



Clackamas Fire District #1

Guide to Recruit Preparation



Provided by the Clackamas Fire Wellness Program

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Clackamas Fire District Recruit Preparation

TABLE OF CONTENTS

Physical Fitness in the Fire Service	Page 3
General Training Guidelines	
Cardiovascular	Page 4
Interval Training	Page 4
Fit vs. Unfit	Page 4
Muscular Strength	Page 5
Muscular Endurance	Page 6
Flexibility	Page 6
Active Warm-up and Cool-down	Page 6
Body Composition	Page 7
Preparing to Become a Clackamas Fire Recruit	Page 7
CPAT Candidate Preparation Guide	Page 8
Preparing for Success	Page 8



Clackamas Fire District Recruit Preparation

PHYSICAL FITNESS IN THE FIRE SERVICE

Firefighting is a physically demanding profession that requires a high level of cardiovascular endurance, muscular strength and muscular endurance. A firefighter recruit is expected to be in top physical condition in order to complete the probationary academy. The following information was developed to assist you with physically preparing to become a firefighter with Clackamas Fire District #1.

Firefighters are expected to perform in a wide variety of settings and situations. Maintaining a high level of all around fitness is necessary to be safe and effective. The following is a list of essential job functions that a firefighter should physically be prepared to do:

- Put on and wear protective equipment (Gear and SCBA weight of 50lb plus)
- Enter smoke filled buildings/rooms with a hose in hand wearing full protective equipment
- Extricate people from automobile
- Pull uncharged hose off a pumper to hydrant
- Systematically search for trapped people
- Safely free and/or lift victim
- Drag charged 1 ¾ inch hose 25 feet unassisted
- Crawl on a floor and feel for the heat of the fire source
- Carry equipment up stairs while wearing full turnout gear and SCBA
- Carry a hose pack up flights of stairs wearing full protective equipment
- Use equipment (ax, sledgehammer, etc.) to make forcible entries
- Drag a victim (150 lbs or more) out of a building unassisted and wearing full turnout gear.
- Climb an aerial ladder to a height of 50 to 75 feet wearing full equipment
- Remove a 24-foot extension ladder from the truck unassisted, position the ladder, and raise the halyard.
- While on ladder, direct water at fire.

All of these duties are on top of working 24 hours shifts with little or no sleep.





Clackamas Fire District Recruit Preparation

GENERAL TRAINING GUIDELINES

CARDIOVASCULAR

Cardiovascular endurance is the ability of the cardiovascular and respiratory systems to deliver oxygen to working muscles. Numerous studies have demonstrated the necessity of maintaining a high level of aerobic capacity for fire service activities. Measurements of heart rate response taken during normal firefighting tasks have been shown to be at, or near, maximal levels. For this reason, optimal aerobic capacity is essential for the safety of the firefighter and the performance of their job.

Interval Training

Firefighting tasks are not always steady-state in nature; therefore, cardiovascular training needs reflect this. Studies of blood lactate levels following the most physically demanding firefighting operations indicate substantial involvement of the anaerobic system.

Interval training is a great way to improve both anaerobic and aerobic endurance. This type of training involves a repeated series of exercise activities interspersed with rest or relief periods. Interval training should be rotated with steady-state aerobic training in order to prevent overtraining.



Fit vs. Unfit

An unfit individual's heart will pump small amounts of blood per beat which in turn requires the heart to beat very rapidly in order to compensate for its poor pumping power. In addition, a poorly fit individual will not have a sufficient amount of oxygen supply to the muscles and will fatigue very quickly. A highly trained individual will be capable of performing more work over a longer period of time than the untrained individual.

The ability to deliver oxygen can be enhanced through physical training. An overload (greater than the body is used to) must be placed on the heart and lungs during exercise in order to improve. Overload can be applied in the following ways:

- Increasing the **intensity** of exercise
- Increasing the **duration** of exercise
- Increasing the **frequency** of exercise

Clackamas Fire expects that recruits start an academy with a high level of cardiovascular fitness. Group physical activities will be held every morning of an academy- with the expectation that every recruit is able to run at least 2.0 miles.



Clackamas Fire District Recruit Preparation

MUSCULAR STRENGTH

Muscular strength is defined as the maximal force that a specific muscle or muscle group can generate. The demands of a firefighter require above average strength. Job analysis shows that the weight of equipment used by a single firefighter on the job is in excess of 100lbs. Low levels of muscular strength most likely contribute to the high incidence of sprains, strains and back injuries among firefighters.

A strong athletic foundation is necessary before the body can work up to doing specific training. It's strongly recommended that those choosing the firefighter profession are actively involved with a muscular strength and endurance program.

The following is a list of weights for equipment that can be expected to be lifted by recruits. The lists are approximate weights due to the varying type and brand of firefighting equipment utilized by Clackamas Fire District #1.



Equipment	Weight
1 3/4" 50 feet of hose	20 lbs
2 1/2" 50 feet of hose	35 lbs
3" 25 feet of hose	30 lbs
4" 100 feet of hose	110 lbs
14 ft Roof Ladder	45 lbs
24 ft Extension Ladder	75 lbs
SCBA	29 lbs
PPV Fan- gas	90 lbs
High Rise Pack	55 lbs
Gurney	90 lbs
Master Stream	60 lbs
Fellow Firefighter	140-260 lbs

Remember it is probable that you will experience multiple repetitions with all of these weights and recruit candidates should be able to sustain and have the endurance to accomplish tasks over long duration incidents.



Clackamas Fire District Recruit Preparation

MUSCULAR ENDURANCE

Muscular endurance is the ability of a muscle group to perform repeated contractions. Low levels of muscular endurance contribute to many preventable fire service injuries. For example, core muscle endurance is necessary to stabilize the torso and support the lower back during exertion. When preparing for the upcoming academy, cardiovascular and resistance training are important– but the foundation to all movement is core muscular endurance.

The primary purpose of core endurance is to develop muscular control of forces acting on the body. Firefighters must be able keep their bodies in the optimal postures for performance, even as gravity, terrain and obstacles fight against them. Add a load to this equation, such as an axe or an injured firefighter, and the balance and stability demands go through the roof. If a firefighter cannot control their body weight, they cannot expect to do well with a load on their back.



FLEXIBILITY

Flexibility is the functional measure of the range of motion of a joint. Joint and limb restrictions can influence essential dynamic movements, balance, coordination and muscular work efficiency. Although the effect of increasing flexibility on performance is controversial, it is widely accepted that a lack of flexibility may contribute to injury.

The leading line-of-duty injury for a firefighter is sprain and strain. In addition, back injuries have been the most prevalent fire service injury leading to premature departure from the fire service. Low levels of flexibility may contribute to this. When a joint lacks flexibility, it is unable to move safely through a normal range of motion. Once this occurs, other surrounding joints must compensate in order to perform essential tasks, a biomechanical compromise which can lead to injuries.

Active Warm Up and Cool Down



For safety and effectiveness, a warm-up should be the first component of any program. Health related benefits of a warm-up include: increased blood flow to the working muscles and joints, decreased likelihood of injury, lowered risk of low-back pain and improved performance. An active warm-ups consist of multi-joint movements that are functional and put joints through a dynamic range of motion rather than static stretching.

A proper cool-down should be performed after a workout to provide the mind and body with a period of adjustment from exercise to rest. Stretching exercises should be performed within 5 to 10 minutes after an activity to take advantage of increased muscle temperature. The cool-down is the optimal time to improve long-term flexibility.



Clackamas Fire District Recruit Preparation

BODY COMPOSITION

Body composition is a component of overall physical fitness. Although some body fat is considered essential, excess body fat increases the workload and amplifies heat stress by preventing the efficient dissipation of heat when a person exercises. In addition, added body fat elevates the energy cost of weight dependent tasks (climbing ladders), contributes to injuries and increases the risk of developing many chronic diseases.

If weight loss is necessary in order to achieve appropriate body composition, both diet and exercise should play a role. Safe weight loss is 1-2 lbs per week. Weight can be lost more quickly; however, much of the loss will be water and muscle tissue. This could be very unsafe for a firefighter. Adequate calories and carbohydrates are important to fuel the muscles and the brain.

PREPARING TO BECOME A CLACKAMAS FIRE RECRUIT

Before participating in any exercise program of moderate to high intensity, Clackamas Fire District #1 recommends a complete medical examination. In addition, the following should be taken into consideration:

- Begin each workout with at least 5 minutes of an active warm-up.
- Complete each workout with cool-down and flexibility exercises.
- Always pay attention to how you feel when exercising. If you become faint, dizzy or nauseous, you should stop exercising.
- Increase the workload gradually. Increase distance or time spent exercising (not both at once) by no more than 10% each week.
- Rest is necessary to allow recovery and prevent burnout. Take at least one day off per week and at least 48 hours between resistance training for the same muscle group.
- After an injury, only resume training when advised to do so. Continuing exercise could aggravate the injury and hinder performance in the academy.
- Avoid dehydration by drinking plenty of water before, during and after training.





Clackamas Fire District Recruit Preparation

CPAT CANDIDATE PREPARATION GUIDE

Clackamas Fire is testing through the National Testing Network, which administers the Candidate Physical Abilities Test (CPAT). The IAFF/IAFC has created a CPAT Candidate Preparation Guide which guides candidates on how to physically prepare for this specific test.

You can find this guide at: http://www.nationaltestingnetwork.com/pdf/CPAT_Candidate_Prep_Guide.pdf

PREPARING FOR SUCCESS

Firefighters respond to emergency incidents that require extreme physical exertion. Most individuals not already involved with a regular exercise program find that they struggle because of the physical demands of a fire academy. Remember that CPAT Preparation Guide is a general training program and you should supplement this with specific firefighter performance tasks. Performance improvements occur when the training closely resembles the specific activity for which you want to improve.

For further information on how to train for the Clackamas Fire District #1 academy, please contact Heather Goodrich, Health & Wellness Manager: (503) 742-2686 or heather.goodrich@clackamasfire.com.

