



AAi coach

INTERACTIVE COACHING



E-coaching Manual

Sprints





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Page 2:
Foreword

Page 3:
Introduction / AAi Coach – Sprints

Page 4:
Running Technique

Page 5:
Phases of Sprinting

Page 6:
Blocks and Starts

Page 8:
Acceleration

Page 12:
Max Velocity

Page 14:
Speed Endurance

Page 15:
Running Drills

Page 20:
Stride Length vs Stride Frequency

Page 21:
Bend Running

Page 22:
Energy Systems

Page 23:
Training Sessions

Page 26:
Common Errors and How to Correct

Page 30:
Things to Remember / Promote Sprints

Page 31:
Credits and contacts





Foreword

AAi Coach is an interactive e-coaching manual and is aimed at developing coaching resources across a range of event groups. This manual is focused on sprints and examines the various elements involved in the event. It will assist club and school coaches to prepare teams to perform in competitive environments. Conor Wilson and Shane Aston have been instrumental in producing this AAI Coach manual and feature throughout this document and the attached videos to demonstrate the various aspects of the event. Both Conor and Shane are experienced coaches with specific education and training in the area of sprints, biomechanics and coaching. Both have been involved in athletics at a high level for a number of years and combined with their work as part of the Athletics Ireland development team led them to develop this document to help aid coaches, athletes and schools across the country to develop and try the sprints events.

The purpose of the e-coaching manuals is to provide support to coaches. This is achieved by providing easy access to quality coaching material. The event rules and guidelines are outlined with video links providing footage of training tips, drills and coaching points. This particular manual includes links to twenty videos which complement the images and text outlined in the document. The interactive nature of the material is aimed at ensuring greater learning.

The team has worked hard to provide a suitable tool for coaches. I hope you find this to be useful and benefit from its application.

Pat Ryan
Director of Coaching & Development





Introduction

Welcome to AAI Coach, Athletics Ireland's interactive coaching resource. AAI Coach E-Coaching manuals provide event-specific information, and coaching theory together with practical coaching videos.



While complementing Athletics Ireland's coach education pathway, AAI Coach offers new and existing coaches throughout Ireland the opportunity to upskill and learn about specific event areas in the comfort of their homes and clubs.

AAI Coach E-Coaching manuals are easy to navigate and accessible through PC, laptop and mobile devices.

 [AAI Coach Sprints: Sprints Library](#)



AAI Coach Sprints

This AAI Coach E-Coaching manual will focus on sprints, 60m, 100m, 200m, 300m and 400m. Many of these drills and skills can also be applied to the coaching of any running event of any distance.



Sprinting is one of the most popular events to be coached across the country. It is usually one of the first events athletes will try and it makes up the basis for all other events from jumps, throws, hurdling and distance running. It is about getting from point A to point B in as short a time as possible. The fundamental goal in all running events is to maximise average running speed over the course of the race. To achieve this in the sprint events the athlete must focus on reaching and maintaining maximum velocity (speed). An athlete's speed is a product of two factors; stride length, the distance covered with each stride and stride frequency, the number of strides taken in a given time.



Ireland has produced many high-class sprinters over recent decades at Olympic, World and European Level and continues to produce elite level sprinters including Rhasidat Adeleke, Sarah Lavin, Phil Healy, Israel Olatunde, Molly Scott, Mark Smyth, who enjoy success on the international stage.



Training for sprints will not only allow athletes to become competitive sprinters on the track but develop their all-round sporting capabilities that can transfer across to any sport. The following can be used for coaching kids and developmental athletes with the principles applying to all ages and abilities. Appropriately adjustments should be made accordingly to match the age and expertise of the athlete.

 [AAI Coach Sprints: Sprints Introduction](#)



Running Technique

Good running technique and form is the basis from which all training should be done and is always the number one priority. We want to make sure that there is no wasted energy and that every movement is efficient in order to optimise running. Athletes want to run "tall" with high hips. This tall position will allow the athletes to have a full range of leg movement, getting their knee through high to prepare for the next stride. Actions should take place in front of the body to minimise energy loss and maximise speed. Sprinting is a powerful action that must be done through relaxed but strong actions.

KEY POINTS:

- Everything going in a straight line
- Keep the head up and eyes looking forward

Arms

Arm action is a crucial part of good running form and is one that is often overlooked. The arms act as a counterbalance for the legs, so by getting the arms moving correctly the legs will follow. It is important that the arms drive backward and in smooth motion. We want to avoid the hands crossing over the body's midline as this will cause imbalances, wasted energy and ultimately a decrease in running speed.

 [AAi Coach Sprints: Arm Action](#)

Legs

KEY POINTS:

- Steady level shoulders
- Elbow bent roughly at 90°
- Hand can be open palm or lightly closed – **NO** tightly closed fists
- Hip to Lip arm action

The main aim with leg action is to ensure high knees with toes dorsiflexed (toes pointing up). We want athletes to strike the ground with the mid sole of the foot underneath the hips. This allows them to get into a strong position to propel themselves forward with each step taken.

KEY POINTS:

- A high knee stepping action
- Feet facing forward "tall" hips

ATHLETE CUE:
"Imagine you are running through shallow water; you need to step over the water rather than dragging your feet through it."

 [AAi Coach Sprints: Leg Action](#)



Phases of Sprinting

There are five main phases that each make up a sprint race with the importance of each varying based on the event training for.

1. Reaction Time:

The time taken for the first movement after the sound occurs

2. Block Clearance:

The time taken from first movement to both feet leaving the blocks

3. Acceleration Phase:

The period where the athlete is progressively getting faster (drive phase)

4. Maximum Velocity Phase:

The point at which the athlete is moving at their fastest. Athlete is trying to hold speed for as long as possible

5. Deceleration Phase:

Due to fatigue the athlete begins to slightly slow down (specific event will dictate endurance needed)



Reaction Time

- Amount of time between application of a stimulus and detection of a response
- Application of stimulus = sound of starting gun
- Detection of a response = the first movement of an athlete
- Reaction time must be greater than 0.100ms
- Anything under this is a false start and disqualification from the race

An athlete's reaction time can be trained by getting them to react to a stimulus for example: throwing and catching a small ball or by starting on commands from the coach.

In the 60m and 100m races reaction time is much more important than a 400m race given the duration of the race. Conversely, the deceleration phase plays a much more important role in the 400m and 200m races than the 60m and 100m races given a significant amount of fatigue takes place during these longer sprints.



Blocks and Starts

Correct block placement is essential as it sets up the entire race, it can be the difference between winning and losing, running a personal best or having a bad race. The objective here is to set the starting blocks to suit the sprinter's size and ability which allows them to have a strong push-off from the blocks in an efficient manner.



Technical Characteristics:

Set Up:

- For races on the straight, blocks should be placed centred and parallel with the track line
- Races starting on a bend, the blocks should be angled accordingly depending on the lane
- The front block is placed 1 and a half foot lengths behind the start line
- The back block is placed 2 and a half foot lengths behind the start line

AAI Coach Sprints: Blocks Set Up

“On Your Marks” Position:

The athlete has their feet in the blocks and hands on the ground in a settled position.

- Both feet are in contact with the ground
- Knee of the rear leg rests on the ground
- Hands are placed on the ground, slightly more than shoulder-width apart, the fingers are arched
- Head is in level with the back, eyes are looking straight down



“Set” Position:

The athlete raises their hips above their shoulders and extends their legs.

- Heels press backwards (connect with block pads)
- The knee of the front leg is at a 90 angle
- The knee of the rear leg is at a 120 – 140 angle
- Hips are slightly higher than the shoulders, the trunk is inclined forward
- Shoulders are slightly ahead of the hands





Go!

The athlete explodes out of the blocks, pushing hard with both feet against the blocks. Athletes need to react fast to the gun.

- Low knee drive – straight out in front
- Feet comes through low to the ground
- Arms and legs moving in a straight line
- Head neutral with eyes still looking down



 [AAi Coach Sprints: Blocks Start](#)

Acceleration

Technical pointers

- To begin – lean forward, and feel the pressure in your feet as if you are about to fall
- Push back **HARD**, and split your arms and legs aggressively
- Create **BIG** and **OPEN** 'shapes' – focus on exploring the end of your range
- Keep your ankles tight and strong – so you can 'bounce' off the ground (a good way to think about this is if you were to punch something, you would squeeze your fist tight – it is the same with your ankle – pull your foot up towards your knee)
- Slowly rise your body and your head as you accelerate – like a plane taking off from a runway
- Feel your rhythm (stride frequency) getting faster with each step
- Rising in time to a tall sprinting position

Activities that help athletes become more explosive include: hill sprints, medicine ball throws, wall drives, starts from various positions – falling starts, kneeling starts, and 3-point starts. As athletes mature and get stronger we can add in resistance training to help improve their acceleration. This can be done through resisted running using sleds, bands or parachutes as well as weight and plyometrics.





Wall Drives



- The athlete begins by leaning into the railing at a 45-degree angle and raising one knee.
- On command, the athlete switches their legs by driving their back knee forward and their front foot backwards in a switching manner.
- There should be a straight line between the athlete's shoulders, hips, back knee and back foot.
- We can progress this drill by adding multiple switches at a time or by continuously switching.

 [AAi Coach Sprints: Wall Drives](#)

Falling Start



- The falling start is a way of getting athletes to start from a low position before moving to the ground and using starting blocks.
- The athlete begins standing and moves into a crouched position, before allowing themselves to fall forward.
- The athlete catches themselves with their leg by driving out of this position with a strong first step and a low body position.

 [AAi Coach Sprints: Falling Start](#)





Kneeling Start



- The kneeling start is a way of getting athletes to start from the ground before using starting blocks.
- The athlete begins in a kneeling position with a knee and a foot in contact with the ground.
- This position should be the same as the block start set-up.
- The athlete drives their first leg out low to the ground with a strong first step and a low body position.

 [AAi Coach Sprints: Kneeling Start](#)

3-Point Start



- The 3-point start is a progression of getting athletes to start from a low position before using starting blocks.
- The athlete begins with two feet and one hand in contact with the ground.
- The athlete then drives out of this position with a strong first step and a low body position.

 [AAi Coach Sprints: 3-Point Start](#)





Max Velocity

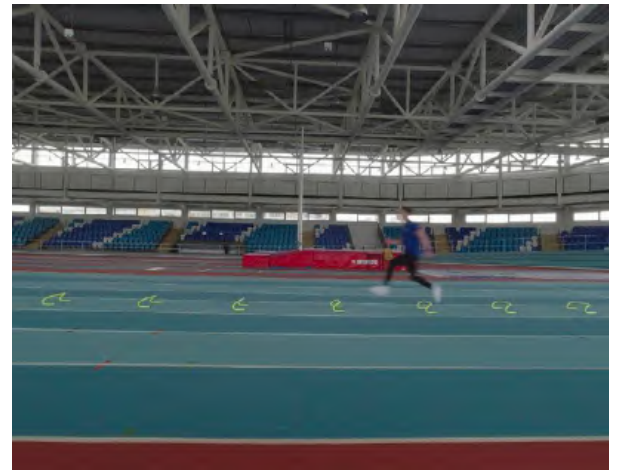
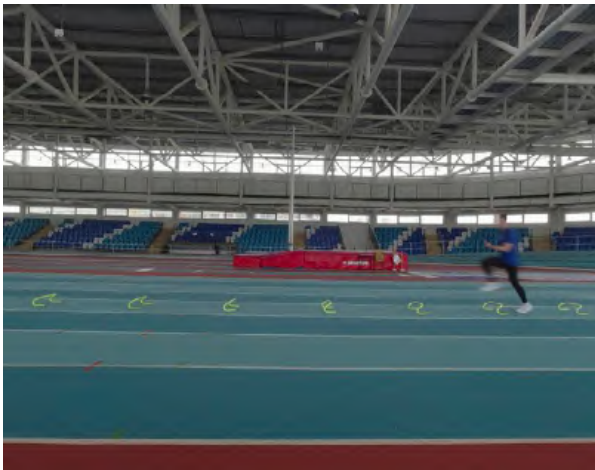
This is the point at which the athlete is moving their fastest. Training max speed needs to be done when athletes are fresh so that they can give max effort. It is always done with full recoveries to make sure that each run is at max.

- Drive your thighs up and forward – keep your thighs in front of your hips
- Keep your ankles tight
- Be free and bouncy

ATHLETE CUE:

"Focus on getting as tall as you can – pretend there is a man in the clouds with a string attached to the top of your head, and he is pulling you up to the sky"

Wicket Running



Use mini hurdles spaced out to work on maximum velocity sprints. Use a run-in approach and accelerate into the hurdles so that when the athlete gets to the first hurdle they are at full speed. This will help to nail down good technique by ensuring actions take place in front of the body and help with a high knee lift as well as a quick heel recovery.

- Wicket Running is another method of improving an athlete's technique and max speed.
- Athletes place one foot in between each of the hurdles that are placed down a stride length apart.
- The athlete wants to remain upright with a high hip position pulling their back leg through quickly.
- Ensure the athlete has enough distance to get up to full speed before the first hurdle.

 [AAi Coach Sprints: Wicket Running](#)





Max Fly Runs



Create a zone of 10-20 metres that athletes run at their fastest through. Similar to wicket running, use a run-in approach to ensure maximal acceleration. Athletes need to be a full speed when they get to the zone. The focus here is to maintain frequency throughout the zone and ensure that each run is a maximal effort.

- This is where the athlete should be at their top speed.
- Mark out a 10-metre zone using cones and start the athlete 30-metres from the first cone.
- Encourage the athlete to run as fast as they can through the 10-metre max fly zone.
- Ensure the athlete has enough distance to get up to full speed before the max fly zone.

 [AAi Coach Sprints: Max Fly Runs](#)

Speed Endurance

Speed endurance is the ability to maintain speed over a distance. Once an athlete can no longer hold their maximum speed they begin to slow down (deceleration phase). This is inevitable but can be reduced with training. By training an athlete's speed endurance they will be able to delay fatigue setting in and run faster for longer.

It is important to remind the athlete to stay relaxed and keep up tall as they begin to tire. By holding good running form without tensing up will allow them to keep their speed up and avoid tying up in the closing stages of the race. Using repetition runs over a moderate distance with good technique, rhythm and balance will help develop speed endurance capabilities.

Training speed endurance can come in a variety of methods and the event the athlete is training for will dictate the amount of speed endurance training that is done.





- Longer reps at a submaximal pace with good but not full recovery
- Make sure to tailor sessions for athletes depending on their age and ability
- Important to stay relaxed and keep up tall
- Holding good running form without tensing up

Training speed endurance can come in a variety of methods and how much speed endurance you do will depend on the event you are training for and the athlete you are training.

Example Session:

- 90-120-150-150-120-90 metres
- Six runs at 85-90%
- Recovery: 6-8-10-10-8 minutes
- This is appropriate for an experienced well-conditioned athlete.

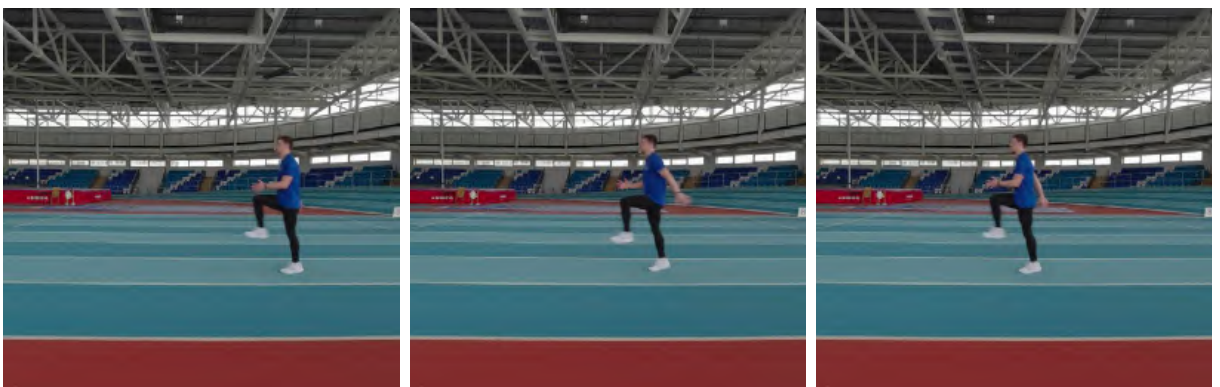


Running Drills

Drills can help improve running mechanics as well as develop strength, speed, balance, coordination and muscle firing. Running drills are a series of repeated movements that help running technique and therefore lead to overall improvements in running economy and in turn improvements in speed. Repetition helps engrain the actions into the athlete so that their brain and legs connect to improve the neural connections between them.



1. High Knees



- The athlete faces forward and drives their knees up alternatively.
- We want to create a 90-degree angle between the torso and thigh, the thigh and shin, and the shin and foot.
- The athlete should remain upright with dorsiflexion.

 [AAi Coach Sprints: High Knees](#)





2. Heel Flicks

- The athlete faces forward and brings their heels up underneath their bottom alternatively.
- This action is to help replicate the action of running.
- Athletes should avoid bringing their heels behind them as shown. This action causes the hips to drop and does not align with fast, efficient running.
- Athletes want to feel like a piece of string is bringing their heels up instead of behind them.

 [AAi Coach Sprints: Heel Flicks](#)

3. Straight Legs



- The athlete faces forward kicking their legs out straight alternatively.
- Legs should be kept straight for the duration of the drill.
- The foot strike should occur underneath the athlete's hips.

 [AAi Coach Sprints: Straight Legs](#)



4. A March & A Skip



- The athlete faces forward and drives their knee up to a 90-degree angle in a steady and controlled manner while moving forward.
- Athletes should keep up tall, with high hips and a strong arm action.
- Once ready, we can progress this action by incorporating a skipping action.
- Athletes should still keep good leg actions with correct angles.

 [AAi Coach Sprints: A March & A Skip](#)



5. B March & B Skip



- Similar to the A March, the athlete faces forward and drives their knee up to a 90-degree angle in a steady and controlled manner while moving forward.
- This time the athlete adds a small kick out with their foot as shown.
- Athletes should keep up tall, with high hips and a strong arm action.
- Once ready, we can progress this action by incorporating a skipping action.
- Athletes should still keep good leg actions with correct angles.

 [AAi Coach Sprints: B March & B Skip](#)



6. Ankling



- The athlete begins facing forward and moves forward by stepping over their opposite ankle.
- We want to encourage the athlete to take small steps, raising their foot just above their ankle.

 [AAi Coach Sprints: Ankling](#)

7. Calf Step-Over



- Similarly to the ankling step-over drill, the athlete moves forward by stepping over the opposite leg. This time the athlete is aiming to step over their calf.
- Athletes should take their time and focus on remaining upright, with their foot striking underneath their hips.

 [AAi Coach Sprints: Calf Step-Over](#)

8. Knee Step Over



- Progressing on from the calf step-over, the athlete moves forward by stepping over the opposite leg. This time the athlete is aiming to step over their knee.
- Athletes should feel light and bouncing, keeping up tall and replicating a running action.

 **AAi Coach Sprints: Knee Step-Over**

9. Single Leg High Knee



- This drill is a hybrid of the straight legs and knee step-over drill.
- Athletes kick one leg out in front of them keeping the leg straight. At the same time, the opposite knee drives up to a 90-degree angle and the athlete steps over the straight leg knee.
- Ensure to carry out the drill on both the left and right sides.

 **AAi Coach Sprints: Single Leg High Knee**

Additional Resources: <https://www.youtube.com/watch?v=ErLfYSa5m7A>



Stride Length vs Stride Frequency

An athlete's speed is a function of their stride length (distance covered in one step) and their stride frequency (how many steps they take over a given time). For example, if an athlete's stride length is 2 metres and a stride frequency of 5 hertz then their speed is 10m/s.

$$\text{STRIDE LENGTH (m)} \times \text{STRIDE FREQUENCY (Hz)} = \text{SPEED (m/s)}$$

These factors are connected and creating an optimal ratio between them, allows for maximum running speed. A balance between the two is crucial for optimal performance. Every athlete is unique and will have their own stride lengths and frequencies but they can be improved on. To improve stride length, we can focus on exercises that enhance leg and hip strength. To improve stride frequency, we can use drills that emphasize a quick leg turnover. Wicket Running is an excellent drill for improving an athlete's stride length and frequency.

Coaches can change the distances between the mini hurdles to fit the needs of the athlete and also challenge them to improve their stride length and stride frequency.

 [AAi Coach Sprints: Wicket Running](#)

Bend Running

Being able to run fast and efficiently around a bend is crucial to running a good 200m, 300m and 400m as well as relay races. It is important to note that bend running, or curved running will differ depending on what lane the athlete is in. An athlete in the outside lane (lane 8) will have a completely different bend and stagger to deal with compared to an athlete in lane 1 or the middle lanes. Appropriate adjustments should be made for how an athlete approaches running in each lane from setting up blocks, attacking the bend and coming off the bend. Bend running can be divided up into four sections:

1. Starting on the Curve

As mentioned previously in the Blocks and Starts section of the coaching manual the blocks should be angled inwards to maximise the athlete's efficiency at the start of the race.

2. Approaching the Curve

Running into a bend, for example, running down the back straight of a 400m race and entering the top bend, athletes should prepare themselves for the upcoming bend. Athletes want to think about attacking hard into the bend and running at a slight angle into the bend to create a favourable path to run.





3. Running the Curve

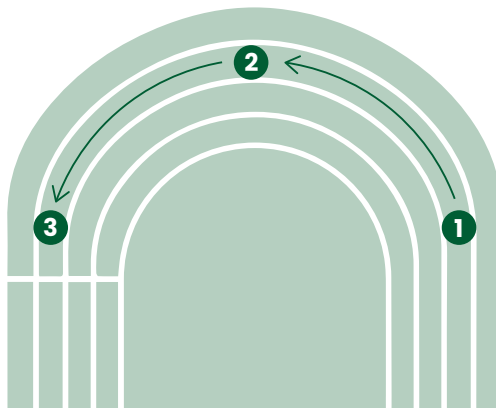
Think of the 100m curve as many smaller straight-line sections, i.e. 50x2m straights (2m stride length). Athletes will want to run on the inside of the lane close to but not on the inside line. By hugging the inside line, athletes will run a marginally shorter distance than if they run on the outside of the lane and in sprints every little bit counts.

Athlete Que: "Think about being Petey the Pencil, not Barry the Banana"



4. Exiting the Curve

When coming off of the bend and into the straight, for example entering the home straight after running the top bend in a 200m race, athletes will want to use the benefits of the bend to slingshot themselves down the track. As previously mentioned above, by attacking into the bend athletes can come off the bend harder and faster.



- Approaching the bend – Start wide in the lane (1)
- Around the bend – Aim for the inside of the lane when running around the curve (2)
- Exiting the bend – hug the inside curve (3) and then slingshot off the bend (4)



Energy Systems

There are 3 main energy systems and it is important to know what they are and what they do in relation to sprint running events.

- **Anaerobic Alactic System (ATP-CP)** – used for high-intensity, short-duration events lasting between 10 and 15 seconds for example 60m and 100m sprints.
- **Anaerobic Lactic System (Glycolytic)** – used for high to medium intensity events lasting between 30 and 60 seconds for example 200m and 400m sprints.
- **Aerobic Energy System** – used for low-intensity long-duration events lasting over 60 seconds for example 400m sprints and above.

Each of the three systems works in tandem and their contribution varies based on events.

100m

Studies show that the anaerobic systems contribute roughly 90-95% of energy



and 5-10% of energy comes from the aerobic system.

200m

Studies show that the anaerobic systems contribute roughly 70-85% of energy and 15-30% of energy comes from the aerobic system.

400m

Studies show that the anaerobic systems contribute roughly 55-65% of energy and 35-45% of energy comes from the aerobic system.

Based on these different contributions of energy systems the training we do must reflect the energy they provide us for our sprint events. It is important that all athletes have a good base of aerobic fitness in order to train and compete at their optimum.

Training Sessions

When planning a training session, we must make sure to include a warm-up, the main session and a cool-down.

Warm-Ups

- Warm-ups prepare the body for activity, by raising the body temperature and increasing the blood flow to the working muscles.
- Mobilise the joints and prepare them for movement to stretch the muscles and help prevent injury.
- Prepare mentally for the activity to follow.

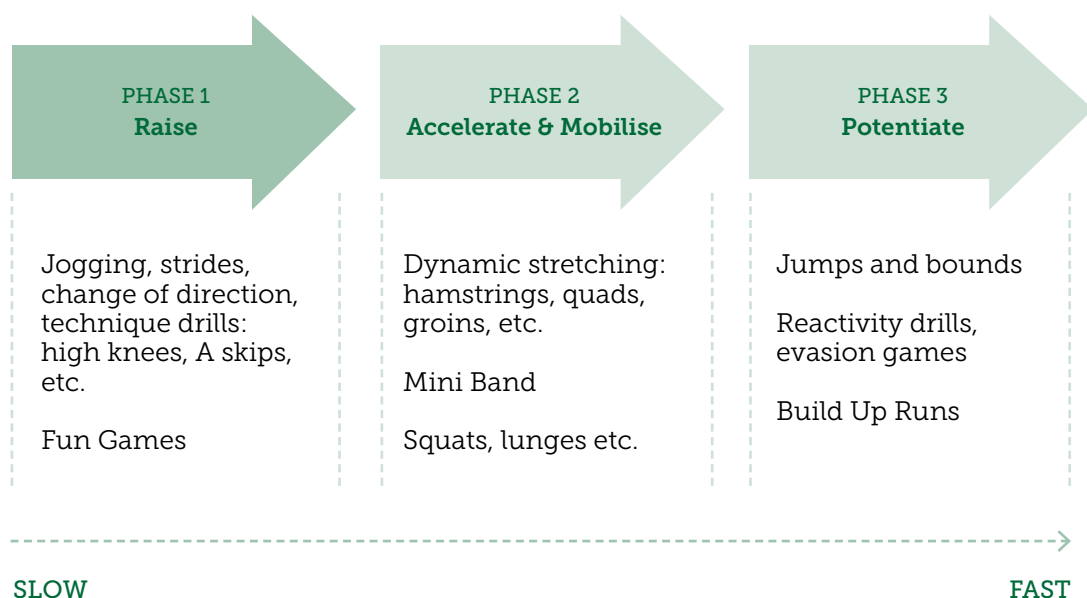
One method of warming up is the RAMP Method.

Raise – body temperature, heart rate, respiration rate and blood flow

Activate – key muscles

Mobilise – key joints

Potentiate – reach the same intensity of subsequent exercise





Sample Training Week

Tuesday "Hard" Session

4 x 6 x 60 (sets of 6 runs over 60m)

- Walk back recovery between runs
- 5/6 mins recovery between sets
- Run @ 80-85% of max
- Can add in non-exertive ball work focus on skill –no running
- For variety change up distances and number of reps eg. 4x4x40m or 3x5x50m

Thursday "Quality" Session

2 x 30, 2 x 50, 2 x 70 (2 runs over 30m, 2 runs over 50m and 2 runs over 70m)

- Recovery: 3/4 mins, 5/6 mins and 7/8 mins between runs
- Run @ 90-95% of max
- For Variety change up distances and number of reps eg. 2x20m, 2x40m, 2x60m
- Focus on relaxed fast running with decent recovery

Sunday "Recovery/Aerobic" Session

20-30 mins long easy run OR Figure of 8's on pitch

- 2 sets of 4 runs, 8 runs total
- Run corner flag to corner flag across the pitch
- Jog goal line corner to corner –recovery
- Run @ 60-70% of max
- Focus on relaxed running not hard at all

Additional Sample Sessions

Max Speed

Flying Runs

- 2-3 runs total over 15-20m
- 20m acceleration, make sure up to full speed by fly zone
- 15-20m max running, fly zone
- 20m deceleration, don't pull up really quick nice gradual slow down

Wicket Runs

Place 8-10 mini hurdles 3-5 feet spacings apart (depending on athletes size)

- 2-3 runs total
- 20m acceleration run into the first hurdle
- 15-20m running over mini hurdles
- 20m run off after the last hurdle, aim to hold form and keep the speed going





Session 1

- 2 x 20, 2 x 40, 2 x 60 metres
- 6 runs at 95-100%
- Recovery: 3 minutes after 20 metres, 5 minutes after 40 metres, 7mins after 60 metres



Session 2

- 1 x 10-metre from 3 point acceleration, 1 x 20 metre from 3 point acceleration
- 2 x 10-metre max fly runs with 5 minutes recovery
- 4 x 60-metre with 4 minutes of recovery



Session 3

- 3 x 30-metres from 3-point acceleration with 4 minutes of recovery
- 2 x 40 and 2 x 60-metres with 5 minutes after the 40s and 7 minutes after the 60s

Cool-Downs

Cool-downs help return the body gradually to the pre-activity state and assist the circulatory system in removing waste products from the muscles. They also help to reduce tension in the muscles and enhance rates of recovery (flushing/irrigation of working sinews).

- Don't get straight in the car
- Return the body gradually to pre-activity levels
- Start the recovery process
- Prevent injuries
- Take the time to slow things down
- Breathing
- Additional Resource
- Athletics Ireland TV: Sprint Session https://www.youtube.com/watch?v=C3x25D_0Szs

Additional Resources:

[Athletics Ireland TV: Sprint Session https://www.youtube.com/watch?v=C3x25D_0Szs](https://www.youtube.com/watch?v=C3x25D_0Szs)





Common Errors and How to Correct

Problem – Poor Head Position or Moving Head

Some athletes, mostly younger athletes, will run with their heads tilted backwards or their chin tucked down. Another common fault would be head rocking side to side.

- **Possible Cause** – Lack of concentration on running by the athlete, being distracted by other competitors or tightening up of the head and neck muscles.
- **Correction/Solution** – Teach athletes correct running posture with their ears over their shoulders and eyes facing forward. Run relaxed rather than forced to allow a more fluid motion and stable head.

Problem – Leaning Excessively Forward or Backward

It can be common for athletes to run with an excessive forward lean where they are bending at the hips and almost falling forward. Similarly, athletes can sometimes lean backwards when trying to keep a high knee lift which decreases their ability to produce force to run fast.

- **Possible Cause** – A weak core and tight hip flexors can cause the trunk to lean forward, and athletes are not strong enough to hold the upright position. By trying to raise their knees really high athletes can exaggerate and lean back.
- **Correction/Solution** – Begin by telling athletes to run tall, as if a string is pulling them up to the sky from the top of their heads. Work on strengthening the core area to create a solid base to hold this upright position and mobility in the hips to ensure a good range of motion can be achieved.

Problem – Rotating or Twisting Upper Body

As young athletes try to run as fast and as hard as they can it can lead to them twisting from side to side as they run meaning their arms and legs do not work in one single direction leading to a reduced ability to produce force to run fast.

- **Possible Cause** – Arms and legs not working together in unison and a lack of strength can cause this twisting motion.
- **Correction/Solution** – We want to keep their hips square so that all the forces being produced are going in the same direction allowing for maximum speed to be generated. Working on good running form can help reduce this. Similarly working on strengthening the athlete's core will help keep arms and legs working together in the same direction.

Problem – Swinging Arms Across the Body

Linked to the problem mentioned above, athletes can sometimes swing their arms across the body from a side-to-side motion rather than a forward and back one.

- **Possible Cause** – Tightness in the upper torso and shoulders can restrict an athlete's motion preventing them from moving their arms forward and back and creating a side-to-side motion. Elbows pointed out mean as the athlete pumps



their arms, they move sideways rather than forwards and back.

- **Correction/Solution** – Working on the athletes' upper body mobility, working on their range of movement and flexibility will allow their arms to swing in the correct positions. Tell the athlete to tuck their elbows in at their sides.

Problem – Straight Arms

As athletes try to swing their arms as hard as possible sometimes the bend at the elbow stops and the hand flings out creating a straight arm action. While this is ok at the beginning of a sprint as the athlete starts or drives out of blocks, straight arms throughout the race cause a reduction in the force they can produce and thus slowing them down.

- **Possible Cause** – A lack of concentration or simply not realising that they are doing it can cause this issue.
- **Correction/Solution** – encourage them to keep a bent arm of almost 90 degrees like a square and bring their hand from "lip" to "hip" so that their arm swings from up high by the mouth all the way back past their side. Get them to practice just running with their arms by sitting on the ground and driving the arms back and forth, they won't be able to have a straight arm.

Problem – "Sitting" Position

A very common issue with athletes can be running in a sitting position where they run almost crouched with very low hips.

- **Possible Cause** – This can happen when the legs are not being fully extended and the support leg is collapsing. A lack of strength or leg stiffness will be the main cause of this issue.
- **Correction/Solution** – As the athlete progresses with training and becomes stronger via sprinting and possibly some strengthening exercises this will ease the issue. Instructing the athlete to try and run tall with high hips may help. Using drills like wicket runs will help get the athlete into a better running position.

Problem – Low Knee Lift

A low knee lift can greatly affect an athlete's ability to run fast as their stride length will be shortened drastically with a low knee lift.

- **Possible Cause** – Again, a lack of strength or mobility in the core and hip area will restrict an athlete's ability to bring their knees high and through a good range of motion.
- **Correction/Solution** – By strengthening the athletes' core and working on the flexibility and mobility of their hips will allow the knees to come up high and achieve a greater stride length. Telling the athlete to raise their knees as if they are running through sand or shallow water will help get them to pick up their knees. Using various running drills such as A-skips and wicket runs will also help get the athlete to raise their knees.

Problem – Excessive Back-Side Leg Mechanics





When we run, we want all of our motion to be in the front side of the body. This allows us to be efficient and produce the maximal amount of force ensuring fast running. Sometimes athletes leave their leg out behind them which causes a delay in the next stride, slowing them down.



- **Possible Cause** – Poor running form and a lack of awareness for what they are doing can be a cause of this and it can be linked with an excessive forward lean.
- **Correction/Solution** – Instructing athletes to run in front of themselves, and keeping everything in front of the body will help reduce this backwards delay. Performing running drills will help to train a quick pull-through of the leg. The heel should aim to be under their backside rather than behind it.

Problem – Feet Turned Out



When running it is common for athletes to have their toes pointed outwards as they make contact with the ground. This means that the forces being produced are being displaced in different directions rather than working together to run forward.

- **Possible Cause** – The main cause of this issue is tight or weak glute muscles which twist the leg outwards causing the toes to point out. It can also lead to injuries if left unchecked.
- **Correction/Solution** – Working on the flexibility and mobility of the athlete will help keep the legs and feet in the correct position in order to get faster and reduce injury risk. Reminding the athlete to be aware of their foot position while carrying out drills can help in reducing the turning out.



Problem – Asymmetrical Action



When watching athletes run, we can see how similar one side of the body's actions are to the other. One knee might be rising higher than the other or one arm could be straightening while the other is bent. While all athletes will have unique styles that can only be changed so much without interfering with their speed it is important to try and make both sides as similar to each other as possible.

- **Possible Cause** – Most common cause of this issue would be muscle imbalances between the left and right sides of the body, due to weakened or tight muscles. It is important to address the issue as it can lead to potential injuries down the line.
- **Correction/Solution** – Using running drills and correcting an athlete's form will help make actions symmetrical and making the athlete aware of the issue will help them to focus on correcting it. Ensuring equal work is done on both sides to eliminate any imbalance and working on the flexibility and mobility of the athlete will help to create a more symmetrical running action.



From reading the above common problems it is clear that the majority of issues stem from one of three things; mobility, strength or technique. Ensuring an athlete has a good range of motion and good flexibility will allow them to get into the right sprinting positions to run fast. Strength will come as the athlete gets older





but is crucial that it is looked after as they develop to allow them to run as fast as possible and prevent any injuries from occurring. Finally, by working on an athlete's technique using drills they will become more efficient and have the correct form to get into good sprinting positions allowing for maximum speed.





Things to Remember

- Sprints begin in competition from U9's running 60m moving to 80m at U13's and moving to 100m at U15's all the way to senior.
- The safety of the athlete is always the number one priority.
- The focus of coaching sprinting to kids is to teach reliable technique, acceleration and starting skills, and to develop power, maximum speed and speed endurance qualities.
- Technique is the top priority with speed endurance being the lowest priority. This is all underpinned by the philosophy that the fundamentals must come first.
- A well-drilled athlete is a confident athlete.
- Ensure the athlete is competent at sprinting before entering races.
- Introduce simple and scientific language as necessary, and make sure to talk to the level of the athlete so that they understand the why and how.
- Assign technical practices and tasks at home.



Promote Sprints

- Sprinting is the fundamental basis for all running events and a lot of field events.
- Training sprints can improve an athlete's fundamentals and functionality.
- Sprinting is also used as a main skill widely in other sports. Training for sprints can help athletes improve in almost every other sport.
- Sprinting can help improve an athlete's speed, strength, power, flexibility, mobility, agility, coordination and so much more.
- Sprinting can provide an athlete with a good base from which to work and move into other events, which is in line with the Long Term Athlete Development plan that is beneficial to the athlete.



Credits



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AAi Coach <https://www.youtube.com/@aaicoach1895>

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