Stance Phase	Description	GRF Diagram	Joint[6,8]	Concentric Contraction	Eccentric Contraction (for Control) [6,8]
Initial Contact	Right foot contacts ground (Heel strike)	Hip: Flexion 30°	Gluteus Maximus/ Hamstring Gluteus Medius (pelvic stabilization)		
Knee: ~full extension	Hamstring/ Quadriceps stabilize				
Ankle: Neutral	Pretibial (tibialis anterior, extensor digitorum longus and extensor hallucislongus)				
Loading Response	Weight acceptance, shock absorption	Hip: Flexion 30° High flexion torque	Gluteus Maximus, Hamstrings (shock absorption/limit hip flexion) Adductor Magnus (shock absorption) Gluteus Medius (pelvic stabilization)		
Knee: flexion 15-18°	Quadriceps (advances femur over tibia)				
Ankle	Pretibial (Pulls tibia over Calcaneus)				
Mid stance	Left toe comes off ground; right leg supports weight	Hip (Initial Flex 30° Final: Flex 10°)	Gluteus Medius/Glut Max- Hip Abduction Gluteus Maximus- Initially: Hip extension		
Knee (Initial Flex 15° Final: Neutral position)	Quadriceps (early midstance only)	Lateral collateral ligament (Counters varus force)			
Ankle (Initial: PF 10° Final: DF 7°)	Calf (Soleus/Gastrocnemius) (advances tibia over foot and provides stability)				
Terminal Stance	Right heel comes off ground	Pelvis (5° rotation which increases step length)			
Hip (Extension 10°)	Iliopsoas	Gluteus Medius Tensor Fasciae Lata (counters posterior hip vector)			
Knee	Passive Joint Stability and forward action				
Ankle (DF to 10°)	Calf ("Forefoot Rocker")				
Pre-Swing	Left foot floor contact. Right pre-swing stage begins with right knee quickly bending and preparing to swing forward	Hip (flexes to neutral)	Iliopsoas Rectus femoris Sartorius Adductor Longus (decelerates abduction)		
Knee (moves to 35° of flexion)	Passive knee flexion	Quadriceps			
Ankle (moves from DF 10° to PF 20°)	Calf				