

Personal Exercise Programme

My Chosen Sport

The sport I have chosen to use for my personal exercise programme is football. I have chosen football because although I feel I can play at a reasonable standard, there are still certain aspects of my game that can be improved which will make me a better player. I enjoy training just as much as I do playing in competitive matches.

Sporting history

I started playing football when I was six years old for a local team. I continued to play for them for five years before I moved on to play at a higher standard. I have played for my school football team in both primary and secondary school and continue to do so now. I am designing my training programme in order that I can improve my fitness; in particular my cardiovascular system as it is directly related to football. I also aim to improve my leg strength, as it will give me an advantage over the opposition when I'm tackling for the ball and it will also help to improve my speed.

Components of Fitness

Stamina/endurance – this is the ability to perform for relatively long periods of time with little fatigue. A football match lasts for 90minutes, therefore cardiovascular endurance is vital to a footballer. In order to give your team a better chance of winning you need to be able to perform at your maximum ability for the entire length of the game.

Strength – this is a general term for applying a force against a resistance. There are three types of strength: maximum strength, elastic strength (power) and endurance strength. As football training and matches are strenuous activities you need endurance strength in order to reduce the feeling of fatigue in the muscles and elastic strength to help explosive movements, such as sprinting to beat an opponent to the ball.

Flexibility – this is the range of movement possible around a joint and depends on the amount of stretch allowed by the ligaments, joints, tendons and muscles. Flexibility is very important within football, especially for a goalkeeper, as not only does it give you an advantage when trying to stretch and intercept the ball but it also reduces the chance of pulling a muscle and causing an unnecessary injury.

Speed – this is how fast you can move part of your body or the whole of your body, and is measured in metres per second. Speed is a very important factor within football as it can be the difference between you scoring or not scoring a goal. Having fast speed levels will enable you to beat a defender to the ball and let you run past them with the ball on your way to goal.

Reaction time – is the time between a stimulus being detected and the first movement made in response to it. By having a fast reaction time when playing football you can be the first person to respond to a goalkeeper saving a shot but not holding the ball, if this happens you can reach the ball first before the defender and most probably score.

Agility – this is the combination of speed and co-ordination. It allows you to efficiently change direction and body position at speed. In football a goalkeeper needs to have fast reactions and to be very agile in order to save shots from all different angles.

Balance – is the ability to maintain equilibrium. Balance can be described as either static or dynamic. In football, players need to be able to have dynamic balance, in order that they can retain balance while in motion.

Co-ordination – means putting the relevant motor programmes in the right order, and effectively using the neuromuscular system to produce smooth and efficient movement.

Power – is the ability to perform strength movements at speed in an explosive movement. This is needed within football to tackle the opposition for the ball.

Body Composition – this determines the amount of lean body mass plus body fat that your body is made up of. It is important that footballers have the correct body composition in order that they can maintain and keep the correct level of fitness.

Careful measurements of fitness can help to improve performance and ability. Below are some of the tests that are used to measure the elements of fitness most needed while playing football.

Stamina/endurance – There are two different types of tests that can measure a person's stamina; the Harvard Step Test and the Multistage Fitness Test. The Harvard Step Test measures a person's cardiovascular fitness by determining how long it takes to recover and get back to their normal pulse rate, a sub-maximal test. Whereas the Multistage Fitness Test is maximal as it measures your VO_2 Max. This test is more relevant for a footballer and the procedure is as follows:

1. Instructions are given at the start of the tape, which also identifies the signals for a change of pace.
2. At the start the person runs slowly from one line to the next. The pace must be judged so as the person puts one foot over the line as the beep is sounded.
3. This is repeated a number of times, and then the time between the beeps is shortened requiring a faster pace.
4. There are twenty-five levels with the time being reduced each level.
5. When the person can no longer keep up the pace, by arriving at the line after the beep they drop out.
6. The levels are recorded and fitness is checked against the tables.

Your physical state can influence your performance in this test and in some cases may make the test results unreliable. If the person carrying out the test is not feeling well or has a slight injury then their performance is not likely to be the best they can do.

Strength There are many different tests for strength, which can test different parts of the body. The NCF sit up test measures abdominal strength and grip strength is measured by a handgrip dynamometer. But to measure explosive strength you can use one of two tests: the standing broad jump or the Sargent jump.

The procedure for the Sargent jump is:

1. The person stands with both feet against the wall and stretches hands as high as possible while keeping heels firmly on the ground.
2. The height is marked
3. The fingers of one hand are dipped in chalk and the subject stands side on to the wall
4. With a slight flex of the legs and the swing of the arms, the subject jumps and touches the wall as high as possible
5. The distance between the two marks is measured
6. The best of three jumps is recorded.

The validity and reliability of this test are not certain. For instance do you measure the distance from the tip of the fingers on each marking or from the base of the hand? It is not stated which in the procedure and therefore may cause people to measure distances differently.

Flexibility – The Sit and Reach test is used to measure a person's flexibility at the hip joint.

The procedure is as follows:

1. After a good warm up, bare feet are placed against the edge of the box with the backs of the legs in contact with the floor.
2. The person then reaches slowly down the box with both hands, fingers out stretched as far as possible and the distance is recorded.
3. The best of three scores is taken

Speed – a simple test involving a person sprinting a distance of 30m is used to measure a person's speed. However if this test is performed in outdoor conditions then their performance can be affected by different factors. I.e. the surface they are running on and the weather conditions. For example your likely to produce a slower time if you are sprinting on grass in windy conditions, compared to if you were carrying out the test on a running track in still conditions.

Reaction time –

Agility -

I carried out tests for the fitness components most related to football in order that I could compare my results to the National Averages. This would give me a better idea of my strengths and weaknesses, allowing me to decide which two components I should concentrate on during my personal exercise programme.

When National Averages are made, the age and gender of people have to be taken into account. As the levels of fitness you should be achieving will relate to your age and gender. For example your VO_2 (max) differs depending on your age and gender. Your VO_2 (max) is likely to be lower if you are a female and it decreases as you get older. This is because women have lower haemoglobin levels, a lower maximum cardiac output and a lower blood volume because of a smaller body size. And as you get older your maximum heart rate drops by 5-7beats per minute per decade, there is a reduced blood flow to active muscles and blood pressure increases at rest and during exercise. All of these reasons combined lower your VO_2 (max).

After carrying out tests I obtained the following results:

Fitness Component	Test used	My result	National Average for my age and gender
Strength	Sargent Jump	25cm	36-46cm
Agility	Illinois Run	17.2secs	21.7-18.0secs
Stamina	Multistage fitness test		
Speed	30m sprint	4.8secs	4.8-4.7secs
Flexibility	Sit and Reach	8cm	7-11cm
Reaction Times	Drop Ruler		

After looking at my results and comparing them to the National Averages, I can see that my main strengths are my agility and reaction times, as I gained higher marks than the National Average. My speed and flexibility levels are average for my gender, however it is also evident to see that my cardiovascular endurance and strength levels are my main weaknesses as they are below average. Therefore in my personal exercise programme I will be concentrating on my strength (leg power) and my cardiovascular endurance, as hopefully I will be able to improve them.

I want to improve my leg strength, as it will enable me to challenge harder for the ball in football and also have a beneficial impact on my speed. To add to that I will be able to strike the ball harder, increasing my chances of scoring if I am far away from the goal. Leg strength training makes muscles thicker, as muscle fibres are thicker, also known as hypertrophy. Therefore a greater area of muscle means that they will contract more strongly and efficiently so speed, strength and power will improve.

I need to improve my cardiovascular endurance in order that I can play to my maximum ability for the entire length of a football match. By carrying out endurance training I will increase my aerobic capacity. This will result in my heart growing bigger and enabling it to hold more blood and contract more strongly. This means more blood will get pumped out with each heartbeat, making the heart a more efficient pump. This in turn increases the volume of blood in your body, meaning you produce more red blood cells to help deliver oxygen. With more capillaries going around the alveoli it means more blood gets carried to them, resulting in oxygen moving to your muscles faster and gets rid of carbon dioxide quicker. This results in you not getting tired so fast, enabling me to last the whole game of football.

After deciding upon the two fitness components I wish to concentrate on and improve in my personal exercise programme, I will need to decide how to evaluate my performance at the end of the 6 week period. In order to do this I will re-test myself on my endurance and strength levels at the end of my programme. By doing this I can compare my endurance and strength levels before and after my 6 week period and assess and evaluate whether my programme was a success and whether I have improved.

There are 4 different methods of training that can be used to improve different components of fitness; interval, continuous, weight and circuit training.