Personal Exercise Programme – By Tim Hughes

The Task

To plan and carry out a 6 - week personal exercise programme, relevant to a sport of my choice, which will improve at least one of the different areas of fitness.

What is fitness?

Physical fitness is to the body what fine-tuning is to an engine. It enables us to perform at our potential. Fitness can be described as a condition that helps us look, feel and do our best. More specifically, it is "the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure time activities and meeting emergency demands. It is the ability to endure, to bear-up, to withstand stress, to carry on in a situation where an unfit person could not, and is a major basis for good health and well – being".

There are four areas of fitness that I can work on for this programme:

- Strength / Speed
- Suppleness / Flexibility
- Muscular Endurance
- Stamina / Cardiovascular Fitness

I am going to work on cardiovascular fitness, relevant to my sport – Rugby.

In order to achieve maximum benefit from an exercise programme the understanding of the principles of fitness are very important. Correct use of these principles will determine if the outcome of a fitness programme will be successful or not. The principles of fitness are adaptation, progressive overload, FITT principle, specificity, reversibility and recovery.

Adaption

In the same way as a person doing the same thing everyday would find it boring, the body will get no 'stimulation' or positive improvements from the same physical routine performed week in week out. For a Rugby fitness programme I must design tasks that will challenge the body in a new way each week so that it will carry on adapting and changing to the physical demands placed on it. For example, little or no adaptation would occur when performing the same set of 8 x 150m sprints (interval training) on a weekly basis. Instead it should be varied each week, like short sharp sprints (10 x 10m, 8 x 40m, 6 x 80m) and long hard sprints 10 x 100m, 4 x 400m and so on.

Progressive Overload

The easiest way to explain the principle of progressive overload is "to exercise at an intensity higher than that which is normally performed" so that, over time, adaptations can happen. Once these adaptations happen exercises and activities can be done with better efficiency.

For example, at a fitness session, recovery time can be cut down to give a player less time to recover the exercises, in order to overload the cardiovascular system. Distances can also be changed, or repetitions can be increased etc., all of which will make the heart and lungs work progressively harder, provide an overload and make adaptations happen.

FITT

F – Frequency
I – Intensity
T – Time
T – Type

F is for frequency, or how many times per week you need to exercise/train to increase fitness. A minimum of three times a week is recommended.

I is for intensity, or how hard you train. This is entirely down to will power.

T is for time, or how long each session must be in order to be of any benefit or achieve improvement. The amount must be at least 20 minutes per session in the target zone, not including warm-up or cool-down.

T is for type, or what sort of training you do. For most people, this can be a wide variety of activities, as long as it raises the pulse rate and keeps it up for at least 20 minutes in the target zone.

Specifity

The specificity of cardiovascular fitness plays a huge part when playing Rugby simply because so many different shapes and sizes can participate in the game and because each position on the field (or more generally speaking backs v forwards) has vastly different physical demands than others. As a result it is important that I understand the physical demands of various positions and make a programme to suit whoever is taking it. In this case it will be for me, and I play in the backs (14,11 or 15). But I will include exercises that will be beneficial for any player. When performing speed work for example, it is more beneficial for forward players to perform sprints over short distances (0-20m) as it is more likely that they will be required to cover these distances at pace in a game, whereas backs should cover greater distances (30-80m) during sprint training.

Reversibility

The principle of reversibility or disuse is to me the most dreaded of all the principles of fitness! All that hard work could count for nothing if exercise is stopped or significantly reduced, or even returning to a sedentary lifestyle. Just as our body has the ability to adapt and change to physical demands placed on it, it also has the ability to lose the benefits we have made through a lack of exercise. But the good news is that your body has the ability to maintain fitness levels with only a limited amount of exercise. Exercising once or twice a week at a level that your body has been used to should help to maintain fitness levels at their desired level.

Also for a sport such as rugby, there is a time known as off-season where players get to have a 'break'. Obviously because of the principle of reversibility it is important that regular activity is maintained. In my case I participate in athletics during my off-season but games like tennis, cricket, squash, swimming etc. are also an option.

Recovery

The recovery element for any training programme is probably one of the most important areas of fitness. It is during these periods of recovery that the positive physical changes will occur in a player. For example, it is not during a gym session that a player will become bigger or stronger, but during the following 24hrs when a 'player' is recovering, eating well and having plenty of sleep, that muscles adapt and grow bigger and stronger. It is after a programme of interval sessions that a players cardiovascular system (heart & lungs) will become more efficient, with a drop in resting heart rate levels, and an increase in the size of the heart muscle allowing it to pump more blood around the body with each beat.

Players who do not allow for these recovery periods will greatly increase the chances of becoming over trained, something which may force the player to stop training for anything up to 6 months, depending on how severe it is.

The Structure of a Training Session

A training session consists of:

- A warm-up
- The activity/session
- A cool-down

Prior to any training session or match, you need to warm-up adequately. A warm-up should be appropriate for the specific session that will follow it, therefore, the structure of warm-up will vary with different sessions. Whilst it may take 45 minutes to warm-up for a

game, some sessions will require a shorter warm-up. However, you should spend a minimum of 10 - 15 minutes on a warm up if it is carried out properly.

Purpose of the warm-up

A warm up is the period of exercise performed before a training session or a match which is designed to prepare the player for higher levels of similar performance to come (i.e. in the match to come) and prevent any injuries.

The warm-up serves 3 basic purposes:

- To progressively prepare the players physically and mentally for the game / session.
- To get technical skills (i.e. ball handling) to their best levels before the performance begins.
- To familiarise the player with conditions (surface, weather, crowd, etc.).

Structure of a warm-up

Firstly, you should do activities that raise the pulse-rate and warm the muscles up gradually. Examples include easy jogging, light rowing etc. This time can be used to work with a rugby ball, and develop specific skills, for example related to handling and passing, or speed / agility technique work. Simply running around the pitch is both non-imaginative and inefficient use of time.

This should be followed by a period of gentle stretches that begin at the core, progress down through the muscles of the legs and, back up the body to the chest, back, shoulders, arms and neck. Static stretches should target all of the major joints and muscles. Warm up stretches should be held for 10-15 seconds. Move into each stretch slowly, and perform each stretch twice, ensuring good technique.

The final phase of the warm-up should involve activity specific movements, such as dynamic changes of pace or direction. Activities to be considered here include higher intensity ball-drills, preparative contact (i.e. not full-pace), touch rugby games, and specific agility and acceleration drills.

Cooling Down

Following training and matches, you should also cool down. This helps to minimise the onset of muscle soreness (therefore helping you to recover more quickly), allow your body to return to its normal resting state at a more gradual rate and help to prevent future injury. Cool downs should involve a continually decreasing exercise intensity (i.e. easy jog to brisk walk) for approximately 5 minutes, and a period of stretching. Stretching is very important at this stage, and each stretch should be held for approximately 20 seconds.

The Initial Test

In order to evaluate whether or not my P.E.P. if efficient or not, I need a reliable fitness test that I can perform before and after the six-week training. I have chosen the **multi-stage fitness** test (a.k.a bleep test). It enables me to calculate my maximum oxygen uptake (VO2 max.). This is the best measure of cardiovascular fitness – conveniently.

The principle is simple: the person being tested runs to and fro (a shuttle run) along a measured track, keeping up with a series of bleeps on a/the cassette. The interval between the beeps start off very slow, but get progressively faster, and as a result becomes harder and harder to keep up with. The subject stops when he/she can no longer keep up with the pace.

The subject is required to be at the other end to the start by the time the first bleep sounds. They should then continue running at this speed, being at one end or the other each time there is a bleep.

The test is set out with levels. Level 1 having the largest bleep interval and from then onwars the intervals decrease. There is approximately 1 minute between each level.

Required equipment

- A flat, non-slippery surface at least 20 metres in length
- A cassetter player
- The 'shuttle-run test' cassette
- Suitable footwear which will prevent slipping
- Measuring tape to measure the 20 metre track
- Marker cones

My bleep-test result

After taking this test I achieved level **14,** which gives me a VO2 max. score of 64.0**.** To prove the effiency of my P.E.P. I will re-take this test after the six weeks and compare it with my initial score.

Calculating my 'target zone'

A training session is unnecessary if the pulse rate does not reach the target zone. The target zone is calculated using one's **maximum heart rate**

What is your pulse?
Your pulse is your heart rate, or the number of times your heart beats in one minute. Pulse rates vary from person to person. Your pulse is lower when you are at rest and increases when you exercise (because more oxygen-rich blood is needed by the body when you exercise).

Maximum heart rate = 220 – Age
In my case = 220 – 15
= 205 b.p.m.(beats per minute)

The target zone however is calculated as follows:

60% - 80% of maximum heart rate
205 x 0.6 = 123
205 x 0.8 = 164
So my target zone = 123 – 164 b.p.m

Note that I will warm-up and cool-down adequately for every session, and take my H.R. immediately after activity.

Week 1

Session	**Workout**	**Method of Training**	**Fitness Objective**	**H.R. In Target Zone?**
1 - Monday 20th October	35 minute easy jog around Langford estate.	Continuous	Aerobic (a good easy start, will also improve my recovery time).	144 b.p.m – Successfully in T.Z. and enjoyable.
2 –Wednesday 22nd October	(Chinnor R.F.C training) Jog 5m sprint 30m, walk back and restart. Distances increased over 30 minutes.	Interval	Anaerobic – short bursts in a match.	156 b.p.m – Successfully in T.Z. but hard work.
3 – Friday 24th October	(Oxfordshire County training) "150's" 1-3 Sets of 4-8	Interval	Anaerobic	160 b.p.m – In T.Z. but extremely painful.

	x 150m in 30 seconds, with 60 seconds rest between reps and 2-3 minutes rest between sets.			

My Sunday Match

No noticeable effect so far.

Week 2

4 – Monday 27th October	Ran for 30 minutes over Launton meadows – very random terrain and set targets to sprint at.	Fartlek	Aerobic and anaerobic	148 b.p.m – In T.Z. and enjoyable, got a bit muddy though. Thighs burnt afterwards.
5 – Wednesday 29th October	(Chinnor R.F.C. Training) "Line shuttles" Begin on the dead ball-line (or 10m behind the try-line). Sprint to the 5m, and return, the 22m and return, the 10m and return and the halfway and return. (x5)	Interval	Anaerobic	152 b.p.m – In T.Z. but very hard work, I noticed my recovery time improving.
6 – Friday 31st October	Went to running track – 8 x 400m with 5-minute rests.	Continuous	Aerobic	144 b.p.m. – In T.Z.

My Sunday Match

There was a slight improvement of my recovery time.

Week 3

7 – Monday 3rd November	Fast jog around Langford estate for 25 minutes. Every 5 minutes a 10 second sprint.	Continuous	Aerobic	136 b.p.m – In T.Z. and below 140! Very satisfying
8 – Wednesday 5th November	Ran along a woody bicycle path for 35 minutes. Sprinted whenever a hill occurred and set targets.	Fartlek	Aerobic and Anaerobic	136 b.p.m – Again below 140, good to know something was working
9 – Friday 7th November	(Oxfordshire county training)	Interval	Anaerobic	144 b.p.m – A great difference

	A repetition of session 3.			to session 3.

My Sunday Match

Recovery time was still improving, and I generally felt I was working harder more often.

10 – Monday 10th November	Went to running track. 200m sprint then slow jog 200m. 1 minute rest (x10)	Interval	Anaerobic	140 b.p.m – Very hard work, pushed myself to the limit.
11 – Wednesday 12th November	Bicycle ride up to Brill. (10 miles approx.) Majority uphill.	Continuous	Aerobic	132 b.p.m – Enjoyable and my thighs held up, but a sore gluteus maximus.
12 – Friday 14th November	Swimming at Bicester Sports Centre. 40 x 25m lengths with several breaks.	Continuous	Aerobic	116 b.p.m. – Below T.Z.! Very disappointed since I hadn't left my T.Z. up until now.

My Sunday Match

I really started to feel then benefits of my P.E.P. I could work harder than before and for longer. Unfortunately I took a major injury to my left quadraceps, this actually prevented me from running, jogging or any other activity involving the use of my legs.

Week 5

I was out of business for week 5, I couldn't believe it. All that hard work only to be knocked back down due to the dreaded principle of **reversibility.**

Week 6

Although not fully recovered, I did my best to train for the final week.

13 – 24th November	I had to go easy on my leg. Gentle swim (backstroke) for 1 hour.	Continuous	Aerobic	96 b.p.m. – I knew this would happen, but I still felt a lot fitter than before I commenced the programme.
14 – 26th November	Gym – Bicycle for 25 minutes 60%. The pain of my injury was wearing off.	Continuous	Aerobic	I actually had a H.R. monitor that I attached to my wrist, so I pushed myself to get in the T.Z. with a b.p.m. of 128.
15 – 28th November	Repetition of session 1, I was eager to compare.	Continuous	Aerobic	136 b.p.m – I was pleased to get a lower H.R. than before, it showed that

				reversibility hadn't taken away all my fitness.

The re-take of the multi-stage fitness test

After my 6-week programme I took the test again. I got to **level 15.**

I was satisfied with this result as it proved that I had benefited from my P.E.P. Although I felt I could have done better and perhaps got a level 16. Maybe if I hadn't been injured for a week this could have been a possibility.

Overall the programme went well and it felt rewarding to have completed it. If I could have done it again, I perhaps would have tried to use a wide range of different activities. It seems that this was not a necessity though.

How could I have improved my P.E.P.

The P.E.P. could have been a lot better and in a way more specific to Rugby. But I simply did not have the facilities or equipment to do so.

I could also have included some skill related fitness work. These Consist of:

- **Agility –** The ability to change the position of the body quickly and to control the movement of your whole body.
- **Balance -** The ability to retain the centre of gravity of the body above the base of support with reference to static – stationary or dynamic – changing conditions of movement, shape and orientation.
- **Co-ordination –** The ability to use two or more body parts together.
- **Power –** The ability to do strength performances quickly (power = strength x speed)
- **Reaction time -** The time between the presentation of a stimulus and the onset of movement.
- **Speed - The** differential rate an individual is able to perform a movement or cover a distance in a short period of time