

SNS COLLEGE OF PHYSIOTHERAPY

Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Coimbatore – 641035

COURSE NAME : BIOMECHANICS

SUBJECT CODE : 6277

TOPIC : HIP JOINT

EMPATHIZE

Important in:

Arthritis

Post-fracture care

Reduces pain and improves mobility

MUSCULAR DYSTROPHY This is a group of genetic diseases.	1	DERMATOMYOSITIS Unlike polymyositis, dermatomyositis is also an inflammatory muscle disease.	6
MYASTHENIA GRAVIS This autoimmune disorder leads to muscle weakness and fatigue.	2	MYOTONIC DYSTROPHY Such a genetic disorder is usually characterized by progressive muscle wasting.	7
AMYOTROPHIC LATERAL SCLEROSIS (ALS) It is also known as Lou Gehrig's disease.	3	FACIOSCAPULOHUMERAL MUSCULAR DYSTROPHY FSHD is a genetic disorder.	8
SPINAL MUSCULAR ATROPHY (SMA) SMA is one of the most rare neuromuscular diseases listed.	4	LIMB-GIRDLE MUSCULAR DYSTROPHY This is a group of genetic disorders.	9
POLYMYOSITIS This is an illness which is usually caused by inflammation.	5	MITOCHONDRIAL MYOPATHY This is a group of neuromuscular diseases.	10

IDEATE

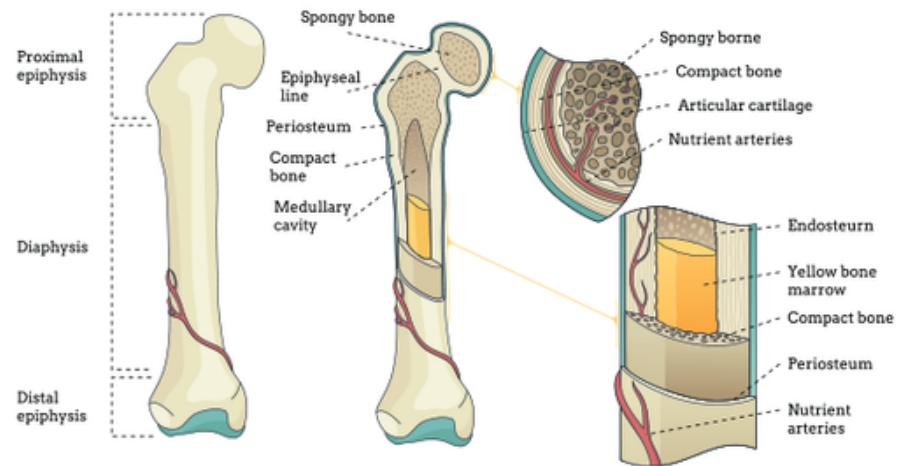
Used in:

Gait training

Cane prescription

Pain management

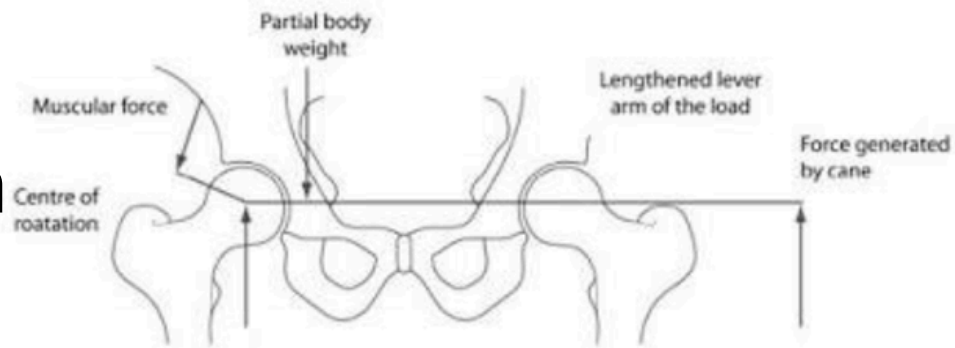
BONE STRUCTURE



DEFINE AND EXPLAIN

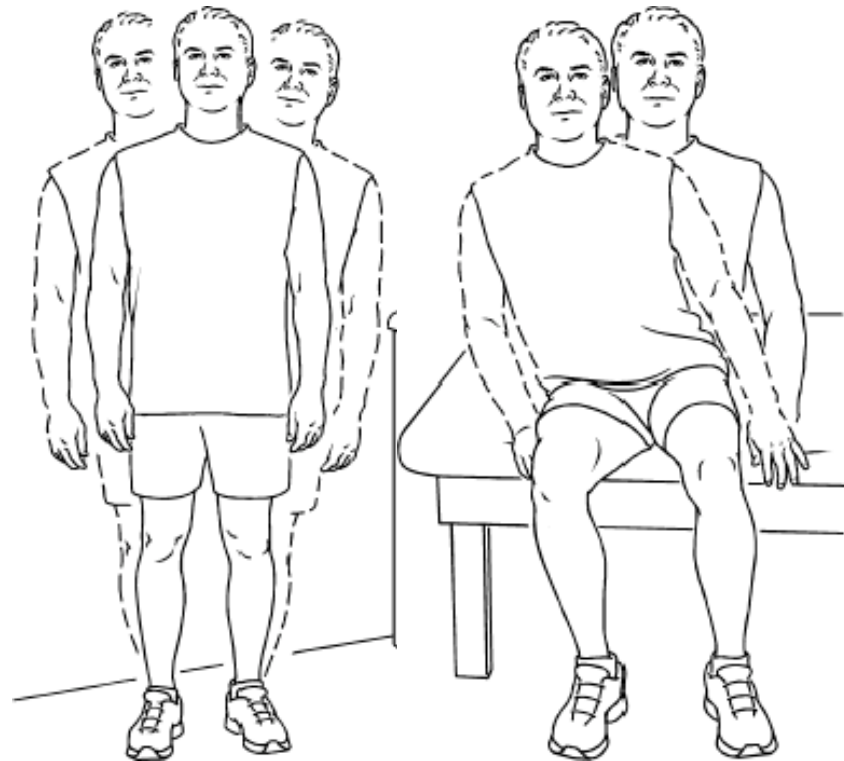
**Reduction of forces
means:**

**Decreasing joint reaction
force Reducing stress on
hip joint management**



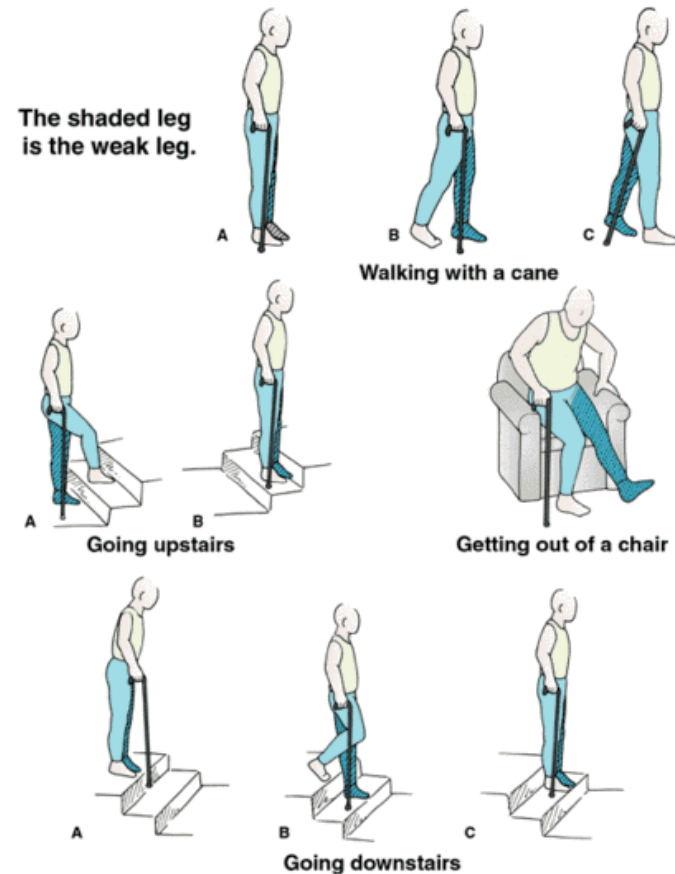
WEIGHT SHIFTING

- **Trunk shifted toward stance limb**
- **Reduces body-weight moment arm**
- **Decreases abductor force**



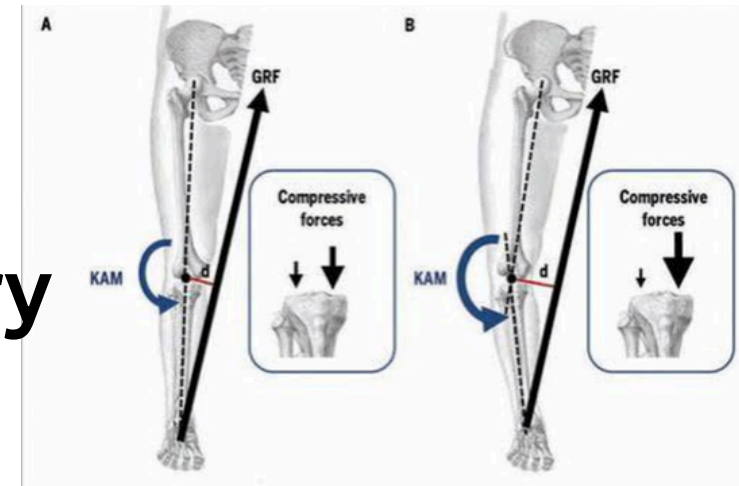
USE OF CANE

- Cane held in opposite hand
- Acts as external support
- Reduces hip joint load



MUSCLE WEAKNESS

- **Weak abductors increase joint stress**
- **Leads to compensatory trunk lean**
- **Causes abnormal gait**



FLOW CHART

Mobility Enhancement Strategy



Made with  Napkin

In class assessment

- 1. Explain the forces acting on the hip joint during single-limb stance.**
- 2. Describe how lateral weight shifting reduces the load on the hip joint.**
- 3. Explain the biomechanical principle behind reduction of hip joint reaction force by weight shifting.**
- 4. Describe the effect of using a cane on hip joint forces.**
- 5. Explain why a cane is advised to be used in the hand opposite to the affected hip.**

In class assessment

- 6. Describe the changes in hip joint forces when hip abductor muscles are weak.**
- 7. Explain Trendelenburg gait as a deviation caused by muscular weakness.**
- 8. Describe compensatory mechanisms adopted to reduce hip joint forces in abductor weakness.**
- 9. Explain how bony abnormalities of the hip affect load transmission and stability.**
- 10. Describe the clinical significance of understanding force reduction strategies in hip pathology.**

Thank you

