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
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