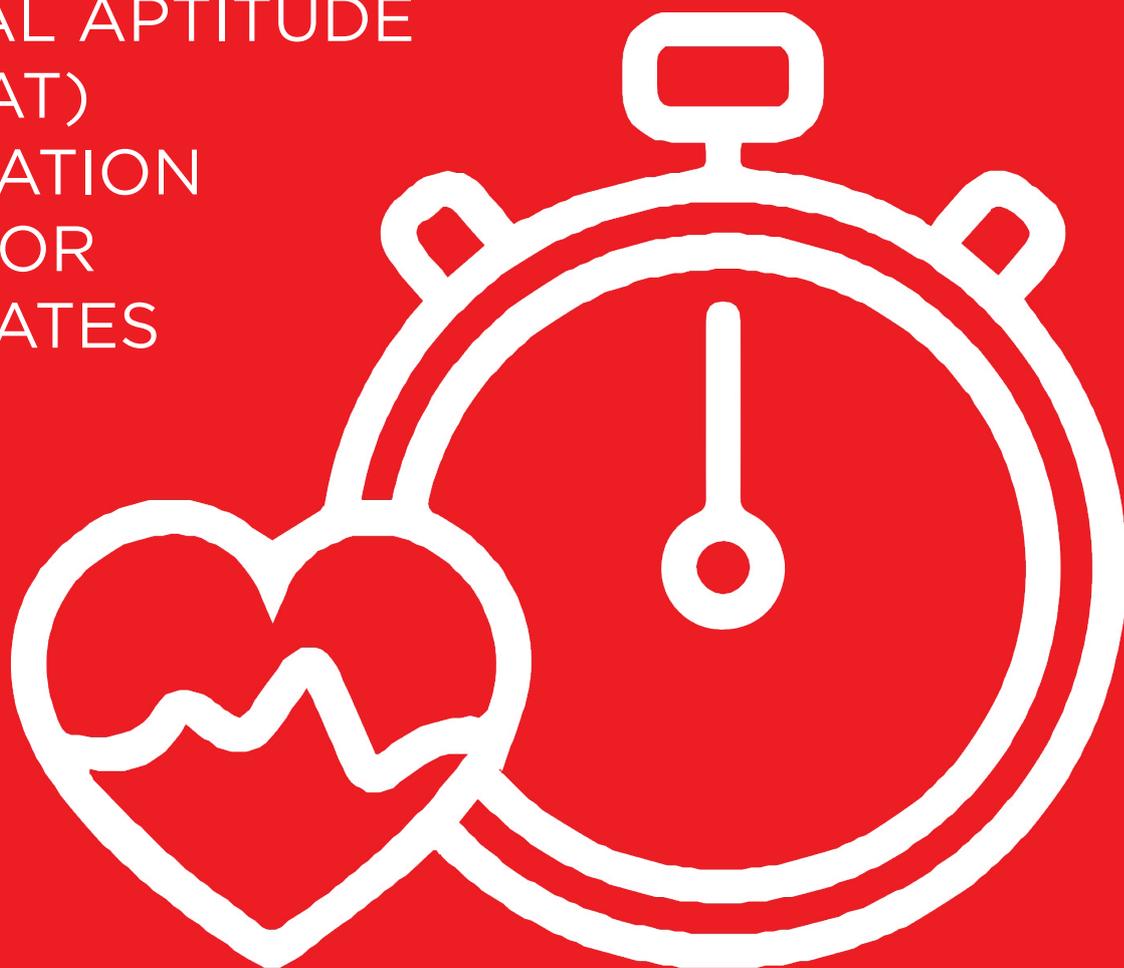




FIREFIT TRAINING GUIDE

PHYSICAL APTITUDE
TEST (PAT)
PREPARATION
GUIDE FOR
CANDIDATES



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1. INTRODUCTION

Fire and Rescue NSW (FRNSW) is the busiest urban fire and rescue service in Australia and one of the largest in the world. FRNSW's firefighters provide rapid and reliable response to emergencies across the state, 24 hours a day, seven days a week from more than 335 fire stations.

Our main purpose is to prevent and respond to fires and hazardous material (hazmat) incidents, however we deliver many more critical services for the people of NSW.

Our people include approximately 3,500 permanent firefighters, 3,500 on-call firefighters, 5,000 Community Fire Unit (CFU) volunteers and 480 administrative and trades staff.

GENERAL INSTRUCTION FOR YOUR TRAINING PROGRAM

BEFORE YOU GET STARTED

It is recommended all candidates complete a Physical Activity Readiness Questionnaire (PAR-Q), see next page, prior to commencing their Physical Aptitude Test (PAT) preparation program. The PAR-Q can also assist you in determining if you should consult your General Practitioner or other health care professionals prior to commencing this program or other more intense physical exercises.

GETTING STARTED

You should commence training well in advance of the proposed date. At least 12 months of structured training prior to your PAT is highly recommended.

PROGRESS AT YOUR OWN PACE

You should progressively increase your training load (e.g. how long you perform your sessions for, the intensity of the session, the amount of weight you are lifting etc), making sure your body has adequate time to rest and recover. Progression should be gradual and within the limits your body can tolerate.

Progressing your load or exercise without mastering previous load or exercise can increase your risk of injury. Do not progress if you are not physically capable to do so.

TAPER YOUR TRAINING BEFORE THE PAT

Tapering your program at least one week before the actual test date will ensure adequate time for your body to recover and allow you to perform at your best during the PAT.

2. PHYSICAL ACTIVITY READINESS QUESTIONNAIRE

ADULT PRE-EXERCISE SCREENING TOOL

This screening tool does not provide advice on a particular matter, nor does it substitute for advice from an appropriately qualified medical professional. No warranty of safety should result from its use. The screening system in no way guarantees against injury or death. No responsibility or liability whatsoever can be accepted by Exercise and Sports Science Australia, Fitness Australia or Sports Medicine Australia for any loss, damage or injury that may arise from any person acting on any statement or information contained in this tool.

Name: _____

Date of Birth: _____ Male Female Date: _____

STAGE 1 (COMPULSORY)

AIM: to identify those individuals with a known disease, or signs or symptoms of disease, who may be at a higher risk of an adverse event during physical activity/exercise. This stage is self administered and self evaluated.

Please circle response

- | | | |
|---|-----|----|
| 1. Has your doctor ever told you that you have a heart condition or have you ever suffered a stroke? | Yes | No |
| 2. Do you ever experience unexplained pains in your chest at rest or during physical activity/exercise? | Yes | No |
| 3. Do you ever feel faint or have spells of dizziness during physical activity/exercise that causes you to lose balance? | Yes | No |
| 4. Have you had an asthma attack requiring immediate medical attention at any time over the last 12 months? | Yes | No |
| 5. If you have diabetes (type I or type II) have you had trouble controlling your blood glucose in the last 3 months? | Yes | No |
| 6. Do you have any diagnosed muscle, bone or joint problems that you have been told could be made worse by participating in physical activity/exercise? | Yes | No |
| 7. Do you have any other medical condition(s) that may make it dangerous for you to participate in physical activity/exercise? | Yes | No |

IF YOU ANSWERED 'YES' to any of the 7 questions, please seek guidance from your GP or appropriate allied health professional prior to undertaking physical activity/exercise

IF YOU ANSWERED 'NO' to all of the 7 questions, and you have no other concerns about your health, you may proceed to undertake light-moderate intensity physical activity/exercise

I believe that to the best of my knowledge, all of the information I have supplied within this tool is correct.

Signature _____

Date _____

| 3. KEY TAKE AWAY POINTS

PERFECT PRACTICE MAKES PERFECT

Correct technique must be mastered with an exercise prior to adding load. If you are not proficient at a given exercise, continue with this exercise for the next block and adjust the sets, reps and loads to match that block. If you need further assistance from a fitness professional, you should go and get it.

BEING STRONGER WILL IMPROVE YOUR CHANCES OF SUCCESS

Having a sound base of strength will carry over to most tasks of the PAT and prevent you from working near your maximal level too soon during the PAT. For strength sessions, also ensure you are adhering to the recommended rest periods between sets. This is the time required for your body's nervous and energy systems (aerobic and anaerobic) to recover between intense efforts. If you can perform the same effort with less rest, you probably aren't lifting a heavy enough load (weight).

EXPOSE YOURSELF TO CONDITIONS OF FIREFIGHTING

Do not underestimate the importance of having a good 'cardio engine' for the PAT. Cardio fitness will help with heat tolerance.

As you progress through the program, there are opportunities to combine the cardiovascular work with additional 'heat load' (e.g. training outdoors, wearing a tracksuit etc) – ensure you do these safely and progressively as heat stress is no joke.

DO NOT TAKE THE PAT FOR GRANTED

Look to 'taper' your training in the 7 days prior to undertaking the PAT e.g. reducing the number of sets of strength exercises and sets performed in your cardiovascular sessions.

GET COMFORTABLE WITH BEING UNCOMFORTABLE

Completing the 'check in' sessions and 'finisher' sessions at the end of a strength session will assist with this – keep reading!

4. WEEKLY TRAINING STRUCTURE

A high degree of strength and cardiovascular fitness enables firefighters to safely and effectively execute their operational duties and will also increase your potential to pass the PAT. It is highly recommended for individuals who are inexperienced in resistance training to engage appropriately qualified trainer / Exercise Scientist / Strength & Conditioning coach.

There are certain types of training that need to be covered each week. As follows:

Strength sessions

2 sessions per week - see page 7. It is recommended that you complete each of the 4 Strength blocks prior to your PAT. If there is still time after completing the program prior to your PAT, simply start each block again and, considering that you should now be stronger(!), adjust the weights accordingly i.e. you should go heavier the next time around!

'Finisher session'/'workout of the day'

Should also be completed once per week at the end of one of the strength sessions- see page 9

Cardiovascular sessions

2 sessions per week - see page 12. It is recommended that you complete the entire 10-week MAS program (there are 19 sessions over those 10 weeks) for cardiovascular fitness prior to your PAT. If there is still time after completing the program prior to your PAT, simply re-start the program from week 1, using your new time trial score to re-set your training targets.

'Check in' sessions

Should be completed every 4 weeks throughout the program to track your progress. Simply substitute this check in session for one of the strength or cardiovascular sessions that week - see page 13.

EXAMPLE TRAINING WEEK SCHEDULE

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Strength session	Cardiovascular session	REST	Strength session + Finisher session	REST	Cardiovascular session	REST

EXAMPLE LONG-TERM SCHEDULE - PUTTING IT ALL TOGETHER

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	PAT	
Strength blocks and sessions 2 sessions/week	1				2				3				4				repeat/continue... ..						
Finisher once every week after a strength session	1	1	1	1	1	1	1	1	1	1	1	1	1	1	repeat/continue... ..						taper week		
Cardiovascular sessions (MAS) 2 sessions/week	T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Check in every 4 weeks	C				C					C					C								

5. TRAINING FOR STRENGTH

The strength program below consists of 4 training blocks, where exercises, sets, repetitions and loads vary for each block.

Exercise selection: Each training block will include 1 exercise from the following exercise categories:

- Squat
- Hip Hinge
- Single leg
- Upper body vertical and horizontal push
- Upper body pull
- Carries

SETS, REPS AND LOAD SELECTION

Session 1 of each block involves determining your loads for the block. Pick a weight you think you can achieve for the prescribed repetitions (see table on the following page). Do as many reps as you can with this weight (ensuring correct technique is maintained). If the reps achieved is 2 or more than the recommended, choose a heavier weight.

Each week, look to increase lower body exercise loads by 2.5-5kg and upper body exercise loads by 1.25kg-2.5kg (at least for 1 set in the session and only if correct technique can be maintained). Ensure correct technique can still be maintained with the increased loads.

‘Super setting’ exercises is recommended to move through the session more efficiently. This can be achieved by grouping 2 or 3 exercises together and completing them back-to-back with minimal rest, before taking the recommended rest and then completing the next set of the superset e.g. As per below, complete “A” exercises one after the other for the given number of sets before moving onto the “B” and then “C” exercises.

Exercise Category	Block 1 (wk 1-4)	Block 2 (wk5-8)	Block 3 (wk9-12)	Block 4 (wk13-14)
A1: Squat	3 sets (+1 warm up set), 10-12 reps (20-30m for carries) 45-60sec rest between sets	3 sets (+2 warm up set), 6-8 reps (30-40m for carries) 60-90sec rest between sets	4 sets (+3 warm up set), 3-5 reps (30-40m for carries) 90sec-2min rest between sets	2 sets (+3 warm up set), 1-3 reps (50-60m for carries) 2-3min rest between sets
A2: Upper body vertical push	Goblet squat to bench	Goblet squat	Barbell back squat to bench	Barbell back squat
A3: Upper body pull	Standing single arm Dumbbell Military press	Thruster (squat to press- Barbell or Dumbbell)	Standing push press (Barbell or Dumbbell)	Standing Military Press (Barbell or Dumbbell)
B1: Hip hinge	Low pulley row	Inverted row	1 arm bench row	Bent over row (Barbell or Dumbbell)
B2: Upper body horizontal push	Dowel Hip hinge	Barbell Romanian Deadlift (Bar to knee)	Partial range Deadlift (pull from mid shin)	Deadlift (from ground)
C1: Single leg	Incline push up	Push up	Push up (pause hold- 2 sec at bottom)	Decline push up
C2: Carries	Dumbbell Split squat	Dumbbell Reverse lunge	Dumbbell Walking lunge	Barbell Rear foot elevated split squat
	Farmers carry	Suitcase carry	Double waiters (Overhead) carry	Overhead lunge walk

THE PROGRESSIVE OVERLOAD PRINCIPLE

Look to progressively increase the weight and reduce the reps for each week within a given block – a process known as “progressive overload”.

The table below contains an example of what block 3 may look like for an upper body exercise (Barbell standing push press) and a lower body exercise (Barbell back squat to bench).

Barbell standing push press

WEEK	SETS	REPS/ DISTANCE	REST BETWEEN SETS	RELATIVE LOAD (to show an example of progressive overload)
9	4	5	90 sec	30kg
10	4	4	2 min	31.25kg
11	4	3	2-3 min	32.5kg
12	5	3	3 min+	35kg

Barbell back squat to bench

WEEK	SETS	REPS/ DISTANCE	REST BETWEEN SETS	RELATIVE LOAD (to show an example of progressive overload)
9	4	5	90 sec	80kg
10	4	4	2 min	85kg
11	4	3	2-3 min	90kg
12	4	3	3 min+	92.5kg

6. FINISHER SESSIONS/WORKOUT OF THE DAY

The finisher/workout of the day sessions should be completed once per week at the end of a strength session, by selecting one of the options below. They are a series of exercises performed consecutively for prescribed repetitions/ time with minimal rest. It is also recommended they be conducted in an outside environment with the addition of extra clothing (hats, gloves, jacket etc.). Addition of load carriage (weighted vest, backpack etc.) may also be incorporated if you can maintain good exercise technique.

OPTION 1: BODY WEIGHT FINISHER

Exercise	Sets	Reps	Rest	Location and dress
Spiderman 	3-5	15 non-stop	90 secs between sets	Block 1 Outside Block 2 Outside, hat, long sleeves Block 3 Outside, hat, gloves, long sleeves, long pants Block 4 Outside, hat, gloves, jacket, long pants
Push up 				
Mountain climbers 				
Alternative lunge 				
Prisoner jump squats 				

OPTION 2: LOADED CARRY FINISHER

Carries	Distance	Sets	Work:Rest
<p>Farmers carry (two side dumbbell carry)</p> 			
<p>Suitcase carry (single side dumbbell carry)</p> 	<p>30m intervals with a grip change</p>	<p>2-4 of each</p>	<p>2:1 Eg: 30 sec carry = 15 sec rest</p>
<p>Overhead carry</p> 			

OPTION 3: 20MIN AS MANY ROUNDS AS POSSIBLE

Exercise	Beginner	Intermediate	Advanced/ target
<p style="text-align: center;">2 min row</p> 	@ 150 Watts	@ 200 Watts	@ 250 Watts+
<p style="text-align: center;">10x floor to overhead single arm</p> 	5kg	10kg	15kg+
<p style="text-align: center;">30m farmers carry</p> 	2x10kg	2x15kg	2x20kg+
<p style="text-align: center;">30m overhead walking lunge</p> 	BW	5kg	10kg+

7. TRAINING FOR CARDIOVASCULAR FITNESS

The ability to tolerate cardiovascular stress is extremely important for the safety and effectiveness of firefighters undertaking operational duties. It is also important to establish a solid 'base' of cardiovascular conditioning so that higher outputs can be achieved in the future and recovery between high intensity efforts is more efficient. This 'base' is incorporated into the below cardiovascular program, also known as a 'Maximal Aerobic Speed' (MAS) program.

10-WEEK MAXIMAL AEROBIC SPEED (MAS) PROGRAM

In conjunction with your 2 x weekly strength sessions and 1x weekly finisher/workout of the day session, complete the 10-week cardiovascular program below, twice per week. **The program is designed to be completed on either an exercise bike or rowing machine** and is initiated with a 5-minute time trial during week 1 to establish your specific baseline. **You will need access to Microsoft Excel or a compatible spreadsheeting software to use this program.** Your baseline is then used to determine the power (or distance) you need to be working at for various intervals throughout the program. At the end of the 10 weeks, you will need to undertake a 'retest' of your 5-minute time trial to get a new (higher) baseline score from, which resets (increases) the power/distance you need to be working at for the next 10 weeks.

DOWNLOAD YOUR MAS PROGRAM SPREADSHEET



The image below is what your 10-week MAS program looks like, however you will need to download the spreadsheet to input your time trial results and get your power/distance targets.

Go to fire.nsw.gov.au/contact/employee-support/firefit-pat-resources or scan the QR code.

| 8. CHECK IN SESSION

A 'check in' session is to be incorporated every 4 weeks of the training program to track your progress under firefighter specific conditions (load carriage, heat tolerance, outdoor environment).

The below session should be completed during week 1 and every 4 weeks of the program, replacing one of the strength or cardiovascular sessions that week. It is recommended that resting heart rate, maximal and average session heart rate, 2 minute recovery heart rate and total session time is recorded each time the check in session is completed.

Complete the entire set of an exercise before moving onto the next exercise i.e. complete the entire "A1" exercise, before moving onto the "B1" exercise, completing all the repetitions before moving onto the "C1" exercise etc. in a similar structure to how the PAT is completed.



FIREFIT

PREPARE
FUEL
TRAIN
RECOVER

CHECK IN SESSION

Date:	
Resting Heart Rate:	
Max. Heart Rate during session:	
Average Heart Rate during session:	
Heart Rate 2 min after session:	
Total session completed time:	

Recommended to complete session outdoors, in tracksuit top and bottoms and a 15-20kg weighted vest

A1: 25kg suitcase carry 5x30m

B1: Low box step ups w/ 17.5kg single sided DB hold. 1x36 reps

C1: 20kg KB (or DB) single sided static hold- 40 sec work, 20 sec rest at each of:

- Shoulder height (bottoms up or rack position)
- Waist height
- Knee height

D1: 5x30m Prowler push/sled drag. 15m up and back walk between 30m efforts

APPENDICES

STRENGTH PROGRAM - BLOCK 1

Weeks: 1-4

No. warm up sets: 1

Sets: 3

Reps: 10-12 (20-30m for carries)

45-60 secs rest between sets

Note: It is imperative that correct technique is mastered with an exercise prior to adding load. If you are not proficient at a given exercise, continue with this exercise for the next block and adjust the sets, reps and loads to match that block. Since these sessions are strength- focused, you should do the prescribed number of sets for one exercise category before moving on to the next.

Category	Squat	Hip hinge	Single leg	Upper body vertical push	Upper body horizontal push	Upper body pull	Carries
Block 1 (wk 1-4) Load selection Session 1:	Goblet squat to bench	Dowel Hip hinge	Dumbbell Split squat	Standing single arm Dumbbell Military press	Incline push up	Low pulley row	Farmers carry
Technique							
							

STRENGTH PROGRAM - BLOCK 2

Weeks: 5-8

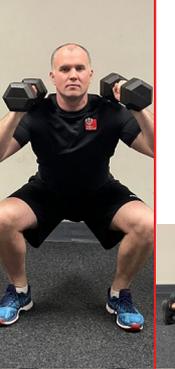
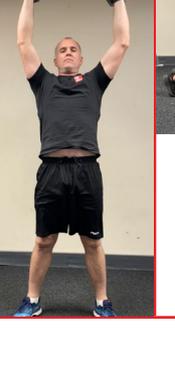
No. warm up sets: 2

Sets: 3

Reps: 6-8 (30-40m for carries)

60-90 secs rest between sets

Note: It is imperative that correct technique is mastered with an exercise prior to adding load. If you are not proficient at a given exercise, continue with this exercise for the next block and adjust the sets, reps and loads to match that block. Since these sessions are strength- focused, you should do the prescribed number of sets for one exercise category before moving on to the next.

Category	Squat	Hip hinge	Single leg	Upper body vertical push	Upper body horizontal push	Upper body pull	Carries
Block 2 (wk 5-8) Load selection Session 1:	Goblet squat	Barbell Romanian Deadlift (Bar to knee)	Dumbbell Reverse lunge	Thruster (squat to press - Barbell or dumbbell)	Push up	Inverted Row	Suitcase carry
Technique							
							

STRENGTH PROGRAM - BLOCK 3

Weeks: 9-12

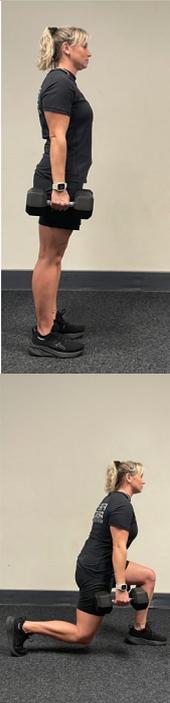
No. warm up sets: 3

Sets: 4

Reps: 3-5 (30-40m for carries)

90 secs – 2 mins rest between sets

Note: It is imperative that correct technique is mastered with an exercise prior to adding load. If you are not proficient at a given exercise, continue with this exercise for the next block and adjust the sets, reps and loads to match that block. Since these sessions are strength- focused, you should do the prescribed number of sets for one exercise category before moving on to the next.

Category	Squat	Hip hinge	Single leg	Upper body vertical push	Upper body horizontal push	Upper body pull	Carries
Block 3 (wk 9-12) Load selection Session 1:	Squat	Partial range deadlift (pull from mid shin)	Dumbbell walking lunge	Standing push press (barbell or dumbbell)	Push up (pause hold - 2 seconds at bottom)	1 arm bench row	Double waiters (overhead) carry
Technique							

FINISHER SESSION - OPTION 1 - BODY WEIGHT FINISHER

Exercise	Spiderman	Pushups	Mountain Climbers	Alternating Lunges	Prisoner Jump Squats
Technique					

FINISHER SESSION - OPTION 2 - LOADED CARRIES FINISHER

Carry type	Farmers Carry	Suitcase Carry	Overhead Carry
Technique			

FINISHER SESSION - OPTION 3 - AS MANY ROUNDS AS POSSIBLE

Exercise	Rower	Floor to overhead single arm	Farmers Carry	Overhead Walking Lunge
Technique				

CHECK IN SESSION

Exercise	Suitcase carry	Low box step ups	Static holds (KB or DB)	Sled drag / prowler push
Technique		 <p>(Ensure you select a suitable, stable platform to perform the steps ups on)</p>		



**FIRE +
RESCUE**