

**Women's 100 meter Hurdles:**  
**BREAKING 13.00 SECONDS**  
**A PRACTITIONER'S GUIDE**

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Thirteen seconds has traditionally been an important barrier in the life of the developmental female hurdler. It sits at the crossroads. It is a sign that participation at the elite level of the event is possible. It indicates that the hurdler's dream is not far off.

By breaking 13.00 seconds, the hurdler shows potential to earn at the event in the near future. She is now a possibility for participation on the European circuit. She has achieved the "A" standard for the World Championships. She has met the "B" standard for the Olympic Games (the "A" standard was a ridiculously high 12.95 in 2004.)

What are the ingredients of a sub-13 hurdler? How does one go about transforming a 13.20 or slower hurdler to a sub-13.0 hurdler? I present to you today a guidebook for success. A set of proposals that when put together can transform a hurdler of reasonable talent to a near elite hurdler. The main chapters of the guidebook are:

1. Technique
2. Start and Acceleration
3. Speed
4. Speed Endurance

These should be the main areas of focus for the hurdler and her coach. Improvement in any of these areas will probably lead to improvement in the PB of the athlete. Improvement in all four will lead to huge gains.

### **SPEED DEVELOPMENT AND THE 100M HURDLES**

Speed development is the most important aspect of 100 meters hurdles training. Many coaches see the women's 100 meters hurdles as a mirror of the men's meters meter hurdles, but in fact it is vastly different. In the men's event, because of the higher relative height of the hurdles, technique and height become more important considerations. In the women's hurdles the most important factor is speed. As a matter of fact, if one were to compare the techniques of the top women hurdlers against that of the top men, the women would come out very poorly. Most top women hurdlers have very poor knee drive to the hurdle on approach, an incomplete trail leg carry over the hurdle, and poor arm action during hurdling. Yet they manage to be among the very best in their event. Men do not have that luxury. The very best hurdlers are also the very best technicians in the event.

Looking at the 100 meters hurdles empirically, one will see that most top class hurdlers are almost guaranteed to be world class sprinters. To break 13.00 over 100 meters hurdles, the hurdler must be capable of running 11.75 seconds or better over 100 meters.

What is the implication of this for preparation? In general, the 100 meters hurdlers should train as if they were 100 meters sprinters for most of the training microcycle.

## **TECHNIQUE**

Obviously, time must be spent refining the hurdling technique, but how much time? And what specifically must the time be spent on? I propose that the focus of the coach and athlete should be in the following three areas:

1. The speed of the lead leg
2. The length of the trail leg
3. The positioning of the trail arm.

Deficiencies in the above three will be corrected by the use of drills. All of this is not new, and from my observation most coaches of hurdlers who I have seen spend quite a lot of time doing a myriad amount of drills of all types. For drills to be useful, each drill should be specifically aimed at developing one or more of the above facets.

### **Speed of the Lead Leg**

As a general rule, the slower the lead leg, the more time spent over the hurdle, the slower the overall time of the race. How does one improve the speed of the lead leg? There are many drills devised that if done properly can lead to improvements in lead leg speed. The most effective are those that are done at racing speed. One of the problems that I am sure all of you encounter when coaching hurdlers is the difficulty that most hurdlers have when asked to replicate their drill form at racing speed. All of a sudden the hurdler with perfect form at the slower paces of the drill, look amateurish when asked to pick up speed, or to hurdle at maximum intensity.

For this reason, I advocate that a large amount of drill time should be spent on technique using a 3 step rhythm at near to racing speeds. The advantage to practicing the drill at low intensity is the possibility of the athlete teaming the perfect technique at a slower pace. When the athlete is doing the drills at walking or jogging pace she will have a lot of time to do the correct thing. The same holds true when the athlete practices hurdle clearances with 5 or more strides between the hurdles. In my view, however, it is better that the athlete learns the correct thing over a longer period of time in a way that she can easily reproduce in a race. This means that she will run a number of races with relatively poor technique, but over time as the technique develops and improves she will yield superior times. As she improves in practice, she will be able to do the same thing in races over the weekend. Although the technical improvement will be difficult to achieve in practice, the athlete will be able to apply some in her races.

The high intensity drills can be facilitated by setting up the hurdles with 6.5m to 7.0m between the hurdles, thus ensuring that the athlete can do the drill using a three step rhythm even though she is not going at full speed.

With these guidelines in mind, there are three drills, which in my experience may be the most effective ones.

1. Skipping lead leg snaps at the sides of the hurdles
2. Running lead leg half hurdle with one stride between the hurdles
3. Running lead leg snaps (half hurdle) with a three-step rhythm.

Only when the athlete is able to master these drills can you be confident that the athlete will be able to carry the technique into a race situation.

### **Trail Leg**

The trail leg is probably the most important aspect of the hurdle technique. In fact for men, it is the most crucial part of the male sprint hurdle technique. It is not as important for female hurdlers because of the shorter distance between the hurdles. There is a caveat to this though. Smaller hurdlers, especially those 5'4" and less have to spend relatively more time on the functioning of the trail leg, for obvious reasons.

Why is the trail leg important? Well, it is the first of three strides between the hurdles. In fact, it is the second longest of the three strides in female hurdling. There are two distinct ways of carrying the trail leg. Smaller women have to by necessity carry the trail leg high and full - i.e. the knee of the trail leg passes close to the chest. Taller women can de-emphasize the height of the trail leg in deference to the quickness of the leg. These taller athletes tend to have longer strides between the hurdles, so they can carry the knee of the trail leg at just above waist height.

Carrying the trail leg high may be useful even for the taller woman. The high trail leg will ensure that the distance she has to cover over the next two strides will be less. She can then focus on making these two steps quicker than they would normally be when she carries the trail leg lower.

In general, the hurdler should try to avoid making ground contact with the trail leg too far from the center of the body. This is a very real possibility when the knee of the trail leg is carried at or below waist height over the hurdle. The trail leg then lands off to the side, and the hurdler is forced to over-stride to make the strides in between the hurdles. At the very least, the hurdler should improve her trail leg to the point where on landing, she can run normally between the hurdles.

The following drills can improve the trail leg.

1. Skipping trail leg over the half hurdle
2. Running trail leg over half hurdle with one stride between the hurdle
3. Running trail leg over half hurdle with three strides between the hurdles

## **Trail Arm**

The main function of the trail arm is to maintain the balance of the body on landing. Most hurdlers (whether elite or not) tend to carry the trail arm very wide and high with a resulting twist of the body on landing. This twisting of the body fractionally delays the second stride between the hurdles, as the athlete must regain her balance before making the next step. This is something that male hurdlers are forced to perfect, because of the height of the hurdles. Twisting off of any of the hurdles can lead to disaster by the next hurdle. For the women, they are not air-borne as much, so the effect of twisting will not be as pronounced as it would be for the men.

I estimate that over a series of 10 hurdles, this type of delay can contribute a total of 0.3 seconds to the total time of the race. Ideally, the trail arm should be as close to the body as possible, especially the elbow and the upper part of the arm. The arm should also be carried as low as possible in an effort to counteract the natural twisting motion of the upper body. Drills for the trail arm are essentially the same as for the trail leg.

## **START AND ACCELERATION**

As it is in any 100 meters sprint, the start is very important to the outcome of the race. The hurdler will take eight strides to the first hurdle, and during this time, she will have to get close to top running speed by the first hurdle. For the remainder of the race momentum is broken by the athlete having to clear the barriers, so the increase in speed later in the race is not as drastic as it is in the 100 meters.

The main issue with block clearance and starts for the 100 meters hurdles is that the block must be set so that the trail leg is in the front block. Although this seems to be basic, it does have a lot of implications for the approach to training, especially the training of acceleration. A lot of power work must be done on the trail leg. All starts must also be done using the trail leg in front. If the athlete also runs the 100 meters, then the 100 meters start must be adjusted to have the trail leg in front.

After the block clearance comes the acceleration, which begins at stride 2 and continues to the penultimate stride before the first hurdle, i.e. stride 7. Most hurdlers will begin looking at the hurdles immediately after block clearance. Others will concentrate in the first three strides on pushing against the ground without looking at the hurdles. Only after getting enough ground force will the athlete then focus on clearing the upcoming hurdle.

The athlete needs to focus on getting her hips high enough to negotiate the hurdle on takeoff. This is not as challenging as it is for the men's 110 meters hurdles as the hurdles are relatively lower. Several women hurdlers pay too much attention to the first hurdle and not enough to initial acceleration. Their body angles are usually wrong over the first four strides with the result that they get to the first hurdle at less than ideal speed.

The following exercises will develop block clearance and acceleration.

1. Jump, Jump, Throw with medicine ball
2. 6-8 x 30 meters steep hill sprints
3. 6-8 x 20 meters using bullet belt
4. Front shot throw on toe board
5. 6-8 x 20 meters using towel (or other types of resistance)

## **SPEED**

As mentioned earlier, 100 meters speed is a good predictor of hurdling potential and ability. Training the speed component for the 100 meters hurdler is a little more complicated than training the speed component in the 100 meters. The coach has to take into account the presence of several barriers that have to be negotiated.

How does one develop the speed component? The athlete has to go through the same processes as the 100m speed development. All the various training regimens for developing maximum speed have to be employed including:

### A. Maximum Strength Development.

This should cover at least 16-20 weeks of the training year. The focus should not be on the core bodybuilding exercises, but rather on exercises that are more specific to the running motion. As an example, it would probably be more beneficial for the athlete to do split squats and front squats instead of back squats. The front squat is more useful because the athlete can focus on the technique of squatting and not the weight she is squatting with. Split squats are even more relevant as they are done on single legs, like sprinting. Here balance and the minor muscles of the thigh come into play, just as it does in high speed sprinting. Other exercises would be:

- Cleans
- Jerks
- Hyperextensions (single and double leg)
- Jump squats
- Inverted Rows

These exercises should be eventually done in such a way as to develop maximum strength.

### B. Jump Drills (plyometrics)

The aim of these categories of exercises is to develop the ability to exert more force from the ground each time the foot strikes. By improving this capability of the muscle, the athlete will be able to cover more ground with the same amount of ground contact time.

This area of training is well covered by several experts, but a few drills to include are:

- Bounding (Run)
- One Leg bounds
- Ankle Bounding
- Alternate Split Jumps
- One Leg Hopping
- Hurdles Jumps

Two very good indicators of progress are the:

1. Standing Long Jump test
2. Standing Vertical Jump test

Significant improvements in either of these indicators (that is not technique driven) will normally suggest an improvement in maximum running speed potential, other things being equal.

### C. Medicine Ball Work

Under this category of exercises fall all the hundreds of exercises designed to improve both upper and lower body power. These exercises include overhead throws, twists, throws from behind the head, throwing then running, etc.

### D. Sprinting

Maximum sprinting speed requires practice if it is to be improved. Most speed improvement programs schedule copious amounts of sprinting as their focus. It is usually believed that these sprint workouts determine the success of the individual at sprinting.

For the 100 meters hurdler, the typical sprinter exercises must be mixed with sprinting over the hurdles. It is worthwhile for the sprints over hurdles to be done at heights lower than the competition height as this allows the hurdler to focus more on the running between the hurdles and not so much on the task or negotiating the barriers.

Typical Sprint workouts

Without hurdles - 3 x 3 x 30-60m

With hurdles

1. 2 x 3 x 3-6 hurdles from block or 3 point start
2. Place all hurdles at 30". The athlete runs at full speed over the first two set at regular spacing. The next two hurdles are removed. The athlete will run hard in the resulting space before clearing the next three hurdles (hurdle 5, 6 and 7).

## **SPEED ENDURANCE**

This is the final major component that needs to be trained. A lot of elite female hurdlers apparently spend very little time working on this component. Each year we see many hurdlers running between 7.85 seconds and 8.05 seconds for 60 meter hurdles, but come outdoors are unable to run equivalent times when the last five hurdles are involved.

This component is what separates in most cases the hurdler who is able to run at the very top level of the sport, from those who flirt at the edge of stardom and elitism. It is also the most under-estimated and ignored component in the training of sprint hurdlers. It is very common to ignore the effect that repeated clearances of barriers will have on the physical capacity of the 100 meters hurdles athlete. The athlete will effectively run more than 100 meters (in terms of effort) during a 100 meters hurdles race. It may be wise to train the athlete to run a distance of say 120 meters, in order to handle the speed endurance demands of the 100 meter hurdles.

How is this speed endurance built? The first step is to build general speed endurance. This develops the ability of the athlete to run distances over 60m at high speed. There are many ways to go about doing this. Personally, I like to ensure that the athlete is able to run a very fast 300 meters. How fast? Well, an athlete who wants to run 12.90 should be able to run a 300 meters time trial in at least 38.00 seconds, assuming that she has 100 meter speed of 11.70 to 12.00.

The athlete who aims for 12.4's or 12.3's should be able to run 300 meters in 36.0 seconds, a time which comparable to the world's elite. My experience suggests that being able to meet these types of times over 300 meters indicates that the athlete possesses more than enough speed endurance to meet the demands of 100 meter hurdling. When enough general speed endurance is present the speed endurance problem is not yet solved. In the 100 meters hurdles race, the athlete has to cover the last 3-4 hurdles while ensuring that her technique does not breakdown enough to slow her up.

This is a demand unique to hurdling among athletic events. In no other event or group of events is the athlete required to execute a highly technical sequence under conditions of extreme exhaustion. In fact, during the last 4 hurdles of the race, poor technique caused by fatigue is the biggest contributor to the slowing of the athlete. Many things happen during this period.

1. The athlete's stride shortens, so she takes off too far from the hurdle and begins to hit them, usually with the trail leg.
2. The athlete fails to continue to snap the lead leg. The result is expanded airtime over the hurdles, or "floating".
3. Wild trail arm action leads to the athlete becoming severely unbalanced, with the resulting delays on landing on the ground.

The athlete must therefore practice hurdling at high speeds under stress. Ways of achieving this include:

1. Runs over 12 hurdles from blocks with proper spacing. The 12<sup>th</sup> hurdle will be past the finish line. The athlete is timed using touchdown times.
2. Runs over 13 hurdles using 7.5 meters between each hurdle
3. 100 meters hurdles runs with hurdles 5, 6, 7 removed

## **CONCLUSION**

The CAC region has under-performed in the 100 meters hurdles in comparison to a number of other regions. With 100 meters speed being so important to the outcome of the event, it is somewhat surprising to see the relative dominance of the Europeans. The Caribbean part of CAC has long been seen worldwide as one of the main speed producing regions, but there has been appallingly little success over the 100 meters hurdles. I believe that by seeing the 100 meters hurdles more as a sprint than an obstacle event, it is possible for the Caribbean to drastically improve on their historical performance in the 100 meters hurdles, and to match their success in the sprints without barriers.