Exercise Therapy

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Lordosis: Definition, Types, Assessment, Physiotherapy Treatment and Exercises

Definition

Lordosis is an excessive inward curvature of the spine, most commonly affecting the lumbar (lower back) region. It results in an exaggerated arch of the lower back and altered postural alignment.

Types of Lordosis

1. Postural Lordosis

- Caused by poor posture and muscle imbalance.
- Common in adolescents and adults with sedentary lifestyles.

2. Congenital Lordosis

- Present at birth due to vertebral malformations.

3. Compensatory Lordosis

- Develops secondary to other deformities such as kyphosis or hip flexion contracture.

4. Paralytic Lordosis

- Caused by weakness or paralysis of trunk and hip muscles (e.g., muscular dystrophy, poliomyelitis).

5. Obesity-Related Lordosis

- Due to increased abdominal weight causing anterior pelvic tilt.

6. Pregnancy-Induced Lordosis

- Temporary increase in lumbar curvature due to altered center of gravity.

Clinical Features

Postural Features

- Excessive lumbar curve.
- Anterior pelvic tilt.
- Protruding abdomen.
- Prominent buttocks.
- Rounded shoulders may be present.

Symptoms

- Low back pain.

- Muscle fatigue during prolonged standing.
- Reduced spinal mobility.
- Difficulty maintaining correct posture.
- Hamstring tightness and hip flexor tightness.

Physical Examination Findings

- Increased lumbar lordotic angle.
- Tight lumbar extensors and hip flexors.
- Weak abdominal muscles.
- Weak gluteus maximus and hamstrings.
- Altered gait and balance in severe cases.

Physiotherapy Management

1. Assessment

- Postural assessment (plumb line analysis).
- Measurement of lumbar lordotic angle.
- Muscle length testing.
- Muscle strength testing.
- Functional assessment of gait and activities of daily living.

2. Patient Education

- Correct standing and sitting posture.
- Ergonomic modifications.
- Weight management advice when indicated.
- Avoid prolonged standing with exaggerated lumbar extension.

3. Stretching (To Reduce Tightness)

Target Muscles:

- Iliopsoas
- Rectus femoris
- Tensor fascia lata
- Lumbar erector spinae

Techniques:

- Static stretching (20–30 seconds).
- Muscle Energy Technique (MET) for hip flexors.
- Manual stretching by therapist.

4. Strengthening (To Correct Muscle Imbalance)

Abdominal Muscles

- Posterior pelvic tilt exercises.
- Abdominal drawing-in maneuver.
- Curl-ups (when appropriate).

Gluteal Muscles

- Bridging.
- Hip extension exercises.
- Functional sit-to-stand training.

Hamstrings

- Resisted knee flexion.
- Prone hamstring strengthening.

5. Core Stabilization Training

- Transversus abdominis activation.
- Multifidus training.
- Pelvic stabilization exercises.
- Progression to dynamic stabilization activities.

6. Postural Re-education

- Mirror feedback training.
- Pelvic tilt control exercises.
- Neutral spine training.
- Functional posture correction during daily activities.

7. Manual Therapy

- Soft tissue mobilization of tight lumbar extensors.
- Myofascial release of hip flexors.
- Joint mobilization when spinal stiffness is present.

8. Gait and Functional Training

- Walking with neutral pelvic alignment.
- Stair climbing training.
- Functional movement retraining.

Key Physiotherapy Goals

1. Reduce excessive lumbar curvature.

2. Correct anterior pelvic tilt.
3. Improve flexibility of hip flexors and lumbar extensors.
4. Strengthen abdominal and gluteal muscles.
5. Enhance core stability.
6. Improve posture and functional activities.
7. Prevent recurrence of deformity and pain.

Reference

Ebnezar J. Textbook of Orthopedics, 4th Edition. Jaypee Brothers Medical Publishers. Additional concepts adapted from standard physiotherapy and musculoskeletal rehabilitation literature.

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