

Sprint hurdle

Body position & technique



About Me

2015 Division I All American 60m (Arkansas, Fayetteville) (8th)

2016 Division I 2nd team all American (Eugene, Oregon) (14th)

2016 Jamaica Olympic trial (6th)

Run for 15 years

hurdle focus 6 years

PRs, 7.77 indoor & 13.59 outdoor.

Assistant Sprint/hurdle coach, University of South Dakota



CONTENT

- ▶ Block Start
- ▶ Approach to hurdle #1
- ▶ Stride pattern to H1
- ▶ Hurdle Take Off
- ▶ Lead leg
- ▶ Lead arm
- ▶ Trail leg
- ▶ Trail arm
- ▶ Stride Pattern between hurdles
- ▶ Running off the last hurdle



Block Start

- ▶ Front pedal (2 steps)
- ▶ Back pedal (3steps)
- ▶ Trail leg should be in front block (unless doing 7 steps)
- ▶ Block test
 - ▶ Mark position
 - ▶ foot Placement on pedal
 - ▶ arms under shoulders not sitting back
 - ▶ back leg do not have to be on the pedal)
 - ▶ Set position
 - ▶ both foot flush,
 - ▶ hip slightly higher than shoulder,
 - ▶ legs parallel,
 - ▶ load the blocks
 - ▶ push
 - ▶ front leg becomes straight 1st 3-4 pushes,
 - ▶ big arms 3-4 step,



Approach to H1

- ▶ Loading the front blocks
- ▶ Split arms
- ▶ Stepping over ankle for first 3-4 steps
- ▶ Cheating the acceleration phase
- ▶ Gradual transition phase
- ▶ Hips are in line with the hurdle
- ▶ Chest slightly ahead of hips
- ▶ Breaking to the hurdle



Stride Pattern to H1

- Stride pattern to Hurdle #1 (most use 8 steps)
- Measure from starting line in meters
- These are only an estimate
- 100 Meter Hurdles

Start Line | .60 | 1.65 | 2.95 | 4.40 | 5.95 | 7.60 | 9.35 | 11.05 | T.O. | H1

110 Meter Hurdles

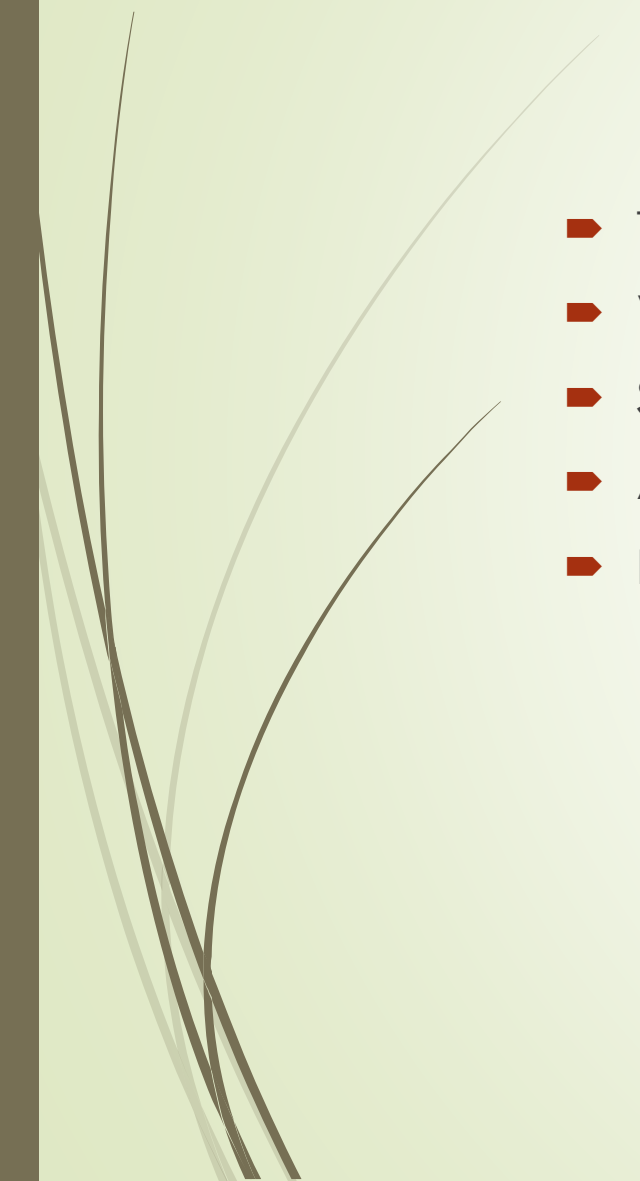
Start Line | .60 | 1.70 | 3.05 | 4.55 | 6.20 | 8.00 | 9.90 | 11.70 | T.O. | H1

110 Meter Hurdles (7 steps)

Start Line | .75 | 2.15 | 3.85 | 5.60 | 7.50 | 9.60 | 11.58 | T.O. | H1



Hurdle Take Off

- ▶ Think in terms of a “Cut Step”
 - ▶ Very active landing with heel leading back and towards runner
 - ▶ Shorter stride length
 - ▶ Allow hip velocity to move athlete through the hurdle
 - ▶ Improvement in this skill will lead to better trail leg
- 



Lead leg

- ▶ Movement starts at Hip and not foot
- ▶ Once foot leaves ground looking for flexion at knee, hip and ankle
- ▶ Knee drive upward into chest
- ▶ Heel drive immediately under the runner
- ▶ Arms must move in concert with legs



Lead Arm

- Different for women
- Blocking motion
- Should not pass the center of chest
- Moves under the knee
- Elbows going straight back
- Punching arm forward after clearing hurdle



Trail leg

- ▶ Active cut step produces quicker trail leg
- ▶ Major difference between male and female hurdlers
- ▶ Arms and legs are very connected in timing and balance issues
- ▶ Trail foot should be pulled off of the ground by the hip and continue moving into a folded position with toe dorsiflexed

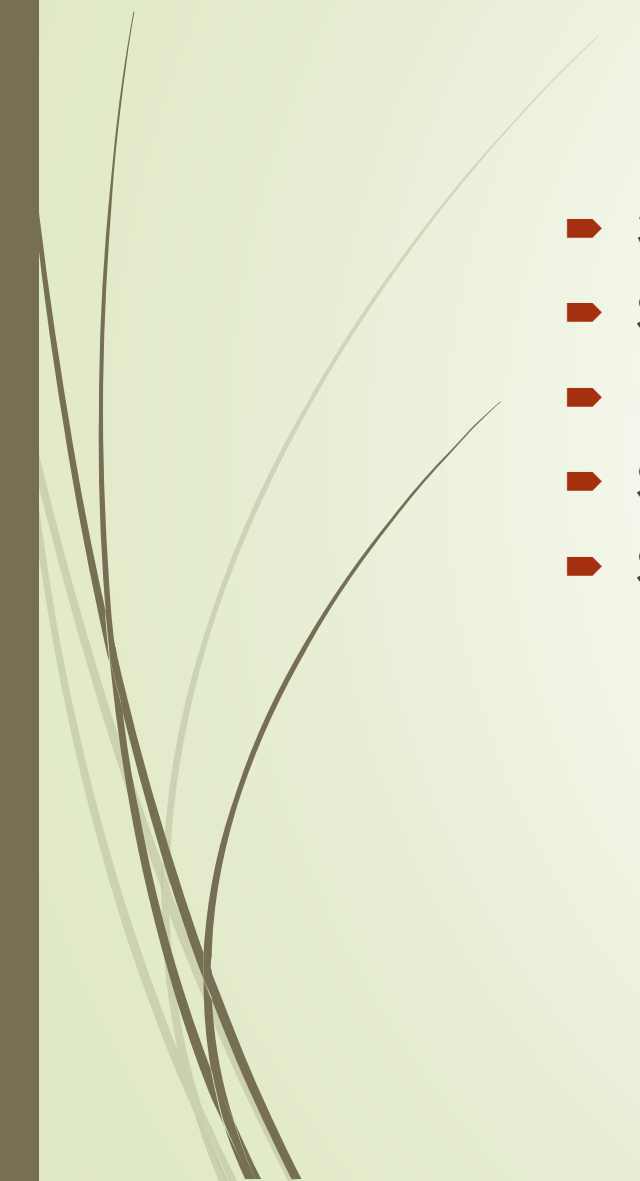


Trail Arm

- ▶ Locked at 45degrees after the acceleration phase
- ▶ No alteration should be done
- ▶ Responsible for lead leg and leg arm speed
- ▶ Correct the wrist movement
 - ▶ Thumbs up
 - ▶ Close fist
 - ▶ Punch through

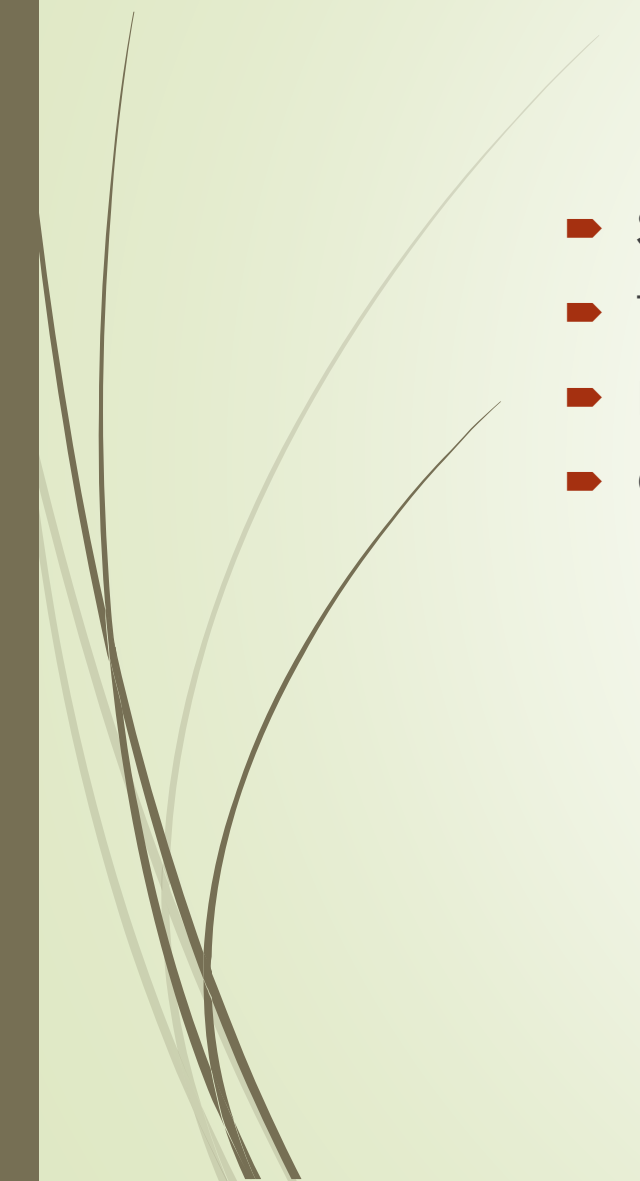


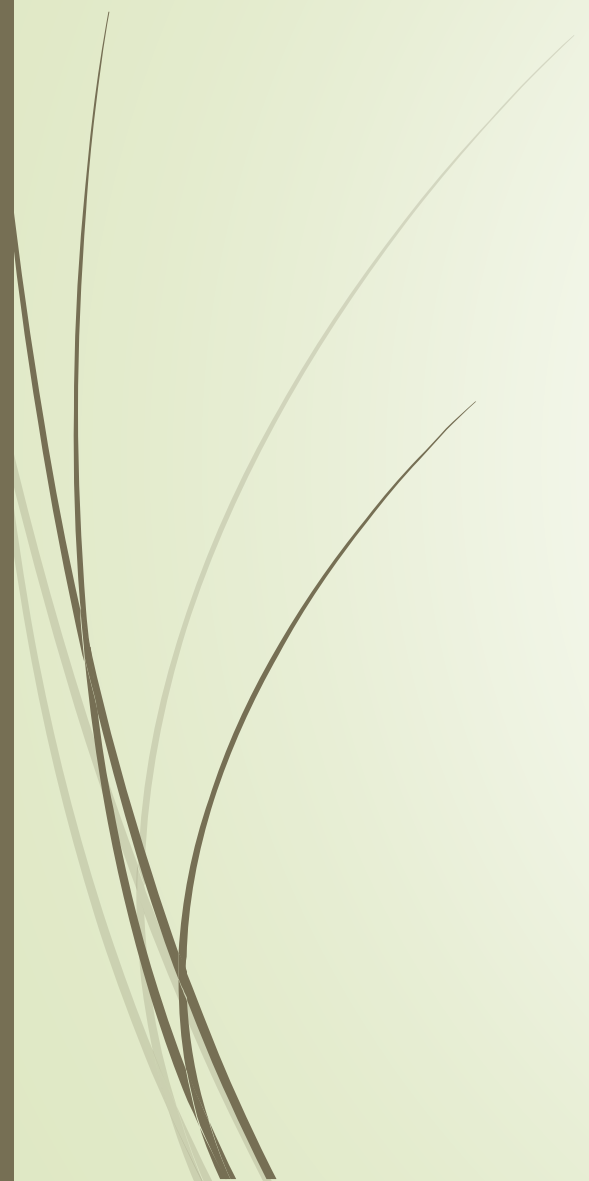
Stride Pattern between hurdles

- ▶ 3 quick shuffle step
 - ▶ Strides are usually shorter than normal.
 - ▶ Foot dorsiflex the whole time
 - ▶ Stepping over the ankle
 - ▶ Shorter arms allow feet to move quicker
- 



Running off the last hurdle

- ▶ Stay relax
 - ▶ Technique perseveres over fatigue
 - ▶ Dipping too early
 - ▶ Growing to the finish line
- 



Questions?



Drills & Hurdle Progression

Sprint hurdle Part 2



Content

- ▶ Training the bio-motor abilities
- ▶ Preparation period
- ▶ Season progression/modification
- ▶ Develop a training plan
- ▶ Race modeling
- ▶ Hurdle progression
- ▶ Develop hurdle warm up
- ▶ Sprint drills specific to hurdles
- ▶ Hurdle drills
- ▶ Lead leg drill
- ▶ Trail leg drill
- ▶ 3 step drill
- ▶ Combination drill
- ▶ Touch down times
- ▶ Training variation for sprint hurdles
- ▶ Coaching tips



Training of the Bio-motor Abilities

- ▶ Speed

Accel->Absolute->Speed
Endurance

- ▶ Strength

General strength and strength
endurance-> power development-
> absolute strength -> reactive
strength

(but all are used throughout
macrocycle)

- ▶ Work Capacity

Progressively increase in
specificity & acidity to race
modeling

- ▶ Flexibility-

Consistently throughout
macrocycle

- ▶ Skill-

General to specific

Preparation period

- General prep – Getting prepared to train
 - Teaching drills
 - Body position
 - Working on flexibility
- General strength
 - Core
 - Endurance
- Power development
 - Weight room training
- Overhead med-ball walk overs
 - Posture
 - 6-8 hurdles
- Walking drills
 - Picking front and back Knee up
 - Arm movement





Season progression/modification

► Preparation period

- General prep – first 4 weeks (getting prepared to train) moving around
- Special prep – absolute speed absolute strength, speed endurance, power development,
- major changes of the skill

► Mass practice

- More volume less intensity

► Competition period

- Pre - competition phase
- Synthesis - (bring everything together) speed and strength combine together to refine skill)

► Comp phase

- Peaking

► Distribution practice

- less volume, high intensity



Develop a training plan

- ▶ Developing a motor program that involves moving faster than race pace
- ▶ Training plan should include progressional training
- ▶ Hurdles are placed closer and lower than competition distances
- ▶ Places an emphasis on stride frequency and hurdle technique



Race modeling

- ▶ 10 step to first hurdle
- ▶ 3 step and 5 step run
- ▶ In the later part of hurdling the hurdles get closer
- ▶ Hurdles are always closer than regular distance
- ▶ Hurdles are usually lower than regular height
- ▶ Running more hurdles than regular race
- ▶ running less hurdles than regular race.



Hurdle Progression

WOMEN

- ▶ Start between 7m - 7.50m depending on the athlete
- ▶ Try to keep H1 close to regular distance
- ▶ Always keep the hurdle lower than competition height
- ▶ 30"/flex hurdle
- ▶ Increase each hurdle by 5-10 cm/week

MEN

- ▶ Start 7.80m – 8.30m
- ▶ Try to keep H1 close to regular distance
- ▶ Always keep the hurdle lower than competition height
- ▶ 39" hurdle
- ▶ Increase each hurdle by 5-10 cm/week

Develop a Hurdle Warm-up

- ▶ To be used at most hurdle sessions
- ▶ Variation of Warm-up to be done at meet
- ▶ Walk-overs
 - ▶ Walking, single leg, other leg, skipping, lateral, B-skip on end of hurdles
- ▶ Wall drill/trail leg
- ▶ Sprint Drills
- ▶ Lead/Trail/Over The Top
 - ▶ 1 skipping step (4 feet apart)
 - ▶ 3 short quick steps (5m apart, with run in of 5m for men, 8 for women)
Lead Trail & over the Top
 - ▶ 3 running steps (7-8m apart, run in with 13m)
 - ▶ Alternate drill

Use drills as an opportunity to teach & correct movements!



Sprint Drills specific to hurdles

- A skip (hip and foot position)
- B skip (foot extension, while driving heel under the body)
- Straight leg shuffles (mimic shuffle steps) (Combination of A,B skip and straight leg shuffle)
- C-Skip (trail leg without hurdles)
- Alternate A-C Skip (combination of lead and trail leg)

Hurdle Drills

- Skipping over the side with lead
- Skipping over the side with trail
- Skipping over the top with both
 - Right leg lead
 - Left leg lead
- Lateral skips

Space hurdles

- One step drill
- Three step drill
- Three quick steps over top



Lead Leg Drill

- A-skip
- B-skip
- Walk-overs
- Skip-overs
- Hurdle taps
- Wall drill
- 5m apart, 8m run in
 - Knee drive
 - Quick arms



Trail Leg Drill

- ▶ C-skip
- ▶ Wall Drill
- ▶ Walking trail
- ▶ Skipping trail
- ▶ Hop-overs
- ▶ Trail-overs
- ▶ 5m apart, 5m run in for men 8m for women
 - ▶ Toes turn out
 - ▶ Arm under knee



3 step drill

- Low hurdles
- Quick movement
- Focus on the black mark



Combination drills

- Split drill
 - Lead
 - Trail
- Place hurdle on a straight line
- Lead leg on the inside of hurdle
- 7m apart 12m run in for men
13 for women
- Used for 400m hurdlers



Touch Down Times

Table 8.3 Touchdown Times for Various Hurdle Races

110-Yard High Hurdles										
1	2	3	4	5	6	7	8	9	10	Finish
2.5	3.6	4.6	5.6	6.6	7.7	8.8	9.9	11.0	12.2	13.6
2.5	3.6	4.6	5.7	6.8	7.9	9.0	10.1	11.2	12.4	14.0
2.6	3.6	4.7	5.8	6.9	8.1	9.3	10.5	11.7	12.9	14.4
2.6	3.7	4.7	5.8	7.0	8.2	9.4	10.6	11.8	13.0	14.6
2.6	3.7	4.9	6.0	7.2	8.3	9.5	10.7	12.0	13.2	15.0
2.7	3.8	5.0	6.2	7.4	8.6	9.8	11.0	12.3	13.6	15.5
2.8	3.9	5.1	6.4	7.6	8.8	10.1	11.3	12.6	14.0	16.0
100-Meter High Hurdles										
1	2	3	4	5	6	7	8	9	10	Finish
2.5	3.6	4.6	5.7	6.8	7.9	9.1	10.2	11.0	12.2	13.8
2.5	3.6	4.6	5.7	6.9	8.1	9.3	10.4	11.2	12.4	14.0
2.6	3.6	4.7	5.9	7.1	8.3	9.5	10.7	11.7	12.9	14.3
2.6	3.8	4.9	6.0	7.2	8.4	9.6	10.9	11.8	13.0	14.8
2.6	3.8	4.9	6.1	7.3	8.5	9.7	11.0	12.0	13.2	15.0
2.7	3.9	5.0	6.2	7.4	8.7	9.9	11.2	12.3	13.5	15.3
300-Meter Intermediate Hurdles										
1	2	3	4	5	200	6	7	8	Finish	
6.0	10.3	14.4	18.6	22.8	24.3	26.7	31.2	35.4	36.6	
6.3	10.6	14.8	19.1	23.2	25.2	27.7	32.2	36.8	38.0	
6.5	10.9	15.2	19.5	23.9	25.9	28.5	33.2	38.0	39.4	
6.8	11.2	15.6	20.1	24.6	26.7	29.4	34.3	39.3	40.8	
7.1	11.6	16.1	20.8	25.5	27.6	30.4	35.5	40.7	42.2	
7.3	12.0	16.7	21.5	26.4	28.6	31.5	36.7	42.1	43.7	
7.6	12.4	17.3	22.2	27.3	29.5	32.5	38.0	43.5	45.2	
7.8	12.8	17.8	22.9	28.1	30.5	33.6	39.2	44.9	46.6	
8.0	13.2	18.4	23.6	29.0	31.4	34.6	40.4	46.3	48.8	
400-Meter Intermediate Hurdles (Women)										
1	2	3	4	5	6	7	8	9	10	Finish
6.5	11.1	15.7	20.3	25.0	29.8	34.7	39.7	44.9	50.1	56
6.7	11.5	16.3	21.1	25.9	30.8	35.9	41.1	46.2	51.8	58
6.9	11.9	16.9	21.9	26.9	32.0	37.2	42.5	47.9	53.4	60
7.1	12.3	17.5	22.6	27.8	33.1	38.4	43.9	49.5	55.2	62
7.3	12.6	17.9	23.3	28.7	34.2	39.8	45.4	51.1	57.0	64
400-Meter Intermediate Hurdles (Men)										
1	2	3	4	5	6	7	8	9	10	Finish
5.9	10.0	14.1	18.2	22.3	26.5	30.8	35.2	39.7	44.3	49.6
6.0	10.2	14.4	18.6	22.8	27.1	31.5	35.9	40.4	45.1	50.5
6.1	10.4	14.7	19.0	23.3	27.7	32.2	36.8	41.6	46.5	52.0
6.3	10.7	15.1	19.5	23.9	28.4	32.9	37.6	42.5	47.5	53.0
6.4	10.9	15.4	19.9	24.4	29.0	33.7	38.5	43.4	48.4	54.0

Training Variations for Sprint Hurdles

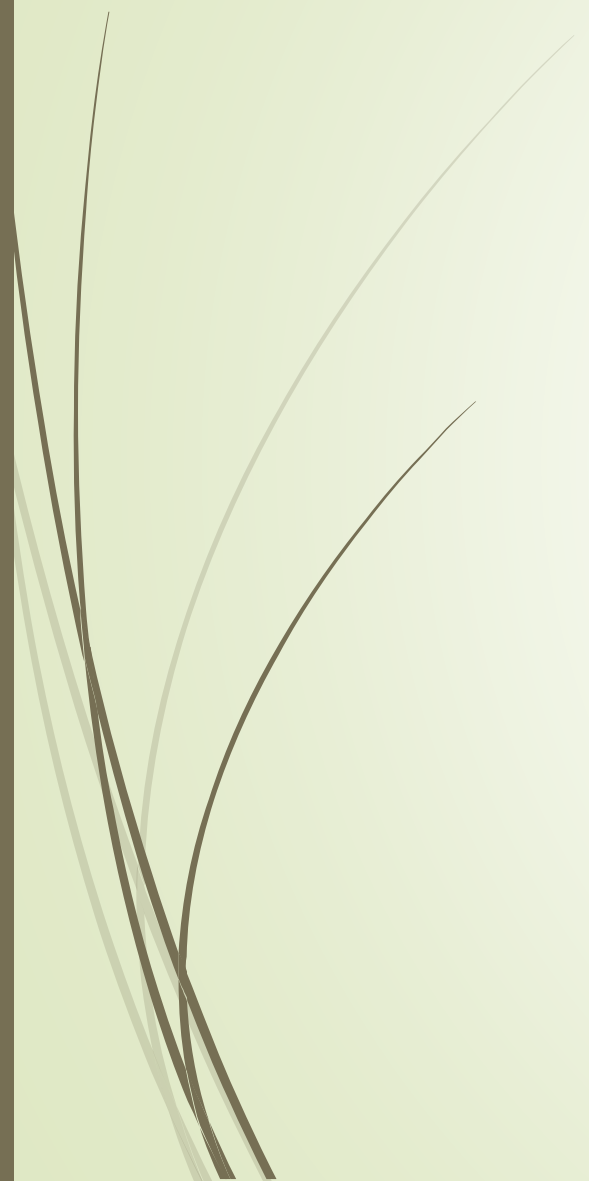
<u>Drill</u>	<u>Men</u>	<u>Women</u>
reduced distance & height to H1	13.42/36-39"	12.70/27-30"
10 strides to H1	17.22/36-39"	16.20/27-30"
12 strides to H1	21.02/36-39"	19.7/27-30"
3 strides between Hurdles	7-8.4 meters/height lower	7-8.2 meters/height lower
5 strides between Hurdles	12.84/36-39"	12.20/27-30"
Combine 5 and 3 step patterns	8/3/3/5/5/3	
3 stride between Hurdles	Reduce each hurdle by 10 cm	
Incline Hurdling	<u>1-3% uphill or downhill</u>	



Coaching Tips



- Know your athletes strengths & weaknesses
- Understand the athletes body movement
- Do not give too many coaching ques
- Pay attention to how your athletes develop
- Teach in parts before whole
- Almost every technical problem starts before the actual problem
- Try not to over achieve your athletes capability



QUESTIONS?