



**Northern Ireland  
Fire & Rescue Service**

# **FITNESS GUIDE**

## **GET FIREFIGHTER FIT**



*Safer  
Together*

## Version Control

| Version | Date Approved | Date of Review |
|---------|---------------|----------------|
|         |               |                |

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# Contents

|                                   |    |
|-----------------------------------|----|
| Introduction                      | 4  |
| Practical Aptitude Tests          | 5  |
| Pre-employment Fitness Assessment | 9  |
| Warm Up & Cool Down               | 10 |
| 12-Week Development Programme     | 13 |

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# Introduction

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**Northern Ireland Fire & Rescue Service (NIFRS) would advise all candidates to consider participation in a physical exercise programme to help prepare for the demands of this role within NIFRS.**

It is well known that the occupational tasks of a Firefighter are arduous; often involving operating and carrying heavy equipment whilst working for long periods of time in challenging conditions.

These tasks demand a myriad of essential physical attributes to ensure they can be performed effectively, whilst reducing the likelihood of injury. A good general overall level of fitness is required to undertake firefighting training and good fitness levels cannot be acquired overnight.

Your health and/or physical fitness will be assessed during three different elements of the recruitment process. These are during the Practical Aptitude Tests (PATs), Pre-employment Medical Assessment and Pre-employment Fitness Assessment.

The aim of this booklet is to provide information and guidance on how to prepare for the PATs and fitness assessments.



# Practical Aptitude Tests

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Firefighting can be intensely physically demanding and fitness is crucial to the role. Wholtime and On-Call Firefighters need to be able to meet required standards of fitness. You also need to maintain fitness throughout your career and will undergo regular fitness assessments to ensure you are fit to do the job.

As part of the selection process, you will need to pass all our work related fitness tests. We call these our PATs. The PATs assess if you can perform physical tasks as a Firefighter. They reflect the daily tasks of a Firefighter and assess your fitness, strength, manual dexterity, and confidence in simulated exercises. The tests you will take are listed below:

## Ladder Lift / Lower Simulation (Shoulder press)

This is a test of your upper body strength and coordination. You will need to raise the bar of a ladder lift simulator, weighing 30kgs to the height of a fire appliance.

This will provide you with an indication of your current level of strength and whether you will need to improve your strength level in order to carry out the role.

If you fail to successfully lift a minimum of 25kg on the Ladder Lift / Lower Simulation test. Your application will no longer be considered and you will be excluded from the process.



## Breathing Apparatus & Enclosed Space

You will be required to follow a breathing apparatus guideline, to negotiate walk and crawl ways while wearing a breathing apparatus face mask. This tests confidence, agility and stamina.



## Casualty Rescue

You will be tested on upper and lower body strength and coordination. You are required to drag a 55kg casualty backwards in a straight line of 30 metres.

You will need to complete the test safely, within a specified time period to be successful.



## Equipment Carry

This physically tests your aerobic fitness, stamina, upper and lower body strength and coordination. You will need to carry items of equipment ranging from 3kg -25kg, over a 25 metre course within a specified time.

**Candidates will have to cover the total distance of 550 metres in a set time.**



This will involve:

- > Run out a hose reel for 25 metres, place it down and then jog 25 metres back to the start position.
- > Pick up and carry 2 coiled 70mm hoses (each weighing approx 16kg) for 100 metres (x4 25 metre lengths).
- > Carry 1 coiled 70mm hose at chest height for 25 metres, place it down and then jog 75 metres (x3 25 metre lengths) back to the start position.
- > Pick up and carry a 2.4 metre suction hose and basket strainer (total weight approx. 12kg) for 100 metres (x4 25 metre lengths) and place these down. Then run / jog 100 metres (x4 25 metre lengths) back to the start position.
- > Pick up and carry a simulated light portable pump (a barbell weighing 25kgs) for 100 metres (x4 25 metre length).

These tests are similar to what you would do on the ground as a Firefighter.

## Ladder Ascent / Descent

You will be required to climb a 13.5 metre ladder, to a marked point, take a leg lock, remove your hands from the ladder and look down, to identify a symbol held by an assessor at ground level, you then must safely descend the ladder to the ground level.

This tests confidence while at heights.



## Consideration Prior to Participation in Exercise

Prior to adopting any of the advice within this document, please contact your GP if you have not participated in physical activity for some time.

If you are in any doubt about your health or physical ability to exercise please also consult your GP.

To help reduce the risk of injury you should look to protect yourself by wearing appropriate clothing and footwear for the activity you are undertaking.





# Pre-employment Fitness Assessment

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## Chester Treadmill Walk Test – Aerobic Fitness Assessment

This assessment measures your aerobic fitness. This is the ability of your body to take in and use oxygen to fuel exercise and can also be referred to as stamina or endurance. Aerobic Fitness is closely linked to your ability to safely and effectively complete a number of different firefighting activities.

As part of our pre-employment checks, you will be required to undertake an aerobic fitness assessment. The test used will be the Chester Treadmill Walk Test (CTWT). This is a 12 minute long treadmill walking test, designed to identify individuals capable of reaching the required fitness standard of 42 VO<sub>2</sub> max.

The Chester Treadmill Walk Test involves walking at a speed of 6.2 km/hr for the entire test. The gradient starts at 0% for the first two minutes, and then increases by 3% every two minutes. Successful completion of the test requires you to **walk unaided** for a total time of 12 minutes with an increasing incline up to 15%. The test ends after 12 minutes, at which the gradient is returned to 0% and the speed reduced to enable the subject to cool down.

| Chester Treadmill Walk Test – Speed 6.2km / hr          |     |     |     |     |      |       |
|---|-----|-----|-----|-----|------|-------|
| Time (mins)   | 0-2 | 2-4 | 4-6 | 6-8 | 8-10 | 10-12 |
| Treadmill Gradient                                      | 0%  | 3%  | 6%  | 9%  | 12%  | 15%   |
| VO <sub>2</sub> (mlsO <sub>2</sub> /kg/min) oxygen cost | 14  | 19  | 25  | 31  | 36   | 42    |

Before undertaking the assessment, you will be required to answer some questions about your past and current health and undergo a blood pressure assessment to ensure that you are fit to participate in a fitness assessment (see Physical Activity Readiness Questionnaire, page 11).

# Pre-employment Fitness Assessment

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## Ladder Lift / Lower Simulation (Shoulder Press) – Strength Assessment

One of the main attributes that a Firefighter needs to have is physical strength. Firefighters should have sufficient upper body strength to be able to carry out their duties safely.

At pre-employment check stage, you will be required to successfully complete a ladder lift / lower simulation assessment again. However at this stage, you will be required to successfully lift 30kg using the ladder lift / lower simulation. This is to ensure you have the required level of upper body strength in order to safely carry out the duties of a Firefighter. If you fail to successfully lift 30kg at pre-employment check stage, you will not be appointed to the role and your application will no longer be considered.

\*See Practical Aptitude Tests for further guidance on the Ladder Lift / Lower Simulation test.





**Northern Ireland  
Fire & Rescue Service**

## The Physical Activity Readiness Questionnaire

Prior to taking part in any physical activity you need to make sure that you are fit enough to participate. Please answer the following questions as honestly as possible.

|    |  | Yes | No |
|----|--|-----|----|
| 1. | Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?   |     |    |
| 2. | Do you feel pain in your chest or shortness of breath at rest, during daily activities or living, OR when you do physical activity?  |     |    |
| 3. | Do you lose balance because of dizziness OR have you lost consciousness in the last 12 months? Please answer NO if your dizziness was associated with over breathing (including during vigorous exercise)                              |     |    |
| 4. | Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity? (If you are currently working operationally, on full duties answer to this question should be NO) |     |    |
| 5. | In the past 4 weeks have you been diagnosed with high blood pressure by your GP, OR had new medication for existing high blood pressure?   |     |    |
| 6. | Are you, or do you have any reason to believe that you may currently be pregnant? Or have you recently given birth?  |     |    |
| 7. | Do you know of any other reason why you should not do physical activity?   |     |    |

# Warm Up & Cool Down

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The purpose of warming up before physical activity is to prepare mentally and physically for your chosen activity. Warming up increases your heart rate and therefore your blood flow. This enables more oxygen to reach your muscles.

## How do I warm up before exercise?

A warm-up for light physical activity will take around 10 minutes. It involves light aerobic activity and some dynamic stretching movements appropriate for the activity you're about to perform. This could include:

- > fast-paced walking
- > walking up and down stairs
- > fast-paced side stepping
- > jogging on the spot
- > arm swings
- > lunges
- > squats

There's little evidence that static stretching reduces your risk of injury during physical activity or exercise, or even soreness the next day. However dynamic stretching, incorporated into an aerobic warm-up, remains very popular.

## How do I cool down after exercise?

To cool down after exercise, simply reduce the intensity of the activity you've been doing. For example, turn a:

- > jog into a walk
- > run into a jog
- > fast swim into an easy swim

This will help you gradually reduce your heart rate and begin the process of recovery. Gently stretching each of the main muscle groups for 10 to 15 seconds will restore their length and can help bring your mind and body back to a resting state.

# 12-Week Development Programme

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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, lifestyle and ultimate fitness goals.

This is a generic fitness programme and can be altered according to your current fitness and ability, also the time you have available.

The exercises shown below should be included in each resistance training session as these will develop stability, muscular strength and endurance in movements specific to firefighting activities.

Correct exercise technique is essential to improve fitness and prevent injury. If you are unsure of how to safely perform an exercise please seek advice from a qualified professional before performing the exercise.

The 12- week development programme at the end of this section is a suggested progressive training programme that would promote the development of aerobic fitness, muscular strength and endurance.

## Exercises

### Farmers Walk

- > Hold the dumbbells at your side with a firm grip. Stand tall, keeping your shoulders back and core tight.
- > Initiate the movement by walking forward at an even pace with your eyes focused straight ahead of you.
- > Walk for at least 10 Steps.
- > It is best to start with lighter weights when first trying the movement, then slowly advancing until you've reached a more challenging load.



## Lunges

- > Inhale and take a big step forward with your right leg, landing on the heel.
- > Bend at the knee until the right thigh approaches parallel to the ground. The left leg is bent at the knee and balanced on the toes while in the lunge position.
- > Step the right foot back on an exhale to return to the starting position.
- > Repeat the motion with the left leg.
- > Repeat for the desired number of repetitions.



## Shoulder Press

- > Taking a dumbbell in each hand, stand shoulder width apart with the hips and spine in a neutral position.
- > Lift the dumbbells so that they are positioned in between your shoulders and ears, palms facing forward.
- > Engage your core and glutes and extend your arms to press the dumbbells above your head. Keep your feet flat on the floor throughout the movement.
- > Slowly lower the dumbbells back to the starting position, making sure to keep the torso stable throughout.



## Bent over Row

- > Assume a standing position while holding the bar using a double overhand grip.
- > Hinge forward until your torso is roughly parallel with the floor (or slightly above) and then begin the movement by driving the elbows behind the body while retracting the shoulder blades.
- > Pull the bar towards your belly button until it touches your body and then slowly lower the bar back to the starting position under control.
- > Repeat for the desired number of repetitions.



## Squat to Press

- > Take a Kettlebell, hold it by the horns, up by your shoulders, close to your chest.
- > Stand with your feet shoulder width apart.
- > Squat down to a 90 degree angle and then stand back up.
- > As you stand back up press the Kettlebell up over your head.
- > Bring the Kettlebell back down to your shoulders. This completes one repetition.
- > You can also use dumbbells for this exercise.
- > Repeat for the desired number of repetitions.



## Press Ups

- > Get down on all fours, placing your hands slightly wider than your shoulders.
- > Straighten your arms and legs.
- > Lower your body until your chest nearly touches the floor.
- > Pause, and then push yourself back up.
- > Repeat for the desired number of repetitions.
- > Easier alternative, elevated press ups.



## Plank

- > Start in a tabletop position on your hands and knees, and then lower down to your forearms with your elbows stacked beneath your shoulders.
- > Step your feet back until your body makes a line from shoulders to heels.
- > Squeeze your core and think about pulling your belly button towards your sternum to engage the abs.
- > Hold the position for as long as possible, over time work up to 30, 45, or 60 seconds, progress until you reach 2mins.



## Deadlift

- > Stand with your mid-foot under the barbell.
- > Bend over and grab the bar with a shoulder-width grip.
- > Bend your knees until your shins touch the bar.
- > Lift your chest up and straighten your lower back.
- > Take a big breath, hold it, and stand up with the weight.
- > Hold the weight for a second at the top, with locked hips and knees.
- > Return the weight to the floor by moving your hips back while bending your legs.
- > Repeat for the desired number of repetitions.





## Bench Press

- > Draw your shoulder blades back behind you to keep from pressing with rounded shoulders.
- > Grasp the barbell using an overhand grip, placing your thumbs on the outside of your closed fist. Your arms are slightly wider than shoulder – width apart and the angle of your upper arms is about 45 degrees to the body.
- > Remove the barbell from the rack, locking your elbows. (Don't move the bar in an arc from the rack directly to the chest position.)
- > Inhale while lowering the bar to your chest, at the nipple line.
- > Repeat for the desired number of repetitions.



## Resistance Training

Resistance training sessions are designed by varying exercise selection, exercise intensity, the number of sets and repetitions and rest periods.

- > **Intensity:** The intensity is how hard you train and is increased by lifting a greater resistance.
- > **Reps:** A repetition is one completion of an exercise e.g. one deadlift, one bench press etc.
- > **Sets:** A set is a series of repetitions performed sequentially
- > **Rest:** The rest period is the time spent resting between sets to allow for recovery.

When beginning a training programme, the intensity, sets and reps should be progressed conservatively to ensure you are able to lift the correct weight for the prescribed number of repetitions with good technique and to minimise risk of injury.

As the intensity of your resistance training increases, the number of repetitions will decrease and the recovery time between sets will need to be increased. The 12-week development programme demonstrates how this can be achieved.

# Development Programme

|       |  | Week   |  |  |   |   |   |
|-------|--|--|--|--|---|---|---|
|       |  | 1  | 2  | 3  | 4   | 5   | 6 |
| Mon   | <p><b>Cycling</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Cycling</b></p> <p>30mins<br/>RPE 11-13</p>   |   |
| Tue   | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> |   |
| Wed   | <p><b>Rowing</b></p> <p>20mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>20mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>20mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>25mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Rowing</b></p> <p>30mins<br/>RPE 11-13</p>  |   |
| Thurs | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>   | <b>Rest Day</b>   |   |
| Fri   | <p><b>Treadmill</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Treadmill</b></p> <p>30mins<br/>RPE 11-13</p>   |   |
| Sat   | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>   | <b>Rest Day</b>   |   |
| Sun   | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> |   |

|       |   | Week   |  |  |   |   |    |
|-------|---|--|--|--|---|---|----|
|       |   | 7  | 8  | 9  | 10  | 11  | 12 |
| Mon   | <p><b>Cycling</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Cycling</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Cycling</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Cycling</b></p> <p>30mins<br/>RPE 11-13</p>   |    |
| Tue   | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p>       | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> |    |
| Wed   | <p><b>Intervals</b></p> <p>Brisk<br/>Walk/Jog/Run<br/>4X4 mins at<br/>RPE 16</p> <p>4 mins easy<br/>pace recovery</p> | <p><b>Rowing</b></p> <p>20mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>20mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>25mins<br/>RPE 11-13</p>   | <p><b>Rowing</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Rowing</b></p> <p>30mins<br/>RPE 11-13</p>  |    |
| Thurs | <b>Rest Day</b>   | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>   | <b>Rest Day</b>   |    |
| Fri   | <p><b>Treadmill</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Treadmill</b></p> <p>20mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>25mins<br/>RPE 11-13</p>  | <p><b>Treadmill</b></p> <p>30mins<br/>RPE 11-13</p>   | <p><b>Treadmill</b></p> <p>30mins<br/>RPE 11-13</p>   |    |
| Sat   | <b>Rest Day</b>   | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>  | <b>Rest Day</b>   | <b>Rest Day</b>   |    |
| Sun   | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p>       | <p><b>Resistance Training</b></p> <p>2 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>3 Sets<br/>12-15 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>30secs<br/>Recovery</p> | <p><b>Resistance Training</b></p> <p>2 Sets<br/>8-12 Reps<br/>Low /<br/>Moderate</p> <p>45secs<br/>Recovery</p> |    |

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