



Help Us Legs: Lower Limb Exoskeleton



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Motivation

- Assist soldiers carrying a heavy load in various terrains
 - Reduce stress on the body
 - Wearable
 - Low power
 - Light weight

Plan

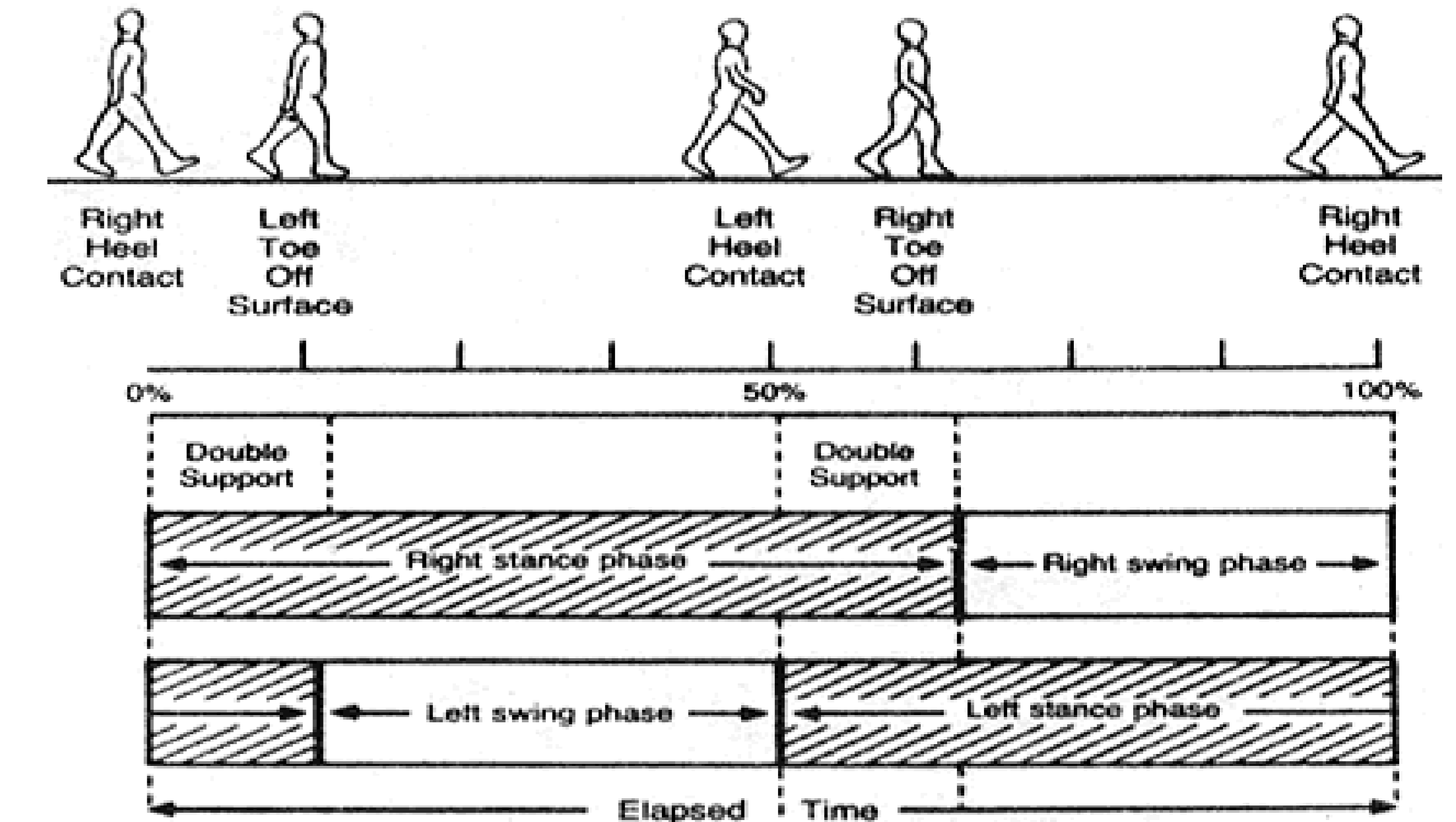
1. Optimize the energy storage and release to components
2. Stores energy when contracting
3. Releases energy when expanding



The Gait Cycle

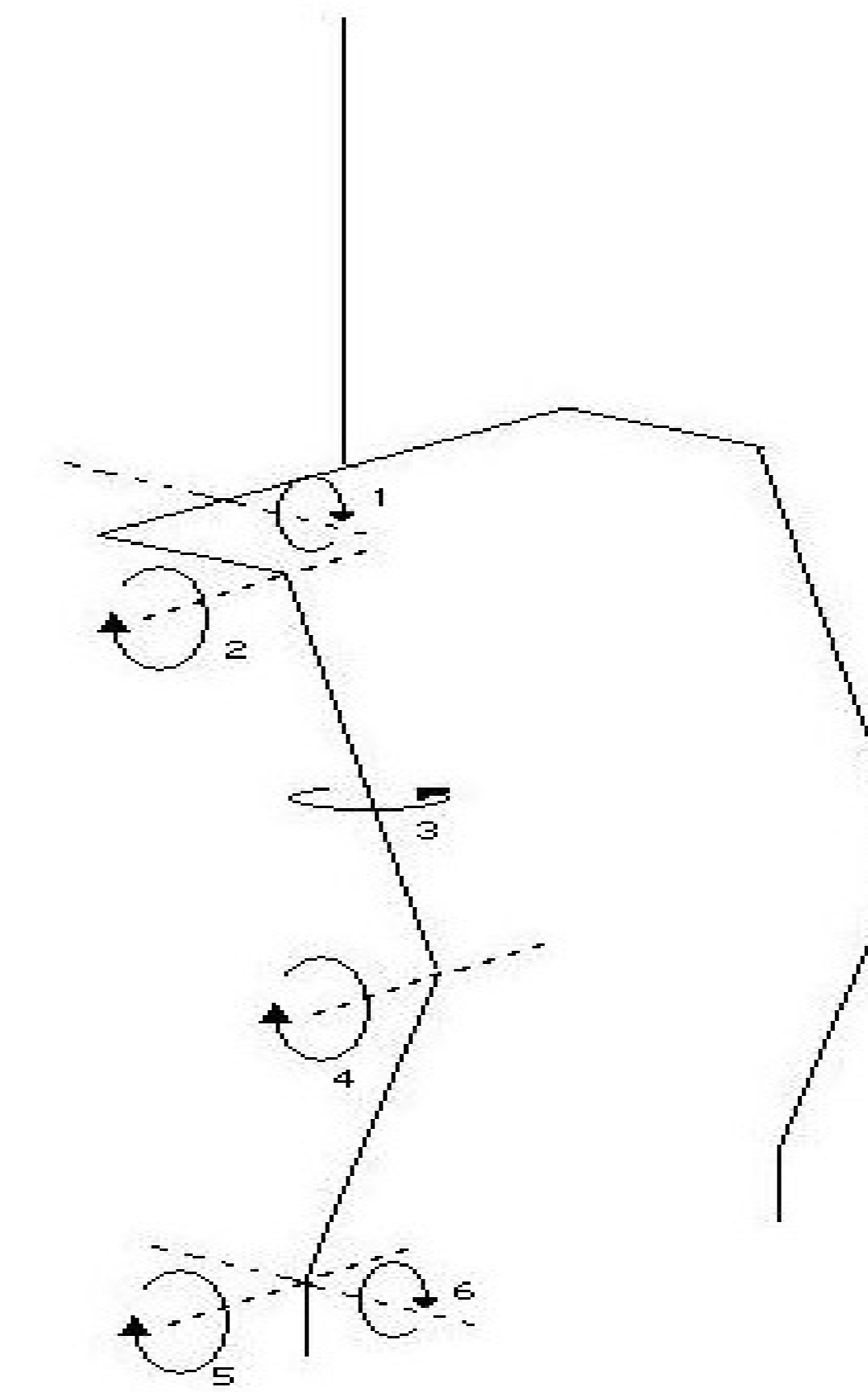
- The gait cycle consist of 2 phases:
1. Stance: foot in contact with ground
 - a. Heel strike to flat foot
 - b. Foot flat through midstance
 - c. Midstance through heel off
 - d. Heel off to toe off
 2. Swing: foot not in contact with ground
 - a. Acceleration to midswing
 - b. Midswing to deceleration

Release and store energy during gait cycle



Degrees of Freedom (DOF)

- 6 DOF per leg
- 3 Hip Joint
- 1 Knee Joint
- 2 Ankle Joint



Control System

