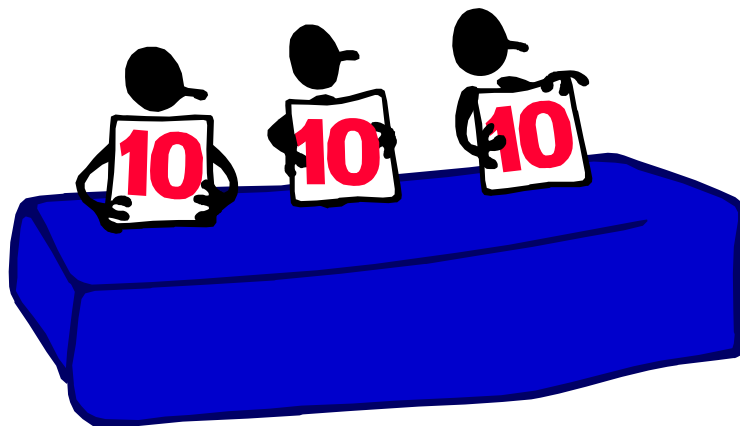




■ SURREY ■
SPECIAL
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INTRODUCTION TO FITNESS



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Nikki Maskery
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1. INTRODUCTION

Policing has never been an easy job. As a police officer you will be required to handle a variety of situations involving physically challenging tasks. For this you need a reasonable level of strength, agility and stamina to deal effectively with situations as well as to defend yourself or others.

Police officers are sometimes required to perform physically demanding tasks as part of their police duties. It is essential that they possess a standard of physical fitness which will enable them to perform these tasks safely and effectively. It is for this reason that minimum standards of physical fitness must be achieved by candidates wishing to join the police service.

Specifically, two tests have been devised to measure the fitness qualities that underlie the physical tasks performed by police officers. These are tests of endurance and dynamic strength. Performance on the tests provides a good indicator of a candidate's capability to perform various police tasks. The tests run consecutively and minimum standards must be achieved on each.

2. THE TEST ELEMENTS

The test should be run in the following order and to the following standards:

- Endurance fitness (bleep test) Level 5 / 4
- Dynamic strength test Push 34kgs; Pull 35kgs

The standards apply to both male and female candidates.

Test 1: Endurance Fitness – multi-stage shuttle run

Special Constables are sometimes required to perform prolonged activities such as foot chases, stair climbing and public order duties. The ability to perform such activities is largely based upon your level of endurance fitness, which is your capacity to continue prolonged physical activity. As such, endurance fitness reflects how

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efficient your heart and lungs are and is required in any activity which causes you to get out of breath.

The endurance fitness test involves running to and fro along a 15 metre track and placing your leading foot on each end line in time with a series of audio bleeps. If you arrive at the end line before the bleep sounds you should turn around, wait for the bleep before resuming running and adjust your speed. The test is progressive in that the timing of the bleeps starts off slowly but becomes faster so that it becomes more difficult to keep up with the required speed. You will run until you can no longer keep up with the set pace.

To pass this element of the test you must reach a minimum of four shuttles at level 5

Test 2: Dynamic Strength

Police officers are required to arrest and restrain struggling or fighting individuals. This can involve a degree of pushing, pulling and grappling. The ability to perform such activities requires dynamic upper body strength. Possessing high levels of dynamic strength will also lessen the chance of injury to the musculo-skeletal system.

The Dynamic Strength test involves performing five seated chest pushes and five seated back pulls on a machine called a Dyno. The average force of the sum of the five pushes, and the average force of the sum of the five pulls will be recorded.

Dynamic test for PUSHING

- You must sit upright with your back firmly against the padding. Your feet must be flat on the ground with your knees set at approximately 90 degrees. A firm grip is taken of the push bar with your hands level with the middle of your sternum.
- You will be asked to perform three warm-up efforts, at approximately 80% of maximum effort.

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- Each warm-up and subsequent test effort is performed to full arm extension
- Following the three warm-ups you will be asked to perform **FIVE MAXIMUM** pushes with three seconds of recovery between each.
- The **AVERAGE** force produced during each effort will be displayed on the monitor.
- The **AVERAGE VALUE** of the five efforts will be displayed at the end of the set.
- Your average must be 34 kg to pass.

Dynamic test for PULLING

- This time you will position yourself at the opposite end of the machine. Sit upright with your chest firmly pushed against the padding. Your feet must be flat on the ground with your knees set at approximately 90 degrees. A firm grip is taken of both the pull handles, with your hands level with the middle of your sternum.
- You will be asked to perform three warm-up efforts at approximately 80% of maximum effort.
- During each warm-up and subsequent test you must pull on the handles until your hands touch your chest.
- Following the three warm-ups you will be asked to perform **FIVE MAXIMUM** pulls with three seconds of recovery (shown on bottom right of the monitor) between efforts.

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- The **AVERAGE** force produced during each effort is displayed on the monitor.
- The **AVERAGE VALUE** of the five efforts will be displayed at the end of the set.
- Your average must be 35 kg to pass.

3. **HOW TO IMPROVE...**

.... YOUR ENDURANCE FITNESS

To develop and maintain endurance fitness, try to do one or a combination of the activities listed below three times a week with each continuous session lasting 20-40 minutes. For those individuals who have not exercised regularly in the past, it is advisable to start with gentle continuous exercise sessions lasting 15 minutes and then build up to 20 minutes or more over a couple of months.

There are many different activities that you can participate in to improve your level of endurance fitness. These can be categorised into sporting activities and rhythmical type exercises.

Sporting activities

Playing sports regularly such as football, netball, squash and rugby can be an enjoyable way of improving and maintaining your level of endurance fitness. Any sport that causes you to get out of breath and lasts 30 minutes or more will be of benefit. Many sports fit this category. Choose one that will fit into your lifestyle and which you enjoy. The extent and rate of improvement in endurance fitness from participating in sport will depend upon your initial level of fitness and on how hard you play.

Rhythmical exercise

The most rapid improvements in endurance fitness are made by engaging in activities that use large muscle groups and thereby create a large aerobic demand. Such activities include jogging, cycling, swimming and rowing. There are three training methods that you can use to improve your level of endurance fitness using rhythmical exercise. These are continuous, varied pace and interval training. The following refer to running however they can just as easily be substituted by any other form of rhythmical exercise.

i. Continuous training

Involves exercising either continuously for a set time (20 minutes or more) and recording the distances covered, or exercising for a set distance and recording the time taken. For example, with running, the more popular of the two is to jog a set distance, (usually a course that starts and finishes at home,) and try to reduce the time taken to cover it.

Heart rate is a good indicator for controlling the intensity at which you exercise continuously. A suggested level is between 130 and 160 beats per minute. You will find that at this intensity you will be able to sustain a conversation with a partner. Heart rate can be measured simply by taking the pulse. To do this, place two fingers on the underside of your wrist in line with the base of your thumb and count the number of beats in fifteen seconds. Multiply this figure by four to give an estimate of your heart rate per minute.

ii. Varied pace rhythmical exercise

This particular training method involves varying the pace at which you run, interrupting the steady continuous running with occasional faster running of short sprints. In order to be particularly effective it must be well planned. A typical varied pace session could be:

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1. *Jogging (five minutes)*
2. *Fast evenly paced running (three minutes)*
3. *Brisk walking (two minutes)*
4. *Evenly paced running with 50-60 metre sprints every 200 metres (five minutes)*
5. *Jogging (two minutes)*
6. *Evenly paced running with occasional small acceleration sprints (three minutes)*
7. *Jogging (five minutes)*
8. *Rhythmical exercises, skipping and gentle knee raises and stretching to cool down (five minutes)*

iii. Interval training

This involves running for a set time or distance a specified number of times with periods of rest or recovery in between. An example of an interval training session would be to choose your normal running course and run at 75% effort for three minutes followed by a jog or brisk walk (depending on your level of fitness) for 2 minutes. Repeat this process for the whole course. As your endurance fitness develops the duration of the running and the recovery can be varied. Alternatively run a set distance within a set time e.g. 800 metres in 4 minutes with a timed rest recovery in between. This can be performed on a nearby field or track.

... DYNAMIC STRENGTH

The best way to improve your dynamic strength in the muscles of the upper body is to perform resistance exercise, which can be achieved by using body weight, free-weights or resistance machines. The following exercises can be used to improve the muscles tested during the dynamic strength test.

i. Full, kneeling and extended kneeling press-ups

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Perform conventional press-ups, ensuring your hands are shoulder width apart and your arms are vertical. Your head must be fixed with your eyes looking directly down at the floor. You must maintain a straight body position throughout the action, making sure that you go all the way down to touch the sternum (chest bone) on the floor and then fully extending the arms on recovery. Try to breathe in as you push yourself up and breathe out as you lower yourself down.

If you find it difficult to perform a succession of press-ups due to insufficient body strength then begin with practising kneeling press-ups which is a less strenuous alternative. Your arms must be in the same position adopted for full press-ups (as described above). Kneel with your knees immediately below your hips and your feet on the floor. Bend your arms to lower your chest to the floor and return to the front support position. Once you have developed sufficient strength to be able to do 10 or more of this, move on to extended kneeling press-ups. This is the same as the kneeling press-up except the knees should be positioned back from the hips, the feet raised and the lower legs crossed. Performing extended knee press-ups on a regular basis will develop your strength enough to be able to perform a standard press-up with the feet on the floor. Try to breathe in as you push yourself up and breathe out as you lower yourself down.

ii. Reverse Pull-up

You will require a bar securely fixed approximately three feet from the floor. While lying beneath the bar take a firm grip of the bar, ensuring your palms are facing your body. Keeping your body straight, pull yourself up until your chest touches the bar. Slowly return to the start position and repeat the procedure. Try to breathe in as you pull yourself up and breathe out as you lower yourself down.

Perform 3 to 4 sets or as many repetitions as you can of each exercise with a 2 minute recovery period separating each set. Record the total amount of repetitions that you perform and try to better this in your next session. However, you must make sure that you have the same recovery between each set.

iii. Strength training

A high degree of strength in the arms, shoulders, chest and back muscles is required to pass the dynamic strength test. Improved strength would also be of benefit in the grip test. To improve strength, the muscles must be made to work against resistance that is not normally encountered i.e. they must be overloaded. As strength increases, it will be necessary to progressively increase the weight so as to maintain the muscle overload. This is known as progressive resistance.

The following progressive resistance training methods are ideal for strength training and can be used with any weight training exercise that you perform:

Begin by establishing the maximum weight at which you can perform 10 repetitions (10-RM repetitions at maximum weight). Then perform 3 sets of 10 repetitions as follows:

- i) set one with 50% of the 10-RM
- ii) set two with 75% of the 10-RM
- iii) set three with the full 10-RM

When you are able to perform 13 repetitions on the final set, it no longer represents the 10-RM and a heavier load must be used.

This training programme should ideally be implemented three times a week with a full day's rest between sessions.

There are many strength-training exercises which will help you to build up your strength. It is advisable therefore for you to seek advice from qualified gym instructors or from the force P.T.I. Many gymnasiums offer induction courses and information about using various weight training and resistance exercises to improve strength. Exercises such as shoulder presses and bench presses; lat pull downs; seated row and squats are very good for the development of overall strength. The most relevant weight training exercises for the Dyno (which will be used to test your dynamic strength) are the bench press and the seated row.

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Seek advice from a gym instructor or the Force Physical Training Instructor (PTI) for guidance on how to use free weights or resistance machinery.

4. TRAINING TIPS

- Try to train as much as possible with friends as this will make your exercise programme a more enjoyable and safer activity.
- Try to monitor your progress by recording times taken, distances covered, recovery times etc. This will provide feedback on improvements and will give you an incentive to continue training.
- Set yourself targets that can be realistically achieved. This will help motivate you to train.
- Do not overdo your training. Start gently and build up gradually over a period of months.
- Try to spread fitness sessions out rather than playing squash, weight training and swimming all in one day and then doing nothing else for the rest of the week.

5. WARMING UP AND COOLING DOWN

Before any form of exercise it is important to warm the body up to prepare it for the exercise that will follow. Warming up before exercise will not only prepare the body for physical work but will decrease the risk of injury by increasing muscle temperature, increasing blood flow and stretching muscles and ligaments. The activities performed during warm up should be relatively slow and rhythmical such as light jogging or cycling.

Warm up guidelines

- i. Adopt whole body warm ups which aim to gradually increase body temperature and heart rate – slow running is a good example of this kind of activity.
- ii. Carefully stretch all the major muscles paying particular attention to those muscles which will be used during the activity.
- iii. Avoid a time lag between warming up and performing the activity.
- iv. Ensure the warm up lasts for approximately 10 minutes and does not lead to any feeling of fatigue.

Recovery guidelines

Along with the physical exercise that you perform, adequate recovery time is a very important factor that contributes to overall physical performance. Cooling down after exercise will help you to recover and prevent muscle soreness by removing waste products from the system. Your cool down should consist of a light exercise which gradually decreases in intensity, combined with some gentle stretches particularly for the muscles that have just been worked.

Following training, the body needs time to recover and make certain adaptations. As a result of these adaptations improvements will be made. Not allowing sufficient recovery time could mean that you will not get the full benefit of the training you have undertaken. Ensure that you have 24-48 hours recovery following any form of strength training such as training for the grip strength test and press-ups. If you have not engaged in strength training before, or you have not trained for a while, then extend the recovery period to 3 days. Following speed training ensure that you have at least 48-72 hours recovery depending upon your initial level of fitness. Expect

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some muscle soreness following strength and speed training. This can be minimised by cooling down and stretching following exercise.

6. SAFETY & HEALTH

- It is advisable to gain medical approval before you commence any exercise programme. The benefits for exercise should far outweigh the risks but if you have any concerns about your health either before or during your programme then consult your GP.
- Suitable clothing and footwear must be worn when training.
- Avoid exercising if you have a cold or an infection.
- Exercise should be brisk but do not overdo it. Exercise at a comfortable level for longer rather than intensely for a shorter duration.

7. ANY QUESTIONS?

If you have any queries or would like to have any advice from the Force Fitness Advisor you can contact him, Karl Warn, on 01483 482671 or 07967 986684.

Karl can also advise you on the use of the equipment in the gymnasium at HQ which you are free to use