Coaching Hurdles

A progressive guide for coaching a junior novice to accomplished athlete

Stephen Cowburn
# Table of Contents

1. Safety ........................................................................................................... 4  
2. Introduction .................................................................................................. 5  
3. Coaching Progression & Model Technique .................................................. 6  
   Regular stride pattern ................................................................................... 7  
   Leg Action .................................................................................................. 10  
   Trail Leg .................................................................................................... 13  
   Arm Action ................................................................................................ 16  
   Strides between hurdle ............................................................................... 19  
   Position 'on the hurdle' ............................................................................. 20  
   Breathing.................................................................................................... 22  
   Progress ..................................................................................................... 23  
4. Drills ........................................................................................................... 24  
5. Exercise & Practice ..................................................................................... 52  
6. Conditioning & Preparation ....................................................................... 59  
   Warm Up .................................................................................................... 59  
   General Strength ....................................................................................... 66  
   Core Strength ............................................................................................. 72  
   Speed Development .................................................................................... 78  
   Flexibility ................................................................................................... 82  
   Cool Down .................................................................................................. 86  
7. Distance Hurdle Races ............................................................................... 87  
   Distance Hurdle Exercises ......................................................................... 90  
8. Common Errors and How to Correct .......................................................... 93  
9. Acknowledgements ..................................................................................... 95  
Appendix A - Typical coaching/training phases for a VLAA calendar year.... 98  
Appendix B – Hurdle configurations for VLAA competition ............................ 99  
Appendix C – Athlete progress sheet ........................................................... 100
1. Safety

Running as fast as you can over hard barriers has its inherent dangers however these dangers can be minimised by a few simple precautions.

- Hurdling is dangerous on wet grass or any other slippery surface and should be avoided.
- High winds, especially head winds, can affect an athlete’s speed and hence timing. Avoid training on windy days or adjust the hurdle spacing to compensate.
- Poor light can distort distance and affect athletes timing and depth perception. Hurdle only in well lit conditions.
- Cardinal sin of hurdling - It is very dangerous for children to run over hurdles in the opposite way to the correct running direction (i.e. with the ‘feet’ of the hurdles on the far side) because the hurdle will not easily fall over if hit and the athlete will doubtless cause themselves harm.
2. Introduction

This document aims at providing a sequence of skill acquisition, coupled with drills and exercises that assist in coaching a novice hurdler to becoming an accomplished hurdler.

In the ‘Drills’, ‘Practice’ and ‘Exercise’ sections this symbol is used to suggest when the activity is most appropriate. The four circles are coloured to match the four phases of preparation namely:

- General Preparation
- Specific Preparation
- Pre Competition
- Competition

Some drills, exercises and practice sessions are applicable to more than one phase hence multiple circles are shown. Further explanation of these phases is shown at ‘Appendix A - Typical coaching/training phases for a VLAA calendar year’.

Photos are used extensively throughout this document as a way of showing the action under discussion or the setup/apparatus required to perform the action however they should be viewed in context with the descriptive text accompanying the photo.
3. Coaching Progression & Model Technique

This section contains the sequence of steps proposed as a coaching progression for a new/novice hurdle athlete. For the purpose of explaining the required technique a sprint hurdle (e.g. 80mH) setup is used.

1. Regular Stride Pattern
2. Leg Action
   a. Lead
   b. Trail
3. Arm Action
   a. Lead
   b. Trail
4. Strides between hurdle
   a. 1st - run off hurdle
   b. 2nd - longest stride
   c. 3rd - cut step
   d. Take off
   e. Landing
5. Position 'on' Hurdle
   a. Height

Each of these steps is discussed in further detail on the following pages.
**Regular stride pattern**

The ultimate aim is for the athlete to achieve an 8,3,3,3…7 stride pattern. That is 8 strides to the first hurdle, 3 strides between hurdles and 7 strides to the finish line. In an 80m Hurdle race this equals 39 strides.

Younger athletes will have trouble achieving the 8,3,3… stride pattern and may start with a 10,5,5,5 or 9,4,4,4 and gradually progress to 8,3,3,3 as they get bigger, faster, and stronger.

Regardless of ability the initial key requirement is to achieve a regular stride pattern so as to avoid ‘stutters’, especially between hurdles, and so keep the sprint speed or at least minimise any loss caused by the hurdles.

In this regard Hurdling is similar to dancing – to be successful you need to establish ‘Rhythm’

**Teaching Points**

- With an even number strides to first hurdle (8, 10) the lead foot must be on the back leg when starting.
- Obviously therefore with an odd number strides to the first hurdle (7, 9) the lead foot will be on front most.
- An odd number of strides between hurdles mean that the ‘lead’ stays with the same leg over each hurdle. An even number will mean the athlete has to change legs on each successive hurdle.
- Start with low hurdles on the correct hurdle marks and have the athlete practice until a regular pattern is achieved. A low hurdle may initially be two flat sticks, one at the take off & one at the landing position. Progress with mini hurdles, practice hurdles and finally regular hurdles. Gradually raise height of hurdle until at correct height for athlete age while still maintaining regular stride pattern.
- Alternatively start with hurdles at correct height but with reduced distance between them. Gradually increase the distance between hurdles until in correct position and athlete can hurdle with regular stride pattern.

An 80mH set up (as for U13/14 athlete) is used in the following examples. Correct spacing’s are:

- Run in = 12m
- Space between hurdles = 7m
- Run out = 12m
- Hurdle height = 0.76m
- Colour of mark on track = Black
Other age group/race distance settings are shown at Appendix B – Hurdle configurations for VLAA competition.

Start with low hurdles set on the correct hurdle marks. Try to establish a regular stride pattern, ultimately 8 strides to the first hurdle and 3 strides between hurdles.

We are not concerned with hurdling technique at this stage – just a regular stride pattern.

In this photo distance ‘D’ is on the 80m hurdle marks but the height ‘H” is around 30cm, much lower than the usual for this athlete’s age (76cm).

Figure 1 – Mini hurdles in correct position

Gradually increase the height of the hurdle while maintaining the hurdle spacing and same regular stride pattern.

Here the distance ‘D’ remains as shown in Figure 1 – Mini hurdles in correct position but the height ‘H’ is raised to around 45cm.
Figure 2 – Small hurdles in correct position

Continue gradually increasing height until at correct height for athlete.

Shown here the distance ‘D’ remains as shown in Figure 1 – Mini hurdles in correct position but the height ‘H’ is now raised to full height for this athlete’s age (76cm).

Figure 3 – Full height hurdles in correct position

As an alternative approach set the hurdles to their correct height, in this example ‘H’ = 76cm, but shorten the distance ‘D’ to the first hurdle and between hurdles by approx 1m.

Hence the run in becomes 11m and space between becomes 6m.

When the athlete can comfortably maintain a regular stride pattern on this setting gradually increase the spacing until correct spacing is achieved.

Figure 4 – Full height hurdles with reduced distance
**Leg Action**

The basic aim of the hurdle leg action is to get off the ground and get back on the ground as quickly as possible with as minimum disruption to the regular sprint style as possible.

**Lead Leg**

- The Lead Leg action is initiated by a strong knee drive until the knee just exceeds the height of the hurdle. At this point the lower leg extends directly in front of the athlete to clear the hurdle.
- The lead leg remains straight out in front of the athlete at all times and lands again straight in line with the athlete.
- The lead leg does not actually need to ‘be straight’ (like a ruler) but should remain straight in front of the athlete.

**Key points**

Referring to Figure 5 – Hurdle Sequence: the action of the leading leg:

- The knee must be picked up fast [1, 2, 3]
- The knee is driven at the hurdle [3, 4]
- The lower part of the leg is left low and extends once the knee reaches the height of the barrier [4, 5]
- The knee must be picked up in line with the vertical centre line of the body.
• There should be no tendency for the knee to be pulled across the body or for the lower leg to go out and round.
• As the heel of the lead leg passes the barrier it must be actively pulled down and back to land under the body [7, 8, 9, 10, 11].
• There is no necessity for the lead leg to be straight over the top of the hurdle [6].
• The leg straightens as it descends towards the ground [10, 11].

Figure 6 – Lead knee drive

Lead leg motion starts with a strong drive with the lead knee. The lower leg remains folded until the knee is higher than the hurdle at which time the lower leg extends.
The lower leg extends and lead foot is pushed down to meet the track. The lead leg does not necessarily need to be straight. A ‘stepping over’ action rather than a ‘kicking’ action is required.

The key is to get the lead foot back on the ground as quickly as possible so as to recommence running. The athlete should actively push the foot back to earth rather than simply allow gravity to take it there.

Figure 7 – Lead leg position over hurdle

At all times the lead leg remains straight out in front of the athlete.

Any sideways movement of the landing of the lead foot will cause the athlete to unnecessarily twist and potentially loose balance and hence speed.

Figure 8 – Lead leg position, in front
*Trail Leg*

Figure 9 – Hurdle Sequence

The trail leg should remain ‘compact’ – short levers move much faster than long levers - with the heel of the trail foot close to the athlete’s bottom. The lower trail leg (knee to foot) should be basically flat over the hurdle with the trail foot slightly below the trail knee. The trail foot should be dorsiflexed. The trail knee continues to rise after clearing the hurdle and will almost touch the athlete’s chest. The trail leg, after clearing the hurdle, should return to the front of the athlete.

**Key points**

Referring to Figure 9 – Hurdle Sequence the action of the trailing leg:

- The trailing leg drives the body at the hurdle as the lead leg rises [5,6].
- The recovery of the trail leg must begin from well behind the body if the drive is to be completed.
- The athlete should feel the trailing knee sweeping wide and flat over the hurdle [6,7].
- As the leg crosses the hurdle the foot must be cocked (dorsiflexed) at the ankle so that the foot does not hit the barrier [9, 10].
- After crossing the barrier the knee continues to rise and comes round in front of the body [10, 11, 12].
- 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 very short and pulling the athlete off balance. The trail leg must
be pulled through high and fast so that the first stride is fast [12, 13, 14].

The trail knee is always higher than trail foot. The trail foot remains dorsiflex throughout motion.

The athlete aims to pull the trail leg through as quickly as possible.

The trail foot stays close to hurdle whereas the trail knee will continue to rise after clearing the hurdle.

Figure 10 – Trail leg position, Knee/Foot relationship

The trail leg rotation completes with the trail leg in front of athlete and knees high as in sprint motion.

Figure 11 – Trail leg position, high knee
Trail leg plant comes from a vertical ‘in front’ position.

Figure 12 – Trail leg position, in front
**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/drives forwards as the lead leg rises [2,3,4]. 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 [8,9,10].

![Figure 13 – Hurdle Sequence](image)
Lead Arm

- The lead arm is that arm opposite to the lead leg. It basically mirrors the lead leg in that it extends straight out in front of the athlete. A slight bend of approx 120 deg is acceptable but no part of the arm should pass the centre line of the athlete. The coaching key for the lead arm is ‘low and centred’
- A bent lead arm, sometimes referred to as the ‘read my watch’ style, is common place in younger athletes and while not too damaging can lead to twisting of the upper body due the arm passing the centre of the athlete’s body.

The Lead arm is the arm opposite to the lead leg. Its main role is to balance the lead leg and as such should mimic the lead leg action.

Ideally the lead arm should be relatively straight with around a 120 degree angle bend, and should be straight out in front of the athlete, almost like the athlete is reaching for the lead foot.

When the lead arm crosses the centre line of the athlete it induces a turning motion which has to be counteracted by some other part of the body, usually the hips – hence should be avoided. Excessive twisting, caused by the lead arm crossing the athletes centre line, can lead to a loss of balance on landing and loss of speed or stumbling.

Figure 14 – Lead arm position
Trail Arm

- Trail arm remains as for a regular sprint position – that is bent at approximately 90 degrees, and travels close to the body in a straight line with the direction of travel.

The trail arm simply acts to counterbalance the trail leg. Since the trail leg is mostly kept compact (short lever) throughout the trail leg recovery motion, the trail arm should mimic the trail leg action and also stay compact.

Figure 15 – Trail arm position
Strides between hurdle

First stride
The first stride is the second longest of the three strides between the hurdle. It starts with the landing of the lead leg foot followed by the trail leg foot. Lead leg - an ‘active landing’ and powerful ‘running off the hurdle’ action is required so as to minimise any loss of speed. The lead foot must be actively pushed to the ground rather than simply let fall to the ground. Often the strike of the lead foot after hurdling will sound louder than a usual running strike, which is a good indicator of an active landing.
Trail leg - the trail leg, after clearing the hurdle, comes round to the front of the athlete with a high knee central position.

Second stride
The second stride is the longest of the three strides. Its main purpose is to position the athlete for the final stride such that the final stride can be shortened as required for the ‘cut’ step.

Third stride
The third stride is the shortest of the three strides. It’s often called a ‘cut step’ as it is purposely shortened so that the foot does not land too far in front of the athlete and ‘brake’ the athlete’s speed (similar to the last step in the Long Jump run up).

Two thirds of the athletes stride will be before the hurdle and one third after the hurdle. For example if the athlete’s stride length is 1.2m, the take off distance would be 0.8m with the take off distance being 0.4m.

Figure 16 – Relative stride lengths
Position 'on the hurdle'

Again the basic aim is to get off the ground and get back on the ground as quickly as possible with as minimum disruption to the regular sprint style as possible. This requires the athlete to maintain their centre of gravity as close to that of a sprint action and not jump over the hurdle. An athlete’s COG falls close to the belly button however this is a difficult place for an athlete to concentrate on keeping level. A much easier focus is to instruct the athlete to keep their head straight and level throughout the race as shown by the yellow line in the figure below.

Figure 17 – Constant Centre of Gravity

Height

The athlete needs to maintain their COG as close to that of a sprint action as possible. This requires the athlete to clear the hurdle with a minimum clearance. Typical clearance should be in the region of 150mm.
Next are several exercises that assist the athlete to develop a constant Centre of Gravity over the hurdle.

**‘The Hedgehog’**

Here the athlete is using a ‘hedgehog’ to gauge clearance over the hurdle. The hedgehog is simply a hurdle that has 150-170mm long flexible plastic fingers protruding from the top edge.

The athlete is aiming to pass the lead foot through the fingers.

When successful the athlete can feel the fingers and gain the positive feedback on their hurdling height.

The athlete in the photo is only just skimming the top of the fingers and should lower her action to improve hurdle speed.

*Figure 18 - Feedback on trail leg height using ‘Hedgehog’*

The hedgehog in use again here to gauge the height of the trail foot.

The athlete is aiming to pass the trail foot through the fingers.

When successful the athlete can feel the fingers and gain the positive feedback.

*Figure 19 – Feedback on lead leg height using ‘Hedgehog’*
“The Guillotine”

This device is affectionately called ‘the Guillotine’.

It’s a simple structure made from plastic pipes and foam ‘noodles’.

The noodles sit on small adjustable brackets. The top of the bottom noodle is set at the athlete’s normal hurdle height. The bottom of the top noodle is set at the athlete’s standing height.

This device provides a frame for the athlete to aim for in order to keep their action compact. It is also useful in assisting athletes who jump over hurdles rather than hurdle over them.

Breathing

As with all sprint starts the athlete should hold the breath at the ‘Set’ command. This causes the torso or ‘core’ to tense and provides a solid platform for the legs to push against. This is called the Valsalva manoeuvre.

The technique involves holding the breath for a brief burst of 2.5 seconds and, applied correctly, can produce an instantaneous explosion in force, speed and strength. However, like many techniques, applied incorrectly can cause harm.

We all use the body’s natural ability of increasing strength by unconsciously performing the Valsalva manoeuvre. Imagine where the athlete's mum hands the athlete a jar with a tight lid. Mum needs some extra strength to open the jar so she calls on the athlete for help. On first attempt, the lid is too tight for the athlete. On second attempt, the athlete increases the intensity and pushes hard with maximal effort.

If you will think about what the body does naturally in this situation, you will understand this valuable technique. The athlete tightens the abs, and holds the breath for 2 or 3 seconds as max effort is applied. This is the Valsalva manoeuvre. A rapid increase in blood pressure is produced that clearly could be dangerous to older adults, with potential for stokes, and could also be dangerous to some young athletes. But this technique will assist an athlete to open the jar, lift more weight maximally, and to beat a faster athlete to the ball, goal or finish line.
An athlete can not perform a maximum lift while inhaling. Nor can an athlete quickly accelerate with maximum force while inhaling. The body is designed for the Valsalva manoeuvre and needs to be trained how and when to deploy the technique.

Valsalva can be continuously used throughout a hurdle race by timing the ‘in and out’ breathing with the hurdles. The athlete breathes ‘out’ and ‘in’ over consecutive hurdles i.e. ‘out’ on the first ‘in’ on the second ‘out’ on the third and so on.

Breathing that is coordinated with the athlete’s stride pattern aids in the development of the athlete’s rhythm.

**Progress**

Monitor and record each athlete’s progress so that time is not wasted on skills already learnt. A suitable progress sheet is shown at Appendix C – Athlete progress sheet.
4. Drills

Next are a number of drills aimed at addressing the many parts of the hurdle technique. By isolating and concentrating on individual parts of the technique one at a time, the coach can more easily compare the athlete’s form to the desired model and make the necessary adjustments.

Drills are also important for building ‘muscle memory’. During competition the athlete cannot possible think about and then consciously move as required. By repeating drills the athlete’s muscles remember what it feels like to perform a particular movement which helps for the movement to become automatic during the heat of competition.

Start the athlete on this drill at walking pace then slowly progress to a faster ‘skipping’ action.

Have the athlete perform the drill with both legs.

Lead Leg Drill

This drill aims to isolate the lead leg motion so that it can be closely monitored and any faults identified and corrected.

The athlete places the support foot (trail foot) behind and to the side of the hurdle. The lead knee is driven up keeping the lower leg folded under. When the knee is above the hurdle the lower leg extends, straightening the leg, over the hurdle and is forcefully pushed to the ground.

See Figure 6 – Lead knee drive, Figure 7 – Lead leg position over hurdle & Figure 8 – Lead leg position, in front

Look for:
- Strong drive with knee
- Lower leg dormant until knee above hurdle height
- Foot is forcefully pushed to ground after hurdle clearance in front of athlete (not to side)
- Slight lean forward
- ‘Pawing’ action with dorsiflexed foot.

Figure 21 – Lead leg drill
Lead Leg Hopping Drill

This drill aims at speeding up the lead leg action.

Set up 4-5 hurdles approx 2-3m apart. The hurdle height should be at or slightly lower than competition height.

The drill starts with the athlete hopping towards the hurdle on their lead leg – in the photo sequence 1 this is the athlete’s right leg.

Just before the hurdle the athlete quickly transfers weight to the trail leg at drives the lead leg over the hurdle quickly pulling the trail leg through to a high ‘A’ position. See photo sequence 2, 3 and 4.
The athlete then continues to take small hops on the lead leg until reaching the next hurdle when the action is repeated.

Look for:
- A fast transfer of weight before the hurdle
- A fast ‘popping’ action over the hurdle
- Trail leg maintains a high ‘A’ position while hopping, foot is dorsiflex.

Athletes should perform this drill with their preferred and non preferred legs acting as the lead leg.

Figure 22 – Lead leg hopping drill
Lead Leg ‘Drive’ drill.

This drill aims to replicate the lead leg drive to the hurdle. It is performed as fast as possible while maintaining correct technique.

The athlete starts with their weight mainly on the trail leg and the lead leg a stride length back.

On command the athlete drives the lead leg forward (and lead arm back) as fast as possible until in the vertical ‘in front’ position then quickly returns to the start position.

See how many cycles an athlete can perform correctly in say 10 seconds. Repeat 2 or 3 times then change legs and repeat.
Figure 23 – Lead Leg ‘Drive’ Drill
Start the athlete on this drill at walking pace then slowly progress to a faster ‘skipping’ action.

Have the athlete perform the drill with both legs.

**Trail leg drill.**

This drill aims to isolate the trail leg recovery motion so that it can be closely monitored and any faults corrected.

The athlete starts by placing the lead foot next to and ahead of the hurdle (shown ringed). The trail leg is then picked up and quickly pulled through until in front of the athlete.

This drill should first be performed at a slow walking pace with hurdles approx 1m apart. Later place the hurdles approx 4-5m apart and have the athlete perform the drill at a jogging pace with 3 strides between hurdles.

See Figure 10 – Trail leg position, Knee/Foot relationship, Figure 11 – Trail leg position, high knee & Figure 12 – Trail leg position, in front

Look for:
- Relatively flat lower leg over hurdle
- Knee always higher than foot
- High knee at end of re-rotation of leg
- Foot is planted vertically in front of athlete
- Trail foot remains ‘dorsiflexed’ at all times.

Figure 24 – Trail Leg Drill
Trail leg hopping drill.

This drill aims at speeding up the trail leg action.

Set up 4-5 hurdles approx 2-3m apart. The hurdle height should be at or slightly lower than competition height.

The drill starts with the athlete hopping towards the hurdle on their trail leg – in the photo sequence 1 this is the athlete’s left leg.

The athlete approaches the first hurdle taking small hops and when close enough performs the normal lead leg action.
As the lead leg touches the track on the exit side of the hurdle the athlete quickly pulls the trail leg through to a high ‘A’ position and transfers weight from the lead to the trail.

The athlete then continues to take small hops on the trail leg until reaching the next hurdle when the action is repeated.

Look for:
- A fast transfer of weight after the hurdle
- A fast ‘popping’ action over the hurdle
- Trail leg maintains a high ‘A’ position while hopping, foot is dorsiflex.

Athletes should perform this drill with their preferred and non preferred legs acting as the lead leg.

Figure 25 – Trail Leg Hopping Drill
**Trail Leg Recovery Drill**

This drill aims to speed up the trail leg recovery.

The athlete places the lead leg over the hurdle and hovers the foot approx 30cm off the track.

After a brief pause the athlete quickly pulls the trail leg through and over the hurdle until it is back on the track on the exit side.

Set up with 4-5 hurdles approx 1m apart.

---

**Assisted Trail Leg Recovery Drill**

As an alternative to the trail leg recovery drill try the assisted trail leg recovery drill. The only difference here is that the stimulus to pull the trail leg through comes from somebody holding the athlete’s hands and without warning ‘pulling’ them forward over the hurdle.

This also helps the athlete to remain balanced while rehearsing the action.

The athlete should be encouraged to look straight ahead.

Have the athlete perform the drill with both legs acting as the trail leg.
Walkover

The walkover drill is simply the hurdle action in slow motion. The athlete walks over a series of hurdles (can be slightly lower than normal height) performing the correct leg and arm actions.

By performing the actions slowly the coach can easily identify and correct any errors.

It's very important for the athlete to establish and demonstrate the correct action while walking over the hurdles so that muscle memory takes over during race conditions.

Monitor the athlete trunk ensuring that it remains upright and does not lean to the side, to minimise hip flexion. Ensure the athletes hips and shoulders remain perpendicular to the direction of travel and do not ‘twist’ over the hurdles.

Once the athlete can perform the drill at walking pace, slowly progress to a faster ‘skipping’ action.

Figure 28 – Walkover
One/Two Stride Drill

The one stride drill aims to assist athletes develop the first stride off the hurdle so that they ‘run’ off the hurdle rather than high jump the hurdle.

4 full height hurdles are placed approx 3m apart. The athlete is instructed to take only 1 stride after each hurdle before hurdling the next.

Athletes, who ‘jump’ the hurdle, with both feet landing close together, will be too far away from the next hurdle to complete the hurdle. Hence the stride off the hurdle is developed.

Promote a strong push with the back leg to help the athlete achieve the required stride length.

The athlete can perform the same basic drill but take two strides between the hurdles (hurdles slightly farther apart). The forces the athlete to alternate legs over the hurdle and is an excellent drill to help develop hurdle technique on the athletes non preferred side (in preparation for longer hurdle races like the 400mH).

Figure 29 – One/Two stride drill
Spider Drill

Similar to the Walkover Drill the Spider Drill aims at developing the athlete’s awareness and coordination of the lower limbs while hurdling.

The hurdles are set close together (around 0.5m) and slightly lower than normal so that the athlete can comfortably straddle the hurdle.

The athlete steps over each hurdle in turn with only 1 foot touching the track between hurdles.

Apart from the very first hurdle, each leg performs a trail leg movement.

For variation have the athlete perform this drill backwards.

This same drill can be performed while carrying a Medicine Ball high above the athletes head. This heightens the awareness of the shoulders and promotes a feeling of high hips and feeling tall.

Figure 30 – Spider drill
Alternate Leg Hopping Drill

In this drill 4-5 hurdles are set 2-3m apart. The athlete hops to the first hurdle on the preferred trail leg with their preferred lead leg knee at waist height and with correct lead leg form (see Figure 6 – Lead knee drive, Figure 7 – Lead leg position over hurdle & Figure 8 – Lead leg position, in front).

The athlete completes the lead leg motion and pulls the trail leg through with correct trail leg form (see Figure 10 – Trail leg position, Knee/Foot relationship, Figure 11 – Trail leg position, high knee & Figure 12 – Trail leg position, in front).

When the lead leg has landed, the trail leg becomes the lead leg and the athlete hops to the next hurdle.

This drill breaks the hurdle technique into discrete blocks allowing the coach to observe correct lead and trail leg actions in isolation.

This drill also exercises each leg in the lead and trail actions.

Figure 31 – Alternate Leg Hopping Drill
‘20/20’ Drill

Cones are placed on the track 40m apart. In the middle, two hurdles are placed in adjacent lanes facing the opposite way to each other.

The athlete is required to set off from one cone, hurdle the hurdle in the lane, continue to the second cone, turn around move, to the adjacent lane and repeat.

This drill is aimed at the 200, 300, 400m hurdle athlete who need to be able to judge distance and timing to the hurdles.

Repeat while moving the cones +/- 1m between rotations

For sprint hurdlers this same drill can be performed with 2, 3 or even 4 hurdles in adjacent lanes – in this example the hurdles would be placed on the correct spacing for the event. See Figure 49 – 3 Hurdle Turnaround

Figure 32 – ‘20/20’ Drill
**Sloping hurdle drill**

Set a hurdle against a fence with one side low and one side high.

The athlete starts with the trail foot hovering just above the lowest part of the hurdle.

The foot of the athlete’s trail leg then cycles forward following the slope of the hurdle with the foot and knee getting progressively higher.

When the foot reaches the top, the leg swings in front of the athlete and vertically down.

Note the position of the trail leg knee. At the end of the action, just before the foot is pushed back to the round, the trail leg knee is high in front of the athlete.

Perform drill on both legs.
Figure 33 – Sloping Hurdle Drill

Lead Leg Wall Drill (1)

Set a hurdle at the correct height, against a solid wall. Instruct the athlete, standing approx 1m from the wall, to perform the lead leg action resulting in the lead foot hitting the wall just over the hurdle.

Look for:
- Drive with the lead knee
- The lead foot contacts wall flat (not pointed like a ballerina)
- Drive of the trail leg foot until full extension of the trail leg
- Lead leg is straight in front of athlete.
- Athlete should have a slight forward lean.

Figure 34 – Lead leg wall drill (1)
Lead Leg Wall Drill (2)

The Lead Leg Wall Drill can also be performed with a smaller hurdle in front of the normal hurdle.

This ensures the athlete starts the drive with the knee and keeps the correct distance from the hurdle to achieve the extended rear leg.

If the athlete leads with the foot rather than the knee the athlete will kick the front hurdle.

Perform drill on both legs.

Figure 35 – Lead leg wall drill (2)
**Popping Drill**

Set 4-5 hurdles approx 4m apart. The hurdles should be slightly lower than for competition height (i.e. 68cm for a 76cm competition height).

The athlete hurdles using the 3 strides between hurdles but as the hurdles are much closer than normal the athlete aims at a fast rhythm and quickly ‘pops’ over the hurdles as fast as possible.

This drill aims as reducing the athletes takeoff/landing cycle especially the trail leg recovery as well as increase stride cadence between hurdles.
The Madison drill is quite demanding of the athlete’s ability to coordinate leg movement but is a useful drill that aids flexibility and body awareness.

The movements are:

1 - Right leg - knee up (to waist height) in front of athlete and returned to track. Left foot remains on track pointing forward. The right foot merely ‘taps’ the track before returning, no transfer of weight at this stage.

2 - Right leg - knee up (to waist height) in 90 degrees to side of athlete and returned to track. Left foot remains pointing forwards. Still the right foot just ‘taps’ the track.
3 - Right leg - knee up (to waist height) in front of athlete and returned to track. Left foot remains on track pointing forward.

Same as for point 1. Weigh remains on support leg.

4 – The support leg is now changed to the right leg and the same action repeated with the left leg.

Left leg - knee up (to waist height) in front of athlete and returned to tap the track. Right foot remains on track pointing forward.
5 - Left leg - knee up (to waist height) in 90 degrees to side of athlete and returned to tap the track. Right foot remains pointing forwards.

6 - Left leg - knee up (to waist height) in front of athlete and returned to tap the track. Right foot remains on track pointing forward.

Figure 37 – Madison
The ‘B’ skip
This drill imitates the lead leg action.
Similar to a high knee drill, the athlete skips along lifting the knees to waist height with the lower leg curled under.

When the thigh is almost parallel to the track the lower leg extends and is pushed to the ground ‘pawing’ the athlete forward.

Figure 38 – ‘B’ Skip
Mini Hurdles.

This is a high knee drill aimed at developing the athlete’s knee drive.

Set 10 or so mini hurdles approx 0.7m apart.

Have the athlete firstly walk over then run over the hurdles.

Watch for:
- Athlete’s legs stay ‘inside’ the width of hurdle and do not flick from knee.
- Athlete should have slight forward lean

Smaller hurdles are available for younger athletes

Figure 39 – Mini Hurdles

Speed ladder

This is a fast foot drill aimed at developing the athlete’s stride frequency.

Have the athlete step through the ladder on ‘balls’ of feet. Progressively speeding up as confidence is gained.

Look for:
- Steps should be light not jabbing into ground
- Correct use of arms to complement foot movement

For fun set up two rows and have athletes race against each other.

Figure 40 – Speed Ladder
Acceleration ladder

A similar exercise to the Speed Ladder is the Acceleration Ladder. With the Acceleration Ladder the ‘rungs’ get progressively wider the farther from the start.

For late teen athletes the spacing would start at 50cm and increase with by 15cm each rung.

Younger athletes would start at 40cm and increase by 10cm per rung.

Athletes sprint along the ladder placing 1 foot between each rung.

Look for:
- Short/fast initial strides
- Steps should be light not jabbing into ground
- Correct use of arms to complement foot movement

Optionally place a cone some 20-30m beyond the end of the ladder and instruct the athletes to maintain their form at the end of the ladder through to the cone.
‘Fast/Easy’

Place cones along a 105m straight at 15m intervals. (0, 15, 30, 45, 60, 75, 90, 105m)

The athlete starts from the first cone at distance ‘0’ and sprints hard (100% effort) to the second cone at which time the athlete slows (75% effort) and maintains this pace until the third cone at which time reaccelerates to full speed until the next cone. The athlete alternates fast/slow until the last cone.

This drill mimics the effect the hurdle has on the sprint form and helps the athlete develop the ability to quickly change pace.

For older athletes increase the distance between cones to 20 or even 25m.

‘Slomo’

Basically this requires the athlete to perform the hurdle motion in slow motion.

Start point is with the lead leg over the hurdle and lead arm in forward position.
First motion is the lifting of trail leg just off the ground and inverting the trail leg foot.

As the trail leg is pulled forward over the hurdle the lead arm starts the sweep backwards.

Trail leg continues forward until vertically in front of athlete.
Athlete’s weight moves forward and lead leg foot rises onto toes.

Finally trail leg returns to ground.

The whole motion should be performed very slowly taking 15-20secs to complete.

This is a very good drill for beginners as the coach can clearly see errors and correct them.
5. Exercise & Practice

While developing hurdle technique using drills and exercises is good there is no substitute for practice.

Always ensure that athletes are practicing correct hurdle technique or they will engrain incorrect technique that will require subsequent correction.
Start & first hurdle

The start to the first hurdle is different than for a straight sprint race. Firstly the athlete has only 8 strides to the first hurdle and so must come up from the start much sooner than for a normal sprint race. Typically the athlete will be fully upright after 4-5 strides so as to be able to sight the hurdle and time the approach.

Also as the athlete has 8 strides to the first hurdle the athlete’s lead foot must be on the back block so that the 8th stride lands on the trail or take off foot.

This can feel uncomfortable for some athletes and needs to be practiced so as to feel natural and become automatic.

The athlete is still accelerating at the time the first hurdle is reached and needs to ‘attack’ the hurdle so as not to lose momentum.

Figure 44 – Start & first hurdle
First 4 hurdles

During the first 4 hurdles the athlete is still accelerating and can find it difficult to achieve the required stride pattern.

Have the athlete practice the start and first 4 hurdles until it feels natural and becomes automatic.
Last 4 hurdles

At the end of the hurdle race the athlete has 6-7 strides to the finish line.

After clearing the last hurdle the athlete may think the work is done and forget to sprint to the finish.

Set up the last four hurdles and have the athlete practice the final stage of the race especially the sprint after the last

Have the athlete incorporate a ‘lunge’ to the line on the 6-7th stride.

Figure 46 – Last 4 hurdles
During a full 9 hurdle race (80mH), after the initial start and acceleration, athletes may start to tire and decelerate losing their stride pattern.

Set 9 hurdles on the correct marks. Make the first and last 3 hurdles the correct height. Set the middle 3 hurdles much lower, say 50% of normal.

Have the athlete complete the full race distance over all hurdles. The low middle 3 hurdles will allow the athlete to recover speed in preparation for the last 3 hurdles.

When the athlete can complete this practice using the correct stride spacing, move to all full height hurdles.

This is basically a race simulation to test the athlete’s performance under race conditions.

Set 9 full height hurdles (80mH) on their correct marks.

Have the athlete complete the full race distance over all hurdles.

If possible have 2 athletes race each other so as to add the element of competition and race pressure. Handicap athletes if a large variation in ability or different standards exists. If only 1 athlete, agree on a target time to be achieved.

Athletes should aim to maintain their form despite the added pressure.
3 Hurdle Turnaround

Hurdle and cones are set out as shown below. The ‘Run In’ distance and distance between hurdles should be as for the event specification. The example below is for the 80mH.

This exercise compresses the normal hurdle distance into half an includes twice as many acceleration phases. Primarily it is an Acceleration exercise however if repeated can also act as an endurance exercise.

Start with 4 rotations per set with a short, say 30sec rest, between rotations. Repeat 2 or 3 times or until the athlete lose form.

This same drill can be performed with 1 to 4 hurdles in each direction.

![Figure 49 – 3 Hurdle Turnaround](image)

Circular Sprint Hurdle

Hurdles are set out as shown below. The hurdles should be placed on the correct marks for the event. Height should be 1 height below normal competition (68cm for 76cm competition).

The ‘run’ phases are performed near 100%. The walk phases are for recovery hence performed at a slow walking pace.

This exercise provides 2 acceleration and 2 top speed units per rotation. It also assists develop spatial awareness by having the larger than normal gap between the first and second hurdle grouping. However if repeated several times can also act as an endurance exercise.

Start with 2 rotations per set with a short, say 2 min rest, between rotations. Repeat 2 or 3 times or until the athlete lose form.

This same drill can be performed with a variety of hurdle combinations (1+1, 2+2, 1+1+1, 2+1+2…) to keep the exercise interesting. The example below is a 100mH 2+2 variation.
Figure 50 – Circular Sprint Hurdle
6. Conditioning & Preparation

Having good hurdle technique is only part way to becoming a champion hurdler. Running fast and clearing hurdles requires much more physical exertion than running fast alone. To become a Champion hurdler an athlete needs to have speed and to be able to maintain that speed over distance while clearing hurdles. This section contains several drills and exercises aimed at developing an athlete's overall strength, flexibility and general condition.

Warm Up

Warm up exercises must be performed before each and every training session. The primary purpose of the warm up is to increase the blood flow through the athlete’s muscles thus warm up the muscles ready for exercise, and increase the range of movement of the muscles and joints. As such exercises at the beginning of a session should be a mixture of mainly 'dynamic' exercises coupled with some 'static' exercises.

**Dynamic exercises** involve movement of the athlete’s limbs. It’s this movement that causes blood to circulate throughout the athlete’s muscles and increase temperature. Dynamic exercises are performed mainly at the start of a training session.

**Static exercises** are, as the name suggests performed in a primarily stationary position. Their purpose is to stretch the muscles and hence increase the range of movement. Consequently they do not greatly increase the temperature of the muscle. They do aid in the realignment of muscle fibres and hence are performed at the end of a training session.

Typical warm up routine.

- 800m gentle jog
- Neck mobility. Forward/backward + side/side. 6-10 reps each
- Shoulder circles (backwards & forwards). 6-10 reps
- Arm swings, alternate direction. 6-10 reps
- Helicopter, arms out wide, twist maximum direction L&R. 6-10 reps
- Side bends, alternate left/right. 6-8 reps
- Hip circle (hands on hips, rotating hips + arms extended, twisting hips). 10-12 reps
- Squat (back straight, thighs to parallel). 8-10 reps
- Knee circles. 6-10 reps
- Ankle circles. 6-10 reps each foot
Leg swings (hold onto fence). Sideways to fence - forward/backward swing each leg in turn – high knee at front. Facing fence - side to side swing. 20 reps each leg
Lunge 20m x 3 reps
High knee butt kick. 30m x3
High knee skip. 30m x3
Carioca. 30m x3
Easy (60-70%) run outs 30m x 4-6

The Straight Leg warm up drill is primarily aimed at increasing the hip flexion as well as generally warming the athlete’s body temperature.

The athlete traverses 3-4 hurdles, set approx 1m apart, lifting alternate legs over the hurdles, with straight legs.

The opposite arm mimics the leg action

Done to a skipping type rhythm (hop on support leg while slowly moving forward and lifting the opposite leg over hurdle)

Look for:
- Correct arm/leg (arm opposite leg)
- Keep body square to hurdles – minimise twist

Figure 51 – Warm up drill - straight leg
The bent leg warm up drill is primarily aimed at increasing the hip flexion as well as generally warming the athlete’s body temperature.

Same as for Figure 51 – Warm up drill - straight leg but the lower leg is kept at 90 degrees to the track. This forces a higher knee lift and increased range of movement in hip flexors.

Same drill can be performed over the centre of the hurdle.

Figure 52 – Warm up drill – bent leg
Over Under

A good warm up stretching exercise targeting the groin and hip flexors.

4-6 hurdles are arranged approx 1m apart. Hurdle height alternate from a low to height setting. In the photo example from 68cm to 76cm (adjust depending on the height of the athlete).

The athlete walks to the first hurdle and performs the normal lead leg action over the hurdle.

The lead leg clears the hurdle and touches down on the exit site.

The trail leg is pulled through and fed under the next hurdle.

The athlete then crouches under the hurdle pulling the lead leg through and over the next hurdle.

The athlete continues to the end of the hurdles.

The athlete should perform the same drill alternating the initial lead leg.
Seated Hurdle with ‘Roll Over’

The athlete starts in the seated hurdle position – lead leg straight in front with trail leg tucked behind. Legs should form a right angle or ‘L’ shape. Trail foot dorsiflex.

The athlete commences swinging their arms as if sprinting while counting the swings 1…2…3…1…2…3…1…2…….

On the third swing the athlete reaches forward and touches the lead leg foot (with opposite arm). then recommences the 1…2…3 reach… arm swing

The athlete is simulating the arm action during a three stride pattern between a sprint hurdle.

Have the athlete continue with this 1…2…3 reach routine until a rhythm is established.

Have the athlete swap legs and repeat the exercise.

Next we incorporate the ‘Roll Over’

With the athlete performing the arm swing to the 1…2…3 reach…rhythm issue the command ‘change’.

On this command the athlete, in one continuous motion, is to roll forward over their lead leg….
…onto their front….

….then continues rolling over…..
…. until facing front again and in so doing change from a left leg lead to a right leg lead and similar change to the trail leg.

As soon as the roll over is complete the athlete continues with the 1…2…3.reach

Repeat in opposite direction.

Aim for a progressively faster action both with 1…2…3.reach and ‘Roll Over’ actions.

**General Strength**

By “General Strength” we refer to the athletes overall physical strength however for hurdlers, due to the nature of the event, we focus primarily on the athletes leg strength.
The Lunge is a good strength exercise to use as part of a warm up routine. Have the athlete take successive lunges holding each lunge for 3-5 seconds before taking the next.

The lower/upper leg of the front leg should form a right angle (90 deg) while the athlete’s body should remain upright.

Figure 55 – ‘Lunge’

Short, fast sprints up a gentle incline are a useful exercise to develop an athlete’s speed and overall leg strength.

Figure 56 – ‘Hill Sprints’
Small steps

If available use small steps such as in a grandstand to conduct fast feet drills.

Similar to the speed ladder drill the aim is fast light steps. Avoid ‘jabbing’ steps and make sure the athlete uses the arms to balance the leg/feet movement.

The addition of an incline provided by the steps adds some resistance that helps build leg strength.

As a variation try single and double leg hops up the small steps. Again the emphasis is on fast leg transfer.

Suggest the steps are ‘hot’ and to spend the minimum time possible on each step. Emphasis ‘Light Steps’

Figure 57 – ‘Small Steps’

Big Steps.

Similar to the small steps exercise but with larger steps. Helps develop strong knee lift and general leg strength.

For older athletes try striding diagonally up large grandstand steps. Replicate a bounding action that helps develop stride length strength.

As an added variation try single and double leg hops up the large steps. Emphasise minimum ‘dwell’ time on each step and hence a fast leg transfer.

Figure 58 – ‘Big Steps’
Leg Dips.

This exercise requires the athlete to stand on one leg on the edge of a large step and slowly lower the free leg until the free foot almost touches the lower step, then push up and straighten the support leg. 10 or so repetitions per set repeated with both legs.

‘Step-ups’

A fast foot exercise requiring the athlete successively step up and step down a large step with both feet. Set a target of say 30 up/downs in 30 seconds or see how many up/downs can be completed in 30 seconds.

Helps to develop leg speed and strength.
Double Leg Jump
The athlete, with feet together, jumps over 3-4 low hurdles set approx 1m apart.

Emphasise a fast continuous action spending a minimum amount of time on the track.

Figure 61 – ‘Double leg hop’

‘Duck’ Walk
The athlete squats as low as possible and then while squat, walks approx 10m.

Repeat 2-3 times per set

Figure 62 – ‘Duck Walk’
‘Toe Taps’

The athlete stands with feet approx shoulder width apart.

Keeping the body position straight and only moving the feet, the athlete rises up on toes. And holds for 2-3 secs.

Then back to the start position and rest 2-3 secs.

Then pulls the toes up balancing on heels only and hold 2-3 secs

Repeat 10-15 times per set
Core Strength

Development of an athlete’s ‘Core’ strength is fundamental to many athletic events. By ‘Core’ we refer to the area below the athlete’s shoulders and above their hips. Since the athlete’s arms and legs ‘hang off’ their core a solid platform from which to lever is desirable. The following exercises help to develop the athlete’s core strength.
½ ‘Superman’

Here the athlete fully extends 1 arm and the opposite leg to form a straight line. The athlete holds this position for 10 seconds. Perform again with opposite arm/leg.

Figure 64 – ‘1/2 Superman’

Leg Raise

The athlete starts by lying face up on a flat surface with bent legs. The athlete then raises the hips until the body form a straight line.
Now fully extend 1 leg. Then slowly lower the leg to the ground but keeping some 15cm from touching.

Hold this position for 5 seconds

Repeat with other leg

Figure 65 – ‘Leg raise
The ‘Ruler’

Here the athlete fully extends and straightens the body while being supported on bent arms.

Athlete holds this position for 10 seconds.

Keep head and eyes facing down.

Figure 66 – ‘The Ruler’

‘Superman’

Here the athlete fully extends both arms and legs while keeping them approx 15cm of the ground.

The athlete holds this position for 10 seconds.

Repeat 3-5 times.

Figure 67 – ‘Superman’
‘Dead Fly’
Athletes assume ‘dead fly’ position (with only their bottoms touching the track) and pass a light (2kg) medicine ball to each other while maintaining their balance on their bottoms.

10 passes per set.

‘Horizontal Butt Kick’
The athlete lie face up on the track hands supporting lower back and legs straight.

The legs are lifted just off the track (as low as possible) then slowly the heels are pulled towards the athlete’s butt keeping the feet as low as possible to the track without touching it.

The athlete then reverses the action pushing the feet out to the start position.

Repeat slowly 20 times.
Coaching Hurdles

If all athletes in a hurdle race take the same number of strides (8 to the first hurdle, + 3 between 9 flights = 24, + 7 to finish = 39 strides) then it follows that the athlete who can complete their 39 strides the quickest will win. Stride length development therefore is not the aim but stride cadence or stride frequency is. Hence no hurdle session would be complete without some speed work.

Many of the drills, exercises and practice sessions featured in this book will aid the development of speed. Here are a few drills aimed squarely at developing fast feet.

**Line Hop**
The athlete starts by standing next to a track line and lifting the foot furthest away from the line just off the ground (approx 3-5cm).
On command the athlete has to hop back and forth across the line as quickly as possible keeping the free foot off the ground.

The support foot stays as low as possible

Continue for 6-8 seconds, change feet and repeat.

Emphasise small, fast, low hops.

Figure 70 – ‘Line Hop’
Line Jump

Same as for ‘Line Hop’ but here both feet are kept on the ground and both feet hop low over the line as fast as possible.

Continue for 8-10 seconds, rest and repeat 2-3 times.

Emphasise small, fast, low jumps.

Figure 71 – ‘Line Jump’
Line Hop/Jump Options

For the more advanced athletes the Line Hop and Line Jump exercise can be performed over a low hurdle.

Figure 72 – ‘Line Hop/Jump Options’
Split Jump

Here the athlete starts in a lunge position.

On command the athlete uncoils the energy stored in the front leg getting as much vertical height as possible and landing in the start ‘lunge’ position.

Hold this position for 2 seconds then repeat.

Change legs/arms and repeat 6-10 times.

Emphasise balance on landing.

As a variation have the athlete change legs in the air. That is take off with the right leg forward and land with the left leg forward.

Figure 73 – ‘Split Jump’

Flexibility

Flexibility is very important for hurdlers. To be successful a hurdler needs to minimise the effect the hurdle has on the sprinting speed. To do this the athlete has to get off the ground and get back on the ground as quickly as
possible. To achieve this, apart from a quick hurdle technique, the athlete is required to clear the hurdle with the minimum of clearance keeping the Centre Of Gravity (COG) constant – head remains at same height - throughout race. This demands that the athlete flatten out over the hurdle requiring very good hip/leg flexion.

Some element of flexibility exercise should be incorporated in every hurdle session.

- Flex to opposite leg (standing, legs straight, touch toe with opposite hand)
- Seated toe touch
- Hamstring stretch (straight legs, palms on ground)
- Double kick (hands & knees, swing RL and LA to arch back) - sometimes called scorpion
- Seated hip flexion (sitting, arms/legs extended forward, push down on shoulder)
- Partner hamstring stretch (on back, push leg back)
- Partner groin stretch

Some additional flexibility stretches are shown on the following pages.
While in the seated hurdle position have the athlete perform the arm actions as if in a sprint hurdle race. That is swinging the arms as if running. The lead arm reaches for lead foot as the trail arm remain compact. Count 1, 2, 3 as the arms swing in a normal running action then repeat the lead arm reach. The athlete’s upper body should lean forward with the lead arm reach.

Repeat 10x then change legs and repeat.

**Seated Leg Grab**

The athlete sits on the track in the hurdle position (lead leg straight in front, trail leg to side, heal to bottom). The athlete leans forward and grabs the lead foot with both hands and holds the position for 5-10 seconds and repeats.

Aim to get the athlete’s chest as low as they can if possible touching their upper leg (head touching knee).

Repeat several times for both legs.

Where the athlete is unable to reach their toes, hold as far down the leg as possible. There should be no bouncing. The important thing is to ‘hold’ the position.

Figure 74 – Seated leg stretch
'Flamingo’

The athlete rests their lower trail leg along the top of a high hurdle and bends down to grab their opposite (lead) leg ankle with both hands. Hold the position for 5-6 seconds and repeat. Swap legs and repeat.

Figure 75 – ‘Flamingo’ ankle grab

Vertical Leg

Here the athlete lying on the track has her leg vertical in the air and is pushing her leg towards the standing athlete. The standing athlete is pushing back aiming to keep the leg vertically in the same position. This both stretches the upper leg muscles and aids in developing hip flexion.

It's important that the grounded athlete keeps both hips on the ground throughout this exercise. The knees should also be kept straight.

Figure 76 – ‘Partner Vertical Leg’
Glute Stretch

Here the athlete tucks one leg diagonally across the upper body then, with the rest of the body forming a elongated stretch, the athlete lies atop the leg.

The athlete can control the amount of force applied to the stretch as it is the athletes own body weight that provides the force.

Emphasis keeping the hips and shoulders relatively square to the line of the athlete’s body.

Figure 77 – ‘Glute Stretch’

Cool Down

The purpose of a cool down is to purge any lactic acid from the athlete’s muscles and realign the muscle fibres.

A gentle 800m jog followed by gentle static stretches will achieve this requirement.
7. Distance Hurdle Races

While in principle the basic hurdle technique remains the same regardless of the race distance, the distance hurdle races (200m, 300m & 400m) require a slightly different approach.

As the race is much longer the athlete needs to develop a speed that can be maintained throughout the entire race. This will allow the athlete to develop a consistent stride pattern. If the athlete starts off too fast the stride pattern will change significantly as they become tired and lose speed, potentially leading to stuttering and hesitating at the hurdle. The insertion of 1-2 additional strides towards the later stages of the race is manageable.

A factor that can help an athlete overcome the greater distance, and hence stride variation, between hurdles is the ability to hurdle with both legs. An athlete’s hurdle technique may not be as good with the non preferred leg but if it can reduce or eliminate hesitation at the hurdle should be encouraged.

As the longer hurdle races obviously involve hurdling on the bends a left leg lead can provide some advantage. By leading with the left leg the athlete is able to stay close to the inside line. A right leg lead will tend to push the athlete wide of the lane hence adding distance to the race.
Where to start
The coach should start by timing the athlete over the race distance and recording the athlete’s performance at each hurdle.

Following is an actual example of an athlete preparing for the 300mH.

<table>
<thead>
<tr>
<th>Hurdle #</th>
<th>Distance</th>
<th>Time</th>
<th>m/s</th>
<th>Distance</th>
<th>Time</th>
<th>m/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td></td>
<td>0.00</td>
<td></td>
<td>50</td>
<td>8.90</td>
<td>5.62</td>
</tr>
<tr>
<td>1</td>
<td>50</td>
<td>8.90</td>
<td>5.62</td>
<td>35</td>
<td>6.06</td>
<td>5.78</td>
</tr>
<tr>
<td>2</td>
<td>85</td>
<td>14.96</td>
<td>5.68</td>
<td>35</td>
<td>6.19</td>
<td>5.65</td>
</tr>
<tr>
<td>3</td>
<td>120</td>
<td>21.15</td>
<td>5.67</td>
<td>35</td>
<td>6.20</td>
<td>5.65</td>
</tr>
<tr>
<td>4</td>
<td>155</td>
<td>27.35</td>
<td>5.67</td>
<td>35</td>
<td>6.11</td>
<td>5.73</td>
</tr>
<tr>
<td>5</td>
<td>190</td>
<td>33.46</td>
<td>5.68</td>
<td>35</td>
<td>6.19</td>
<td>5.65</td>
</tr>
<tr>
<td>6</td>
<td>225</td>
<td>39.65</td>
<td>5.67</td>
<td>35</td>
<td>6.12</td>
<td>5.72</td>
</tr>
<tr>
<td>7</td>
<td>260</td>
<td>45.77</td>
<td>5.68</td>
<td>40</td>
<td>7.13</td>
<td>5.61</td>
</tr>
<tr>
<td>Finish</td>
<td>300</td>
<td>52.90</td>
<td>5.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 78 – 300mH performance measurement

The progressive time is the cumulative time at each hurdle. The incremental time is the time between each hurdle. ‘m/s’ is short for ‘metres per second’ and is a measure of relative speed (distance covered divided by time taken).
Figure 79 – 300mH performance measurement graph (1)

A chart of the data helps to identify any trends. In the example above the athlete has successfully accelerated to around 5.67 m/s which were maintained for the duration of the race.

<table>
<thead>
<tr>
<th>Hurdle #</th>
<th>Progressive</th>
<th>Incremental</th>
<th>Progressive</th>
<th>Incremental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>7.67</td>
<td>1.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>13.03</td>
<td>1.93</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>18.40</td>
<td>2.75</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>23.77</td>
<td>3.58</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>29.13</td>
<td>4.33</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>34.50</td>
<td>5.15</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>39.87</td>
<td>5.90</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Finish</td>
<td>46.00</td>
<td>6.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 80 – 300mH performance measurement graph (2)

The coach and athlete would then set a realistic target (performance and date to achieve) and by comparing actual with target can work on the required improvement.

<table>
<thead>
<tr>
<th>Hurdle #</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>1</td>
<td>8.90</td>
<td>7.95</td>
<td>7.67</td>
</tr>
<tr>
<td>2</td>
<td>14.96</td>
<td>13.12</td>
<td>13.03</td>
</tr>
<tr>
<td>3</td>
<td>21.15</td>
<td>18.56</td>
<td>18.40</td>
</tr>
<tr>
<td>4</td>
<td>27.35</td>
<td>24.12</td>
<td>23.77</td>
</tr>
<tr>
<td>5</td>
<td>33.46</td>
<td>30.26</td>
<td>29.13</td>
</tr>
</tbody>
</table>
### Distance Hurdle Exercises

#### Alternate hurdle pyramid

This is a good exercise for the 200m (10 hurdle) event. 68cm hurdles are set on the 200mH H1 to H7. All runs commence from a standing start and are completed at slightly sub maximum speed. This is largely a speed endurance exercise but has elements of acceleration and top speed. One set consists of 7 runs as described below. 2 sets are quite demanding and should only continue as long as correct hurdle form can be maintained.
Coaching Hurdles

Figure 83 – 200m Pyramid

- 1st run – to H1, walk back to start
- 2nd run – to H3, walk back to start
- 3rd run – to H5, walk back to start
- 4th run – to H7, walk back to start
- 5th run – to H5, walk back to start
- 6th run – to H3, walk back to start
- 7th run – to H1, walk back to start

Only minimal rest between runs. At the completion of the 7th run rest the athlete for 5-10 mins and repeat.

150m Turnaround

This is a good exercise for distance hurdlers in that it assists in the development of spatial awareness and the ability to judge distance and stride length as well as serving as a speed endurance exercise.

Layout the hurdles and cones in 3 adjacent lanes as shown below. The ‘Run’ legs are performed at maximum speed. The ‘Walk’ legs are performed at normal walking speed. 2 repetitions per set with a 5 min break between sets. 2-3 sets per session or as long as the athlete can maintain form.
This is principally a Speed Endurance exercise for distance hurdlers. However as some hurdles have been removed it also serves to assist in the development of spatial awareness and the ability to judge distance and stride length.

Layout the hurdles H1, H2, H6 & H7 on the normal 300m hurdle spacing as shown below. The 300m 'run' leg is performed at slightly sub maximum speed. The 100m 'walk' leg is performed at normal walking speed. Try 2 repetitions per set with a 1 min break reps. 2-3 sets per session or as long as the athlete can maintain form.
8. Common Errors and How to Correct

This section will attempt to address some common problems found in the sprint hurdles and suggest possible reasons and corrections.

- **Problem - Too far from the first hurdle**
  - **Possible Cause** - 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 to first hurdle may be too passive.
  - **Correction/Solution** - Develop athletes contractive strength required to drive from the blocks with sufficient stride length to make the 12m 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.

- **Problem - Too high over the first hurdle**
  - **Possible Cause** - Athlete is too close to the hurdle at takeoff. Takeoff foot planted on heel. Non-existent or non-active cut step. Lead leg not folded tightly until thigh reached parallel or above. Athlete afraid of hurdle.
  - **Correction/Solution** - Keep athlete in sprint acceleration posture longer. This will keep strides shorter and help the athlete attain a higher velocity. Make sure the athlete is accelerating in a pattern of acceleration and not overstriding. If the athlete is planting their takeoff foot like a long jumper this will make the last stride before the hurdle too long and result in placement too close to the hurdle. Practice a tall posture, making the cut step active and on the front of the takeoff foot. Rehearse proper lead leg mechanics and body posture going into hurdle. Also examine what the takeoff foot is doing. If it is planted on the heel than the lead leg will tend to open up too soon. Use hurdles in practice that are constructed of soft, flexible materials or constructed to be forgiving. If the hurdle is not a threat to life and limb, the athlete will gain the necessary confidence to run through the hurdle with the velocity necessary to perform efficient technique.

- **Problem - Off balance coming off the hurdle**
  - **Possible Cause** - Lead leg and opposite arm are driven inward/outward and not parallel to the direction of travel.
  - **Correction/Solution** - Have athlete work on keeping the lead leg mechanics as described above so as to enable the athlete to more easily keep their actions in line with the direction of the run. Use sprint arm action into the hurdle and not across the body. Also, the athlete may be too close to the hurdle.

- **Problem - ‘Jump’ hurdles**
  - **Possible Cause** - Athlete may not have flexibility to ‘flatten out’ over hurdle. Lower trail leg not flat over hurdle. Taking off too close to hurdle.
• **Correction/Solution** – Flexibility exercises. Have athlete perform hurdling action over ‘Hedgehog’ and/or ‘Guillotine’

**Problem - Lead leg leads with foot**

• **Possible Cause** - Athlete lacks confidence. Take off too close to hurdle.
• **Correction/Solution** - Have athlete perform Lead Leg drills.

**Problem – Trail Leg out to side**

• **Possible Cause** – Lack of flexibility. Heel should be close to athlete’s bottom so that trail leg is compact. Short levers move much faster than long levers.
• **Correction/Solution** - Have athlete perform trail lead leg drills to correct.

**Problem - Trail foot overtakes knee, or trail knee dips**

• **Possible Cause** – Athlete is trying to keep lower trail leg ‘flat’ over hurdle. While the lower trail leg (knee to foot) should be ‘flattish’ while passing over the hurdle, the trail knee should in practice remain slightly higher than trail foot. As the trail foot passes the hurdle it descends to the track whereas the knee remains high until vertically in front of athlete. This provides a powerful ‘running off the hurdle’ position for the first stride. If the trail leg knee dips so that the trail leg foot is higher than the knee the athlete will struggle to regain the high knee position for the first stride.
• **Correction/Solution** - Have the athlete perform the Walkover Drill or Trail Leg Drill until the feeling of the correct motion is achieved. Emphasis that while the trail leg foot stays low to the hurdle the trail leg knee will continue to rise after the hurdle almost contacting the athlete’s chest before the foot returns to the track.

**Problem - Irregular stride pattern**

• **Possible Cause** – Athlete is travelling too slow or has short stride length. Athlete can lose speed due to hurdling too high over the hurdle. Usually manifests itself in ‘stutters’ just before the hurdle.
• **Correction/Solution** - Go back to basics and have the athlete hurdle over very low hurdles. Slowly raise the hurdles until at correct height.

**Problem - Arms uncoordinated**

• **Possible Cause** - Athlete loses balance causing loss of rhythm and momentum. Arms should mirror the opposite leg.
• **Correction/Solution** - Have athlete practice arm movement while doing drills or hurdling slowly. Gradually increase intensity. Use of video playback to show athletes can be helpful.
9. Acknowledgements

• The author, Stephen Cowburn, is an ATFCA Level 4 ‘Young Athlete’ coach and a regular coach at VLAA JDS, ALAC, AV Schools and Knox Little Athletics Centre.
• The author would like to thank and acknowledge fellow coaches who helped greatly in the compilation of this manual; Brendan Cherry, George Orrock, Rosemary Merrigan and Tom Kelly.
• Thanks also to Knox Little Athletics Centre athletes Georgia Orrock and Brooke Stratton for agreeing to be the models.
### Table of Figures

| Figure 1 – Mini hurdles in correct position | 8 |
| Figure 2 – Small hurdles in correct position | 9 |
| Figure 3 – Full height hurdles in correct position | 9 |
| Figure 4 – Full height hurdles with reduced distance | 9 |
| Figure 5 – Hurdle Sequence | 10 |
| Figure 6 – Lead knee drive | 11 |
| Figure 7 – Lead leg position over hurdle | 12 |
| Figure 8 – Lead leg position, in front | 12 |
| Figure 9 – Hurdle Sequence | 13 |
| Figure 10 – Trail leg position, Knee/Foot relationship | 14 |
| Figure 11 – Trail leg position, high knee | 14 |
| Figure 12 – Trail leg position, in front | 15 |
| Figure 13 – Hurdle Sequence | 16 |
| Figure 14 – Lead arm position | 17 |
| Figure 15 – Trail arm position | 18 |
| Figure 16 – Relative stride lengths | 19 |
| Figure 17 – Constant Centre of Gravity | 20 |
| Figure 18 - Feedback on trail leg height using ‘Hedgehog’ | 21 |
| Figure 19 – Feedback on lead leg height using ‘Hedgehog’ | 21 |
| Figure 20 – Feedback on height using ‘The Guillotine’ | 22 |
| Figure 21 – Lead leg drill | 24 |
| Figure 22 – Lead leg hopping drill | 26 |
| Figure 23 – Lead Leg ‘Drive’ Drill | 29 |
| Figure 24 – Trail Leg Drill | 30 |
| Figure 25 – Trail Leg Hopping Drill | 32 |
| Figure 26 – Trail leg recovery - speed drill | 33 |
| Figure 27 – Trail leg recovery – assisted speed drill | 33 |
| Figure 28 – Walkover | 34 |
| Figure 29 – One/Two stride drill | 35 |
| Figure 30 – Spider drill | 36 |
| Figure 31 – Alternate Leg Hopping Drill | 37 |
| Figure 32 – ‘20/20’ Drill | 38 |
| Figure 33 – Sloping Hurdle Drill | 40 |
| Figure 34 – Lead leg wall drill (1) | 40 |
| Figure 35 – Lead leg wall drill (2) | 41 |
| Figure 36 – Popping Drill | 42 |
| Figure 37 – Madison | 45 |
| Figure 38 – ‘B’ Skip | 46 |
| Figure 39 – Mini Hurdles | 47 |
| Figure 40 – Speed Ladder | 47 |
| Figure 41 – Acceleration Ladder | 48 |
| Figure 42 – ‘Fast/Easy’ | 49 |
| Figure 43 – ‘Slomo’ | 51 |
| Figure 44 – Start & first hurdle | 53 |
| Figure 45 – First 4 hurdles | 54 |
| Figure 46 – Last 4 hurdles | 55 |
| Figure 47 – All hurdles - low 3 | 56 |
| Figure 48 – All hurdles | 56 |
Figure 49 – 3 Hurdle Turnaround ................................................................. 57
Figure 50 – Circular Sprint Hurdle ................................................................ 58
Figure 51 – Warm up drill - straight leg .......................................................... 60
Figure 52 – Warm up drill – bent leg ............................................................... 61
Figure 53 – Over Under .................................................................................. 63
Figure 54 – Seated Hurdle with 'Roll Over' .................................................... 66
Figure 55 – ‘Lunge’ ....................................................................................... 67
Figure 56 – ‘Hill Sprints’ .............................................................................. 67
Figure 57 – ‘Small Steps’ ........................................................................... 68
Figure 58 – ‘Big Steps’ ................................................................................ 68
Figure 59 – ‘Leg Dips’ ................................................................................ 69
Figure 60 – ‘Step Ups’ ................................................................................ 69
Figure 61 – ‘Double leg hop’ ........................................................................ 70
Figure 62 – ‘Duck Walk’ .............................................................................. 70
Figure 63 – ‘Toe Taps’ ................................................................................ 72
Figure 64 – ‘1/2 Superman’ ......................................................................... 73
Figure 65 – ‘Leg raise’ ................................................................................ 74
Figure 66 – ‘The Ruler’ .............................................................................. 75
Figure 67 – ‘Superman’ .............................................................................. 75
Figure 68 – ‘Dead Fly’ Medicine Ball Pass ................................................... 76
Figure 69 – ‘Horizontal Butt Kick’ ............................................................... 78
Figure 70 – ‘Line Hop’ ............................................................................... 79
Figure 71 – ‘Line Jump’ ............................................................................. 80
Figure 72 – ‘Line Hop/Jump Options’ ........................................................... 81
Figure 73 – ‘Split Jump’ ............................................................................. 82
Figure 74 – Seated leg stretch ..................................................................... 84
Figure 75 – ‘Flamingo’ ankle grab ............................................................... 85
Figure 76 – ‘Partner Vertical Leg’ ................................................................. 85
Figure 77 – ‘Glute Stretch’ ......................................................................... 86
Figure 78 – 300mH performance measurement ......................................... 88
Figure 79 – 300mH performance measurement graph (1) .......................... 89
Figure 80 – 300mH performance measurement graph (2).......................... 89
Figure 81 – 300mH performance progress .................................................... 90
Figure 82 – 300mH performance progress graph (3) .................................. 90
Figure 83 – 200m Pyramid ......................................................................... 91
Figure 84 – 150m Turnaround ................................................................... 92
Figure 85 – 300m First 2/Last 2 .................................................................. 92
### Appendix A - Typical coaching/training phases for a VLAA calendar year

#### Plan 'A' - Coaching/Training Plan for 2 Competition Periods

<table>
<thead>
<tr>
<th>Month</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>General Prep</td>
<td>Specific Prep</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
</tr>
</tbody>
</table>

#### Plan 'B' - Coaching/Training Plan for 1 Competition Period

<table>
<thead>
<tr>
<th>Month</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>General Prep</td>
<td>Specific Prep</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
<td>Pre Comp Prep</td>
<td>Competition</td>
</tr>
</tbody>
</table>

- General Preparation – Improvement in the athlete’s general fitness, strength and speed by use of non event specific drills and exercises.
- Specific Preparation – Developing the athlete’s technique with basic through to complex event specific drills
- Pre Competition – Expose the athlete to race simulations to add pressure. Fine tune technique.
- Competition – Competition experience. Minimal ‘tinkering’. Stick to what is known to work.
## Appendix B – Hurdle configurations for VLAA competition

<table>
<thead>
<tr>
<th>Age Group/Hurdle Height</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Hurdle Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distance</td>
<td>8G&amp;B</td>
<td>9G&amp;B</td>
<td>10G&amp;B</td>
<td>11G&amp;B</td>
</tr>
<tr>
<td></td>
<td>60m</td>
<td>45cm</td>
<td>45cm</td>
<td>60cm</td>
<td>60cm</td>
</tr>
<tr>
<td></td>
<td>80m</td>
<td>45cm</td>
<td>60cm</td>
<td>60cm</td>
<td>68cm</td>
</tr>
<tr>
<td></td>
<td>90m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not VLAA Championship Event
Athlete progress Sheet – Basic Hurdle Technique

Athlete Name: ________________________________
Age: ________________________________

Basic Hurdle Technique

<table>
<thead>
<tr>
<th>Regular Stride Pattern</th>
<th>Learning</th>
<th>Emerging</th>
<th>Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>To first hurdle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeatable pattern (i.e. 8 strides)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between hurdles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeatable pattern (i.e. 3 strides)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leg Action</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead with knee, lower leg tucked</td>
</tr>
<tr>
<td></td>
<td>Straight in front (not straight leg)</td>
</tr>
<tr>
<td></td>
<td>Active landing</td>
</tr>
<tr>
<td>Trail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wide knee</td>
</tr>
<tr>
<td></td>
<td>Dorsiflex foot</td>
</tr>
<tr>
<td></td>
<td>Knee above foot (Low foot, high knee)</td>
</tr>
<tr>
<td></td>
<td>Active vertical plant in front</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arm Action</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reach for toe</td>
</tr>
<tr>
<td>Trail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compact (90 degree elbow)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strides between hurdle</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Position on hurdle     |       |
|                        | LF & TF low over hurdle |
|                        | Slight forward body lean |
Coaching Hurdles
Progression from novice to accomplished athlete

Copyright: Stephen Cowburn