

## YVR Airport Authority Airfield Operations & Emergency Response Specialist Candidate Physical Training Resource

Vancouver Airport Authority hires Emergency Response Services (ERS) personnel to be ready for unlikely, but possible emergencies. Given the physical component of this job, ERS staff must be fit and ready to respond. To ensure candidates are sufficiently fit for this position, a pre-employment fitness assessment will take place.

This guide is intended for the candidate who is already physically active at a moderate to vigorous intensity on most weekdays for the past six months or more. Please check with your doctor before increasing your activity levels. If you are unfamiliar with exercise, we suggest that you work with a qualified exercise professional.

The physical fitness evaluation will consist of four tests. Below are the descriptions and suggestions on how you can prepare yourself for them.

### 1) **Multi-stage Fitness Test (MFST): The MSFT is a running test used to estimate a person's aerobic capacity, an important component of overall physical fitness and health.**

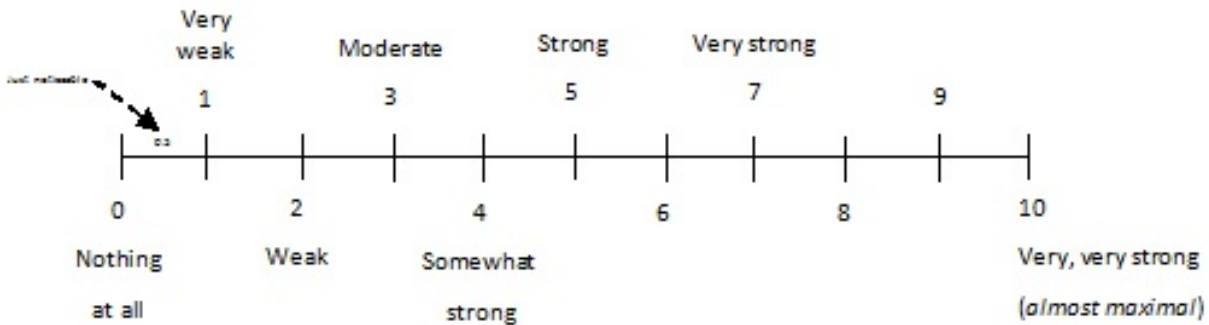
**Description:** The test involves running between two cones, 20 meters apart. The running is synchronized with an audio track that plays 'beeps' at set intervals. Upon hearing a *beep* you will run back and forth between cones spaced out by 20m. The objective is to reach the opposite cone by the time of the next *beep*. Should you reach the cone before the *beep*, you must wait for the *beep* again before running back to the other cone. As the test progresses the time in between *beeps* decreases so you will have to run faster. The test starts off easy (brisk walk) and ends in a fast run. Depending on your fitness this may be a maximal effort. We suggest that you practice this test to familiarize yourself with it. You can easily accomplish this by finding a flat area safe for running, and by setting up a course with two objects 20 meters apart. Potential ERS candidates are expected to reach shuttle level 9. A failed test is the inability to reach the cone by the beep on two occasions. Candidates are encouraged to watch this [video](#) for further instructions and familiarisation.

Alternative cardiovascular fitness assessments may be used at the discretion of the Vancouver Airport Authority.

**Training:** You should be doing at least 30 minutes of aerobic exercise five times per week such as running, cycling, or swimming. Three weekly sessions should be done at a steady pace where you are breathing harder but can still talk; the effort feels like a 5-6 out of 10 for physical exertion. Two weekly sessions should be interval training where you alternate running at a hard effort then jogging. During the hard portion you should be breathing very hard and unable to say more than a few words, it will be uncomfortable and feel like an 8 out of 10.

*Interval session:*

- 5 min warmup (jog)
- (4 min running hard, 2 min easy jog) x 4
- 5 min cool down walk



**2) Deadlift:** This test is used to examine lower body strength and capacity to lift in a safe manner.

**Description:** The goal of the exercise is to lift a loaded barbell of 80lbs from ground level to waist level and back down six times. Testing staff will ensure that you can do the lift safely and that you demonstrate basic lifting technique.

**Deadlift Movement:** Your feet should be shoulder width apart, toes pointing forward. Grip the barbell with palms facing you and arms outside of your legs. Your toes should be under the barbell with shins touching the bar. Ankles, knees, and hips should be bent. Your back should be bent at a 45 degree angle to the floor in a neutral position. Lift the barbell, straighten out your knees, followed by your hips, while keeping your elbows straight, this will allow the barbell to travel close to your body. Your spine should remain neutral for the entire movement. The movement is completed when your knees and hips are straightened out and you are standing upright holding the barbell at hip level. To lower the barbell bend at your hips, and knees, elbows still straight allowing the barbell to reach ground level. Your spine should remain neutral. See figure 1 and 2.

**Conventional Movement:** Ensure your footing is stable and wide, get close to the load and get a good grip on it. Tighten your stomach muscles and lift slowly using your legs, keep your back neutral and the load close to you. Pivot your body if needed, don't twist.

**Training:** Strength train twice per week on non-consecutive days. Warmup before starting.

Wk 1	Training day 1	Training day 2	Wk 2	Training day 1	Training day 2
	L: Barbell only (45 lbs)* R: 15 S:3	L: 55 lbs R: 15 S:3		L: 55 lbs R: 15 S:3	L: 60 lbs R: 15 S:3
Wk 3	Training day 1	Training day 2	Wk 4	Training day 1	Training day 2
	L: 60 lbs R: 15 S:3	L: 65 lbs R: 12 S:3		L: 65 lbs R: 12 S:3	L: 70 lbs R: 10 S:3
Wk 5	Training day 1	Training day 2	Wk 6	Training day 1	Training day 2
	L: 70 lbs R: 10 S:3	L: 75 lbs R: 10 S:3		L: 80 lbs R: 8 S:3	L: 80 lbs R: 8 S:3

\*We will be using a 45 lbs barbell. For this phase place the ends of the barbell on blocks (~6 inches/10cm from the ground), L: Load, R: Repetitions (how many times you do the movement), S: Sets (how many series of repetitions you will do). Take a 60sec break, between sets.

### 3) **Shoulder press:** This test is used to examine upper body strength and capacity to lift in a safe manner.

**Description:** The goal of the exercise is to lift a loaded barbell of 65lbs from shoulder level, above your head, and back to shoulder height four times. Testing staff are ensuring that you can do the lift safely and that you demonstrate basic lifting technique.

**Shoulder Press Movement:** Stand with feet slightly wider than shoulder width apart with a slight bend in the knees. Remove the barbell from the rack and place it on your shoulders at collarbone level. The palm of your hands should face away from you and your elbows underneath your hands. Start the movement by pushing upwards with your shoulders and straightening your elbows until the barbell is above your head (not behind). Then lower the barbell in a smooth controlled fashion by bending your elbows and returning the bar to your shoulders. Your torso should remain braced and stable, ensuring you do not arch your lower back. Do this exercise with a spotter<sup>1</sup>. See figure 3 and 4.

**Conventional Movement:** Lighten the load if possible. Ensure your footing is stable and wide, get close to the load and get a good grip on it. Tighten your stomach muscles and slowly lift upwards in a controlled fashion. Pivot your body if needed, don't twist.

**Program:** Strength train twice per week on non-consecutive days. Warmup before starting.

Wk 1	Training day 1	Training day 2	Wk 2	Training day 1	Training day 2
	L: Barbell only (45 lbs)* R:15 S:3	L: Barbell only (45 lbs)* R:15 S:3		L: Barbell only (45 lbs)* R:15 S:3	L: 50 lbs R: 12 S:3
Wk 3	Training day 1	Training day 2	Wk 4	Training day 1	Training day 2
	L: 50 lbs R: 12 S:3	L: 55 lbs R: 10 S:3		L: 55 lbs R: 10 S:3	L: 55 lbs R: 10 S:3
Wk 5	Training day 1	Training day 2	Wk 6	Training day 1	Training day 2
	L: 60 lbs R: 8 S:3	L: 60 lbs R: 8 S:3		L: 65 lbs R: 6 S:3	L: 65 lbs R: 6 S:3

\*We will be using a 45 lbs barbell, L: Load, R: Repetitions (how many times you do the movement), S: Sets (how many ensembles of repetitions you will do). Take a 60sec break between sets.

#### 4) Handgrip: This test is a measure of overall body strength and the strength of your hand/forearm muscles.

**Description:** You will stand with your arm extended at your side with the handgrip device in your dominant hand. When prompted, you will squeeze your hand as hard as you can while exhaling.

**Training:** Participating in weekly whole body resistance training where you must hold weights (barbells, dumbbells) will increase your hand grip strength and overall strength. Some individuals may want to compliment this with hand strengthening devices although evidence behind these is limited.

## References and Useful Links

1. NSCA'S Essentials of Tactical Strength and Conditioning. Ed. Alver, Sell & Deuster. Human Kinetics, Inc., Illinois. 2017
2. WorkSafeBC: [Lifting & handling](#)

## Figures



Figure 1. Deadlift front view



Figure 2. Deadlift side view



Figure 3. Shoulder Press front view

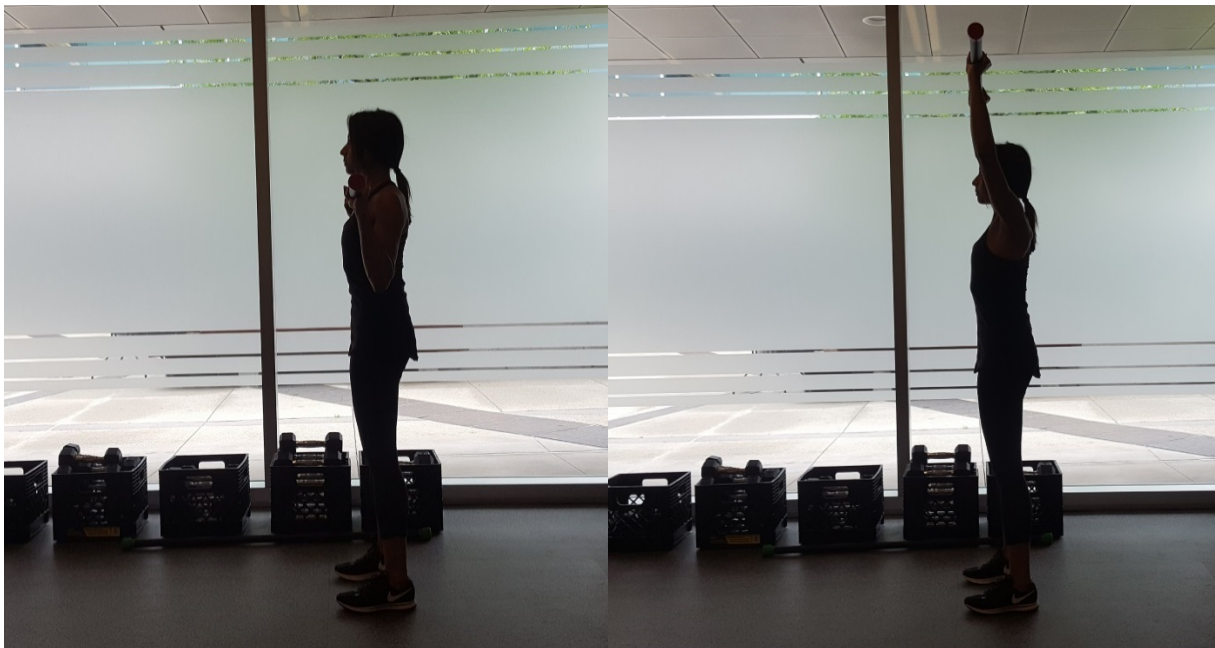


Figure 4. Shoulder Press side view