THE HURDLES

By Robert Dahl

West Babylon Track & Field – Hurdles Program
Rules of the Race

Hurdling, in athletics (track and field) is a race over a series of ten obstacles called hurdles, which are set a fixed distance apart.

1. The race begins with the opening gun.
2. The race ends when a runner’s torso crosses (not head, arm, leg) the finish line.
3. Runners must remain in assigned lanes.
4. A Trail leg along side of lane or hurdle is a disqualification.
5. Hurdles may be knocked down (Not by Hand)
6. Athletes are barred from obstructing their competitors' path.

The Goal of Hurdling

“Hurdling” is a race to the finish as fast as possible while clearing the barriers. Hurdlers should spend little time in the air, return to the ground in running position and continue at racing speed. “Hurdles” are not jumping events, run over the hurdles. There should be very little change in the height of the body's COM. (COM = Center of Mass)

Important: Keeping the heels lower than a regular sprinter helps the hurdler to accelerate into and after each hurdle.

100/110 meter High Hurdle

**Boys**: 45’ to 1st hurdle (8 steps)
Takeoff 7’ from 39” high hurdle
Land 2m past hurdle in run position
30’ between hurdles (3 steps)

**Girls**: 42’8” to 1st hurdle (8 steps)
Takeoff 6½’ from 33” high hurdle
Land 2m past hurdle in run position
8.5m between hurdles (3 steps)
The Start

A strong, aggressive start should place the athlete in the best possible position to attack the first hurdle.

The block placement begins with a standard 2/3 pedal setting.

Front pedal 2 shoe lengths from line
Back pedal 3 shoe lengths from line
(This may be adjusted as needed).

**Lead-Leg foot should be placed foot is placed in “Rear Block” if an 8 step approach is used.

On the starter’s command of “To your mark” walk forward in front of start line and perform two tuck jumps & kicks-outs as this helps to ignite nervous system before backing into blocks.

On the “set” command raise hips, press heels against the pedals, inhale fully and react explosively to the gun! Pressing heels helps to pre-stretch muscles allowing for greater force.

Athletes must strive for the greatest extension and large ranges of motion.
West Babylon Track & Field – Hurdles Program – for Athletes

The Approach

The start to the 1st hurdle is only eight strides away for better HS varsity athletes. These eight steps can be rehearsed to improve efficiency.

Following an explosive technical block start the athlete should look up at the fourth aggressive stride from the blocks.

The next four acceleration steps are more upright than typical sprinters as they locate & focus on the first hurdle and prepare to attack the barrier.

As noted in discussing the start the left lead-leg hurdler places their left foot in the back of the blocks and their trail leg foot in the front block. This block setting is reverse for right lead-leg hurdlers.

Typical Stride Pattern for better HS Boys Varsity Hurdlers

<table>
<thead>
<tr>
<th>Block Setting</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
<th>Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>0.60m</td>
<td>1.70m</td>
<td>3.05m</td>
<td>4.55m</td>
<td>6.20m</td>
<td>8.00m</td>
<td>9.90m</td>
<td>11.70m</td>
</tr>
</tbody>
</table>

(see chart for girls stride patterns for the 100m high hurdles)

*If needed younger developing underclass athletes use a nine-stride approach and reverse their block settings.

Acceleration Skills exercises can be used to improve acceleration.

**Wall Drill** - This drill provides a way to teach the body angles needed during starts & acceleration in a remedial manner.

**Stick Drills** - Are a good way to regulate stride length.

**Technical Buildups** - Can be done with a technical focus to teach the fundamentals of acceleration (Arm/Leg position, posture...)
Ground Take-off

Following the fourth aggressive stride from the blocks “Look-Up”
The next four acceleration steps are more upright than typical sprinters as
you locate and focus on the first hurdle and prepare to attack the barrier.

“The Cut-Step” or “Grounding the takeoff step” = getting the foot down
The last stride of the approach to the hurdle is shortened to get the take-off
foot and leg down under hips. This ensures that a fast effective knee drive
can be made across the hurdle. NO REACHING OR OVER STRIDING!

The athletes should take-off 6½’ girls-7¼’ boys from the hurdle [Frame 1].
Attempt maximum “Hip Extension” at takeoff. This drives the hips forward
aggressively toward the hurdle. Bend at hips crossing top of hurdle while
looking at the next hurdle [3].

Leg Action
Drive the Lead Leg Knee toward hurdle. The lower part of the lead leg is
left low and extends naturally to the height of the barrier [1] & [2]

The trail leg toes off the ground then recovers by pulling trail heel up to their
back-side and trail knee up through the arm-pit.

Arm Action
The lead arm reaches across front of nose [Frame 2] “What time is it?” or to
“Swim” through a hoop w/ thumb pointed down. Notice a greater split of
the arms at takeoff to counter balance lower body.
Clearance & Get-away

As the athletes heel passes over the top of hurdle [3] “Hurdle Clearance” should be initiated. The athlete must prepare to re-accelerate by getting their lead leg back down to the track and their trail leg out in front.

**Pull** the lead leg down and back to land under the body [3 & 4]. The foot of the lead leg grounds 3¾’ - 4½’ beyond the hurdle.

The athlete should feel the trailing knee sweep wide and flat over the hurdle [4] with the foot cocked to not hit hurdle. Try to “pull the knee to the armpit”.

After crossing the barrier, the trail leg knee continues to rise and comes round in front of the body [5]

Many young athletes have a tendency to drop the trail leg off to the side after it has crossed the barrier. This has the effect of making the first stride short and pulling the athlete off balance. The trail leg must be pulled through high and fast so that the first stride is fast [5] & [6].
Wall Drills

*Perform Daily After Team Warm-Up

• **Lead Leg (place hurdle against wall at competition height)**

  **Start from 3 walking step away**
  Drive lead leg forward and lean so you end up with the ball of the foot against the wall. Important to be square to hurdle & used proper arms. Do not allow hurdler to straighten leg his approach.

• **Trail Leg (place hurdle 30”-36” from wall)**

  **Start with two hands against the wall**
  Stand with lead leg so heel is in line with vertical pole of hurdle. Pull the trail leg over and through remembering to pull heel up to backside & knee to armpit. After a high level of competence the athlete can progress to cycling over and back with greater velocity. Start Slow!!

  These two exercises should be incorporated into the warm-up of every workout for beginners in their first year of hurdling.
Clearance Drills
*Perform Daily After Team Warm-Up

**Lead Leg Drill**
Stand on side of hurdle (or other obstacle).
Extend support leg.
Lift Toes & Knee, step over, attack lead leg over outer half of hurdle.
Remember proper arm action

**Trail Leg Drill**
Start from other side of hurdle (or other obstacle).
Skip with lead leg then lean at waist, pull heel to backside and knee up through armpit.

**One Step Drill (place hurdle 2-5 hurdles in a line 8’ - 10’ apart)**
Athlete again focuses on working only half of hurdle. Use the same procedures described above. Start from a jogging approach and complete the lead leg action over half of hurdle. Attempt one step between hurdles and repeat. Progress slowly with 2 or 3 hurdles before adding more hurdles. Repeat procedure on other side for trail leg practice (skip with lead leg).
Hurdle Mobility

*Perform Daily After Team Warm-Up

Walk Over Drill

Perform Drills with Proper Technique:
* Keep Chin-up and chest-out
* Knee-up & Toe-up
* Strong Arm Action

Single Leg Walk-Overs
Full Walk-Overs
Knee Drives (from side 10X)
Straight Scissors (from side)
Traveling Knee Drives (R/L)
Traveling Scissors (R/L)
Over the Under (R/L)
Marching Leads/Trails

Fence Flexibility

Standing tall w/ small lean against fence
* Keep Chin-up and chest-out
(2’ to 3’ from fence):

Front & Side Leg Swings (5-10x per leg)
“Dog Legs” – Forward & Reverse (5X per leg)
Knee Drives (10X per leg)
1-2, 1-2’s (alternate knee drives)
Rapid Fire Knee Drive (10 Sec)
Leg Cycling (5X per leg)
Discount Hurdling

The following drills can be used to improve hurdling speed after basic hurdle skills are developed. See article titled, “Teaching Beginners To Hurdle” by Ron Parker for setting up cones and mini banana hurdles in lanes 2, 3, 4 & 5 for a similar drill to include in warm-up.

When teaching and training the sprint hurdler, hurdles should be kept low and closer together in the early stages of learning. Reducing the height & distance between the hurdles will work on leg speed between the hurdles.

The normal pattern of 3 strides between the hurdles should be maintained. Great emphasis should be placed on developing speed and rehearsing competition stride patterns.

### Examples of Discounted Hurdles

<table>
<thead>
<tr>
<th>Race</th>
<th>Level</th>
<th>Objective</th>
<th>Distance to First Hurdle</th>
<th>Distance Between Hurdles</th>
<th>Hurdle Height</th>
<th>Number of Hurdles</th>
</tr>
</thead>
<tbody>
<tr>
<td>100M Hurdles</td>
<td>Beginner</td>
<td>Teaching</td>
<td>13 Meters</td>
<td>8.3 Meters</td>
<td>27”</td>
<td>3</td>
</tr>
<tr>
<td>110M Hurdles</td>
<td>Beginner</td>
<td>Teaching</td>
<td>44 Feet</td>
<td>25 Feet</td>
<td>33”</td>
<td>3</td>
</tr>
<tr>
<td>100M Hurdles</td>
<td>Intermediate</td>
<td>Speed</td>
<td>13 Meters</td>
<td>8.2</td>
<td>30”</td>
<td>5</td>
</tr>
<tr>
<td>110M Hurdles</td>
<td>Intermediate</td>
<td>Speed</td>
<td>44 Feet</td>
<td>28</td>
<td>36”</td>
<td>5</td>
</tr>
</tbody>
</table>

Teach the 3-step rhythm of hurdling by repeating:

**Boom - Ta, Ta, Ta**

The “BOOM” should represent the sensation of driving the hip up & over the hurdle while the “Ta – Ta – Ta” represents the quick steps between each hurdle. Each “Ta” step is a low heel *pushing* type stride.
Common Hurdler Problems

**Problem:** Possible Solution:

- **4 step to 3 step transition**
  * First, the hurdles must be brought in closer. Shorten the distance between the first and second hurdle so that you can 3 step without bounding.
  * Use your feet to walk off the distance you moved the hurdle from the original marks, now walk off the same distance for all of the other hurdles.
  * Run these in practice till you feel like you are getting too close to the next hurdle then move all the hurdles a step forward.
  * The transition takes time, do not force the 3 step, so "just run" go over the hurdle with whatever leg comes up. Eventually 3 stepping will occur by itself.

- **Catching Trail Toe on the hurdle**
  * This can be minimized by using Trail leg Drill #1 in your bare feet. After you hit your bare foot on the hurdle a couple of times you will begin to hold it up.

- **Slow Trail Leg**
  * This is a hard problem to fix, it can be help by using trail leg Drill #1. Concentrate on pulling the trail leg through fast and bring it down quickly.
  * Closing the door, it is a technique with the arms. Bring your lead arm back keeping it close to the body and pull it back as if you were closing a door.

- **Too Close, to the Next Hurdle**
  * One reason this can happen is that the lead leg is not being driven down fast enough when the previous hurdle is cleared. Using Drill # 2 of the lead leg drills will help this problem.
  * Another reason is that the hurdler is leading with their toe instead of their knee. Practice bring the knee up before extending the leg.

Concentrating on one part of hurdling can help most problems. Ex: leading w/ the knee*

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking off too far from the 1st hurdle</td>
<td>a) blocks too bunched; or b) initial strides too short.</td>
<td>a) space blocks farther; or b) accelerate explosively</td>
</tr>
<tr>
<td>Excessive height over hurdle</td>
<td>taking off too close or jumping over hurdle</td>
<td>use lower hurdle heights to practice</td>
</tr>
<tr>
<td>Locking the lead knee</td>
<td>swinging the foot up instead of driving the knee</td>
<td>skipping drills on sides and over hurdles</td>
</tr>
<tr>
<td>Off-balance landing</td>
<td>excessive rotation around vertical axis</td>
<td>avoid reaching -- lift elbow of the lead arm</td>
</tr>
<tr>
<td>Landing on heel</td>
<td>snapping lead leg down; straightening trunk</td>
<td>hold lean throughout hurdle clearance</td>
</tr>
<tr>
<td>Serpentine stride pattern between hurdles</td>
<td>excessive rotation around vertical axis</td>
<td>drive knee at take-off; keep hips and shoulder square</td>
</tr>
</tbody>
</table>
Sprint Hurdling Technique

Arm Action

As in sprinting, the arms act to balance the body and counter the rotations produced by the legs. The arm opposite to the lead leg actually leads the action into the hurdle and pushes/dives forwards as the lead leg rises [1]. The other arm should be taken back in a normal sprinting action. As the trail leg comes round the leading arm swings back and wide to counter the rotation of the trail leg [4].

Running Between Hurdles

Three strides are used to cover the ground between the hurdles. To achieve this, the athlete has to modify his sprinting technique to make it fit the gap. A fast leg cadence and a shorter stride length is needed. The athlete may have to use a lower knee lift than in normal sprinting with an emphasis on leg speed. The correct range of movement and speed can be achieved by training over hurdles that are slightly closer together than normal.

Key Hurdling Points

The athlete is leaning towards the hurdle and driving the right knee at the hurdle. The leading arm is driven forward and up (ideally to forehead height).

The athlete is leaning towards the hurdle and has now lifted the leading (right) foot to clear the hurdle.

The leading (right) foot is now being pushed down to the track.

The knee and foot of the trailing (left) leg are pointing out to the side (towards the camera) in order to clear the hurdle.

The left knee is driven forward and up once the foot has cleared the hurdle and the toes of the left foot are dorsiflexed.

The right leg is straight with the ball of the foot contacting with the track underneath the hip, the left arm is driven back, and the athlete is still leaning forward.
Hurdlers

Highly Motivated Sprinters!!
Strong/Fast/Athletic
Explosive/Dynamic/Flexible

Are you Tough/Tall/Tenacious?
If so there are terrific opportunities
for success!

Hurdle races are sprint events,
not jumping events. You "run"
over the hurdles. There should
be a very small change in the
location of the body's COM
(center of mass) when clearing
a hurdle.
Historical Origins

Sprint races are the oldest form of athletic competition, dating back to the Olympic Games of 776 B.C. Some sources indicate that the “stade” race (approximately 200 meters) was the only event at the first Olympic Games. Eventually, a two-stade race was added. Races with hurdles as obstacles were first popularized in the 19th century in England. The first known event, held in 1830, was a variation of the 100-yard dash that included heavy wooden barriers as obstacles.

The first modern Olympics in 1896 included 100- and 400-meter races and a 110-meter hurdles event. Americans won the first five 110-meter and 400-meter hurdles events. American men have won more Olympic hurdles gold medals than any other nation. Rod Miburn's victory in the 1972 Olympic 110-meter hurdles was the ninth consecutive American gold medal in that event. Edwin Moses dominated the 400-meter hurdles as few athletes have ever dominated any sport. He won 122 consecutive races from 1977 through 1987. He won Olympic gold medals in 1976 and 1984, with the 1980 U.S. boycott costing him a chance to win three consecutive gold medals.
Developing Speed

Ankling (focus on “Toe Up”)

Heel Raise (Focus on “Heel Up”)

Quick Leg (Focus on “Thigh Up”)
   Single
   Alternating
   Double
   Continuous

Short Drill: “Hips up” – Frequency

Long Drill: “Full extension”- Length

SLB’s: “Straight Leg Bounds:”
   Focus on ‘Force Production’

Speed Bounds: “Recovery Speed”

Goal Setting:

Female (100H)
   Developing: 100m + 2.0
   Accomplished: 100m + 1.5
   Elite: 100m + 1.0

Male (110H)
   Developing: 100m + 4.5
   Accomplished: 100m + 3.5
   Elite: 100m + 2.5-3.0