

COIMBATORE-35

SUBJECT: BIOMECHANICS

**TOPIC:BIOMECHANICS OF
POSTURE**

Introduction

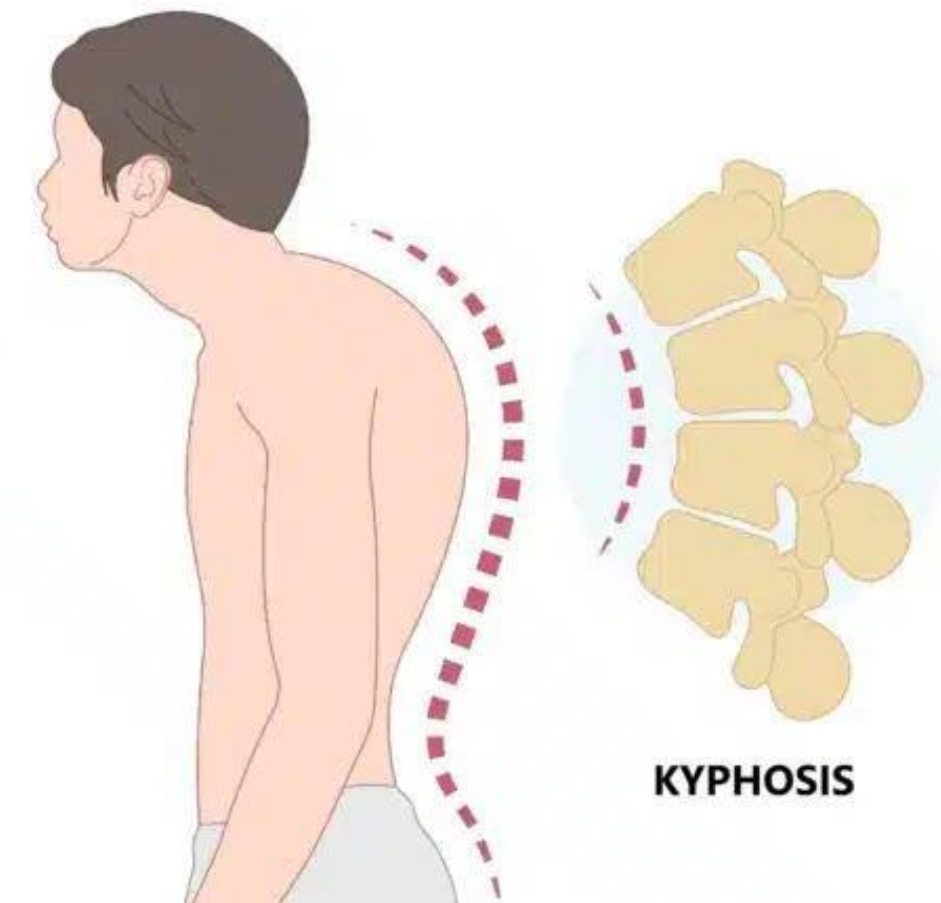
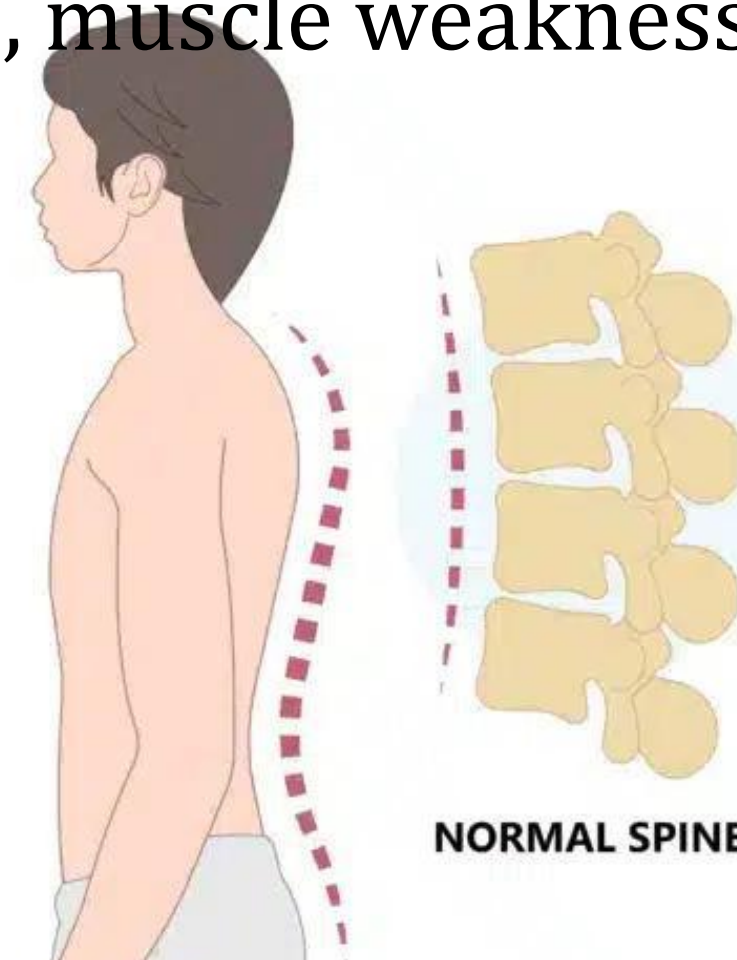


- Postural deviation = abnormal alignment of body segments
- Causes: weakness, tightness, habits, injury, structural problems

Kyphosis

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- Excessive outward curve of thoracic spine (“hunchback”)
- Causes: poor sitting habits, osteoporosis, muscle weakness

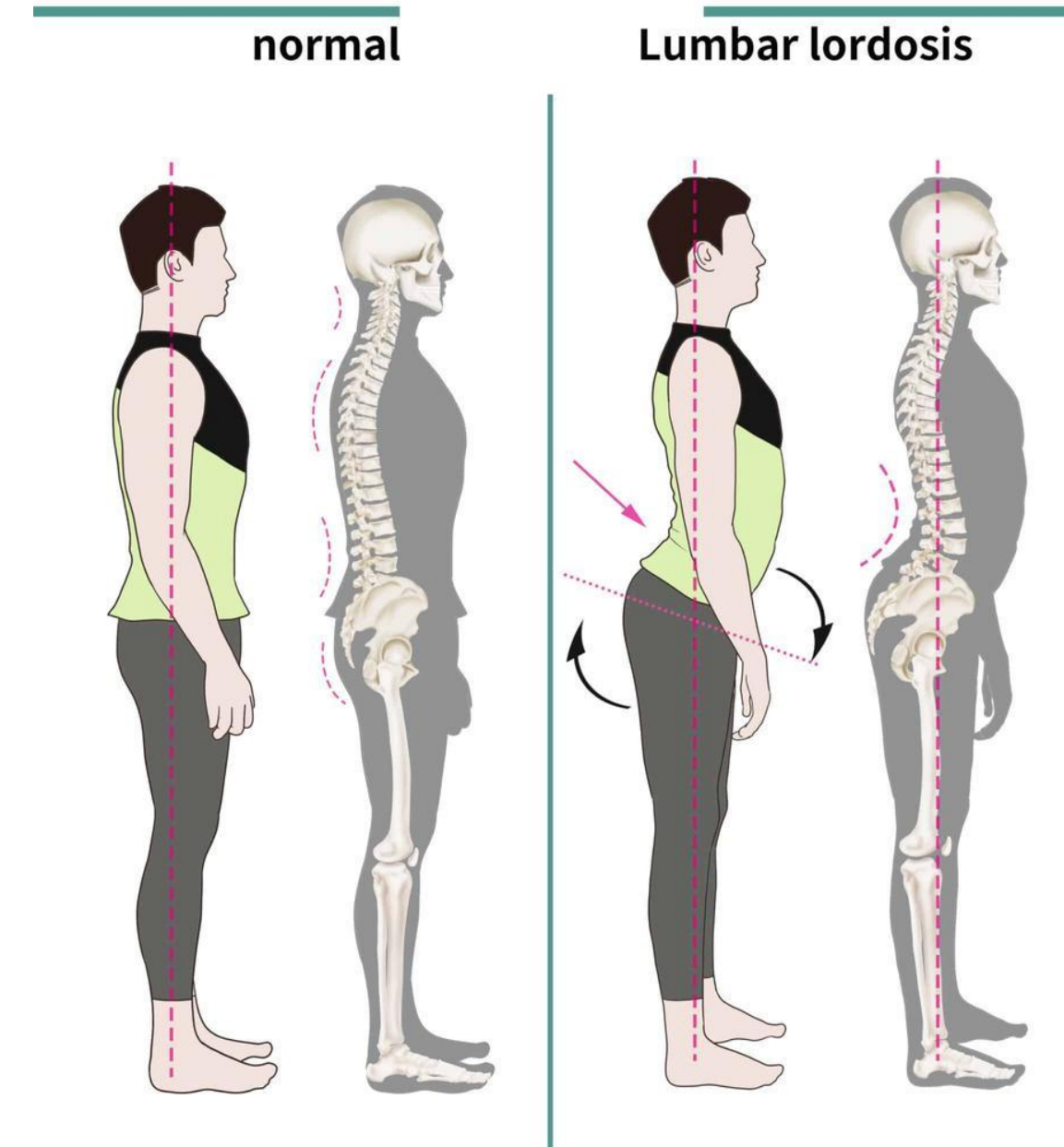


Lordosi

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Lumbar lordosis

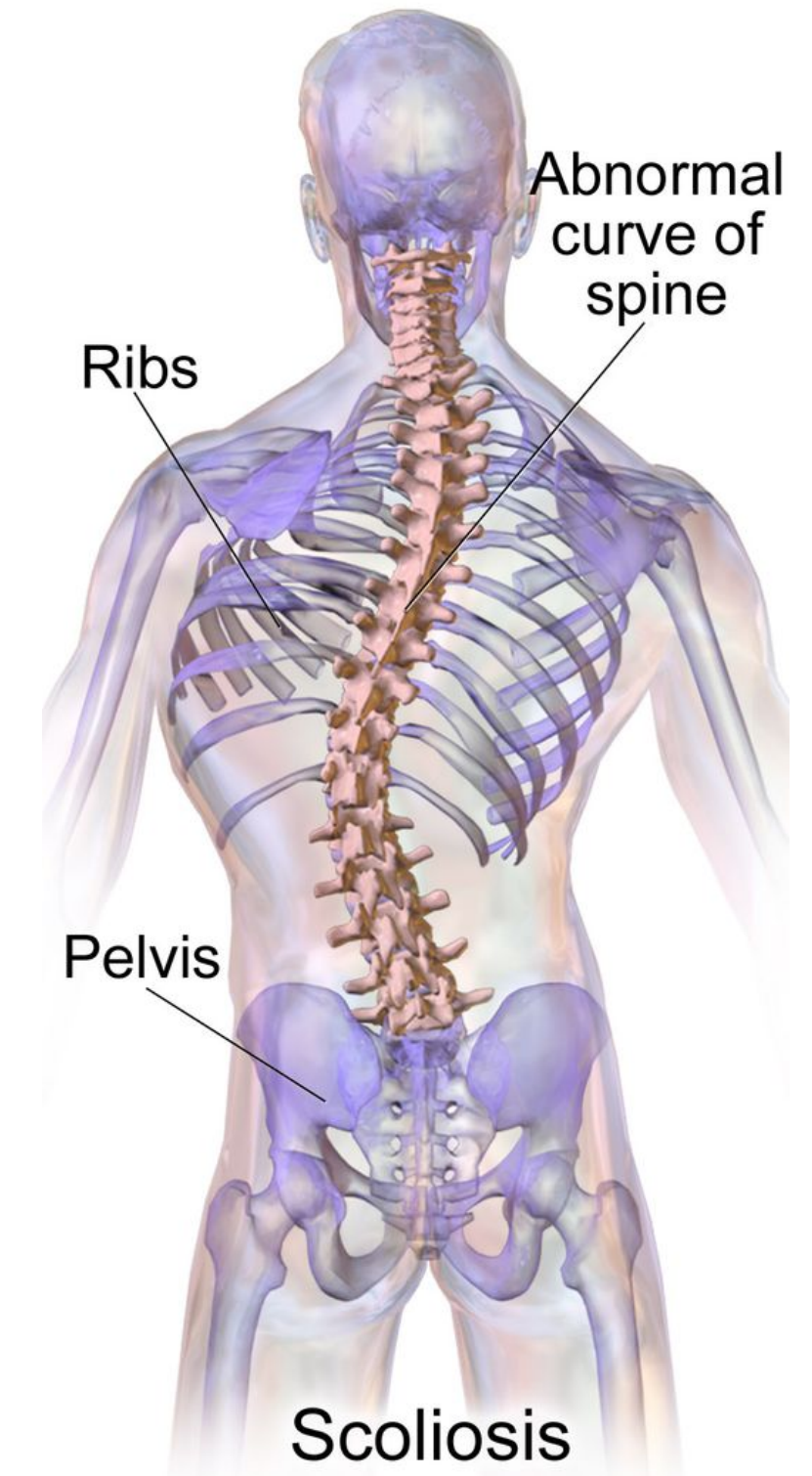
- Excessive inward curve of lumbar spine (“sway back”)
- Causes: weak abdominals, tight hip flexors, obesity



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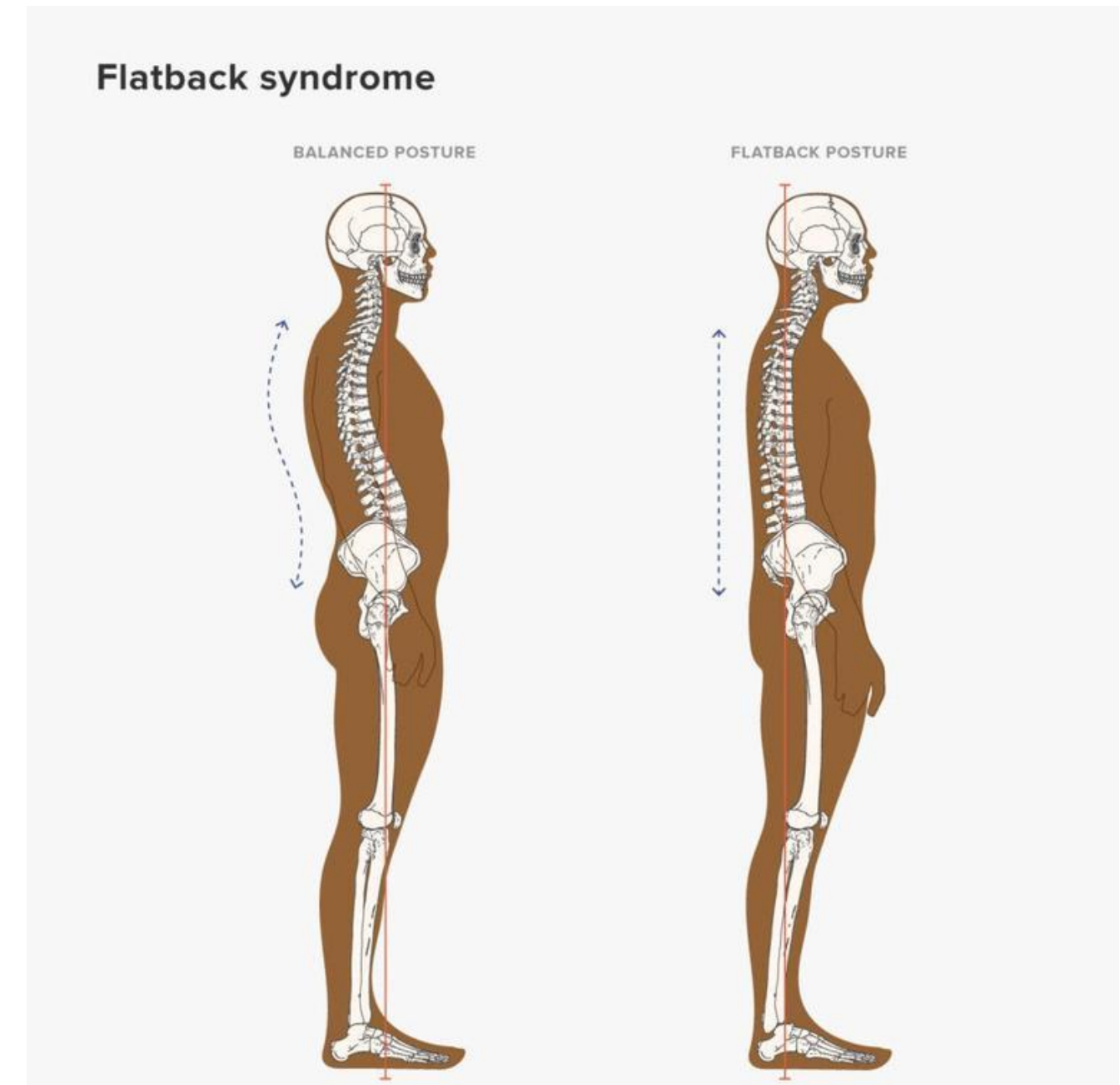
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- Lateral curvature of spine (S or C shape)
- Can be functional (temporary) or structural (permanent)



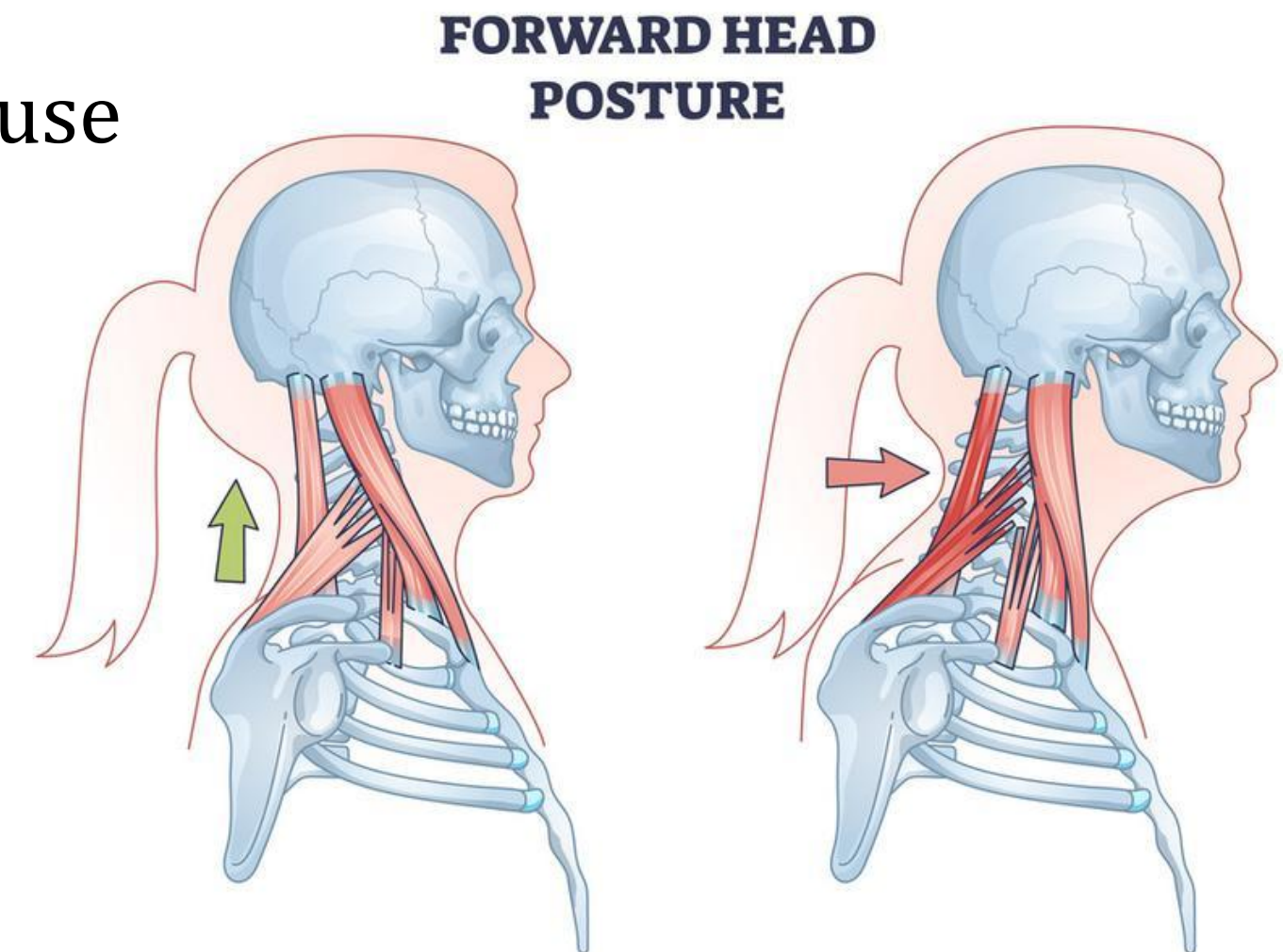
Flat Back Posture

- Loss of normal lumbar curve
- Causes stiffness, difficulty standing upright



Forward Head Posture

- Head protrudes forward relative to trunk
- Common due to mobile phone and computer use



Causes of Deviations



- Muscle imbalance (weak vs tight)
- Poor ergonomic setup
- Sedentary lifestyle
- Trauma or congenital conditions

Effects of Poor Posture



- Back and neck pain
- Reduced breathing efficiency
- Altered gait & balance
- Increased risk of injury

Conclusion



- Postural deviations are preventable and correctable
- Early detection + exercise + ergonomics = best management

MCQ



Gravitational moment refers to:

- A. Force opposing gravity
- B. Rotational force caused by gravity
- C. Internal muscular force
- D. Joint friction force

Answer: B

Soleus muscle functions mainly to:

- A. Flex knee
- B. Prevent forward sway of the body
- C. Flex toes
- D. Aid in respiration

Answer: B

Excessive lumbar lordosis is commonly associated with:

- A. Weak abdominals
- B. Weak erector spinae
- C. Tight hamstrings
- D. Flat feet

Answer: A

Kyphosis refers to:

- A. Forward curve of lumbar spine
- B. Backward curve of thoracic spine
- C. Lateral deviation of spinal column
- D. Increased arch of the foot

Answer: B