ME6230: Mechanics of Human Movement
Week 10 Questions
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1. Explain the role of hamstrings during initial contact.

Ans. The hamstrings perform eccentric action to prevent hyperextension of the knee
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2. When and where is maximum joint power generated in the gait cycle?

Ans., Maximum joint power is generated at the ankle during push-off.

3. What are the action types of various muscles during the swing phase?

Ans. Quadriceps: Concentric Action
Hip Flexors: Concentric Action
Hamstrings : Eccentric Action

4. What are the different categories of pathological gait?

Ans. Deformity, Muscular problems, Sensory loss, Pain and Impaired motor control.

5. Explain the role of tibialis anterior during loading response.

Ans. The tibialis anterior pulls the tibia forward during loading response.

6. Explain contractures.

Ans. Fibrous connective tissue undergoes a structural change due to prolonged inactivity.

7. Explain spasticity.

Ans. Muscle is overactive and there is no control over it sometimes.

8. What are the gait modifications for functional leg length problems?

Ans. Circumduction, Hip Hiking, Steppage and Vaulting.

9. Explain Circumduction.

Ans. Rotating the knee in a circular fashion to counter using hips during limb shortening problems.

10. Explain Vaulting.

Ans. Tiptoeing of the stance leg to ensure ground clearance during swing.