Evaluation of Performance–Strengths and Weaknesses

Skills (Motor Skills)

Sprint Start-To start a race successfully you need an efficient sprint start. When getting into the marks position the sprinter should have their feet correctly located in the blocks with their fingers behind the line and hands evenly positioned shoulder width apart. The shoulders should be perpendicular over your fingers Head and neck should be in line with the spine eyes focused on the track (1 to 2 metres ahead). Then when the athlete goes into the set position their hips should be raised slowly to a position above the level of the shoulders with their eyes focused on the track one or two metres ahead and the shoulders vertically above or slightly in front of the hands, then have both feet pushed hard back into the blocks. The centre of mass needs to be moved forward as far as possible without becoming unbalanced. When the gun goes or the starter indicates the start of the race drive the arms hard and drive the back leg forward into a high knee action whilst keeping low and driving the legs.

Acceleration Phase-This takes place immediately after the sprint start and is where you increase you speed as fast as you can, you are aiming to go through this phase as quickly as possible, but at the same time with the correct technique. The performer's eyes are focused on the track to keep low to allow the build up of speed with a forward lean of the whole body. They should have no tension in the face and neck with their shoulders held back and relaxed. Their arms move with a smooth forward backward action not across the body driving back with elbows. Fast leg action, good stride length giving them continual acceleration. Appearance of being smooth and relaxed but driving hard with elbows and legs. They should accelerate for approx. 20-30 metres and then the whole body should slowly come into a high tall action.

Running/Sprinting Technique, Holding the speed -This is also very important as if you do not have the correct technique then your time can be reduced dramatically. Their eyes should be focused on the end of the lane. Face and neck should be relaxed and not be strained. Smooth forward and backward action of the arms with their elbows at 90 degrees. The athlete's appearance should be of being tall, relaxed and smooth with maximum drive.

Dipping For The Finish-The dip takes place just before the finish. This is to try and force your body over the line because your time is stopped as your chest crosses the line, so if the athlete dips on the line then their chest is going to cross the line earlier than it would without dipping.

Fitness components

Gross motor abilities

Speed-This is essential in a 100m race as it is a test of speed and when the race is competitive the fastest athlete wins.

Speed Endurance-This is needed to be able to continue running at your top speed over a longer period of time, i.e. you are running as fast as possible throughout the whole race.

Dynamic Strength-This is required so that you are continually able to move your arms and legs until the end of the race

Explosive Strength-In a race of 100m you need explosive strength because you need to be able to accelerate quickly, when starting the race. So explosive strength is essential in your legs.

Power- This is needed to be able to reach top speed in a short amount of time. Then power is needed during the main part of the race when you need dynamic strength and speed.

Psychomotor Abilities

Reaction time- When the starter fires his gun at the start then you will need to ha ve a good reactions to get out of the blocks quickly and start running your fastest as soon as possible, if you did not have good reaction time then you would automatically be behind the rest of the runners and be at a disadvantage.

Multi-limb Co-ordination-This is definitely necessary when running a race, because you need your arms and legs to work together efficiently as to run you fastest. You need to bring your right arm up as you raise your left leg and vice -versa.

Static Balance-This is only needed when at the start and you have to keep still in the 'set' position.

My strengths and weaknesses

I will compare myself against the technical model by looking at pictures of me performing a skill and how I feel when carrying out the skill then I will use these tick charts to help analyse my weakest skill/ technique, which I will improve.

Sprint Start

Marks

- ❑ My feet correctly located in the blocks.
- ❑ Fingers behind the line.
- ❑ Arms straight but not locked at the elbows.
- ❑ Head and neck in line with the spine.

Set

- ❑ My hips rise slowly to a position level with the shoulders.
- ❑ Shoulders vertically above or slightly forward of the hands.
- ❑ Feet pushed hard back into the blocks.
- ❑ Eyes focused on the track about one metre ahead of me.
- ❑ Move centre of mass forward but not off balance.

Go

- ❑ Driving my arms hard.
- ❑ Drive my back leg forwards into a high knee action.
- ❑ Eyes focused on the track 2 to 3 metres in front.
- ❑ Keeping low relaxed and driving.

First of all my neck and head were not inline with my spine when I am in the mar ks position. Then when in the set position there are a few problems with my technique, which are that my hips are a lot higher than my shoulders, my shoulders were behind my hands where they should be above or behind the hands. Then my eyes are not looking one metre forward but almost looking directly downward. Once the starter indicated to go then I did not drive my legs to the extent that I should, bring my knees

up high enough, at the start I didn't stay low for long enough and my body was not very relaxed as there was tension in my neck face and upper body muscles. Due to all of these faults I would class this group of skills as a **weakness**.

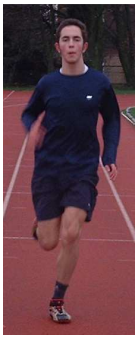
Acceleration Phase

- My eyes are focused on the track to keep low to allow the build up of speed.
- A forward lean of the whole body.
- No tension in my face and neck with my shoulders held back and relaxed.
- My arms move with a smooth forward backward action not across the body driving back with elbows.
- Fast leg action and good stride length.
- Having the appearance of be ing smooth and relaxed but driving hard with elbows and legs.

As my performance had all of the components as stated above when carrying out the acceleration phase this skill would be described as a **strength**.

Running/Sprinting Technique, Holding the Spe ed

- My eyes should be focused on the end of the lane.
- Face and neck should be relaxed and not be strained.
- Smooth forward backward action of the arms with their elbows at 90 degrees.
- I should have the appearance of being tall, relaxed and smooth with maximum drive.



This is a **strength** even though my face and neck muscles are strained as this can easily be improved without needing much training.

Dipping For The Finish

- My chest crosses the line first
- Steep forward lean.

Both of these points were correctly performed so I would consider this skill as a **strength**.

<u>Tests to indicate the level of my fitness components</u>

Speed

Four timed runs when running at top speed over 20metres I will then multiply the time by 5 to work out a time over 100metres to gain a rou gh time.

Run1 - 2.6seconds Run2 - 2.72secs Run3 - 2.57secs Run4 - 2.80secs
Average time - 2.6725secs Average 100m time=13.36secs

13.36 seconds is a reasonably fast time for me over 100m. So this makes me feel that speed is a **strength** that will not need to be focused on in my training program.

Speed Endurance and Dynamic Strength

I have run two 200 metres runs as fast as I can and ran two 150 metres runs as fast as I can then worked out the respective 100 metre time. Speed endurance and dynamic strength will be tested together as they are very similar.

200m - 29.02s 200m - 29.58s 150m – 23.16s 150m –22.62s

Average 100m time - 14.955s

I think that 14.955 seconds for a 100metre run is very poor. If I had good speed endurance and dynamic strength then the time worked out over 100metres should be below 14 seconds. So I believe these are **weaknesses**.

Reaction Time
Testing for simple reaction time which is vital for the sprint start as there is only one stimulus (which is the gun/starter) and one response (to run) and the response is predetermined.
For this test I will use the ruler drop test. This is where another person will hold a ruler between my first finger and thumb, then without any warning the partner will drop the ruler and I will have to stop the ruler between my finger and thumb, this will give me a reading, which will be recorded. I will then convert my average distance in metres into a reaction time, using the equation $\sqrt{}$(2xdistance/9.81). This reaction time can be compared against the average time of a 20year old male that is 0.17s
1st distance – 0.175m 2nd distance – 0.12m 3rd distance – 0.13
Average distance – 0.14m reaction time – 0.1699 seconds

As you can see from the results I have a reaction time that is just slightly under the average for a twenty-year-old male. This suggests that this is a **strength**. As it is an ability you are unable to develop and improve your reaction time anyway.

Static Balance
To test my static balance I will position myself in the set position and hold that position for as long as possible. If I can hold the position for over a minute with out moving at all I will class it as a strength.
Time position held for - 1min 34sec
As the time is well over a minute I will class this as a **strength**.

Explosive Strength and Power
For this I will perform a standing jump to jump as far as I possibly can, I will repeat it three times and find the average distance.
Jump 1 – 1.55m Jump 2 – 1.52m Jump 3 – 1.63m
Average distance jumped – 1.57m

This is quite a distance to jump and if I were to push off half this distance at the start of a race then it would be a very good component to have to get myself into stride quicker than usual. So I would class these components as **strengths**.

Multi Limb Co-ordination
To test this I will try to learn to juggle 3 balls for more than 10 throws in under 10 minutes. Even though I am using my hands and arms in this test it will still test my multi limb coordination.
Time taken to learn how to juggle – over 10 minutes

It took me quite a while to learn to juggle so I believe that this is a **weakness**. But it is not as an important component as my other weaknesses so I will not concentrate on this during my training program.

Weaknesses: multi limb co-ordination, speed endurance, dynamic strength, sprint start.
Strengths: Explosive strength, power, static balance, reaction time, speed, dipping for the finish, accelerating, running technique, holding the speed.

Action Planning

The skill area that I am going to work on is the sprint start as the tests that I carried out show that this area is my weakest skill as well as a very important skill. For my fitness component I am going to work on speed endurance for similar reasons that it was my weakest component when I was carrying out the tests and it is very important to be able to run the full distance of the race without fatiguing.

Goals

My goals for the sprint start are to have all the points on the checklist, whic h I used for my testing of strengths and weakness' ticked these are: head and neck in line with the spine, that my hips rise slowly to a position level with the shoulders, shoulders vertically above or slightly forward of the hands, eyes focused on the tra ck about one metre ahead of me, drive my back leg forwards into a high knee action, keeping low relaxed and driving. I also want to improve the time that it takes to cover the first 10 metres of a race about 0.2 to 0.5 seconds so that I can try to maximise the efficiency of my sprint start.

The goals I have for speed endurance are to be able to run between 1 - 2 seconds quicker over the 200 metres and about 1 second over 150 metres. If I can achieve these goals set I will be able to hold my speed throughou t the 100 metre distance without fatiguing.

Timescale

I will have six weeks to carry out the sessions I will do. Each session will last approximately one hour. I will have two sessions a week with one session on the athletics track that will take place o n a Sunday afternoon and the other in the gym that I will carry out on a Thursday afternoon.

Method

When in the gym I will mainly be working on speed endurance. For each session I will use the rowing machine for seven minutes on a moderate setting to wa rm up. I will then spend three minutes stretching. For the rest of the sessions in the gym I will use these pieces of machinery: running machine, leg extender and leg flexor machines. What I am going to do more precisely is described on the table.

When on the track I will be concentrating on the sprint start, first of all I will carry out a warm up which will consist of going for a jog of 800 -1200 metres around the track, wearing my entire tracksuit to help keep the body heat in. The amount of clothing would depend on the outside temperature. The jog would be at a low intensity but just enough to produce a mild sweat. The jog will warm my muscles up, as they will stretch more effectively when warm. Then I will carry out these drills: rocking run, barrier hops and resistance running, which were described in the drills earlier. I will also practice the three stages every time I go onto the track checking against the points I made during testing and make sure they are all abided by. This is so at the end of the 6 weeks the sprint start positioning will become habitual.

For what I am going to do as the main part of my training session is illustrated on the timetable I have designed to follow for each session.

When on the track the drills that I will carry out will be:

- The rocking run and this is where the runner in the set position leans forward as far as possible then rock backwards then forwards twice then on the third time at the furthest point leaning forward they should run out of the blocks as normal. Th is practice helps develop the rock forward on the set phase of the starting position. This also allows you to see how far you are able to lean forward and become used to the motion-required going into the set position. Helping me to become more technically correct.

- Resistance running which helps the drive in the legs improving the power when driving out of the blocks. During this practice the resistance will help me to utilize horizontal driving forces rather than wasting energy and strength in other directions. So when I do drive out of the blocks you come out more powerfully and ultimately faster. It will help me improve my sprint start by making it more efficient. I will start this exercise in the sprint start position and after I have moved a few strides the resistance could be released.

- Barrier hop and in this practice you go over barriers with your feet and knees together, the barriers could be hurdles as used in athletics. There should be a series of hurdles to bound over. My body movement should com e from the hips and knees and keeping the body vertical and straight. Swing the arms to maintain balance.

After a session either on the track or in the gym I will require a cool down, for when I am on the track I would take a slow jog of 800metres around the track this would as this is an active cool down which will slowly decrease the heart rate back to a normal rate. But when I am in the gym I would use the exercise bike for 5 -10 minutes. Then for both I would go through the same stretches as I would in the warm up but for a shorter amount of time, to help the muscles return to a normal resting length. Also a cool down reduces muscle soreness and stiffness the next day.

The stretches that I would carry out for both the warm up and cool down are:
- Stretching the Vastus Lateralis, Vastus Intermedials, Vastus Medials and Rectus Femoris by pulling my ankle with my hand on the same side of the body keeping the knees together while maintaining the correct spine alignment.
- Moving the ankle to and from dorsi and plantar flexion with the balls of my feet planted on the ground. This mobilises the Tibialis Anterior, Gastrocnemius and Soleus
- Stretching the Gastrocnemius and Soleus with the rear heal always kept on the floor throughout the movement, stretching the musc les by flexing my elbows and moving my body weight forward.
- Stretching the Adductors Longus, Brevis and Magnus by having both feet flat on the floor and facing forward and leaning over to one side keeping the other leg straight, I will bend my knee at the side I am leaning over to increase the intensity of the stretch.
- Stretching the Trapezius by pulling one arm that is kept straight across the chest with my other arm. This is a horizontal flexion movement.
- Stretching the Biceps Femoris and Semi Membranosus , by sitting with one leg straight and the other comfortably bent, reach with the same side hand as the straight leg to my foot and with the other hand on the straight legs knee to maintain the knee extension.

Method of Evaluation
I will use the results that I got during my testing and compare them to the same tests, which I will carry out at the end of the six weeks. When testing the sprint start I will

have to pay particular attention to these points: head and neck in line with the spine, that my hips rise slowly to a position level with the shoulders, shoulders vertically above or slightly forward of the hands, eyes focused on the track about one metre ahead of me, drive my back leg forwards into a high knee action, keeping low relaxed and driving. I need to add the time it takes to run 10 metres from a standing start as well as the ones I already have.

Then when it comes to testing speed stamina I will again run two 150 metre runs and two 200 metre runs and work out the average time from these for 100 metres. This will hopefully be faster than I did during my testing.