For further information please contact:

Regional recruitment line: 0191 4441659 or leave your details at www.twfire.gov.uk/recruitment/firefighters/register

Useful websites:

www.ddfire.gov.uk

www.twfire.gov.uk

www.northumberland.gov.uk

www.clevelandfire.gov.uk

www.firefitsteeringgroup.co.uk

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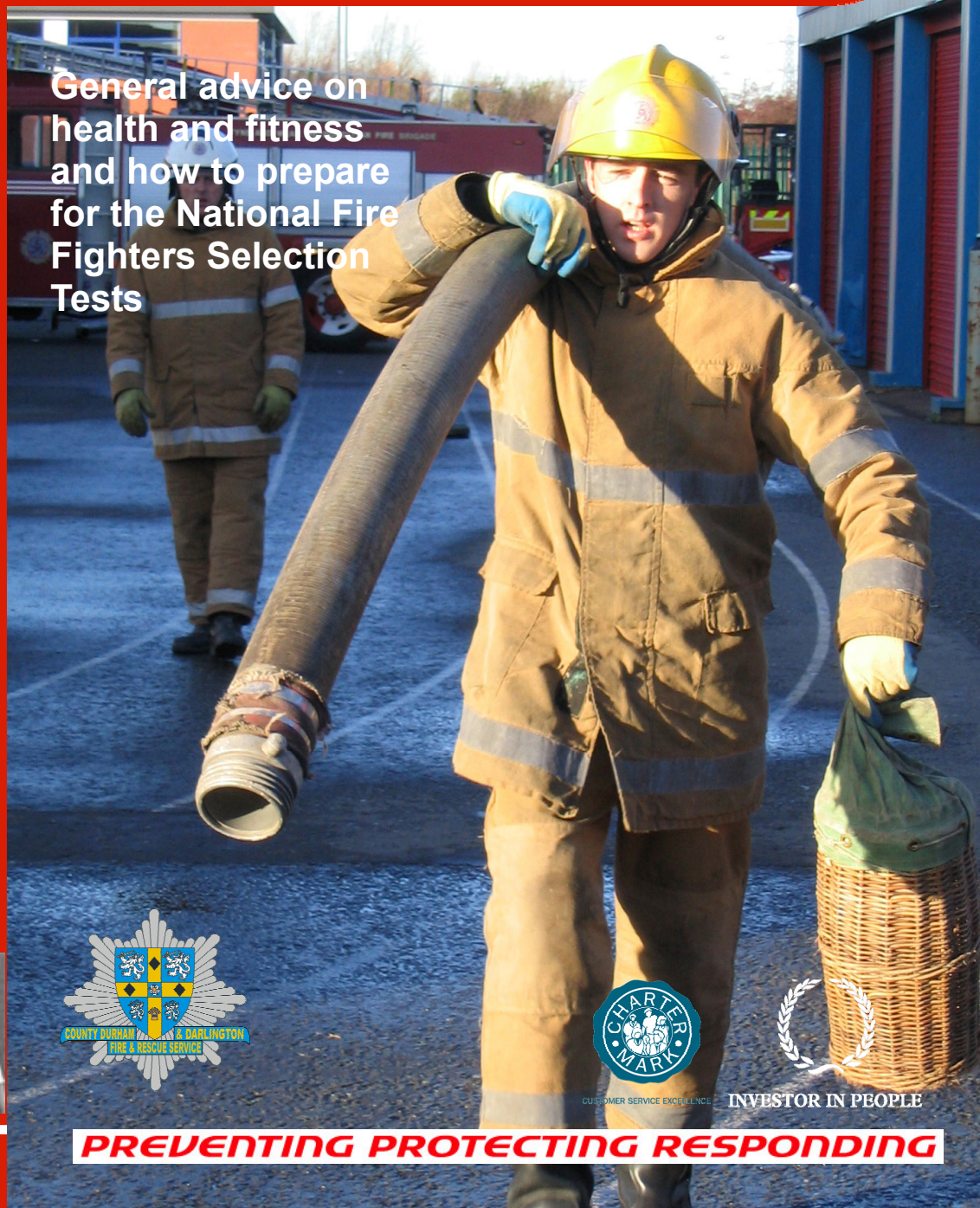
FITNESS GUIDANCE



General advice on health and fitness and how to prepare for the National Fire Fighters Selection Tests

COUNTY DURHAM & DARLINGTON FIRE & RESCUE SERVICE

CHARTER MARK
CUSTOMER SERVICE EXCELLENCE

INVESTOR IN PEOPLE

PREVENTING PROTECTING RESPONDING

Chief Executives Foreword...

The UK Service employs over 65,000 people and the public expects operational staff to operate in hazardous environments on a regular basis. This presents unique challenges for the Service to ensure that safe systems of work are in place at all times. The physical fitness of fire fighters is an important element of any such system and therefore is given a high priority.

By working in partnership the Fire Authorities of North East England have developed a new recruitment process which breaks down previous barriers relating to age, height, sex and disability of recruits. This effectively increases the opportunities of all members of the community for having a career in the Fire and Rescue Service.

However, we are extremely conscious of the increased physical and mental demands placed on firefighters whom, very often, work in extremely testing and sometimes traumatic circumstances. As a result of this, the 'National Firefighter Selection Tests' (NFST) have been designed to reflect a selection of the tasks that a fire fighter performs. The NFST's test the potential of an individual to undertake these tasks when fulfilling the role of a fire fighter.

If you do not already, we advise that you follow a program of exercise which will assist you in maximising your performance in the tests and maintaining your health and fitness throughout your career. This will also help set a good foundation for your retirement too! The aim of an exercise program is to get into "good lifestyle habits" and to establish a health and fitness routine and have a healthy and balanced diet. Remember you are not getting fit just to 'get in' the Fire and Rescue Service. The hard work begins at training school and continues throughout the job.

The goal of good health and well-being is something that everyone can aspire to and enjoy. Opportunities exist across life to improve health; this fitness guidance booklet is one of them. It contains an 8-week exercise program which includes working the 3 main components of fitness. These are aerobic ability, muscular strength & endurance and flexibility, all three often daily requirements in the role of a firefighter.

I hope you find this guide useful and that it helps you in your career ambitions and personal health and well being.

Susan Johnson

Susan Johnson OBE
Chief Executive
County Durham and Darlington Fire and Rescue Service

Fitness Guidance

Date		Session Run / Bike / Gym	Route	Miles / Reps	Av HR	Weight	Time
Wk 6	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 7	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 8	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 9	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 10	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						

Training Log

Date		Session Run / Bike / Gym	Route	Miles / Reps	Av HR	Weight	Time
Wk 1	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 2	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 3	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 4	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						
Wk 5	Mon						
	Tues						
	Wed						
	Thurs						
	Fri						
	Sat						
	Sun						

Contents

Introduction

The information in this booklet has been designed to provide **GENERAL GUIDELINES** on physical preparation for applicants intending to undertake the National Firefighter Selection Tests (NFST's). It is important to note that good exercise training advice should be highly specific to you as an individual, and will depend upon your general health, age, current fitness level, previous training history, your lifestyle and ultimate fitness goals. The guidelines presented here should be used to give you the information you require to build yourself a specific individual fitness training programme.

Ideally you should seek advice from a qualified fitness professional and GP who will help you design, undertake and evaluate a physical training programme that is specific to your needs in preparing to undertake the NFST's. Involving a qualified fitness professional will also help develop correct training techniques, as well as increasing your motivation and long term adherence to the training regime. However, it is important that you have a general understanding of the basic principles of training, and the specific physical requirements that underpin the NFST's in order to make the most of the training that you undertake.

These guidelines will provide you with this knowledge and guide you through a typical 8 week training programme that is designed for a physically active individual with some previous physical training, exercise or sports experience (e.g. played football, hockey, circuit training, rambling etc.). This programme will not only maximise your chance of success on the physical NFST's, but may also reduce your risk of injury during the tests and, if selected, during your subsequent firefighter training.

It is also important to realise that the role of a firefighter can be physically demanding, and consequently firefighters are required to maintain good general levels of physical fitness throughout their careers. You should not view your physical preparation for the NFST's as a goal to an end, but as part of the everyday job requirement for serving firefighters. By undertaking a period of physical training before selection, you will be able to determine if you are suited to a job that requires a good level of overall fitness to be maintained during your career.

A balanced diet

Approximately 60% of your diet should come in the form of carbohydrates, 20% from good sources of protein and the rest from essential fats. Aim to eat complex carbohydrates. These release their energy slowly and prevent lulls in energy and can help prevent unnecessary snacking. Examples of this type of food are wholegrain cereals, rice, pasta, cous cous, pulses, vegetables and fruits.

Good quality protein will help repair the body from daily wear and tear, and to repair any muscle damage caused through exercise. Good sources include all vegetables, pulses (beans, lentils) meat (aim for white meats like turkey, chicken and fish, as they are lower in saturated fat than red meats such as beef and lamb) and / or Soya products such as tofu.

It is also important to eat essential fats in your diet. These come in the form of the omega oils within oily fish such as sardines and mackerel and from poly and mono saturated fats found in seeds, nuts and oils such as olive and sunflower.

Remember that these still need to be taken in moderation; they are high in energy and therefore calories, so only a relatively small amount is required.

8 Week Programme

Week	Sessions	Duration	Intensity	Times p/w
1	Steady pace run	20 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	1-2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
2	Steady pace run	20 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
3	Steady pace run	20 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
4	Steady pace run	25 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	3 sets 10-12 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
5	Steady pace run	25 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	1-2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
6	Steady pace run	30 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
7	Steady pace run	30 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	2 sets 12-15 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2
8	Steady pace run	30 mins	55-90% of PMHR or RPE level 10-17	2
	Weights	3 sets 10-12 reps		2
	Fartlek	20 mins		1
	Flexibility	10-30 seconds		2

As stated previously, the following guidelines are designed to help prepare an active individual with some previous physical training, exercise or sports experience to undertake the NFST's. As a good general overall level of fitness is required to undertake firefighter training and good fitness levels can not be acquired overnight, you should only undertake this programme if you already have a basic general level of aerobic fitness. The gains in aerobic fitness over a structured 8-12 week training programme are highly individual specific, but typically average about 10-15%. Therefore, you will need to start with a reasonable level of aerobic fitness to meet the required NFST's physical standards with only 8 weeks of training.

General exercise guidance

The role of a fire fighter can at times be physically demanding. Therefore the entry selection tests are designed to reflect and assess the physical tasks that firefighters are required to perform. Firefighters are required to be aerobically fit, have good all-round body strength and local muscular endurance. Good exercise training advice is highly specific to the individual. It should be understood, therefore, that the advice provided here can only be general; prospective applicants who require further information are advised to seek individual advice, specific to their needs, from a qualified fitness professional.

Safety Points

If you are in any doubt about your health or physical ability to exercise, you should consult a doctor before commencing any physical training programme. This is especially important if you are (or think you might be) pregnant, if your health status has recently changed, you have not exercised for the last six-months or have had a recent illness or injury. **County Durham and Darlington Fire and Rescue Authority disclaim any liability for any injury, damage or loss suffered as a result of following the general guidelines detailed in this booklet.** Always warm up before commencing any exercise. Wear the correct clothing and footwear; do not train if you are unwell or injured.

Preparing for Exercise (Warm Up)

Performing a warm up prepares the body for the activity about to be undertaken. The length of time needed to warm up correctly depends on many factors; however, you should allow at least 10 minutes for this very important activity. In order to reduce the risk of injury in the warm up period, a number of steps should be followed:

Be Specific

Make sure your warm up session is geared towards the activity that you intend to perform. Cardiovascular workouts, for example running, you should start with a brisk walk leading into a light jog. For weight training workouts it is important to warm up the joints and muscles that are involved in the resistance exercise. This will increase blood flow to the muscles which will be utilised during the exercise and activate the nervous system prior to any additional stress being placed on them.

Start Slowly

At the start of your workout your muscles will be relatively cold. Start exercising slowly and build up the intensity throughout the warm up period. This will increase your muscle temperature steadily and keep the risk from injury to a minimum.

Keep Warm

If you are exercising in a cold environment, wear additional clothing during the warm up period and try not to stand still for too long.

Stretching

For many years it was thought that stretching immediately prior to exercise would prevent injuries. However, there is new research with practical application that suggests that this may not prevent muscle or tendon injury. Any form of flexibility or stretching activity should be performed following a warm up period or an exercise session.

General physical fitness programme

The following programme is 8 weeks long consisting of 3 running sessions, 2 weights sessions and 2 flexibility sessions per week. The programme starts relatively easy and gets progressively harder. You should alternate between your running and weight sessions so that you do not perform the same training on consecutive day's e.g.

Monday	Steady run	**Thursday**	Flexibility	**Saturday**	Weights
Tuesday	Weights	**Friday**	Steady Run	**Sunday**	Flexibility
Wednesday	Fartlek				

If you miss an exercise session, do not attempt to do 2 sessions in 1 day to make up. If you are unwell or injured then do not train until you have fully recovered.

Make sure you have read and understood the programme before you start training!

Below is an explanation of all the sessions included in the programme. The actual details of the workouts are set out on the back of the 8-week plan.

Steady pace running	This should be performed at a comfortable pace i.e. you should be able to hold a conversation throughout your run. This type of exercise will increase your aerobic fitness. This is included in the programme (2 x per week - 20 mins increasing to 30 mins).
Fartlek training	This type of running involves changing pace throughout the session. A steady pace of running should be interspersed with faster running, sprints, jogging, uphill running and walking. The aim of the session is to work continuously for about 20 minutes using the various speeds of running whenever you feel like it. There is no set order to this session, however you should begin with about 5 minutes of steady running before you do any faster running. This session will increase your aerobic and anaerobic fitness.

NB: Where possible you should run on grass or trails, try to avoid road running. This will reduce the stress placed on the joints of the body.

Resistance training	These sessions will target all the major muscle groups and will help to improve muscular strength and endurance.
Flexibility training	This is to help improve/maintain the range of motion (ROM). These exercises may also reduce the likelihood of injury, reduce muscle soreness after exercise and may enhance muscular performance.

Adductor Stretch

1. Sit upright on the floor with your legs flexed and straddled and feet flat against one another.
2. Grasp your feet or ankles and pull them as close to your groin as possible.
3. Exhale; rest your elbows on your knees, pushing them down towards the floor.
4. Hold the stretch and relax.
5. You should feel the stretch in the inside of the thighs.

Calf Stretch

1. Stand upright (use a wall if necessary).
2. Bend one leg forward and keep the opposite leg straight.
3. Keep the heel of your rear foot down, sole flat on the floor and feet pointing straight forward.
4. Exhale, and flex your forward knee toward the wall
5. Hold the stretch and relax.
6. After 10-15 seconds slightly flex the knee of the back leg keeping the heel of the foot down.
7. Hold the stretch and relax.
8. You should feel the stretch in the back of the lower leg.

Buttocks and Hip Stretch

1. Lie flat on your back with one leg crossed over the knee of the straight leg.
2. Inhale flexing the uncrossed leg off of the floor in towards the body ensuring that your head shoulders and back remain on the floor.
3. Hold the stretch and relax.
4. You should feel the stretch in your buttocks and back.

National Firefighter Selection Tests - what you actually need to do.

The physical elements of the NFST's are encapsulated within 6 discreet physical tests. You should watch the "So You Want to be a Firefighter?" Recruitment Information DVD issued by Communities and Local Government (CLG) and available from Individual Fire Services to help you gain an insight into what each test will involve.

Remember that all the tests are performed in standard firefighter personal protective equipment (helmet, jacket, trousers, gloves and boots), which together weigh ~ 10 kg. This will make the tests slightly more difficult than they first appear, as this additional weight will make movement more difficult.

Ladder Climb

During the Ladder Climb test the greatest difficulty faced is having the confidence to work at height as opposed to the physical demands.

Equipment assembly tests examine manual dexterity and the breathing apparatus crawl is more a test of your ability to cope with dark/confined spaces and has low-moderate physical demands, although good levels of flexibility and body awareness will be an advantage. The remaining 3 tests, the casualty evacuation, the ladder lift and the equipment carry test examine whether you have the physical capability to perform typical operational fire fighting tasks at the end of your initial training course. These are briefly described overleaf and linked to specific exercises which you should pay particular attention to during your training.

Casualty Evacuation

The casualty evacuation requires you to walk backwards (you will be guided by a safety officer) around 3 sides of a 10 m square whilst dragging a 55 kg casualty. Although there are no simple exercises that directly simulate this event, the squat and seated row strength training exercises will help develop the specific muscles you need to successfully complete the casualty evacuation selection test.

Casualty Evacuation test

Pectoral and Upper Back Stretch

1. Kneel on the floor facing a bench or chair.
2. Extend your arms above your head with your hands side by side and bend forward to rest your hands on the bench or chair with your head in its natural position.
3. Exhale and let your head and chest sink towards the floor.
4. Hold the stretch and relax.
5. You should feel the stretch in your chest and upper back.

Quadriceps Stretch

1. Stand upright with one hand against a surface for balance and support.
2. Flex the opposite knee to the hand that is outreached and raise your heel to your buttocks.
3. Slightly flex the supporting leg.
4. Exhale, reach behind, and grasp your raised foot with the other hand.
5. Inhale, and pull your heel towards your buttocks.
6. Hold the stretch and relax.
7. You should feel the stretch in the top of the thigh.

Hamstring Stretch

1. Sit upright on the floor with both legs straight.
2. Flex one knee and slide the heel until it touches the inner side of the opposite thigh.
3. Lower the outer side of the thigh and calf of the bent leg onto the floor.
4. Exhale, and while keeping the extended leg straight, bend at the hip and lower your extended upper torso from the hips towards the extended thigh.
5. Hold the stretch and relax.

Flexibility

Flexibility exercises should be incorporated into the overall fitness programme sufficient to develop and/or maintain range of motion (ROM). These exercises may also reduce the likelihood of injury, reduce muscle soreness following exercise and may enhance muscular performance. These exercises should stretch the major muscle groups of the body. There are a number of forms of stretching techniques. However those without specific up-to-date knowledge in this area are advised to adhere to the following guidelines.

Frequency
2-3 days per week.

Duration
hold the stretch 1-3 times in a static (still) position for 10-30 seconds.

Exercises
Below is a list of recommended stretching exercises that should be performed:

Triceps and Upper Back Stretch

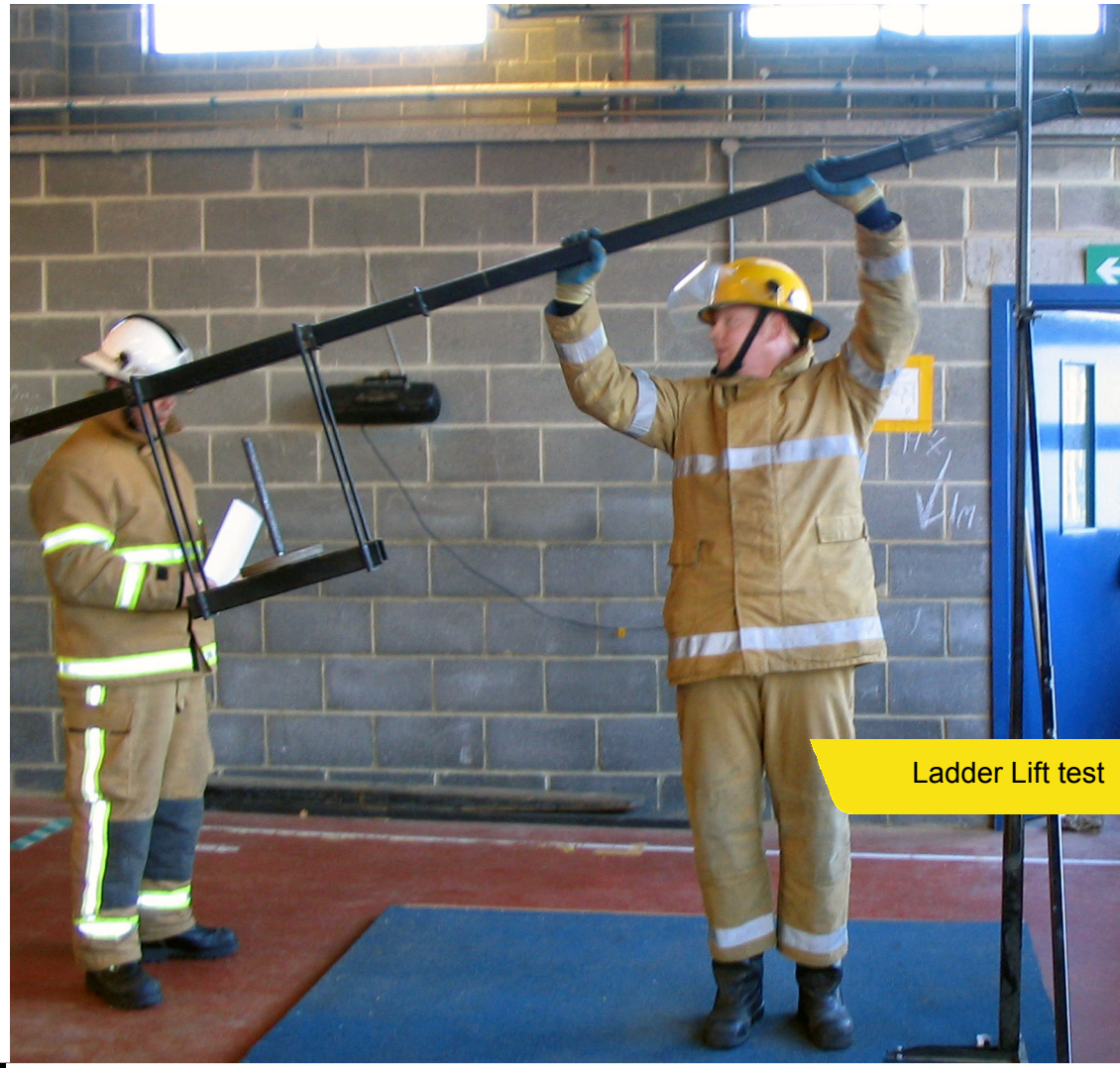
1. Sit or stand upright with one arm flexed, raised overhead with elbow next to your ear, and your hand resting on your opposite shoulder blade.
2. Grasp your elbow with the opposite hand.
3. Inhale and pull your elbow behind your head.
4. Hold the stretch and relax.
5. You should feel the stretch in the back of the arm.

Rear Deltoid and Upper Back Stretch

1. Sit or stand with one arm straight.
2. With the other hand grasp the elbow of the straight arm.
3. Inhale and pull the elbow across the chest and in towards the body.
4. Hold the stretch and relax.
5. You should feel the stretch in the back of the shoulder and upper back.

Ladder Lift Test

The ladder lift test simulates the individual physical demands of lifting the head of a 13.5 m ladder back on top of an appliance. A total load of 30 kg, lifted to a height of 1.90 m is required to successfully complete this test. The squat, seated row and particularly the shoulder press will help develop the specific muscles you need to successfully complete the ladder lift selection test.



Ladder Lift test

Equipment Carry Test

The equipment carry test is essentially a shuttle test that will test your levels of aerobic endurance, muscular strength and muscular endurance. It is designed to replicate some of the physical demands involved in setting up a water relay station to supply water to a grassland fire. A brief detail of the test is shown below. The test is performed back and forth along a 25 m shuttle whilst wearing full fire fighting protective clothing (which weighs ~10 kg):

Abdominal crunch

1. Lie face up on a soft surface, bend knees and bring feet close to the buttocks. Fold your arms across your chest, or place the hand lightly behind the head. Draw your belly button towards your spine by contracting your lower abdominal muscles. Whilst holding this contraction with normal breathing, slowly raise your shoulders towards your thighs while keeping the lower back on the floor.

Tips: Lower your shoulders and upper body slowly and with control.

Back extension

1. Lie on your stomach on a mat. Place your arms at your sides so that your hands are by your hips. Raise your head and shoulders off the mat as high as comfortably possible. Hold for 1-2 seconds. Lower the head and shoulders.

Tips: Do not tense your shoulder muscles.

Squat

1. From a standing position with feet between hip and shoulder width apart, bend at the knees and flex at the hip until your thighs are parallel with the floor. Push through the heels to return to the standing position.

Tips: Ensure that the knees are aligned with the feet and do not pass beyond the toes.

Lunge

1. From a split leg position, with one foot in front of the other, lower the back knee towards the floor so that the front thigh is almost parallel with the ground. Push off the front leg to return to the start position.

Tips: Look straight ahead. Ensure the front knee is aligned with the foot and does not pass beyond the toes.

Test

- Run out the hose reel for 25m
- Walk/Jog/Run back 25m
- Pick up and carry 2 x 70 mm hose (each weigh ~ 15 kg) for 100m
- Hold one 70 mm hose at shoulder height and walk 25m
- Walk/Jog/Run back 75m
- Pick up and carry the 100mm suction hose and basket (total weight ~12 kg) for 100m
- Walk/Jog/Run back 100m
- Pick up and carry the pump simulator (total weight ~33 kg) for 100m (Total distance covered is 550 m)

The equipment carry test will challenge all aspects of your fitness (aerobic endurance, muscular endurance and muscular strength). Therefore, you must adopt a whole body approach to your training that develops these specific aspects of fitness. However, fartlek training for developing aerobic endurance and the static bar hold and/or hand grip exercises for developing muscular endurance (with the squash/ tennis ball) are particularly relevant in preparation for the equipment carry selection test.

Equipment Assembly

The equipment assembly test is a timed test designed to test manual dexterity. You must assemble then disassemble a piece of equipment following a demonstration by the Safety Officer.

Breathing Apparatus Crawl

The Breathing Apparatus crawl is a test of your ability to cope with dark/ confined spaces and has only low-moderate physical demands, although good levels of flexibility and body awareness will be an advantage. Applicants will wear a breathing apparatus face mask and negotiate a crawl and walk way with a clear vision. Half way through the route their vision is obscured and they retrace their steps to the start/finish point. A Safety Officer will provide assistance if necessary. Applicants will need to complete this exercise in a given amount of time.

Breathing Apparatus Crawl Test

Shoulder Press

1. From an upright position, with dumbbells overhead, slowly lower the weight to shoulder level. Push the weight back up to the start position.

Tips: Ensure the back is flat if on a bench or comfortable against a ball. Perform slowly and in control. Look straight ahead.

Lat Pull Down

1. From a seated position, grasp the overhead bar just wider than shoulder width. Lean back slightly and draw the elbows in towards the side of the body so that the bar rests at the top of the chest.

Tips: Do not swing during exercise.

Chest Press

1. Whilst lying flat on the bench with feet planted firmly on the floor either side of the bench with your arms extended.
2. Slowly lower the weight to chest level. Push the weight back to the start position.

Tips: Ensure that back is flat on the bench and not arched. Perform slowly and in control.

Seated Row

1. From a seated position, with arms extended in front of the body and knees slightly flexed, draw the hands into the abdominal area squeezing the shoulder blades together.

How to improve your physical fitness prior to the test

Improving your physical fitness will require some self discipline and efficient use of your spare time, as effective exercise routines need to be completed on a regular basis.

In order to improve your physical fitness you will need to alter the frequency, intensity, and duration of your exercise above your current level. Your training should be gradual and progressive. You should start small and build up the intensity. This will produce a training effect by placing greater demands on your body.

In general, the less exercise you perform the lower the training effect, and the more exercise you perform the greater the training effect. Whilst certain exercises are more specific to fire fighting tasks, the need for maintaining muscular strength, endurance, and flexibility of the major muscle groups, through a well-rounded training programme, which includes aerobic, resistance and flexibility exercises is recommended. Although age in itself is not a limiting factor to exercise training, a more gradual approach in applying the prescription at older ages seems advisable.

Aerobic Training

Depending on your current aerobic fitness standard, you will need to follow the below guidelines to improve your aerobic fitness.

Frequency of training

3-5 days per week

Intensity of training

Heart rate monitors (see also page 18) ensure that you train at the right intensity. If you have access to a heart rate monitor you can calculate your desired training intensity by using the following equation:

Heart rate percentage of 55-90% of Predicted Maximum Heart Rate (PMHR)

Calculated by: 220 – Age = Predicted Maximum Heart Rate (PMHR)
PMHR X 0.7 (for 70 %) 0.8 (for 80%) etc. = heart rate %
or,
Level 10-17 on your Rating of Perceived Effort (RPE) scale

RPE Scale

Level 6	20% effort	rest
Level 7	30% effort	very, very light
Level 8	40% effort	
Level 9	50% effort	very light—gentle walking
Level 10	**55% effort**	
Level 11	60% effort	
Level 12	65% effort	
Level 13	70% effort	moderately hard
Level 14	75% effort	
Level 15	80% effort	hard
Level 16	85% effort	
Level 17	**90% effort**	very hard
Level 18	95% effort	
Level 19	100% effort	very, very hard
Level 20	Exhaustion	

Duration of training
20-60 min of continuous or intermittent (minimum of 10-min bouts accumulated throughout the day) aerobic activity. Duration is dependent on the intensity of the activity; thus, lower-intensity activity should be conducted over a longer period of time (30 min or more), and, conversely, individuals training at higher levels of intensity should train at least 20 min or longer.

Type of activity
Any activity that uses large muscle groups, which can be maintained continuously, and is rhythmical and aerobic in nature, e.g., walking-hiking, running-jogging, cycling, cross-country skiing, aerobic dance/ group exercise, rope skipping, rowing, stair climbing, swimming, skating, and various endurance game activities or some combination thereof.

Specificity
To maximize the efficiency of your training you should focus on exercises that are similar to those in the test. These include running-jogging, stepping, stair climbing and other weight bearing activities.

Resistance Training

In order to improve your strength and/or muscular endurance you will need to exercise against a resistance. This resistance can be your body weight, for example a press up, or the use of specifically designed equipment such as dumbbells, barbells or resistance machines.

Resistance training should be progressive in nature, individualised, and provide a stimulus to all the major muscle groups that is sufficient to develop and maintain muscular strength and endurance. You should follow the subsequent guidelines to improve your muscular strength and endurance.

Frequency
2-3 days per week*

Exercises
At least one set (8-15 repetitions) of 8-10 exercises that condition the major muscle groups of the body. Multiple-set sessions may provide greater benefits if time allows. The effect of exercise training is specific to the area of the body being trained. For example, training the legs will have little or no effect on the arms, shoulders, and trunk muscles, and vice versa.

Therefore a whole body approach should be a adopted. Muscles should also be worked in balance and as such the following exercises are recommended; chest press, seated row, shoulder press, lat pull down, squats, lunges, step up's, abdominal crunch, back extensions.

Rest
If performing multiple sets, adequate rest should be given to allow the muscles to recover before performing another 'set'.

**Individuals should not perform the same resistance exercise on consecutive days. At least 24 hours rest should be allowed before repeating the exercise.*

Moderate Zone begins at 50% HR max

Primarily for the sedentary person previously undertaking very little physical activity. It is a level which most people will be able to maintain for an extended period of time, hence providing increased fitness gains, without risking injury. This is the first step to improvement for an inactive person.

Weight Management Zone (Training Zone) 60 – 70% HR max

Often termed the “fat burning” zone. Mainly used for relatively low fitness levels or people wanting to control weight. The intensity level is such that most people can comfortably exercise for a long period and be able to use fat stored in the body as the main fuel for energy. This zone is the next step for a previously sedentary person after the moderate zone.

Aerobic Fitness Zone 70 – 80% HR max

This is the recommended zone for the improvement of cardiovascular health and fitness. This is also called the aerobic training or aerobic sensitive zone, after a few weeks of training you should be aware of a training effect, i.e. the work will feel easier and effort will decrease. This is a vigorous and challenging level for most people.

Peak Aerobic Performance 80 – 95% HR max

This is the highest level and is only recommended for very well trained individuals. This zone is primarily to increase speed, pace and to train to competitive levels. The main adaptation seen at this level is an increase to the anaerobic threshold with a greater resistance to fatigue while working at maximum capacity.

General Heart Rate Training

Heart Rate monitors are devices which are basically designed to measure the individual beats of the heart (bpm) using electrodes located in the chest strap and transfers this information to the wrist watch.

A common and well known method for identifying what the maximum theoretical heart rate an individual could achieve during exercise is simply;

HR max = 220 – your age

Maximum Heart rate (HR max) is the maximum number of times in one minute, that the heart can contract when exercising. The maximum heart rate achievable is variable it can be approximately 10 to 20 bpm higher or lower than predicted.

For example, a 40 year old could achieve a theoretical heart rate of 180 bpm;

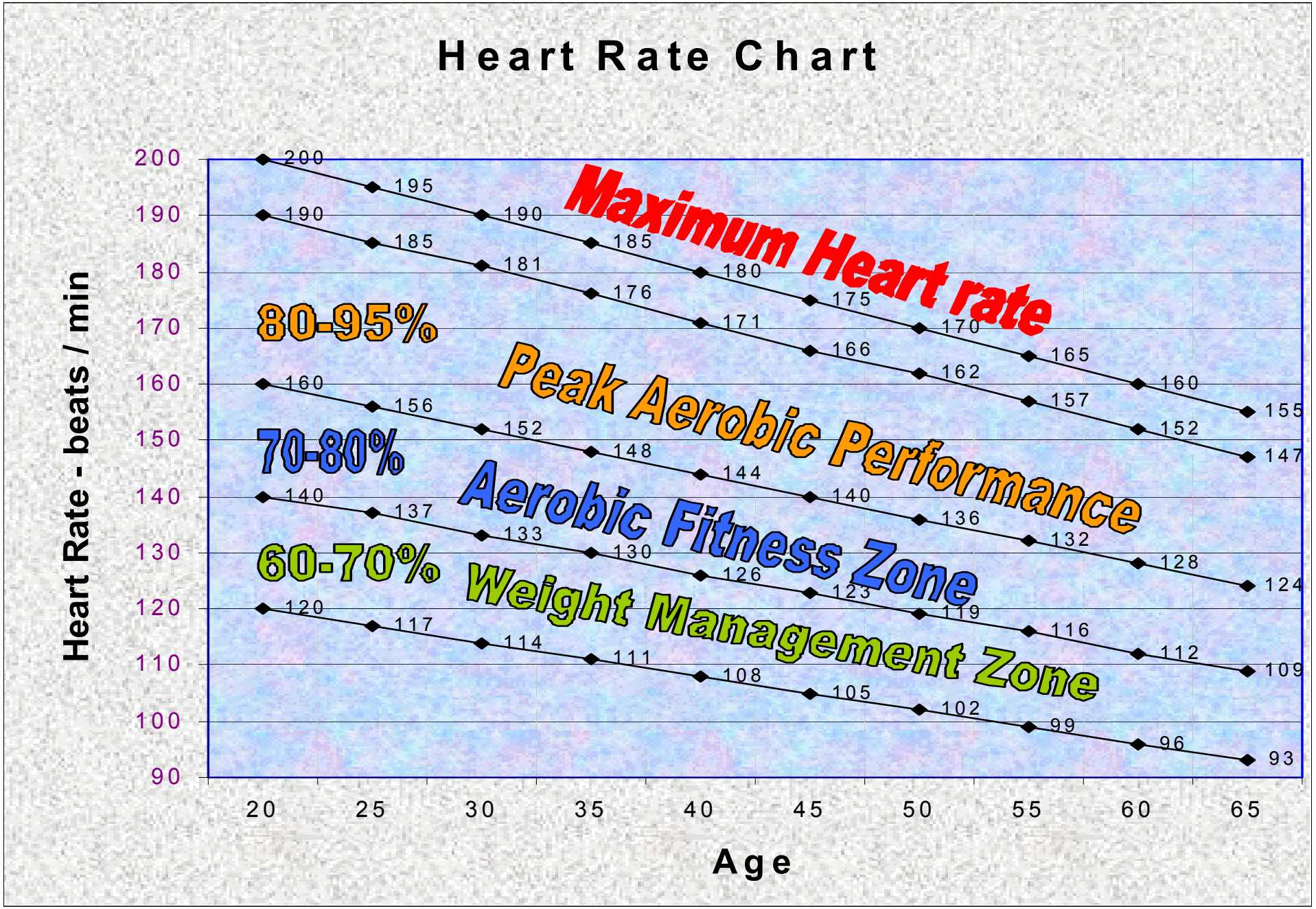
i.e. 220 – 40 = 180 bpm.

A heart rate monitor indication of 144 bpm for that same 40 year old individual during exercise indicates that they are working at approximately 80% HR max as shown in the table below;

bpm	% HR max
180	100%
162	90%
144	80%
126	70%
108	60%
90	50%

Once familiar with individual Heart Rates, then the level or *intensity* of training to be undertaken can be identified and monitored to suit individual requirements. These levels of intensity are usually divided into training zones and are as follows;

Fitness Guidance



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