Boo Schexnayder

Teaching Schemes for Acceleration & Maximal Velocity Mechanics

Understanding Gait

Understanding Gait

- Natural Movement Patterns
- Pathological Gait
  - Common Causes
  - Misconceptions
- Self Organizing Skills
- Skills to Teach
  - Global Factors
  - Specific Skills

Global Factors in Sprinting

Posture

- Postural Integrity
  - Stability
  - Alignment
- Specifics
  - Head Alignment
  - Pelvic Alignment
- Uniformity of Movement

Posture

- Posture
  - Is It a Condition?
  - Is It a Skill?

Elastic Energy in Gait

- Elastic Energy Production
- Pelvic Origination and the Spinal Engine
  - Amplitudes of Movement
  - Undulations of the Center of Mass
  - Oscillations of the Pelvis

Amplitudes of Movement

Undulations of the Center of Mass

Elastic Energy in Gait

- The Pelvic Engine
  - Transverse Plane Oscillations
  - Sagittal Plane Oscillations
  - The Figure 8 Oscillatory Pattern
- Cuing and Common Errors

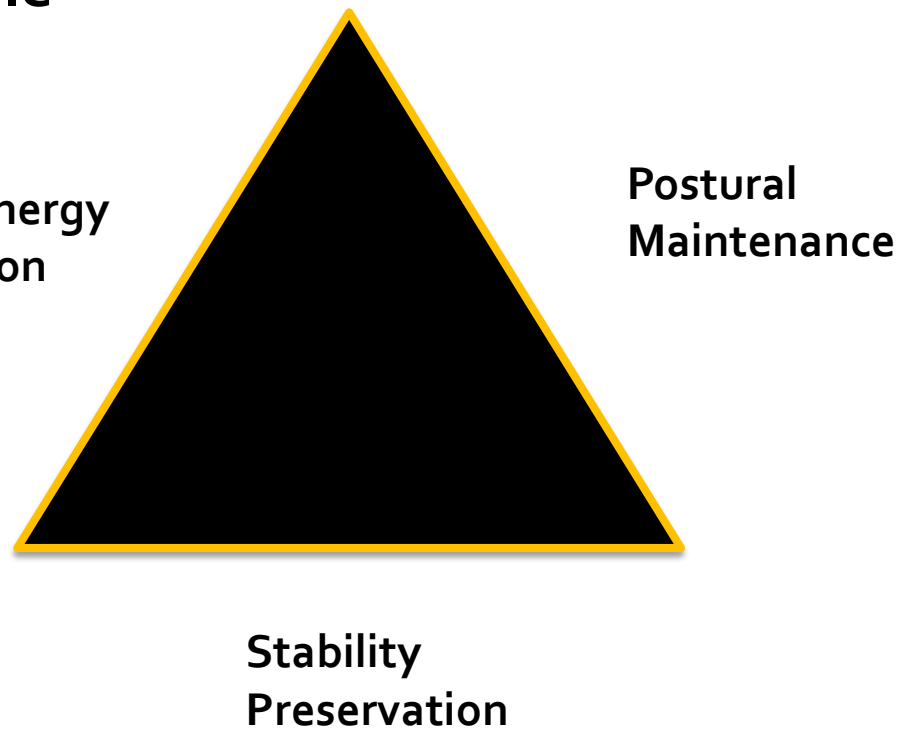
Stability

- Stability and Dynamic Stability
- Grounding Strategies

Stability - Pushoff and Touchdown

Summations and Transmission of Forces

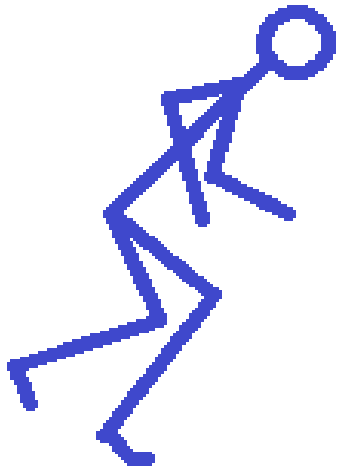
- The Gait Triangle



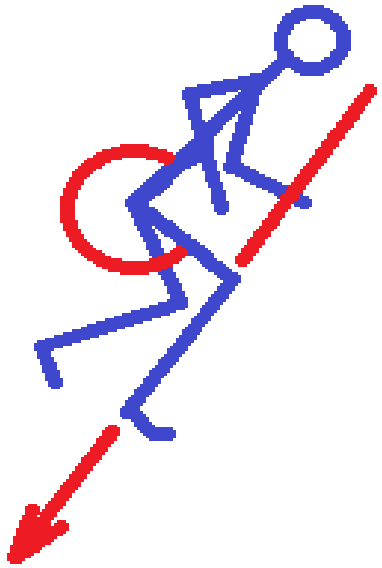
Summations and Transmission of Forces

- Proximal to Distal Firing
- Transmission of Force
- Coaching Implications
  - Pelvic Origination and Cuing
  - Shin Angles
  - Pushing Kinetics
  - Ankle Positions

Summations and Transmission of Forces



Summations and Transmission of Forces



Specific Skills

Momentum and Impulse

- Momentum and Velocity
  - Momentum Prerequisites
  - Relationships
- Impulse Development (ft)
- Coaching Implications
  - The Drive Phase
  - Maximal Velocity

The Start

- Purposes
  - Developing Horizontal Momentum and Velocity
  - Developing Vertical Velocity
  - Establishing Large Amplitudes of Movement
- Relationships – Posture and Vertical Velocities

The Start

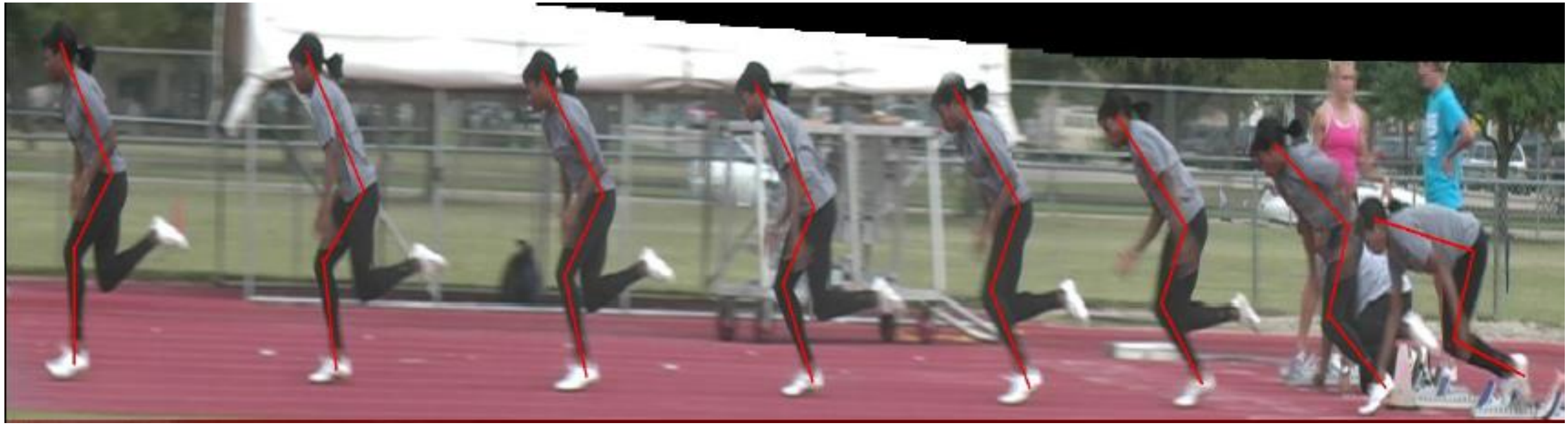
The Start

The Start

The Acceleration Process

- Key Shifts
  - Center of Mass/Base of Support Relationships
  - Trajectory Changes
  - Ground Time Changes
  - Body Angle Changes
  - Shin Angle Changes
- Flight Time/Ground Time Ratios
- Breathing Skills

Angle Progressions in Acceleration



Angle Progressions in Acceleration

The Climb - Pushing Up

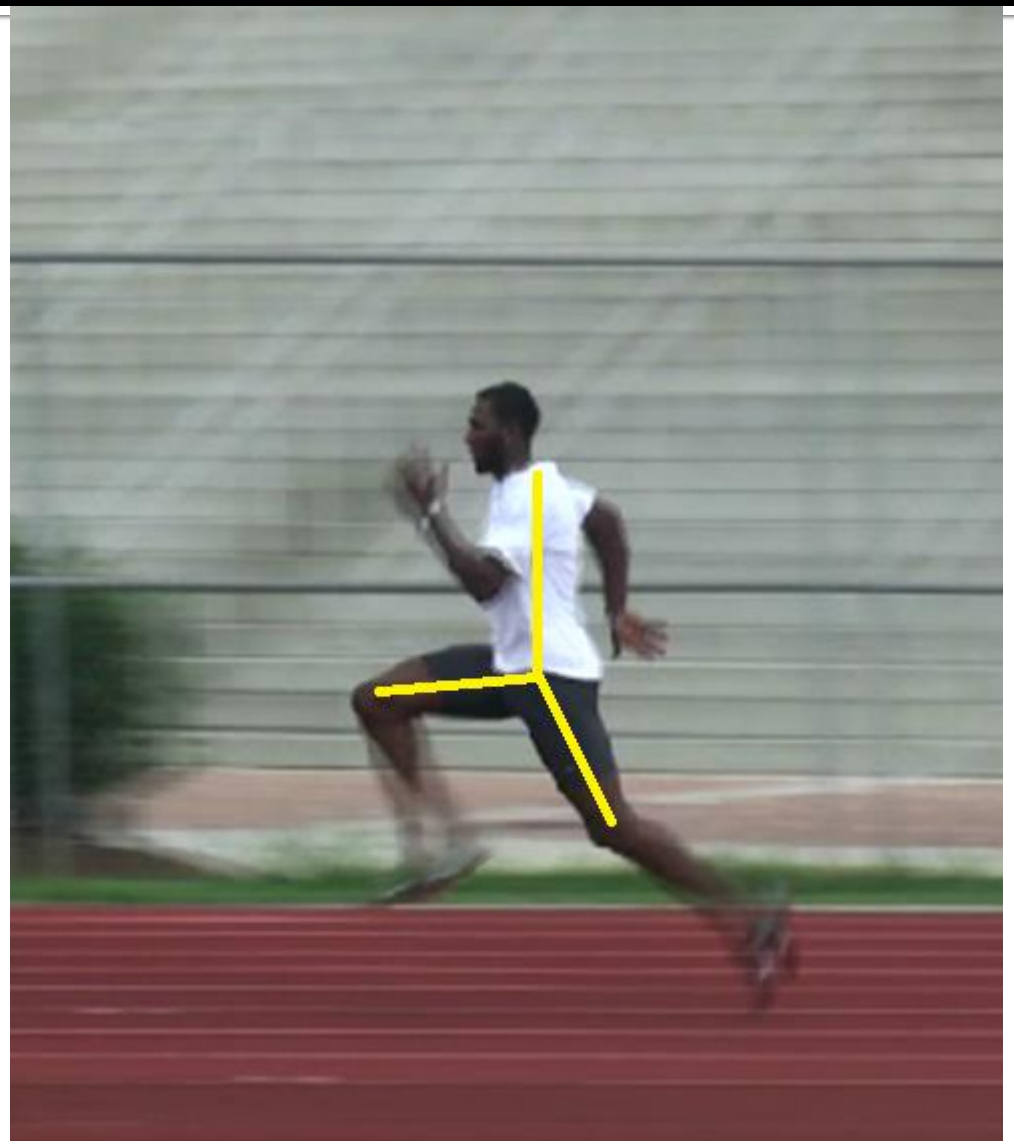
The Acceleration Process

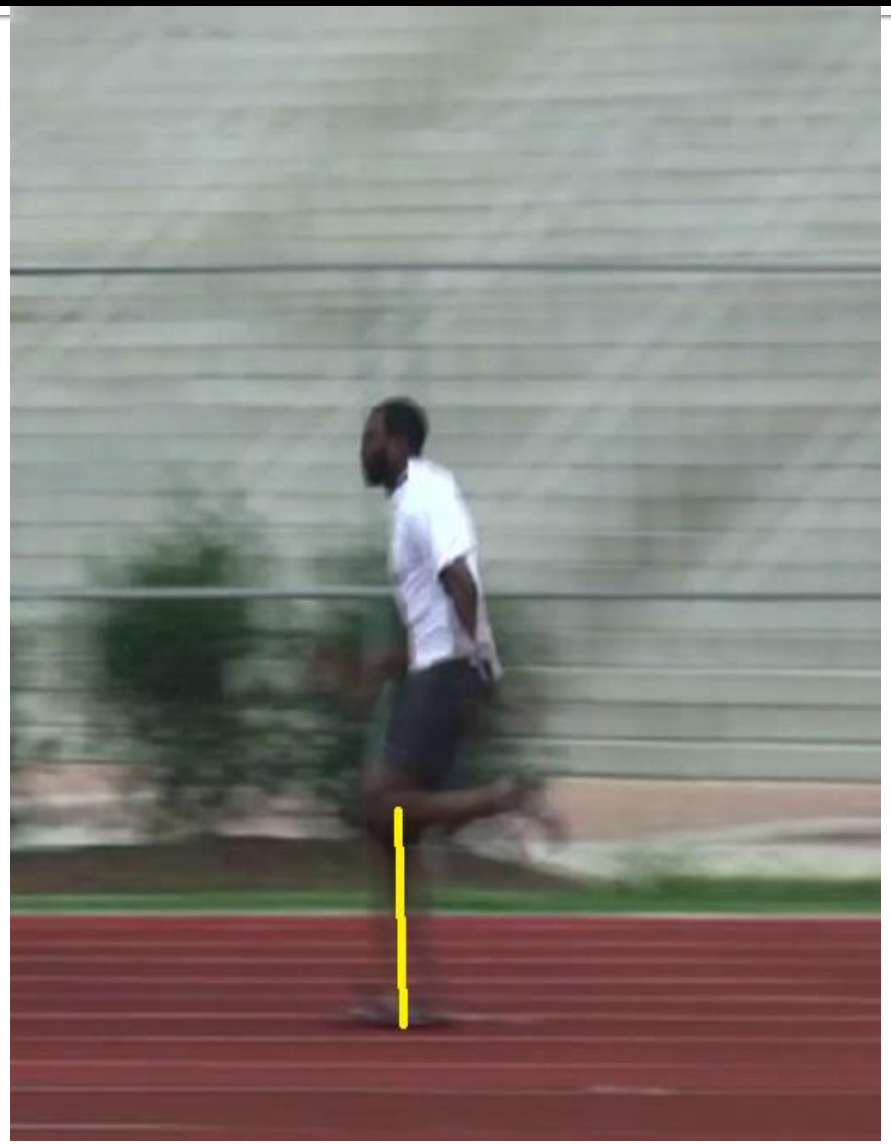
- Distribution
- Talent Related Factors
- Pushing
  - Underpushing
  - Overpushing
- Frequency Development
  - Frequency Development – Relation to Posture and Amplitudes
  - Groundstrike – To or Through
  - Implications for Transition

Maximal Velocity Mechanics

- Center of Mass/Base of Support Relationships
- Body Angles
- Shin Angles
- Trajectories
- Ground Times
- Flight Time/Ground Time Ratios

Pushoff and Touchdown





The Importance of Flight

Specific Skills

Recovery Heights

- High or Low?
- Acceleration vs. Maximal Velocity
- Recovery Height Production
  - Transfers of Angular Momentum
  - Velocity Shifts

Considering the Upper Body

- Role of the Upper Body
  - Force Production … ???
  - A Countering and Balancing Agent
- Implications for Arm Movements - Symptomatic
- Evolution as the Acceleration Process Unfolds
- Specifics
  - Direction of Arm Swing
  - Changes in Radius

Fascial Communication

- Fasica's Role as a Control System
- The Distal Positioning Phenomenon
- Coaching Implications

Teaching Chores

- Keep Elasticity Factors in Mind
- Teach the Start
- Teach Progression of Body Angles in Acceleration
- Teach Achievement of Proper Postures in Acceleration
- Make Sure Distribution is Patient and Appropriate

SAC

Schexnayder Athletic Consulting

www.sacspeed.com

bschex@sacspeed.com