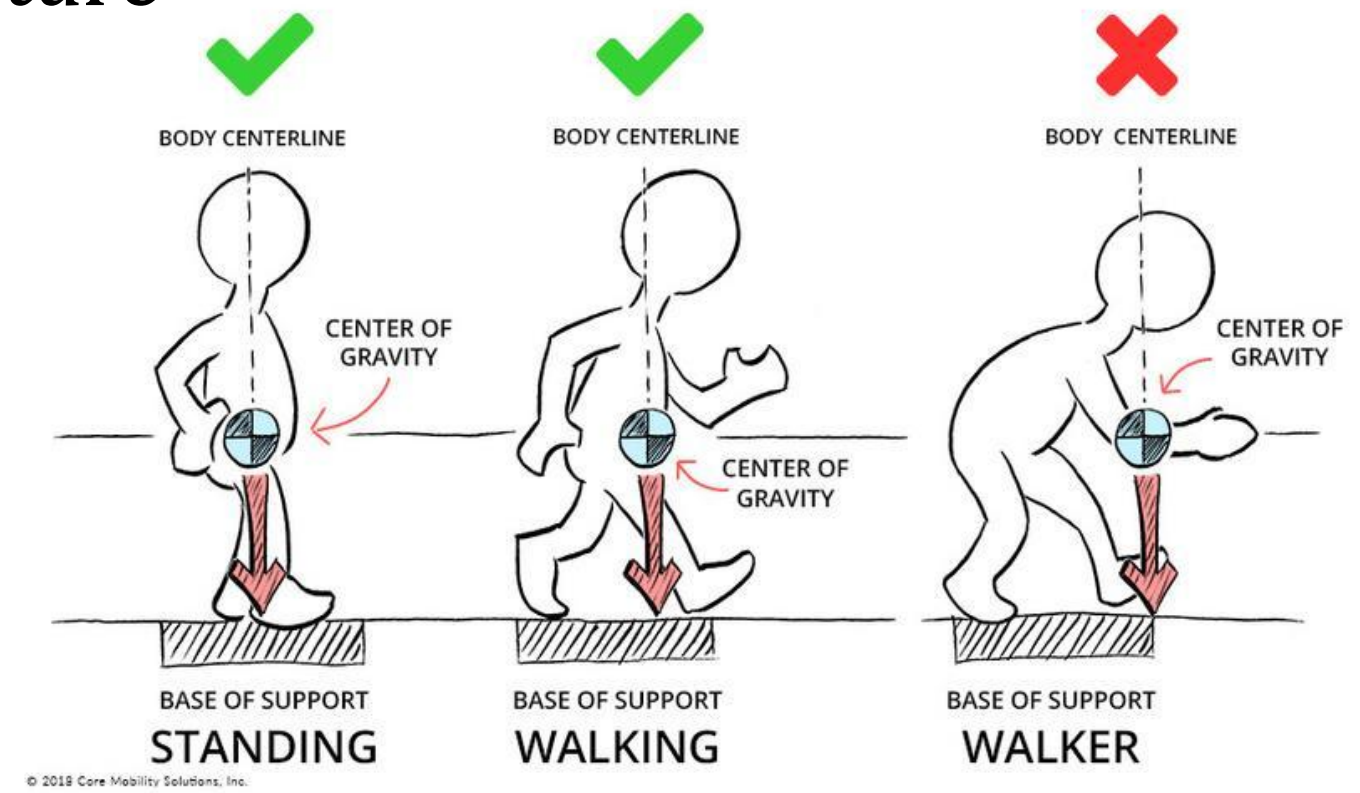
Anatomical Basis of Posture

- Proper alignment of head, spine, pelvis, and limbs
- Normal spinal curves (cervical lordosis, thoracic kyphosis, lumbar lordosis)



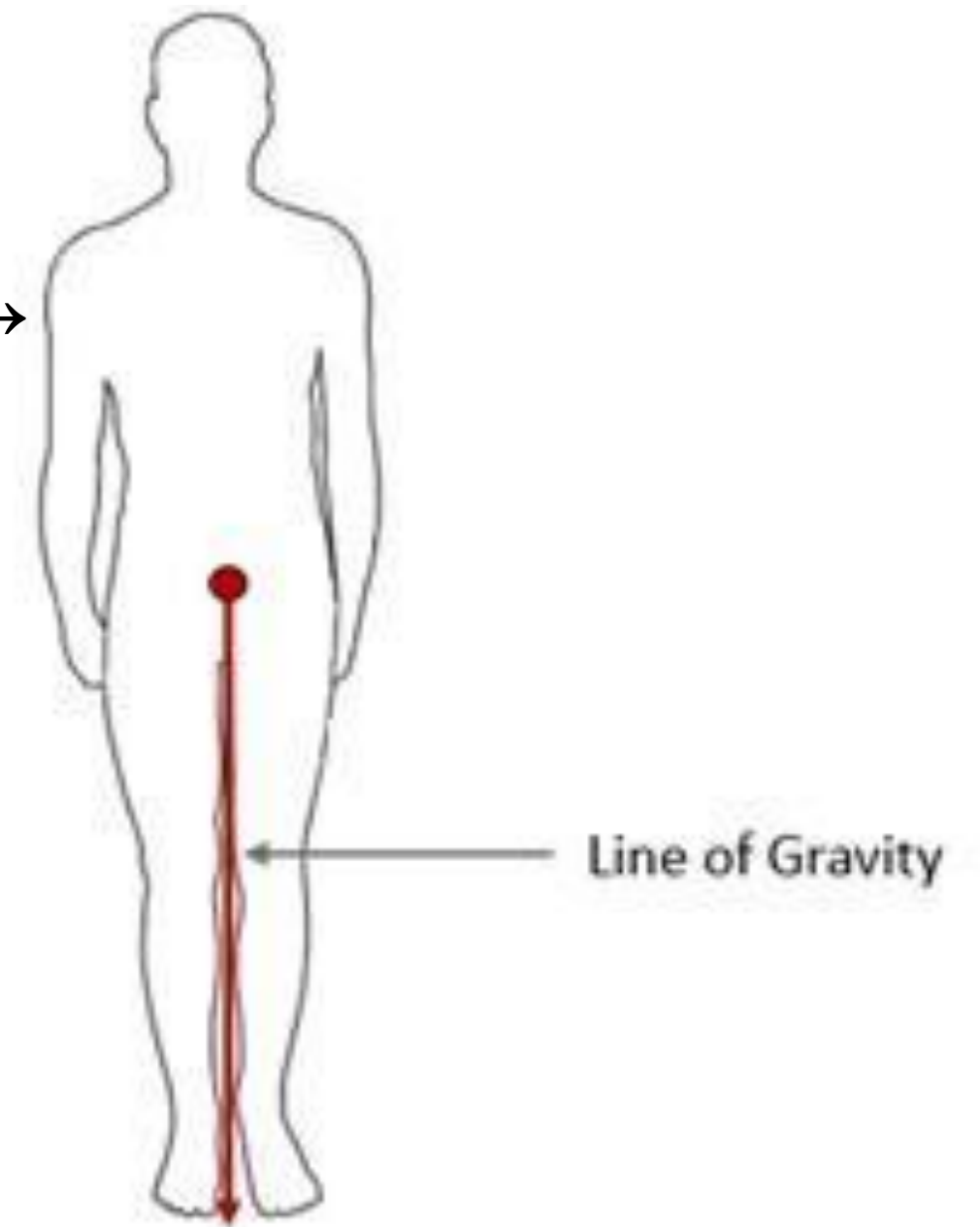
Center of Gravity (COG)

- Point where body mass is concentrated
- Normally around S2 vertebra in standing posture
- Must fall within base of support for balance



Line of Gravity (LOG)

- Imaginary vertical line passing through COG
- Ideal LOG passes through ear → shoulder → hip → knee → ankle



Postural Control Mechanisms



- Sensory input: vision, vestibular, proprioception
- Muscular system: stabilizers and movers
- Nervous system: coordination and reflexes

Summary



- Posture = body alignment
- Good posture conserves energy and prevents strain
- Controlled by interaction of muscles, joints, and nervous system

MCQ

Posture refers to:

- A. Arrangement of body segments
- B. Muscle contraction alone
- C. Joint movement only
- D. Bone length

Answer: A

Line of Gravity (LOG) in ideal posture passes:

- A. Anterior to ankle joint
- B. Posterior to knee joint
- C. Through body's center of mass
- D. Only through head

Answer: C

MCQ

Optimal standing posture is maintained mainly by:

- A. Bones only
- B. Ligaments only
- C. Muscles only
- D. Combined muscle and ligament action

Answer: D

In ideal posture, LOG at the knee is:

- A. Posterior to knee joint
- B. Anterior to knee joint
- C. Exactly on the knee joint
- D. Lateral to knee joint

Answer: B