Taking a “Sprint Approach” to 100 / 110m HURDLE TRAINING

RALPH LINDEMAN, Head Track Coach
US Air Force Academy
Slide from 2005 Presentation

**PRIMARY CONCERNS**

- Teach hurdler to *sprint* through the barriers!
- Analyze for the *causes* of *effects*.
- Coach for *balance*—eliminate causes of excessive rotation.
- Stress *concentration*—on *every one* of the ten hurdles.
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Commonalities between Sprinting and Hurdling

1) The same **Energy Systems** are used to negotiate 100-110 meters, and must be trained specifically for the 12-15 second race
   • Anaerobic Alactic– first 5-7 seconds of the race
   • Anaerobic Lactate (glycolysis)

2) **Sprint start mechanics** are same
   • Reaction Time
   • **Block clearance technique** through 3rd step

3) Same or very similar **Sprint Mechanics** used through all phases of the race
   • **Acceleration / Drive** Phase
   • **Maximal Velocity** Phase (over & between hurdles)
   • **Maintenance Phase** (Maintain Hurdle Rhythm)

4) Required prerequisite **Biomotor Abilities** are virtually the same
   • Explosive Strength, speed, speed endurance, coordination, flexibility
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Ralph Mann’s research has identified that successful hurdlers must:

1) **Minimize time from start to take-off to 1st Hurdle**
   - Manage Steps
     - Reach proper take-off distance to the 1st hurdle
     - Generate highest horizontal velocity possible to that distance
     - Minimize time from start to take-off to 1st Hurdle

2) **Minimize Hurdle Clearance time**
   - Begin from proper take-off distance to the 1st hurdle
   - Minimize ground time into and off of the hurdle
   - Minimize air time over the hurdle
   - Lose as little horizontal velocity as possible over the hurdle

3) **Minimize time for the 3 steps between hurdles**
   - Manage Steps
     - Reach proper take-off distance to the next hurdle
     - Regain highest amount of horizontal velocity as possible over those 3 steps

4) **Utilize mechanics to get the most out of the Hurdle Clearance**
   - Maximize front-side mechanics
   - Minimize back-side mechanics
From Ralph Mann’s conclusions from his video study, he’s identified the following “coaching issues”:

1) The importance of the Start is too often ignored.

2) Training has been dominated by Sprint activity over Hurdle activity.

3) The mechanics of the strides between the Hurdles and the Hurdle Clearance stride has been ignored, and any specific training virtually ignored.
SOLUTION to the “START ISSUE”

1) Practice the Start at least 2 times a week (in addition to competition)
   • In preparation for Hurdling, every time you Hurdle
   • Individually, with the focus on mechanics (vs. competition)
   • As a group, in a competitive environment

2) Teach the most effective (FASTEST!) start always
   • 1st 3 steps
   • Measure touchdown preceding 1st hurdle

3) Provide constant feedback to the athlete
   • TEACH: Verbal feedback
   • TEACH: Video feedback
   • TIME: 3m, i.e., 3rd step touchdown; touchdown preceding hurdle clearance
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7- vs. 8-step Approach Models
Taking a “Sprint Approach” to 100 / 110m HURDLE TRAINING

### Men’s 8-step Approach Model

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Taking a “Sprint Approach” to 100 / 110m HURDLE TRAINING

“The Hurdles are NOT a Sprint” ~Ralph Mann

<table>
<thead>
<tr>
<th>Description</th>
<th>Hurdle Clearance Stride</th>
<th>1\textsuperscript{st} Stride from Touchdown</th>
<th>2\textsuperscript{nd} Stride from Touchdown</th>
<th>3\textsuperscript{rd} Stride from Touchdown</th>
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<td>Characterization</td>
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<td>“Drop” Step</td>
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“The Hurdles are NOT a Sprint”  ~ Ralph Mann

Stride Lengths in a 110m Hurdle Race (m)

Eleven (11) Accelerations ... Ten (10) Decelerations
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<table>
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<th>Stride Lengths in a 100m Sprint Race (m)</th>
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<tr>
<td>8 (H1)</td>
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<td>10 (H2)</td>
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SOLUTION to the “SPRINT vs HURDLE ISSUE”

1) Most “speed work” should be done within the hurdle stride length (or stride pattern ~RL) constraints
   • Stride rate (“speed”) training – at race rates
   • Stride length training – at standard distance, but lower heights

2) Teach the most effective model for each particular athlete
   • Hurdle technique
   • Step pattern

3) Provide constant feedback to the athlete
   • TEACH: Verbal feedback
   • TEACH: Video feedback
   • TIME: 3m or 3rd step touchdown; touchdown preceding hurdle clearance
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IMPLICATIONS for TRAINING

“Speed Work”
Using Hurdle Stride Length Constraints
Taking a “Sprint Approach” to 100 / 110m HURDLE TRAINING

IMPLICATIONS for TRAINING

Emphasis should be on F-A-S-T Hurdling
IMPLICATIONS for TRAINING

For increased Stride Frequency between hurdles, try reps over hurdles with reduced spacing:

College Men: 13m to 1st hurdle, 8.5 - 8.8m between
HS Boys: 12.5m to 1st hurdle, 8.3 - 8.5m between
College Women: 12.5m to 1st hurdle, 8.0 - 8.3m between
HS Girls: 12m to 1st hurdle, 7.8 - 8.0m between
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IMPLICATIONS for TRAINING

For increased Velocity

between hurdles, try 9-10 steos to the 1st hurdle and 5 steps between hurdles:

- **College Men:** 17m to 1st hurdle, 13m between
- **HS Boys:** 16m to 1st hurdle, 12.5m between
- **College Women:** 16m to 1st hurdle, 11.5m between
- **HS Girls:** 15.5m to 1st hurdle, 11m between
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IMPLICATIONS for TRAINING

For both increased Stride Frequency and increased Velocity

Lower the hurdles keeping the hurdles the standard distance apart:

12” *Banana Hurdles*

24” *Scissor Hurdles*

30”, 33”, 36”, 39” *Standard Hurdles*
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IMPLICATIONS for TRAINING

Lots & lots of *Rhythmic Hip Mobility Drills*

as part of pre-(Fast) Hurdling Warm-up
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AIR FORCE ACADEMY TRACK & FIELD

HURDLE DRILL SERIES

Stationary Drills
- Rhythm & Lean: Seated
- Rhythm & Lean: Standing
- Wall Hurdling
- Lead Leg Circles (lean from rear support)
- Trail Leg S-l-i-d-e
- Trail Leg Circles (lean to front support)
  - Guided (for Range of Motion)
  - On Own
  - w/ (partner's) Resistance

Light Mobility Drills (over l-o-w-e-r Hurdles)
- A-March
- Over & Back (over single Hurdle)
- Half-Hurdle Walk-overs
  - Lead Leg side
  - Trail Leg side
- Alternate Leg Walk-overs
- Same Lead Leg Walk-overs
- Two Hurdles over-One Hurdle back

Moderate Mobility Drills
- Can-Can's Traveling "Hip Flexors"
- A-Skips over (both) sides
  - Lead Leg side, Trail Leg side
  - W: 2.5m apart / M: 3.0m apart
- B-Skips over (Lead Leg) side
- C-Skips over (Trail Leg) side
- A-B-C Combi-Skips over tops
- "Half-Hurdling": Lead Leg
  - 1-step btw (W: ~2.5m / M: ~3.0m)
  - 3-steps btw (W: ~6m / M: ~7.5m)
  - 5-steps btw (W: 8.5m / M: 9.14m)
- "Half-Hurdling": Trail Leg
  - Same As above
- "One-Step Hurdling": Lead Leg
  - W: ~3.0m / M: ~4.0m

Fast Mobility Drills
- Fast Leg Drill (low Hurdles)
- Straight Leg Bound-Fast Leg
- Hurdle Rhythm Bounding
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IMPLICATIONS for TRAINING

Don’t ignore “Bounding”

1) A-bounds teach Hurdle Technique, most importantly, fast lead knee and full extension of drive leg.

2) Bounding is invaluable for building explosive strength needed for optimal stride length in Hurdling.
QUESTIONS?

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US Air Force Academy

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