

Fitness test Training Guidelines

The main emphasis for the fitness test is the Cooper's 12 minute run. This is a recognised test which indicates levels of aerobic endurance. In order to be successful at this test a period of training needs to be undertaken. Any gains in fitness will show within 6 weeks so a plan of 10-12 weeks of regular training will enable you to achieve the standard you require.

The table below shows the approximate pace for each lap when using a treadmill (either in miles or kilometre)

	400m pace	Kilometres per hour (kph)	Minute kilometre pace	Mile per hour (mph)	Minute mile pace
3000m	1m 36s	15	4m 00s	9.4	6m 24s
2800m	1m 42s	14	4m 17s	8.8	6m 50s
2700m	1m 46s	13.5	4m 27s	8.4	7m 06s
2600m	1m 50s	13	4m 37s	8.2	7m 23s
2400m	2m 00s	12	5m 00s	7.5	8m 00s

When training to improve performance you need to run at or faster than the pace(s) above particularly if working on a treadmill as this is easier.

To improve your ability to run for 12 minutes at the prescribed pace you must carry out **interval training** - bouts of exercise with a short recovery between. Outline is a full explanation of training and suggested sessions that you can do

A Guide to Training

By the end of the rugby season, fitness levels will be fairly low. This is due to a number of factors.

- a) Lack of high intensity training sessions ,.
- b) Injury.
- c) Illness
- d) Holidays

Fitness levels cannot be maintained solely by refereeing or touch judging and if no other work has been undertaken by the end of the season there will be little fuel left in the tank.

Training must start immediately to enable you to increase the intensity of sessions gradually and develop a good aerobic base that will last the full season. The more conditioned you are the less likely you are to break down through injury when more intense training is undertaken. Also you recover from injury much more quickly the fitter you are.

You will need a break from officiating and the regular type of training that you have done.

This doesn't mean doing nothing! **ACTIVE RECOVERY** is used by athletes to start the next training cycle. For you this can include activities such as swimming, cycling, rowing, circuit training. Little work should involve the legs to enable them to recover. You should keep doing stretching exercises to maintain and improve flexibility. A good range of flexibility is important to prevent injuries.

From the beginning of October, when most officials have finished their games, there are 16 weeks to the fitness test (3rd week in January). To embark on a training programme it needs to follow the Principles of Training.

Specificity - the activities undertaken are relevant to what you want to achieve.

Progression - the training programme needs to allow for the body to adapt to the work it is doing. Doing too much or training too hard too soon will lead to the body to breakdown. When the body is able to cope with the work it is being asked to do training can progress.

Overload - fitness is improved and developed by stressing the body beyond a level normally encountered in daily activity. That means you need to exercise at a heart rate that is higher than usual, run for longer or faster, do more repetitions or lift heavier weights.

Reversibility - unfortunately fitness cannot be stored. Once you stop an activity you will start losing the gains you have achieved. If you have missed training due to illness or injury and tried to do a session you are familiar with it will feel much harder!

frequency - training needs to be undertaken at least 4 times a week to improve fitness to a level that is required to officiate. Depending on the phase of training this could be aerobic, speed, strength, anaerobic based or a combination. c

Intensity - as with progressive overload the body adapts to the training it is undertaking. There are a number of ways to increase the intensity of the training session

6 x 200m @ 32 seconds with 3 minutes recovery

1. Increase the speed to 31 seconds
2. Increase the number of repetitions
3. Decrease the recovery time to 2½ minutes

4. Increase the distance to 250m

Aerobic run of 2 miles run in 14 minutes

1. Increase the pace to 13 minutes 30 seconds
2. Increase the distance to 2½ miles

Circuit Training

1. Increase the time on each exercise
2. Increase the number of exercises
3. Increase the number of circuits completed
4. Decrease the recovery time
5. Work on individual muscle groups e.g. 4 arm exercises, 4 abdominal exercises, 4 leg exercises

Training will be divided into the following phases:

FOUNDATION PHASE (3 WEEKS) - This you active recovery phase and will consist of low intensity aerobic work, circuit training and core stability.

PREPARATION PHASE 1 (4 WEEKS) - A general aerobic sessions including track sessions, gym work swimming and running

PREPARATION PHASE 2 (7 WEEKS) - This contains more anaerobic work on the track and interval work in the gym.

TRANSITION PHASE (2 WEEKS) - This is when more short anaerobic work is introduced and the emphasis is on speed. Training is reduced leading up to the fitness test so that you can "peak".

FOUNDATION PHASE (3 weeks)

This phase is preparing you to train. This work is done at low intensity and is used to increase your aerobic capacity. This basically controls how quickly you recover from training sessions or parts of a session. You are filling the tank up with petrol. Try and do activities which put little stress on the legs especially if you have had problems.

- i. Steady running for no more than 30 minutes
- ii. Continuous swimming for 20-30 minutes
- iii. Cycling 20-30 minutes
- iv. Rowing 20 minutes
- v. Cross trainer
- vi. Aerobics classes!
- vii. Water aerobics classes!

An ideal week could consist of the following sessions:

1. **Gym session** - cycling, rowing, cross trainer, stepper. Start with 5 minutes on each and establish which activities require more effort (5 minutes of rowing is more difficult than 5 minutes of cycling). Increase the time spent on each activity

accordingly. Heart rate should be around 140-160 beats per minute (a rate which allows weight reduction). Build up to 60 minutes.

This may be followed by sit ups and light weights for the upper body using a multigym. You need to do no more than 3 sets of 15 reps with a minute recovery. If you find a specific exercise hurts or induces an injury to another part of the body do not do it. If in doubt have a word with someone who could show you a different exercise for that area you were working on or leave it out altogether.

2. **Swimming** - 20 - 30 minutes continuous at a pace the session quite hard.

3. **Running** - there is little need to run longer than 30 minutes. Find a couple of routes of about that time.

Your target is to increase the pace each time (taking into account the weather conditions). If you are running in a group, stagger the start or have slightly shorter routes for slower runners so that every member is working at optimum rate.

4. **Circuit training** - the most effective way to improve local muscular strength and endurance is by using you own body weight. A simple circuit consisting of press ups, sit' ups, squat thrusts and squat jumps can be performed in a limited space at home. Remember every movement you perform involves the abdominal (stomach muscles) therefore the stronger and more conditioned they are the better. You cannot do too many sit ups!

Mini Circuit.

30 seconds of press ups followed by

30 seconds of sit ups followed by

30 seconds of squat thrusts followed by

30 seconds of squat jumps

Have 2 minutes rest to start with and complete 3 sets. Then either reduce the recovery time between sets or increase the number of sets or increase the time.

5. **Core Stability and Mobility** - the exercises given can/should be part of a daily routine along with sit ups and press ups

6. **Aerobics Classes** - there are many different types of sessions run at leisure centres. If you require motivation or have difficulty accessing any training facilities then these are ideal ways improve CV fitness.

PREPARATION PHASE 1 (4 weeks)

After a couple of weeks, more intense work should begin preferably at a track or on flat and even grass. If the surface is not even then injury could occur. If you have a group training session then it should begin with a good warm up. I cannot emphasis enough how important warm up is and a dynamic warm up is the best type of warm up activity. After the session cool down and stretching to reduce the possibility of muscle soreness and to return working muscles to their original resting length as a

muscle that has been working becomes shorter. The aim of warm up is to do a number of things.

- a. Increase heart rate and therefore blood flow to the parts of the body involved in the activity.
- b. Raise the body and muscle temperature.
- c. Increase joint mobility and flexibility.
- d. Increase, the, amount of oxygen, that is extracted from blood therefore improving performance.
- e. Decrease the production of lactic acid.
- f. Lesson the likelihood of injury.
- g. Psychologically gets you prepared for the session

It also gives you the opportunity to assess any "niggles" or "twinges" you may have felt from a previous training session or match.

A stretching routine of all the major muscle groups concentrating on Achilles tendon, calf, hamstring, quadriceps, groin, hip and back should be done as a warm down. Each stretch should be held for 15-20 seconds at the end position. If you cannot feel a stretch then it will have no effect. Each exercise should be carried out 2/3 times on each side. Stretching or mobility sessions can be carried out at home each day. The more flexible you are the less likely you will injury yourself. Also if you are recovering from injury, especially a pulled muscle, then stretching is very important to strengthen the injured area and return the muscle to its full length. Further injuries can occur which are related to the original injury. An injured muscle produces scar tissue which shortens the muscle length and therefore you lose flexibility.

Some suggested running sessions are as follows

Grass runs.

Find a flat area such a rugby pitch and just run for the allotted time. You are aiming to keep good form and not be too worried about how far you are running. Walk the recovery and start the next run wherever you are.

1. Run at a good pace for 2 minutes, 2 x 90 seconds, 3 x 60seconds, 4 x 45 seconds, 5 x 30 seconds, the rest period is 2 minutes between runs.
2. 2 x 50 seconds, 2 x 40 seconds, 2 x 30 seconds, 2 x 20 seconds, the recovery is 2 minutes between runs.
3. 6 x 2 minutes, 2 minutes recovery
4. 8 x 1 min, 1 minute recovery.

All these sessions are long anaerobic sessions. At the beginning they will be tiring but as your body adapts you will recover quicker between the runs and subsequently after the training session.

Cool Down

Try and do 3 x 100m steady runs on grass to cool down as this is the best way to remove the lactic acid and prevent stiffness.

I have used seconds instead of distance in the sessions as this means everyone works at the same rate. If you ask everyone to run 200m some will manage it in 30

seconds and others in 35 seconds. The slower athletes are working for longer and therefore are doing more work.

Stride and Jog Sessions

Instead of running at a constant pace you will gain more by introducing fartlek (no I'm not being rude!). This is when you run at different speeds. The easiest way is to run hard down the length of the rugby pitch and jog along the dead ball line. As your fitness improves you will be able to increase the pace of the long runs and jog at a quicker pace.

1. 3 x 4 laps - 2 mins recovery. Record the time of each set and try to maintain the same pace ;
2. 5 x 5 minute runs 2 mins recovery. Start at the same place and aim to reach the same place each time.
3. 6 laps, 5 laps, 4 laps, 3laps, 2 laps, 1 lap, 2 mins recovery
4. Stride and jog for 12 mins. Record distance run

Again warm up and cool down before and after the session

Track Sessions

Quality track sessions are important and in this phase should be done once a week. A track may not be handy but I would advise that if you could get a group together and travel to the nearest track. These sessions form the basis of the training programme.

The emphasis is on running at a pace or quicker required for the fitness test. Lap times are as follows

COOPERS 12 minute RUN

	3000m (7½ laps)	2800m (7 laps)	2700m (6¾ laps)	2600m (6½ laps)	2400m (6 laps)
1 (400m)	1 min 36s	1 min 42s	1 min 46s	1 min 50s	2 mins
2 (800m)	3 mins 12s	3 mins 24s	3 mins 32s	3 mins 40s	4 mins
3 (1200m)	4 mins 48s	5 mins 06s	5 mins 18s	5 mins 30s	6 mins
4 (1600m)	6 mins 24s	6 mins 48s	7 mins 04s	7 mins 20s	8 mins
5 (2000m)	8 mins 00s	8 mins 30s	8 mins 50s	9 mins 10s	10 mins
6 (2400m)	9 mins 36s	10 mins 12	10 mins 36	11 mins 00s	12 mins
7 (2800m)	11 mins 12s	11 mins 54s			

If running a set time the following distances on the track need to be covered each minute to reach your target distance in 12 minutes

3000m	250 metres
2800m	235 metres
2700m	225 metres
2600m	220 metres
2400m	200 metres

1. 7 X 400m, 2 mins recovery, reducing to 1 min. Aim to run faster than lap pace.
2. 3-4 x 800m, 2 mins recovery reducing to 1 min. Aim to run faster than lap pace.
3. 3 x 1200m, 3 mins recovery reducing to 2 mins. Aim to run near to lap pace
4. 600m/500m,400m,300m,200m,100m,2 minutes recovery. Faster than lap pace.
5. 2 x 6 mins, 5 mins recovery. Aim to run near to lap pace.
6. 6 lap time trial aiming for a time relevant to Coopers Run

I know some of you do an indoor session. Break the session up into

- a) conditioning session - including circuit training
- b) running session.

The running sessions are performed as shuttle runs up the hall and back. Use time e.g.: 90 seconds for 400m, 3 minutes for 800m or number of repetitions e.g. 6 x 6 runs (One run being up and back).

GYM SESSION

Once the weather takes at turn for the worse training at a gym is very tempting. As long as what you do is appropriate then you can benefit from these sessions.

TREADMILL

The treadmill is ideal to complement track sessions. Remember it is easier running on a treadmill so efforts need to be harder than the equivalent on the track. By raising the incline to 2% also increases the workload. The levels below correspond to the pace for the 12 minute run.

	400m pace	Kilometres per hour	Minute kilometre pace	Mile per hour	Minute mile pace
3000m	1m 36s	15	4m 00s	9.4	6m 24s
2800m	1m 42s	14	4m 17s	8.8	6m 50s
2700m	1m 46s	13.5	4m 27s	8.4	7m 06s
2600m	1m 50s	13	4m 37s	8.2	7m 23s
2400m	2m 00s	12	5m 00s	7.5	8m 00s

The 40 minute Session.

Set the incline at 1.5~o warm up for 5 minutes at 10kph (7.0)

1 x 4 minutes @ 15kph (9.4 or the pace you have to run at) 1 minute recovery @10kph

2 x 3 minutes @ 15.5kph 1 minute recovery @10kph

- 3 x 2 minutes @ 16kph 1 minute recovery @ 10kph
- 4 x 1 minute @ 16.5kph 1 minute recovery @ 10kph or equivalent
- 5 minute cool down slowing to a walk for the fast minute.

You should adjust the speed according to your fitness level and increase each session.

1. 10 x 400m or 90 seconds at 17 kph (or equivalent), 1 minute recovery
2. 6 x 800m or 3 minutes @ 16kph or faster, 1 minute recovery
3. (2 minutes, 1 1/2 minutes, 1 minute) x 3 @ 16, 16.5, 17 kph, 1 minute recovery 10kp
4. 12 minute time trial
5. 2 x 6 minutes @ 15.5kph or faster, 2/3 minutes s recovery
6. 3 x 4 minutes @ 16kph or faster 2/3 minutes recovery

ROWING MACHINE

This is an excellent all round fitness activity. Make sure you are using the correct technique as it could lead to back problems. Put the resistance on level low - you do not need to be macho!

1. 10 x 1 minute row with 1 minute recovery, reducing the recovery to 30 seconds
2. 10 x 40 seconds with 30 seconds recovery
3. 8 x 400m with 45 seconds recovery
4. 5x 2 minutes with 1 minute recovery \
5. 15 x 30 second with 30 seconds recovery.

Aim to achieve the same distance or time each repetition. I'm sure you can make up some other combinations.

CYCLING

Again interval sessions can be done on the static bike. Ask the instructor how to set up for the following sessions

1. 3 on 1 off 45 seconds at a set pace with 15 seconds recovery
2. 2 on 2 off 30 seconds on 30 seconds recovery
3. 1 on 3 off 15 seconds on 45 seconds recovery

Build up to 15 minutes making sure you have warmed up prior to the session.

4. 5 mile ride for distance set at 75 rpm and try to lap yourself.

MULTIGYM

This is an ideal way to improve general conditioning and body tone. Suggested exercises are.

Bench press
Leg extension
Tricep press

Seated press
Leg curl
Dumbbell curl

Lateral pull down
Bicep curl
Chest press

Dumbbell flies

Abdominal crunch Calf raise

If you are unsure ask the fitness instructor. Aim for 3 sets of 15 repetitions with 1 minute recovery.

These can be done after the main session. Make sure you stretch down after the weights as muscle length shortens when being exercised and can lead to stiffness and injury

SWIMMING

Another excellent way to improve your aerobic endurance especially if swimming isn't a strong point. Again use bouts of effort with a short rest to give you a goal for the session. Buy a float and use this to work on just arms or just legs. Many athletes when injured use swimming as a way to maintain fitness levels. If you have ever tried running in waist deep water then you appreciate how difficult it is, Use the float to hold you upright in deeper water and try and run using your legs only! Aim for 30 seconds of work each time.

Hold on to the side of the pool facing up and try and cycle your legs pulling down on the water and using it for resistance.

Turn round and stretch out so that you are lying on top of the water. Do front crawl and breast stroke leg action at speed using the water as resistance.

Run on the spot with high knees. Attempt double foot jumps bringing knees as close to chest as possible. Any of the running drills we do as a warm up can be attempted in the water.

Sessions

If you are a competent swimmer then increase the number of sets you do or use a different stroke.

Sessions could include (for a 25 metre pool)

1. 5 minute swim. 6 x 2 lengths 20-30 seconds recovery. 3 minutes recovery then repeat. 5 minute swim.
2. 5 minute swim. 4 lengths 30 seconds recovery then 2 lengths 1 minute recovery. Repeat 6 times. 5 minute swim down.
3. 10 minute swim. 8,6,4,2, lengths 60 seconds, 45 seconds, 30 seconds, recovery. Repeat. 10 minute swim down.
4. 2,4,6,8,6,4,2,lengths, with 30 seconds recovery. 3 minutes recovery then repeat.
5. 4 x 3 minutes with 1 minute recovery.

PREPARATION PHASE (7- 10 weeks)

Another quality track session should be incorporated now with the emphasis on speed endurance. This can replace 'the grass session at the swimming session depending on which you enjoy more and you feel has the better benefit.

Speed Endurance Sessions

1. 5 X (300m, 1 minute rest, 100m), 5 minutes recovery. Add the times together to get a 400m time.
2. 4 x (300m fast, 2 minutes rest, 200m fast) 5 minutes between sets.
3. 4 x (150m, 1 minute recovery, 150m, 1 minute recovery, 100m) these should be run around 22 second pace. Add the times together to give a 400m time. 5 minutes

between sets. Start at the 400m start, run to $\frac{1}{2}$ way down the back straight, rest, run to start of 100m, rest, run to finish.

4. 4 x (200m, 1 minute rest, 200m) 5 minutes recovery between sets. Time should be 32-34 second pace.

5. 3 x 3 x 150m starting Y2 way round the bend. Walk 50 metres forwards (1 minute). 5 minutes between sets.

6. 4 x 250m fast walk back 50m, then sprint 50m. 4 minutes recovery.

Really bad weather sessions

If the weather is bad continuous sessions are appropriate. These could include

7. Continuous 200m. In groups of 3. Number 1 starts $\frac{1}{2}$ way down the straight and runs to $\frac{1}{2}$ way down the back straight. Number 2 takes over and runs to $\frac{1}{2}$ way down the home straight. Number 3 then runs to number 1 and so on. 8 - 12 laps can be done.

8. Run 100m hard, jog back 50 metres, run 100m hard, jog back 50 metres. Do this all the way round the track and you run 7 x 100m, 3 minutes recovery and repeat.

TRANSITION PHASE

The final 2 weeks of the training programme needs to emphasis on quality and speed. The week prior to the test should be very light so that you hopefully "feel good" on the day. What you eat is important. Carbohydrate loading is a technique used by endurance athletes and can be used to make sure your glycogen stores are at their optimum. This is achieved by cutting out carbohydrates from your diet starting 10 days before the fitness test. You will still be training and because you are not replacing the fuel used you will feel very tired and not train very well. About 3 days before the test eat as much carbohydrate food as possible - pasta, beans, potatoes, and bread. Because your muscles have been deprived of their fuel, they will take up more than is needed so you will have an overload. This extra store will hopefully give you a boost near the end of the run.

Training Programme

The following is an example of how you can organise your training week and gradually increase the intensity of your training. Keep a record of times, distances and sessions done so that any repeated session can be compared.

Week	Session 1	Session 2	Session 3	Session 4
Foundation Phase Gentle return to exercise after short rest period				
1	Swim	gym	Circuit/run	Gym
2	Swim	gym	Circuit/run	Gym
3	swim	gym	Circuit/run	gym
Preparation Phase 1 Gradual increase in intensity				
1	track	gym	Grass	Swim/run
2	track	gym	Grass	Swim/run
3	track	gym	Grass	Swim/run
4	track	gym	Grass	Swim/run
Preparation Phase 2 Higher intensity work				
1	track	gym	track	Grass/swim
2	track	gym	track	Grass/swim
3	track	gym	track	Grass/swim
4	track	gym	track	Grass/swim
5	track	gym	track	Grass/swim
6	track	gym	track	Grass/swim
7	track	gym	track	Grass/swim
Transition Phase (2 weeks prior to fitness test). Shorter faster running sessions				
1	track	gym	track	Swim
2	track	gym	track	swim