

# **PERSONAL EXERCISE PROGRAM**

The reason I am carrying out a training program is to identify the work that needs to be done in order to achieve the goals that have been set. Training plans can be made for both short-term and long-term objectives for the forthcoming season. However for the rest of this program I am going to focus on a short-term annual training program. The sport I have chosen to relate my training programme to is **Basketball**. Basketball requires quite a lot of skill to play both physical and mental; such skills like speed, endurance, balance, agility and co-ordination.

“Basketball is a ball sport in which, under organized rules, two teams of five players each try to score points by throwing a ball through a hoop.”

“It is primarily an indoor sport, played in a relatively small playing area, called the court. The speed and grace of the game, combined with the close proximity of the spectators to the action, make basketball an exciting spectator sport.”

- From [www.wikipedia.com](http://www.wikipedia.com)

## **Purpose/Aim:**

## **Personal Profile:-**

My name is Hiten Rami and I am 16 years of age. In June 2006 I will turn 17. Due to my age my height is 5ft10" and this is above average for a male of my age. My body has almost completely developed. My fitness level is about below average or average for my age as I am able to play sports and carry out daily tasks with ease; my body is able to cope with the demand of both sports activities and day to day tasks. Recently I have joined up to a gym called "Spring Health" which is based in Heathrow and here I aim to maintain my current fitness level and also to improve it. I go to the gym every Monday, Wednesday and Friday and focus on all areas of my body. I used to play football, basketball and badminton regularly however since I have started 6<sup>th</sup> form I haven't had time to play these sports regularly, however I do play 5-a-side football every Friday evening with my friends. I don't suffer from any major illnesses however I have had asthma since I was young. Sometimes when I do activities that demand a lot from my body I do run short of breath however this doesn't affect me that greatly because I always carry my inhaler with me.

**Health:-** This is the state where you are mentally physically and socially sound and also the body being free of any disorders or diseases. To be mentally healthy your mind is psychologically free from any stress or pressures and the body is content with itself. To be physically healthy means the body is looking good and that all the major organs and body systems within the body are in working order. Being socially healthy (sound) means that you have the needs that life requires. You are getting along in friend circles and life is good.

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### **Fitness:-**

**‘The capacity to carry out everyday activities (work and play) without excessive fatigue, and with enough energy in reserves for emergencies’**

-World Health Organisation Website

There are many types of fitness and they all vary in different ways and have different meanings. Fitness is accomplished through exercise either by movement or activity.

Fitness can be classified as **general** fitness. In this type of fitness you have to maintain a certain level of fitness so that you can carry out day to day classes for example: walking up the stairs, carrying the shopping e.t.c.

However fitness can also be **specific** fitness. Different sports require different levels of fitness. For example running and jogging are performed at a low standard to maintain a reasonable fitness. However in basketball, professionals who play this sports on a high level should commit and maintain to a high level of fitness in order to get results and succeed in the long run. The fact that I don't play basketball, the sport that I have chosen requires an extremely high level of fitness in order to succeed. Therefore this means that I need to go beyond my general fitness state that I am in now and concentrate on specific fitness.

Fitness is broken down into two categorised parts; them being **physical** and **motor** fitness. Both differ from each other and focus on the physical abilities of the body and the mentality of the mind.

**Physical fitness** is the capability of the individual to meet the varied physical and physiological demands made by the sporting activity without receiving the person to a physically fatigued state

The basic fitness components, which make up the physical fitness, are:

- ✚ Strength
- ✚ Speed
- ✚ Endurance
- ✚ Flexibility
- ✚ Body Composition

**Motor fitness** is the ability of a person to perform successfully at a particular game or activity.

The basic fitness components, which make up the motor fitness, are:

- ✚ Balance
- ✚ Reaction Time
- ✚ Co-ordination
- ✚ Agility
- ✚ Power

## **Health Related Components:-**

**Cardiovascular Endurance:-** *This is the ability to increase the maximal cardiac output by increasing the hearts stroke volume and reducing the heart rate at rest during sub maximal exercise.*

To test CV endurance you can do the test called the “Cooper Run”. This test consists of the athlete running around as many times as possible around a marked area for 12 minutes. The more times you run around the higher the level for e.g. in 12 minutes you

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run around the marked area 4 times then you are on level 4. The higher your level the better your CV Endurance is.

CV Endurance is very important in Basketball due to the long duration of the game. Athletes need to endure long periods of time when playing and it's important that good CV Endurance is present in a Basketball player. The higher the CV Endurance is the longer the athlete will be able to play for and this results in high performance levels and this will benefit the player.

**Flexibility:-** *This is the movement around the joint.*

To test flexibility you can do the "Sit and Reach" test using the special provided box. For this test you have to ensure that your legs are kept straight at all time and that the knees don't bend at all, this will give a invalid reading on the measure. You sit down and touch your feet against the box and then stretch as far as you can with your hands and touch the measure. The position must be hold and the reading must be read from the end of your fingertips. The higher the reading the more flexible you are.

This is helpful in Basketball because a great level of flexibility is needed to be able to adapt and intercept effectively as the ball is being passed with great speed all over the court. In Basketball there are many range of passes such as the chest pass, bounce pass, overhead pass and all these require a certain degree of flexibility to perform or to intercept these passes from the opposition

**Muscular Endurance:-** *Muscle Endurance is the measure of how well muscles can repeatedly generate force, and the amount of time they can maintain activity .*

To test Muscular Endurance you can do the "Maximum Chest Press" test. This tests the muscular endurance in the chest, shoulder and arm muscles. To do this test all you have to do is do as many press ups you can do in 30 seconds. The more you can do the better the muscular endurance is in your chest, shoulder and arms.

In Basketball the ball can be moved around from one end of the court to the other in a split second. So it is vital that I have good muscular endurance especially in the arms because most of the time in Basketball I am using my chest, shoulders and arms over a prolonged period of time so it's essential that I can my muscles can endure the long period of time.

**Maximum Strength:-** *This is the greatest force that is possible in a single maximum contraction.*

To test Maximum Strength we can do the "1 Rep Max" test which consists of weight lifting. For the 1 Rep Max you lift up as much weight as you can in one single contraction or rep. You then record down the amount you lifted up.

Maximum Strength in the upper body for Basketball is vital because it can be used in both attacking and defensive positions. Maximum Strength is needed in the upper body because most of the time in Basketball you are using your chest, arms and shoulders which are all part of the upper body. As for the lower body the legs are required a lot in Basketball for jumping to do lay ups, set shots and rejections.

**Body Composition:-** *This term is used to describe the different components that when taken together make up a person's body weight.*

To measure the Body Composition on the body you have to use a instrument called "Skin Callipers". This measures the skin folds on the various parts of the body. The callipers should be place at the tricep, bicep, waist and the calf muscle. The notes of the measurements should be taken down.

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Body Composition needs to be ideal when playing Basketball. You need to have a proportionate amount of fat and lean muscle because Basketball is a demanding game thus needs for the right Body Composition.

### **Skill Related Components:-**

**Speed:-** *is the ability to move the body or a region of the body as rapidly as possible from one point to another.*

To test Speed you can do the "30m Sprint" test. This test consists of marking out 30m and running from one end of the marking to the other. This test should be done with a partner so that the stopwatch can be started when you cross the start line and be stopped when you cross the finish line. The time is then recorded and the quicker the time the better the speed.

In Basketball Speed is a necessity because without it you wouldn't be a successful basketball player. Basketball is a very fast paced game. Speed can be used in Basketball for dribbling, passing, getting away from your marking and the better the speed is in these areas the better a basketballers game will be.

**Agility:-** *The ability to move in a series of movements at speed.*

To test agility you can do the "Illinois Agility Run". This run consists of the performer running around a set out course whilst moving at speed and changing directions all the time. The quicker the time the better agility you have.

Agility is important in Basketball because it is needed when dribbling because as you dribble you are doing a vast variety of movements but yet still at a great speed. It is also needed to go in and out of opposing players and losing markers.

**Balance:-** *Is when you can control the body's position when moving or when you are stationary.*

To test balance you can perform the "Standing Stork Test". For this test you stand on one leg and lift the other one and place the toes of the foot against the knee of the other leg. You then raise your heels and stand on the toes of the balancing leg.

Balance is another key fitness component in Basketball because when taking a jump shot, lay up, or jumping up to block or reject the opposition you need to have a controlled movement and make sure you don't fall down or lose balance which may result in foul play.

**Co-ordination:-** *This is where you have the ability to put together: - strength, power, agility, balance, flexibility, e.c.t. so that reasonable and effective movements are achieved.*

To test Co-ordination you can carry out the "Alternate Ball Wall" test. This test consists of standing a distance away from the wall. You then throw a ball from the right hand against the wall and catch it with the left hand. Then you throw it from the left hand and then catch it with the right. You keep on doing this for 30 seconds and see how many times you can successfully do it.

Co-ordination is important in Basketball because you are constantly using your eyes and hands to shoot, pass and receiving the ball.

**Reaction Time:-** *the interval time between the presentation of a stimulus and the initiation of the muscular response to that stimulus .*

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Definition from: - <http://www.brianmac.demon.co.uk/reaction.htm>

This is important in Basketball because you need to be alert to be receiving a pass from another player or intercepting from the opposition.

**Muscular Power:-** This is the mixture of speed and strength of the movement in aid to release maximum force quickly.

Once again Basketball depends on the amount of power you have in your overall game whether it's shooting, passing, jumping or running. To have good muscular power is essential because you can make shooting at the net and rejecting very easy if you have good muscular power in your legs and arms.

## **Fitness Tests:-**

These tests are carried out to see what my fitness is like prior to starting my training programme. I will now carry out various tests to test my fitness components.

**Speed: 30m sprint test:** The test comprises of 3 × 30 metre runs from a standing start or from starting blocks and with a full recovery between each run. The assistant should run the stopwatch for as the athlete hits the start and finish lines. The assistant should then record the time for the athlete for the 30 metre sprint.

Picture Ref: Google Images



Below are average results for 16 -19 yr old for the 30m sprint test.

### **Time in Seconds (secs)**

Gender	Excellent	Above Average	Average	Below Average	Poor
Male	<4.0	4.2 - 4.0	4.4 - 4.3	4.6 - 4.5	>4.6
Female	<4.5	4.6 - 4.5	4.8 - 4.7	5.0 - 4.9	>5.0

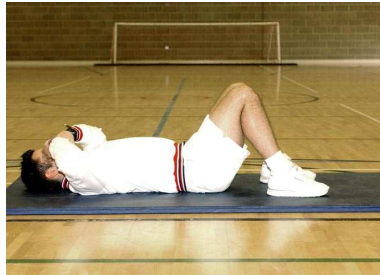
Average results obtained from: <http://www.brianmac.demon.co.uk/30accel.htm>

**My Result:** For the 30m sprint test I got a time of **4.6** which is below average for my age and gender. This is bad because I don't have a average speed for my age and gender however speed is a vital component in Basketball and in order to improve my overall game I should improve my speed as much as I can.

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**Muscular Endurance:** NCF Abdominal curl test. In this test the person carrying out the test must do as many abdominal curls (sit ups) as possible in 30 seconds. This test is carried out by the athlete lying on the mat with the feet flat on the mat, knees raised and bent and arms folded across the chest or behind the ears. If assistance is required the person's feet can be held down onto the mat by the partner. Once the partner starts the stopwatch the athlete should complete as many sit ups in 30 seconds.

Picture Ref: Google Images



Below are average results for 16 -19 yr old for the NCF Abdominal Curl Test.

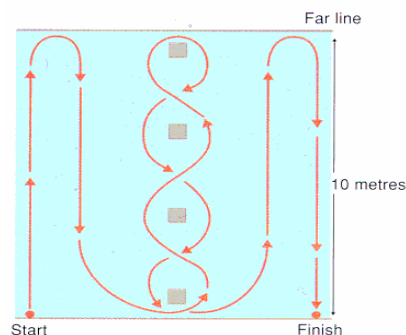
Gender	Excellent	Above Average	Average	Below Average	Poor
Male	>30	26 - 30	20 - 25	17 - 19	<17
Female	>25	21 - 25	15 - 20	9 - 14	<9

Average results obtained from: <http://www.brianmac.demon.co.uk/curltest.htm>

**My Result:** For the NCF Abdominal Curl Test I did 24 sit ups in 30 seconds. By looking at the table above I have achieved an average score for my age and gender. Seeing as it is average for my age it is very good and shows that my muscular endurance is good. However I must keep on maintaining this and improving this to gain above average or even excellent. This will then eventually improve my muscular endurance which is important in Basketball as explained previously.

**Agility:** Illinois Agility Run. To test agility this run has to be carried out. The performer has to run around a marked out area in the quickest time possible. The course is set up by marking out a space 10m in length and place 4 cones 3.3m apart (distance between the cones). The athlete must stand face flat on the ground at the start line and once the go signal is signalled the athlete completes the course as shown in the diagram below. The time is then recorded by your partner.

Picture Ref:  
<http://www.brianmac.demon.co.uk/illinois.htm>



This is how the track should be laid out. The athlete starts at the starting point and runs up and down in-between the cones and then finishing by hitting the finish line.

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Below are average results for 16 -19 yr olds for the Illinois Run.

### **Time in Seconds (secs)**

Gender	Excellent	Above Average	Average	Below Average	Poor
Male	<15.2 secs	15.2 - 16.1 secs	16.2 - 18.1 secs	18.2 - 18.3 secs	>18.3 secs
Female	<17.0 secs	17.0 - 17.9 secs	18.0 - 21.7 secs	21.8 - 23.0 secs	>23.0 secs

Average results obtained from: <http://www.brianmac.demon.co.uk/illinois.htm>

**My Results:** For the Illinois Run I achieved a time of 18.1 seconds. This is about average by looking at the average scores for my age and gender. This clearly indicates that in order to move quickly with the ball and in different directions in basketball I will have to improve it to be above average or excellent.

**Muscular Power:** Standing Broad Jump. The athlete should stand behind the line marked on the ground in a position ready to jump. Then take off on two feet by bending the arms and swinging the arms to drive forward. Then using the measure tape measure the distance from the marked position to where the athlete has jumped. Remember that the reading should be taken from the back of the furthest shoe.

Picture Ref:  
Google  
Images



Below are the average results for the Standing Broad Jump.

### **Measurements in Centimetres**

rating	males (cm)	females (cm)
excellent	> 250	> 200
very good	241-250	191-200
above average	231-240	181-190
average	221-230	171-180



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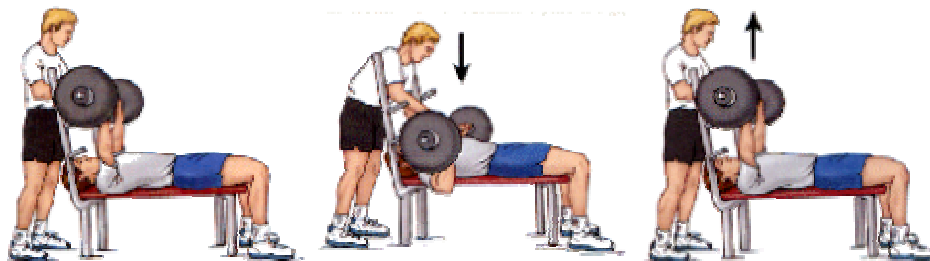
below average	211-220	161-170
poor	191-210	141-160
very poor	< 191	< 141

Average Results obtained from:

<http://www.topendsports.com/testing/tests/longjump.htm>

**My Results:** For the Standing Broad Jump I achieved a jump of 223cms. By looking at the table above this is average for my age and gender. However I feel that I must maintain and improve this score to gain an excellent score. This is because if I have an excellent score for my age and gender I will be able to jump higher for lay ups, rebounds, and blocking shots of the opposition.

**Maximum Strength:** 1 Rep Max on the Bench Press. The athlete lies down flat on bench with the feet touching the ground. The assistant should load up the weight to the athlete's preference. Then the hands of the athlete should be placed even on the bar with the thumbs around the bar and locked as well. Spotter should be ready and only then should the bar be lifted off the rack and lowered and then put back onto the back. If the first weight is ok for the athlete then more weight should be put on to the bar. When the athlete can no longer do a controlled movement in lowering and lifting the bar back up again. The weight before this is the 1RM.



Picture Ref: <http://www.brianmac.demon.co.uk/bpress.htm>

For the bench press I could not find any national averages for my age and gender however the main test for this is the Hand Grip Strength Test. To do this test you will need a hand grip dynamometer. The athlete should grip the apparatus on the most dominant hand and then press down on the lever in between the handle and reader. This should be done 3 times and then an average should be calculated and the reading taken down.



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Picture Ref:

[http://www.hbs.deakin.edu.au/HealthSci/Programs/vlab/images/strength/st\\_g06.jpg](http://www.hbs.deakin.edu.au/HealthSci/Programs/vlab/images/strength/st_g06.jpg)

Below are the average results for 16 -19 yr olds for the Hand Grip Dynamometer test.

Score in (Kg)					
Gender	Excellent	Good	Average	Fair	Poor
Male	>56	51-56	45-50	39-44	<39
Female	>36	31-36	25-30	19-24	<19

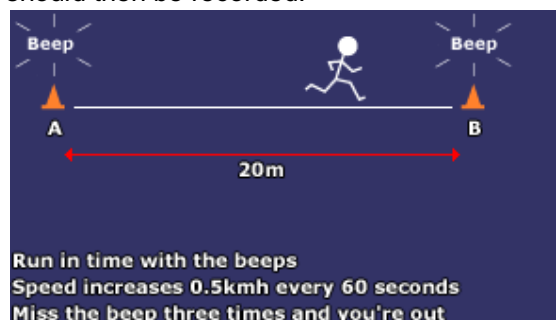
Average results obtained from: <http://www.brianmac.demon.co.uk/grip.htm>

**My Results:** For the Hand Grip Dynamometer test I scored 39kg averaged out from the 3 times I had carried the test out. This clearly shows that my performance is fair and not even average yet for my age and gender. This tells me that I need to work on this component as it is one of the major components needed in Basketball. As said on the **Brian Mac** website (<http://www.brianmac.demon.co.uk/grip.htm>) under the reliability section that "Reliability would depend upon how strict the test is conducted and the individual's level of motivation to perform the test." I feel that I was motivated to do the best I could but yet still achieved a result that was below average.

**Cardiovascular Endurance:** Multi-Stage Fitness Test. This test measures the athlete's maximum oxygen uptake. The test is made up of 23 levels and gets harder as the levels increase. To do the test a area should be measure out 20 metres one end to another should be marked out. The athlete then lines up at one end of the marked area and the tape should be played by the assistant. The athlete should start running to the other end before another beep is heard. The athlete should then wait till another beep is heard which signals to run back to the other end. This should keep on happening for as long as the athlete can as the gaps between each beep decreases as the level increases. The level should then be recorded.

Picture Ref:

<http://www.teachnet.ie/coconnor/testanalysis.htm>



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Below are the national team scores on the Multi Stage Fitness Test.

Sport	Male	Female
Basketball	L11 - S5	L9 - S6
Hockey	L13 - S9	L12 - S7
Rugby League	L13 - S1	
Netball		L9 - S7
Squash	L13 - S13	

Average results obtained from: *Beashel P. et al; The world of sport examined; 1997*

**My Results:** For the multistage fitness test I achieved a level of 10. Once again I have underperformed because on the table above for a male basketballer the average level is 11. Also what should be taken into consideration is that they are national team scores so obviously they are going to be high due to their high fitness levels. But I feel that for my age and gender I have performed well in this test seeing as I am not a professional Basketball player. I should aim to maintain and improve my CV Endurance because it is very vital in Basketball due to the long duration of the game.

## **Summary of Fitness Test Results:**

I will now make a summary of all the results that I have obtained compared to the national averages that I have found out.

Below is a table comparing my actual results to the national averages for a male of 16-19 yrs old except for the Multi Stage Fitness Test which is the results for a professional Basketball player.

<b><u>Test</u></b>	<b><u>National Average (Male 16-19 yrs old)</u></b>	<b><u>My Results</u></b>
<b>30m Sprint</b>	4.4 - 4.3 secs	4.6 secs
<b>NCF Abdominal Curl</b>	20 – 25 curls	24 curls
<b>Illinois Agility Run</b>	16.2 - 18.1 secs	18.1 secs
<b>Standing Broad Jump</b>	221-230 cms	223 cms
<b>Bench Press (1 Rep Max)</b>	Average results could not be found	40kg
<b>Hand Grip Dynamometer</b>	45-50 kg	39 kg
<b>Multi Stage Fitness Test</b>	Level 11	Level 10

As you can see from the table above that in some tests I have done very well and in some I haven't. For the 30m sprint I achieved a time of 4.6 seconds and was outside the national average for this test. I think this is because my speed overall is good but not good enough to meet the national average of 4.4-4.3 secs. I hope to maintain and improve my speed seeing as I am only a few tenths of a second outside the national average and by training appropriately this can be achieved. By improving my speed it will also help me to improve my agility too.

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For the NCF Abdominal Curl test I managed to do 24 curls very comfortably and was well inside the national average of 20 -25. I think this is because I have started to go to the gym in the past month and have been doing a lot of crunches and sit ups whilst being there and this had helped me to achieve the national average; however I still need to maintain and improve this score if I am to achieve an excellent score which would be useful in Basketball.

Next was the Illinois Agility Run which I scored a time of 18.1 secs. This compared to the national average I have achieved the national average for my age and gender as it was 16.2-18.1 secs but only just. I must improve my agility because it wasn't a very convincing time seeing as I got 18.1 secs. Once again I need to maintain and improve this score if I am to get an above average or excellent score which is going to be very tough. In order to improve my agility I must also concentrate on improving my speed as well.

For muscular power I performed the standing broad jump. For this test I achieve a distance of 223cms and this was average for me as you can see in the table above (average being 221-230cms). The score of 223cms is a very low average and not at the top of the average scale so I must improve this score. However as said on the Brian Mac website motivation also plays a big factor on the distance an athlete jumps. I must be fully motivated in achieving the furthest distance possible if I am to improve and achieve an excellent score.

Muscular Strength is another fitness component that I tested. For the 1 Rep Max for the bench press I achieved 50kg. However I couldn't find the national averages for this test but the initial test for muscular strength is the hand grip dynamometer test. For this I achieved a reading of 39kg. This result was obtained after doing the test 3 times and an average being worked out from the 3 results. This is below average for my gender and age group which is 45 -50kg. I must aim to improve my muscular strength because it's vital for Basketball in order to play effectively. Also linked with muscular strength is muscular power and if I improve that I'm sure that I will improve.

Finally I carried out the test for Cardiovascular Endurance which was the Multi Stage Fitness Test. For this I achieved a level 10. I couldn't find the average results for a 16 - 19 yr old but managed to find an average of a national basketball team and their average was level 11. I wasn't that far of this and by training to improve my cardiovascular endurance I am sure I would be able to achieve the average of level CV Endurance is very important in Basketball because of the long duration of the game so the body needs to be working as long as possible at its optimum level before the body starts to get tired.

## **Aims:**

First of all I have chosen muscular power as a possibility to improve. As I have explained before muscular power is an important fitness component for Basketball because it consists of movements that are made up of strength and speed. Muscular power is very important in the legs because in basketball we are working the leg muscles such as the gastrocnemius, quadriceps and the hamstring. These muscles play a major factor and muscular power in these muscles is very important because it will enable the player to jump higher for lay ups, rebounds, shot, and blocking shots from the opposition.

The advantage of improving muscular power is that you can get away from the opposition by powering your way forward towards the net. You are also less likely to

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lose possession meaning that play can build up and get the opposition frustrated. I could also aim to improve my agility I need to have a good mixture of many fitness components such as co-ordination, balance, speed and good strength. By having good agility I would have quick feet therefore able to dodge players and send them other ways which would be good because I would be able to make ground in the oppositions half. Speed would also be handy and I could aim to improve this because in basketball quick bursts down the line are needed when counter attacking and being able to speed down there would be a real advantage to the player.

Secondly I have chosen muscular endurance as a possible fitness component to improve for basketball. Muscular endurance is vital because when playing Basketball many muscles are under constant strenuous exercise so it's important that the muscles can endure the strain being put on them. There are two types of endurance a muscle can go through and that is aerobic endurance and anaerobic endurance. Aerobic endurance is the body's ability to exercise whole muscle groups over an longer period of time at moderate intensity and utilizing aerobic energy. Aerobic exercise also increases heart rate, strengthening the organ's ability to contract. Stronger contractions mean an improved, stronger blood flow, in turn making the body better equipped for exercise. Anaerobic endurance is the ability to sustain intense, short duration activity such as weight lifting or sprinting.

Finally I have decided that I will be aiming to improve my Maximum Strength. This is because maximum strength is needed a lot in Basketball in the upper body because you are mostly using your arms and upper body when playing Basketball. The upper body is used for shooting at the net, blocking, passing, tacking and many other things. My lower body is also as important as my upper body because I will be required to use my legs when playing Basketball. They are needed for when jumping to intercept the ball, jumping to reject the opposition, jumping up for a lay up. Maximum Strength is normally achieved by weight training and by overloading which is a principle where the muscle is working beyond its normal capabilities. Overload can be achieved in many ways and will be explained later on and how it will be applied when I train to improve my maximum strength.

By the end of the P.E.P I aim to lift up 50 kg on the bench press and maybe even aim to lift 55kg. There are many skills that I would like to improve by the end of the P.E.P and they are: lay ups; mainly focusing on getting a high jump and a real drive forward, rejection; by once again jumping high up enough, bounce passing this is mainly passing within the team and also dribbling with speed and in different directions.