



# 100/110 Hurdle Training

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# Introduction

- Hurdling is sprinting with rhythm!
- Hurdling deviates as least as possible from normal sprinting.
- The abilities needed in hurdling are very similar to those needed in the sprint events, and should be developed the same way.
- Our focus, first, last, and always must be establishing and maintaining SPEED between and over the hurdles!

# Specifics to the 100/110 hurdles

- 8 steps to the 1<sup>st</sup> hurdle (developmental hurdlers may need to take 9 steps until they become stronger and faster)
- 3 steps between each hurdle
- 5 - 6 steps off of the 10<sup>th</sup> hurdle to the finish line
- Flexibility and mobility are vital to the event, and the athletes success.
- Modify sprint mechanics to negotiate the barrier.

# Measurements in Hurdling

RACE	Distance to 1 <sup>st</sup> Hur	Distance Between Hurdles	Run-In Distance off last hur	Hurdle Height
Women 100H	13 m	8.5 m	10.5 m	33"
Men 110H	15 yds (13.72m)	10 yds (9.14m)	46 ft (14.02m)	42"

# Technical Demands in the Start

- Advanced hurdlers need to modify the sprint acceleration process (out of the blocks) in order to better negotiate the hurdle.
- Stride length is sacrificed in order to fit eight steps into the acceleration to the 1<sup>st</sup> hurdle.
- Range of motion at the hips is decreased.
- Stride frequency is higher in the approach to the 1<sup>st</sup> hurdle.
- Low heel recovery in drive phase.
- The progression of the body angles must occur quickly to better prepare for the 1<sup>st</sup> hurdle in 8 steps.
- Hips are tall by stride 6 in order to prepare for attack of 1<sup>st</sup> hurdle.

# Mechanical Demands

- Increasing stride frequency and developing faster rhythms are important goals.
- The drive phase should extend until the 3<sup>rd</sup> hurdle.
- The run between the hurdles is a modification of the maximal velocity mechanics (shuffle).
- Stride length is decreased between the hurdles in order to fit the needed three steps.
- Novice and developmental hurdlers may take more than three steps between the hurdles.
- If 4 or 5 steps are needed (for beginners) allow it, but train with the hurdles “discounted” in order to develop the 3 step rhythm. Also, practice using alternate legs.
- Heel recovery is lower than in normal sprinting, due to the decrease in range of movement.

# Mechanical Demands

- Push off angles at touchdown are primarily vertical, as in maximal velocity.
- Range of motion in the hips between the hurdles is usually decreased, due to the “shuffle” steps.



# Hurdling Techniques

- **Block Start:**
  - Lead leg in the back block (quick side)
  - Trail leg in the front block (power side)
  - Normal sprint start: aggressive, powerful, quick arms, quick legs, focus.
  - At “set” focus on pressure back into the pedals.
- **Start to the 1<sup>st</sup> hurdle:**
  - Hips tall after 6<sup>th</sup> stride
  - Arrive at hurdle in a position ready to negotiate the barrier
  - Consistent stride pattern (frequency)
  - “Race” to the take-off mark (1.7 – 2.0 m).
  - At “cut step” focus on pushing the “hips” through the hurdle.
  - Lead with the knee, not the foot.

# Hurdling Techniques

## ■ Take Off:

- Hurdling begins from the drive phase of the lead leg (step 7).
- Concentrate on driving hips over the hurdle rail
- Project C of M up over the hurdle with hips tall and forward.
- Take-off is about 1.7 – 2.0 m away from hurdle.

## ■ “Cut step” (w/trail-leg):

- Trail leg initiates the take-off into the hurdle
- “cut step” is a shortened stride which enables the raising of the hips in preparation for hurdle clearance.
- Ankle passes below the knee
- Thigh blocks short of parallel, hips are tall (not squatty or mushy).
- Contact is active and almost under C of M, and toe is up.

# Hurdle Techniques

- Lead-Leg:
  - Punch the knee toward the hurdle, don't lead with foot.
  - Flexed knee, not locked
  - At top of hurdle, thigh decelerates causing the lower leg to swing forward (extend)
  - As foot clears the rail, thigh accelerates down and back into the track.
  - Landing should be “hips tall”, no mushing out
  - Touchdown landing should be about 1 – 1.5 m on the back side of the hurdle



# Hurdle Techniques

## ■ Trail-leg:

- Toe up, heel up, knee pulled tightly to the body
- Punch knee through, rotate knee and foot outward, keep heel and knee level, so as to not bang inner-ankle on the rail.
- As entire leg clears the rail, punch knee forward (close the door), and accelerate foot down and back into the track.
- Landing should be “hips tall”, no mushing out



# Hurdle Techniques

- “Get-away” Stride:
  - Trail-leg landing on back side of the hurdle.
  - Toe up, knee up, aggressive drive down and back into the track.
  - Hips tall, no mushing out.
  - Good, stern body posture



# Arm Actions

## ■ Lead-leg Arm (right):

- Forearm flexes and extends forward
- Rotate arm internally
- Elbow angle same as lead-leg, knee angle (30 – 45 degrees)
- Arm stops at shoulder level.
- As C of M passes over the hurdle rail, drive lead arm back and down.

## ■ Trail-leg Arm (left):

- Little deviation from sprinting form.
- With bent elbow, trail arm opens out to the side (elbow up) to allow trail-leg to pass underneath.
- As trail-leg passes, arm drives outward and backward to balance lower-limbs
- A trail-leg touchdown, arm is thrust forward to continue sprint form.

# Critical Components of the Race

- Cut Step
  - Most crucial stride
  - Puts hips in most optimal position for smooth clearance
  - Active plant high on ball of foot (no heel collapse) to facilitate rotation at take-off (hinge-moment).
- Get-away Stride:
  - “Close the door”
  - Accelerate thigh down and back into the track
  - Active plant on ball of foot, and under C of M
  - Shortest stride because lead leg is in an inefficient position to apply force.
- Second Stride:
  - Longest stride
  - regular running stride
  - Hips tall
  - Sets up the ‘cut step’
- Landing:
  - Active plant on ball of foot.
  - Accelerate thigh down and back into the track.
  - On lead-leg landing, shoulders are slightly ahead of hips
  - Ankle-cocked, no mushing out
  - “Tear” at the track and “get to gettin”

# Run-in from the last hurdle

- Most neglected part of the race.
- Should be practiced during training sessions
- Know the number of strides to the finish off the last hurdle.
- Practice accelerating and driving off the last hurdle.
- Focus on proper body position coming off the last hurdle to ensure an active and optimal run-in.



# Too high over the first hurdle

## ■ Fault

- Too close to the hurdle
- Power foot planted on heel
- Non-existent or non-active cut step (normal step)
- Lead was with the foot, not the knee
- Athlete afraid of hurdle (hesitant, threatened)

## ■ Correction

- Keep athlete in sprint posture longer
- Practice hips tall, make cut step active and on the toes
- Rehearse proper lead leg mechanics and body posture going into the hurdle
- Use breakaway hurdles in practice (reduces threat; confidence increase)

# Off balance coming off the hurdle

## ■ Fault

- Lead leg and opposite are driven inward and not in the direction of travel
- Trail leg opening too soon
- Athlete may be too close to the hurdle

## ■ Correction

- Work on synchronizing lead leg mechanics; use sprint arm action, not across the body
- Work on synchronizing trail leg mechanics and keeping the leg folded until knee is pointing in the direction of travel.

# Too far from the first hurdle

## ■ Fault

- Sprint strides during initial acceleration from blocks are too short
- Blocks may be set too close together resulting in too short of an initial stride
- Arm action in acceleration may be too passive

## ■ Correction

- Work on improving athletes contractive strength level to insure sufficient stride length to make the distance in 8 steps
- Move blocks to medium spacing and check body angles in start position
- Lengthen arm action and increase the amplitude of arm movement

# Hitting hurdles late in the race

## ■ Fault

- Loss of rhythm
- Too close to hurdles
- Loss of concentration
- Fail to maintain hips tall position causing athlete to sit and not maintain good sprint mechanics

## ■ Correction

- Trail leg opening too soon, thus causing getaway stride to be too long resulting in power foot being too close to the next hurdle
- Maintain tall hip position and good sprint mechanics
- Keep trail leg tight and shorten getaway stride
- Learn to control attention to what's happening in your lane
- Concentrate on your own rhythm.



# Thank you!

- Questions and Answers

- References:

- USATF Coaches Education Level I and II Curriculum Manual, 2006