

Sprint Mechanics

presented by Brian FitzGerald—Championship Productions Iowa Clinic 2008

I. Speed = Stride Length x Stride Frequency

- A. Gains in speed come from increases in the 2 variables above
 - 1. increase one or both, speed increases
 - 2. **do not** increase one at the expense of the other
- B. Proper sprint mechanics have profound effect on both variables
- C. Areas to be addressed with regard to mechanics
 - 1. posture
 - 2. arm action
 - 3. leg action
 - a. drive phase (impulsion)
 - b. recovery phase
 - c. footstrike (braking phase)

II. Posture

- A. Run "tall"
 - 1. top of head held high
 - 2. chin down / chest out / shoulders down
 - 3. don't lean forward
- B. Tuck hips under shoulders
 - 1. keeps center of mass in optimal position
 - 2. allows for higher knee action / longer stride length
 - 3. need to develop abdominal strength

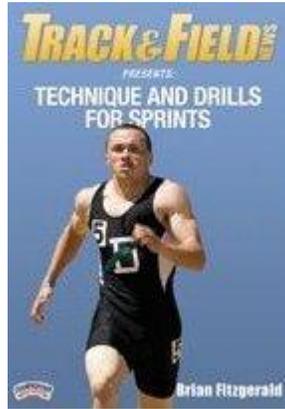
III. Arm action

- A. Elbow bent at near 90 degrees
 - 1. some movement at elbow joint (30 degrees)
 - 2. don't reach forward - lengthens levers and slows frequency
- B. Keep upper body relaxed
 - 1. arms swing freely from shoulders
 - 2. hands are semi-opened
 - a. thumb may rest lightly on forefinger
 - b. don't clench fists or over-extend fingers
- C. Hands never cross midline of torso
- D. Concentrate on driving the arm **back**

IV. Leg action

- A. Drive phase
 - 1. occurs as center of mass passes over foot
 - 2. leg doesn't extend fully
 - 3. push off ball of foot
- B. Recovery phase
 - 1. occurs as foot leaves ground
 - 2. bring heel immediately up under buttocks
 - 3. dorsiflex ankle - "toe up"
 - a. shortens lever
 - b. increases frequency
 - 4. high knee action - increases stride length
- C. Footstrike
 - 1. foot claws back at track after extending ahead
 - a. allows for footstrike under center of mass
 - b. minimizes braking action
 - 2. continue ankle dorsiflexion
 - a. increased frequency via shortened lever
 - b. allows foot to come back farther under center of mass
 - 3. minimize ground contact time
 - a. make active contact with the ground
 - b. "punch" at track

More Resources from Brian Fitzgerald



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