

GCSE PERSONAL EXERCISE PLAN



PLANNING THE PROGRAMME

Before planning a programme it is important to have background information about yourself, this can be used to help plan out the right programme for you.

BACKGROUND

Gender: Male

Age: 15

Weight: 11.3 stone

Height: 5 Ft 10in

Resting Heart Rate: 68

Medical Background: I have had minor injuries in the past two years, a strained shoulder and a sprained knee, which took six weeks before I was back to normal, I had some physio to strengthen hamstrings and quads.

Medication: Anti inflammatory during knee and shoulder injuries. Occasional / pain killers

Smoker: No

Peak Flow Average (vital capacity) : 530

Food intake: I consider my diet to be a little too high in fat intake and this is something I will look at as part of my PEP.

Injuries. I hope these injuries will not affect my PEP, but as a precaution I will consider them when constructing my plan. If for example my knee causes any concern I can reduce some of the running exercises and include some swimming and more bike work in the gym. All these exercises will reduce the weight through the joint. Both swimming and cycling are good exercises to keep working on stamina but not damage the joints.

Playing experience. I was in the school and district football team. And I play for a local Sunday team up front.

FITNESS LEVELS

As part of my GCSE course I have performed a number of fitness tests, along with a fitness assessment when I joined the gym. My profile is as follows: -

AREA OF FITNESS	TEST	SCORE	RATING
FLEXIBILITY	SIT & REACH	+1	AVERAGE
SPEED	50M SPRINT	7.5 SEC	GOOD
STAMINA	BEEP TEST	LEVEL 9. 4	FAIR
MUSC/ ENDUR	PRESS UP TEST	20	FAIRLY GOOD
POWER	ST LONG J	1.70 M	GOOD
AGILITY	ILLINOIS	17.2SEC	FAIRLY GOOD
COORDINATION	WALL THR	32	GOOD
BALANCE	STORK TEST	27 SEC	FAIR
REACTION TEST	RULER	45CM	GOOD

THE TYPES OF FITNESS INVOLVED IN FOOTBALL AS AN ATTACKER

- Stamina also known as aerobic fitness or cardio-vascular endurance, so you can last the game
- Agility, so you can turn quickly and beat defenders
- Flexibility, so you are less likely to pull muscles
- Coordination to help dribbling skills
- Lower body dynamic strength / power, so you can jump higher and tackle harder
- Speed, to get around the pitch more quickly and get away from defenders
- General upper body muscular endurance to hold off defenders
- Reaction time to help in scoring split second goals in the box

AIMS AND OBJECTIVES

I talked with my coach and we decided to work on this area of fitness:-

- **VO2 MAX** [this is the maximum amount of oxygen the body can utilise during intense work]
This is also known as stamina.

The reason behind this decision was that I was a little sluggish around the pitch and seemed to lack the ability to keep playing without periods where I had to stop and get my breath back. I also felt severe fatigue in the latter stages of the game.

The coach took a video of one of my games, which indeed showed how my game deteriorated in the last ten minutes.

I will use this test to monitor my progress.

- **The multi stage fitness test, for VO2 MAX [BEEP TEST]**

My research found that to meet the demands of football and be an effective player, a VO2 max of 65 ml/kg/min [www.brianmac.demon.co.uk]. My VO2max is 44.5. To aim for 65 ml/kg/min would be unrealistic so I have set a target of **55ml/kg/min** which is **12.6** on the beep test. This would be a about a 20% increase.

In order that readings are accurate, reliable and valid, I will record the tests at exactly the same time, place and with the same measuring equipment. I am aware of all the different factors, which could make readings inaccurate, such as:-

Previous exercise, legs tired etc

Food intake [full stomach]

Floor surface

The person conducting the test [he could act as a motivator]

The beep test is a nationally recognised test and should give a clear measure of my VO2 and whether there are any improvements as a result of my P E P, it will also provide me with scores I can use to judge myself against other people my age in the country .

I will test **pre, mid** and **post** programme.

DIET

As part of my PEP, I will consider my diet. At the moment my diet consists of three main meals a day with intermittent snacking. A typical day looks like this:-

BREAKFAST

Cooked breakfast, egg bacon and toast, cup of tea.

MID MORNING SNACK

Mars bar and carton drink

LUNCH

Cooked school dinner, varies from fish and chips to spaghetti bolognaise, can of fizzy drink and desert.

AFTERNOON SNACK

Cake or crisps plus drink.

EVENING MEAL

Cooked meal, meat / two veg

SUPPER

Tea and biscuits

I anticipate that the increase in activity over the eight-week training period will burn off more calories. I also intend adjusting my diet so I will eat less fat and reduce the snacks. My diet will be along these lines: -

BREAKFAST

Cereal / toast, cup of tea.

MID MORNING SNACK

Banana and pure orange drink

LUNCH

Salad with baked potato, yoghurt and water.

AFTERNOON SNACK

Apple

EVENING MEAL

There will be less meat / two veg and more fish and pasta, I will also cut down on the meat portions and substitute red meat with white meat

SUPPER

Tea and biscuits will be substituted with a low calorie milky drink.

I will also:-

- Substitute whole milk with semi-skimmed milk
- Increase my intake of fresh fruit and vegetables
- Substitute sugar with sweeteners in tea and coffee
- Substitute coke with fruit juice and water
- Cut out chocolate completely.

I hope to reduce my calorie intake each day by 600.

I will monitor this by recording both my weight and body fat composition.

PLAN

I will consider the main principles of training in my plan, which will last for six weeks. I will also consider the adaptations that will take place to my body, for example my heart, lungs, muscles and so on.

- **FREQUENCY**- I will train three times a week. Monday, Wednesday and Friday, this will also give me a day to rest and recover.
- **INTENSITY**- I will devise a stamina session involving gym equipment such as the treadmill, cross trainer cycle and rowing machine, this will also stop me getting bored. I researched at what intensity I should work at and found that when you work so hard that your muscles cannot get a sufficient supply of oxygen the muscles will produce lactic acid. If I could work just below the lactic acid threshold which in my case would be 70% of max hr [220 minus age = 205] which is 142. I will not start at 142 I will start at 61% and build up slowly. **This is called progressive overload.** My research enabled me to use Karvenon's, theory, which states:-
'that aerobic adaptations best take place when the athlete works just below the point at which lactic acid is produced'
- **TIME**- When I train I will need to train for an hour, otherwise improvements and adaptation will not take place and Vo2 Max will not increase.
- **TYPE Specificity**, which means that you are training for a specific purpose on specific muscle groups and types of fitness

THE GYM SESSION

This session will take part in the Tudor park country club. They have extensive cardio-vascular and weights rooms that I have access to. When I joined the club I went through an induction programme, which assessed my level of fitness and also covered safety issues. The main points were:-

- **ALWAYS WARM UP AND COOL DOWN**
- **KEEP TO YOUR PROGRAMME AND NEVER EXCEED YOUR LIMIT**
- **DO NOT TRAIN WITH AN INJURY, WITHOUT MEDICAL ADVICE**
- **ENSURE FREE WEIGHTS ARE SECURE AND ONLY USE THEM WHEN THERE IS SOMEONE ELSE IN THE ROOM**
- **WIPE DOWN EQUIPMENT AFTER USE**

I will also take into account the principle of :-

- **VARIANCE.** I will vary my training programme to avoid boredom, for example in my gym session I will use a variety of machines to keep my heart rate at the required level. Within the court session I will mix physical conditioning with skills. Variance is especially important in maintaining motivation; even top-level performers need to maintain their motivation with a well-planned and varied programme.
- **REVERSIBILITY.** I will be aware that when training is interrupted, whether it is injury, illness, holiday or any other time when training is suspended, that muscle will suffer atrophy. This is when muscles begin to revert back to their pre exercise state. This is very evident after a serious injury, when a plaster cast is applied. Muscle girth within the plaster is seriously diminished. Hence the need for Physiotherapy. Professional soccer players also suffer reversibility during their off season and need pre season training to reverse their losses.

WARM UP EXERCISES

It is very important before embarking upon any type of exercise to undergo a warm up.

A warm up should make the body ready for exercise. It can prevent injury and muscle soreness.

A warm up has some physiological benefits:

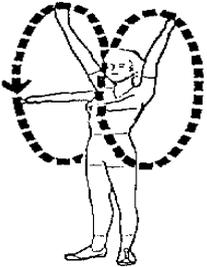
- The release of adrenaline will increase the heart rate and dilate capillaries, which in turn enable greater amounts and increase speed of oxygen delivery to the muscles
- Increased muscle temperatures associated with exercise will facilitate enzyme activity; this increases muscle metabolism and therefore ensures a readily available supply of energy
- Increased temperatures also lead to decreased viscosity within the muscle. This enables greater extensibility and elasticity of muscle fibres which ultimately leads to increased speed of force of contraction
- Increased production of synovial fluid ensures efficient movement at the joints.

I begin my warm up at *low intensity with gross motor activity exercises* as my body will not yet be at a state of readiness for sharp movements and will be more prone to injuring a muscle at this stage. I will begin by running at low intensity. Either in the gym, on the treadmill or from wall to wall on the squash court this warms the *muscles* and make the *heart and respiratory system* begin to work at an increased pace and therefore increases O_2 to muscle fibres.

I then start a series of static / ballistic stretches, which are shown below. I stretch the major muscle groups such as the deltoids, pectorals, latissimus dorsi, glutials, quads and gastronemius. This is because in squash these muscles are put under the most strain.

Mobility exercises

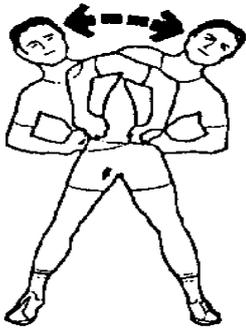
These exercises ensure that all the major joints and muscles are moved through their complete range of movement with time, they should be done at a relaxed tempo. Increased range should not be forced. Breathing should be free and easy, to the rhythm of the movement. About 10 or 12 repetitions are enough for each exercise and there is no need to increase the number or the speed of the movement. Progress is achieved by gently increasing the range of the movement or, when you are mobile, maintaining this level of flexibility.



Arm swinging

Start: feet wide astride, arms hanging loosely by your sides.

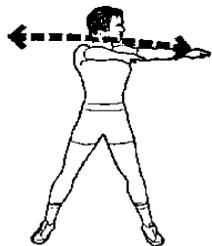
Movement: raise both arms forwards, upwards, backwards and sideways, in a circular motion, brushing your ears with your arms as you go past.



Side bends

Start: feet wide apart, hands on hips.

Movement: bend first to the left, then to the right, keeping the head at right angles to the trunk.



Head arms and trunk rotating

Start: feet wide astride, hands and arms reaching directly forwards at shoulder level.

Movement: turn the head, arms and shoulder around to the left as far as you can go, bending the right arm across the chest. Then repeat the movement to the right. Keep the hips still throughout.



Alternate ankle reach

Start: feet wide apart, both palms on the front of the upper left thigh.

Movement: relax the trunk forward as you slide both hands down the front of the left leg. Return to the upright position then repeat on the right. Don't go further than you can comfortably manage.

It is important that the stretching is gradual, with no violent movement, so no muscle is damaged.

When stretching I follow: -

- S tability
- E ffectiveness
- A lignment
- M omentum

This will enable me to conduct the warm up safely, because to stretch incorrectly by forcing the stretch or to stretch out of balance is not good for you.

COOL DOWN

The body needs to be given the opportunity to readjust to a normal resting state at the end of exercise [homeostasis]. A gradual reduction in intensity of activity after cessation of exercise allows the body systems to recover as efficiently as possible.

As well as helping the body return to its normal resting state, it also helps to slow down the decrease of metabolism and decrease the cardio-vascular and respiratory rates.

A cool down can also: -

- Aid faster dissipation of waste products, including removal of lactic acid, which inhibits muscle action, it lessens the potential for delayed onset of muscle soreness.
- Assists in preventing muscle soreness caused by spasms/involuntary contraction with the inclusion of active stretching activities
- Reduces the chance of dizziness or fainting by encouraging venous return thus preventing venous pooling at the extremities
- Encourages the lowering of blood levels of adrenaline; such adrenaline levels can place strain on the heart if allowed to remain high.

My cool down will consist of: -

Three quarter running for 2 minutes on court from corner to corner gradually slowing down or 2 minutes on the treadmill in the gym, set at level 9 and each 15-second reducing by one level. Followed by the mobility exercises above.

RECORDING AND PERFORMING THE PROGRAMME

GYM SESSION

All the gym sessions will be completed wearing a heart rate monitor. I will work at 60% of my max HR, which is **124** [see plan]

I will be looking to achieve 124 within the first three minutes on the first machine and within two on the next machines.

Warm up [as stated, in the warm up section] 5 minutes

The movement from each machine will be immediate movement from one machine to another and keying in the programme takes 45 seconds to one minute.

Treadmill 10 minutes, walking with the machine at maximum incline [setting of 15] speed at 5, increased until 124 is achieved

Rowing machine 10 minutes, set at max setting of 12

Step machine 10 minutes, set at manual,

Cycle machine 10 minutes, machine set on 124 HR and the machine adjusts the resistance according to the required HR.

Treadmill 10 minutes, running with the machine at no incline, speed at 10, increased until 122 is achieved

Cross trainers 10 minutes achieving 124

Cool down [as stated, in the cool down section] 5 minutes

Cool down [as stated, in the cool down section] 5 minutes

Cool down [as stated, in the cool down section] 5 minutes

**I WILL DO THIS GYM SESSION 3 TIMES A WEEK FOR 6 WEEKS
EACH SESSION I WILL WORK AT ONE MORE BEAT OF THE HEART. THIS
WILL EVENTUALLY TAKE ME TO 142 HR [70%]**

EVALUATION

TEST RESULTS

TEST SCORES

<u>MULTI STAGE FIT TEST</u>	<u>PRE</u>	<u>MID</u>	<u>POST</u>
	9.4	10.2	11.4

Male VO2 Values (ml/kg/min):

Results clearly show there has been very good improvement over the SIX week programme in all the areas I was concerned with. What I will attempt to do is break down each component and discuss reasons for their outcomes.

Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	<35.0	35.0 - 38.3	38.4 - 45.1	45.2 - 50.9	51.0 - 55.9	>55.9
20-29	<33.0	33.0 - 36.4	36.5 - 42.4	42.5 - 46.4	46.5 - 52.4	>52.4
30-39	<31.5	31.5 - 35.4	35.5 - 40.9	41.0 - 44.9	45.0 - 49.4	>49.4
40-49	<30.2	30.2 - 33.5	33.6 - 38.9	39.0 - 43.7	43.8 - 48.0	>48.0
50-59	<26.1	26.1 - 30.9	31.0 - 35.7	35.8 - 40.9	41.0 - 45.3	>45.3
60+	<20.5	20.5 - 26.0	26.1 - 32.2	32.3 - 36.4	36.5 - 44.2	>44.2

VO2 MAX

I used the multi-stage fitness test as a performance indicator. My test result improved consistently over the course of the programme.

My pre programme result was 9.4 which indicates a vo2 max of 44.5 which shows a % rise of 16%, which is only 4% off my target. Using Karvenons principles, I was able to gradually increase the intensity of my gym session by increasing my working HR. As a result of this gradual increase in work rate my body has made adaptations to accommodate this increase.

I am able to work longer aerobically, because:-

- My heart muscle has increased [hypertrophy of the myocardium] which increases stroke volume.
- More red cells have been produced which results in more haemoglobin to carry o2 to the muscles.
- Increase in capillaries around the trained muscle.
- Activated more slow twitch fibres.
- Increased myoglobin content in the muscle fibres.
- Improve the viscosity of the blood.

This has the effect of more oxygenated blood being available to my working muscles increasing aerobic capacity and helping delay the onset of lactic acid. In short enabling my muscles to work longer / harder before they suffer fatigue.

HAS PERFORMANCE IMPROVED

I am able to play a full game of football now. I take less breaks and seem to recover much better. My coach has also said that he has noticed improvements in my play. I think it would be fair to say that my aim of improving, VO2 max,

EXPERIENCES I WOULD PASS ON

- BE CLEAR IN YOUR OBJECTIVES.
- PLAN YOUR TIME AND MAKE THE TIME.
- LINK YOUR PROGRAMME WITH HEALTHY EATING.
- BE DISCIPLINED AND DON'T MAKE EXCUSES.
- TRY AND KEEP IT INTERESTING, VARY THE PROGRAMME, WORK TO MUSIC OR WORK WITH A PARTNER.
- DO SOME BACKGROUND RESEARCH.