FIT TO SERVE

Preparing for the A-PREP:
Alberta Physical Readiness Evaluation for Police
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Policing takes place in a complex world that requires fast thinking and quick reactions. The profession demands many skills, both mental and physical. To test your physical suitability, the Alberta Association of Chiefs of Police (AACP) and the Alberta Solicitor General and Public Safety (ASGPS) sought to have an unbiased and valid assessment tool to effectively identify individuals who possess the physical capabilities needed to meet the rigorous demands of policing in Alberta. Further, this assessment tool must be fair and legally defensible from a Human Rights perspective and in accordance with both the Supreme Court of Canada’s Meiorin Decision and the body of case law on bona fide occupational requirements (BFORs) that has accumulated since the Meiorin Decision was rendered.

Through extensive research and job analysis it was decided that the Ontario Physical Readiness Evaluation for Police (PREP) test for the screening of police constable applicants provided a suitable basis for Alberta’s assessment tool. To this end, experts in establishing BFORs for physically demanding occupations were consulted to develop a customized version of the PREP as a valid tool for the fitness screening of police constable applicants in Alberta.

The Alberta Physical Readiness Evaluation for Police (A-PREP) is the name of the physical skills and abilities test.
Background

The A-PREP was developed by experts in the areas of policing, fitness and equality rights to ensure it is an unbiased and valid occupational requirement for policing. It is based on a comprehensive scientific process. We are confident that the A-PREP effectively identifies those individuals who possess the physical capabilities needed to meet the rigorous demands of policing.

To validate the A-PREP, researchers:

- conducted a comprehensive job analysis to identify policing tasks in which the safety of the police constable, co-workers or the public would be threatened by ineffective performance;

- compared the job simulation tasks in the A-PREP with the on-the-job policing tasks; and,

- established standards of acceptability based on the performance times of experienced female police constables.

In April 2002, the Ontario Human Rights Commission determined that requesting Police Constable candidates to pass the PREP is a reasonable and bona fide requirement.
Purpose

The purpose of this book is:

1. To inform you about the individual components of the A-PREP, how to successfully complete each component, and how you will be evaluated;

2. To provide exercise training guidelines to help you improve your capability to succeed at the A-PREP test, and

3. To show you how to test your readiness for the A-PREP.

A-PREP Test Components

There are three separate components to the A-PREP: a screening component to ensure your medical readiness and two performance components to assess your physical capability (the Pursuit/Restraint Circuit and the Aerobic Shuttle Run).

Attire and Equipment

Wear running shoes and exercise clothing while completing the performance components.

You will be provided with a weighted belt (7.5 kg or 16.5 lb) to wear during the Pursuit/Restraint Circuit to stimulate the weight of standard police equipment.
Pre-exercise Clearance and Informed Consent

Before attempting the A-PREP as part of the Constable Selection System, you will be required to complete the Physical Activity Readiness Questionnaire (PAR-Q) reproduced below. This health inventory identifies medical conditions that could pose a risk during the exercise and which need to be cleared by a physician.

The PAR-Q:

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 when you do physical activity?
3. In the past month, have you had chest pain when you were not doing any physical activity?
4. Do you lose your balance because of dizziness or do you ever lose consciousness?
5. Do you have a bone or joint problem that could be made worse by a change in your physical condition?
6. Is you doctor currently prescribing drugs (for example, water pills) for a blood pressure or heart condition?
7. Do you know of any other reason why you should not do physical activity?
Blood Pressure

Next, your pre-exercise blood pressure needs to be measured (Figure 1).

If you are 40 years of age or less, answer “no” to all 7 PAR-Q questions and have a blood pressure equal to or less than 144/94 mmHg, you can participate in the A-PREP. Otherwise, a physician must complete the PARmed-X for to give clearance before you can take part in the A-PREP.

If you are over 40 years of age AND not accustomed to regular strenuous (vigorous) exercise, you could be cleared for participation in the fitness testing by a CSEP Certified Exercise Physiologist or be directed to see a physician who must then complete the clearance form of the PARmed-X before you undertake the A-PREP.

If you have two or more of the following major coronary risk factors: a family history of myocardial infarction or sudden death before 55 years of age; currently smoke cigarettes; have high blood pressure, have diabetes mellitus; have high blood cholesterol or work in a sedentary occupation and are physically inactive; you will need to be cleared by a physician who will complete the clearance form of the PARmed-X before you undertake the A-PREP.

Regardless of your PAR-Q responses, it is suggested that you have a physical examination by a physician before doing the A-PREP.

In addition, prior to participation, you must sign an Informed Consent Form which contains information about each component of the A-PREP test and identifies any risks associated with participation.
A-PREP Performance Components

Pursuit/Restraint Circuit

The circuit (diagram on page 11) simulates an emergency response in which a police constable pursues an offender a distance of 100 m while scaling four sets of stairs and two fences, engages in a physical altercation to accomplish the control and restraint of a resisting offender, then drags a passive resister or accident victim to a triage area.

Throughout this test, you wear a weighted belt (7.5 kg or 16.5 lb) around your waist to simulate the weight of standard police equipment.

In the pursuit phase of the test, you run four laps around a 25-metre (83 ft) circuit as quick as possible for a total distance of 100 metres (332 ft).

During each 25-metre circuit, you climb a set of stairs (Figure 2) and, during the second and forth rotations of the circuit, you scale a 1.5 – metre (5ft) fence (Figure 30).

The fence is solid and has a toe-hold 18 inches above the ground. You must use the toe hold and roll over the fence.
Immediately following the 100-metre (332 ft) circuit, you move to the Body Control Simulator and grasp the handle (Figure 4).

You then move through two 180° arcs switching back and forth every 90° between pushing and pulling the handle to raise a weight of 34 kg (75 lb).

You then move to the Arm Restraint Simulator (Figure 5) and grasp the handles then depress the grips of both arms of the simulator. It takes 14.5 kg (32 lb) of force to depress each grip.

With the grips constantly depressed, the arms of the machine are forced together and then returned to their starting position. It takes 16 kg (35 lb) of force to retract each arm.
You then return to the Body Control Simulator and repeat the pushing and pulling to raise the 34 kg (75 lb) weight through two or more 180° arcs (Figure 6).

Return to the Arm Restraint Simulator and repeat the arm retraction exercise (Figure 5).

Lastly, you grasp a 68 kg (150 lb) dummy and drag it a distance of 15 metres (50 ft) (Figure 7). You may grasp the body by the wrists or by the ankles.

The Pursuit/Restraint Circuit is scored as the total time from the start of the 100-metre (332 ft) circuit to the completion of the body drag.

For successful completion of the Pursuit/Restraint Circuit the time taken is 130 seconds or less.

Following completion of the Pursuit/Restraint Circuit, you’re allowed a minimum 10-minute rest before beginning the aerobic fitness test.
Aerobic Fitness Test

The Leger 20-metre Shuttle Run (Diagram 2 on page 13) evaluates your aerobic fitness or work capability for physically demanding policing tasks as well as everyday policing activities.

In this test, you run back and forth between two marked lines over a 20-metre (67 ft) course in time with audio signals recorded on a CD.

The time permitted to cover the 20 metres at the beginning of the test requires a slow jog. Thereafter, the time between audio signals lessens, requiring that you pick up your running pace. The audio signal informs you of the “stage” you are at as the test progresses.

In each leg of the Shuttle Run, warning lines, placed 2 metres (7 ft) before each of the 20-metre end lines, must be reached before the permitted time elapses and the audio signal sounds. You will be cautioned by an examiner if you fail to cross a warning line in time and you must still reach the end line before returning. The test ends when you miss two consecutive warning lines.

To successfully complete the minimum requirement of the aerobic fitness test you must achieve Stage 7.0 in the Leger 20-metre Shuttle Run.
Diagram 2: The 20-metre Shuttle Run

1 m
(3 ft)

2 m
(7 ft)

16 m
(53 ft)

20 m
(67 ft)

\( \bullet = \text{Traffic Cone Marker} \)
An overall “Meets Standard” rating for the A-PREP requires that you complete the Pursuit/Restraint Circuit in 130 seconds or less and reach Stage 7.0 in the 20-metre Shuttle Run.

Performing the Pursuit/Restraint Circuit requires a combination of anaerobic fitness and strength plus muscular endurance of the arms, shoulders, abdomen, back and legs.

**Anaerobic training**

Unlike aerobic fitness training, which requires long durations of moderate to high intensity effort, anaerobic fitness training requires relatively short bursts of high to very high intensity effort as is experienced when pursuing an offender, jumping fences and controlling an offender. Interval training is an effective approach to improving anaerobic fitness. Alternate short duration periods (up to 10 seconds) of fast running (80-90% of maximum speed) with slightly longer periods (up to 30 seconds) of light jogging (active recovery). Complete 5 to 10 intervals per workout and be sure to push yourself to the point that you can no longer run at 80-90% maximum speed during the fast running intervals.
Muscular Strength and Muscular Endurance Training

Many physically demanding policing tasks require use of the muscles of the arms, shoulders, back, abdomen and legs. To ensure adequate strength and muscular endurance in each of these muscle groups, a resistance training program, which utilizes free weights, machines, body weight exercises or a combination of the three should be followed. The main goal of a resistance training program is to “overload” the muscles of the arms, shoulders, back, abdomen and legs. Overloading a muscle group involves a combination of resistance, repetitions, sets and frequency. Rest and recovery of at least 48 hours between workouts will ensure “adaptation” to the resistance training in preparation for subsequent “overloads”.

Resistance and Repetitions

Muscular Strength: Improvements in muscular strength can be achieved by performing 3-4 sets at a resistance which allows the comfortable completion of 6 to 10 repetitions approximately 3 times per week. This resistance should be approximately 80 - 85% of the maximum weight (resistance) that you can lift once. Start by choosing a resistance that allows the completion of 6 repetitions and gradually progress to 10 repetitions. When you have “adapted” to performing 10 repetitions at the same resistance, repeat the process with a higher resistance that allows the comfortable completion of 6 repetitions.

Muscular Endurance: Improvements in muscular endurance can be achieved in performing 3-4 sets at a resistance which allows the comfortable completion of 10 to 15 repetitions approximately 3 times per week. This resistance should be approximately 60% to 70% of the maximum weight (resistance) that you can lift once. Start by choosing a resistance that allows the completion of 10 repetitions and gradually progress to 15 repetitions. When you have “adapted” to performing 15 repetitions at the same resistance, repeat the process with a higher resistance that allows the comfortable completion of 10 repetitions.
Exercise Routine
Exercises that target the major muscle groups employed in policing tasks such as the arms, shoulders, back, abdomen and legs should be emphasized in resistance training. Whole body resistance training routines allow each muscle group to be trained a maximum of once every 48 hours or on alternate days. If you want to resistance train every day, train different muscle groups on alternate days – for example arms, shoulders and back on one day then legs and abdomen on the next day.

Exercise Selection
Incorporating resistance exercise performed with free weights, machines or body weight will help prepare you to meet the physical demands encountered in policing. Following are examples of exercise programs that can be performed with free weights, machines or your own body weight. If you are unfamiliar with resistance training, consult a knowledgeable fitness professional before you start and consider purchasing an introductory book on resistance training.

<table>
<thead>
<tr>
<th>Muscle Groups</th>
<th>Free Weights</th>
<th>Machines</th>
<th>Body Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arms</td>
<td>Barbell / Dumbbell Curl, Triceps Extension</td>
<td>Biceps Curl</td>
<td>Push-ups (hands shoulder width)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Triceps Extension</td>
<td>Triceps bench dips</td>
</tr>
<tr>
<td>Shoulders</td>
<td>Barbell / Dumbbell, Shoulder Press</td>
<td>Shoulder Press</td>
<td>Push-ups (hands wider than shoulder width)</td>
</tr>
<tr>
<td>Back</td>
<td>Barbell / Dumbbell Row</td>
<td>Front lat pulldown, Seated Row</td>
<td>Chin-ups (reverse grip, both wide &amp; narrow)</td>
</tr>
<tr>
<td>Abdominal</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>Abdominal Crunch, Oblique Crunch</td>
</tr>
<tr>
<td>Legs</td>
<td>Squats, Lunges</td>
<td>Leg Press</td>
<td>Squats / Lunges, Wall Sits</td>
</tr>
</tbody>
</table>

How to Get Started
The first step in any resistance training program is choosing your training goal. Beginners should initially adopt a resistance-training program designed to increase muscular endurance prior to progressing to a program designed to improve muscular strength. Following are examples of a whole body resistance-training program for both muscular endurance and muscular strength for beginner, intermediate and advanced participants.
### Beginner Resistance Training Program

<table>
<thead>
<tr>
<th>Exercises</th>
<th>ME</th>
<th>Sets</th>
<th>MS</th>
<th>ME</th>
<th>Reps</th>
<th>MS</th>
<th>ME</th>
<th>Reps</th>
<th>MS</th>
<th>Rest Interval between Sets (seconds)</th>
<th>ME</th>
<th>MS</th>
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<tbody>
<tr>
<td>Bench Press</td>
<td>2</td>
<td>3</td>
<td>2</td>
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<tr>
<td>Shoulder Press</td>
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<tr>
<td>Front Lat Pulldown</td>
<td>2</td>
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<td>2</td>
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<td>10 – 15</td>
<td>6 – 10</td>
<td>60 – 120</td>
<td>120 – 180</td>
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<tr>
<td>Triceps Extension</td>
<td>2</td>
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<td>10 – 15</td>
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<tr>
<td>Abdominal Crunches</td>
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### Intermediate Resistance Training Program

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<th>ME</th>
<th>Reps</th>
<th>MS</th>
<th>ME</th>
<th>Reps</th>
<th>MS</th>
<th>Rest Interval between Sets (seconds)</th>
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<tr>
<td>Leg Press / Lunge</td>
<td>2</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>Tricep Bench Dips</td>
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### Advanced Resistance Training Program

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<th>ME</th>
<th>Reps</th>
<th>MS</th>
<th>ME</th>
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<th>Rest Interval between Sets (seconds)</th>
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<td>Leg Press / Lunge</td>
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<td>Oblique Crunch</td>
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</table>

**ME** – Muscular Endurance  
**MS** – Muscular Strength

---

**Remember:**  
It is important to understand and respect your training limits to prevent injury.  
---

**Remember:**  
To perform successfully on the push/pull unit, you are required to overcome a resistance of 35 kg (75 lb).  
---

**Remember:**  
To perform successfully on the arm restraint simulator, you must first overcome a grip resistance of 14.5 kg (32 lb) with each hand. While maintaining your grip, you must then bring your arms together against a resistance of 16 kg (35 lb).
Aerobic Training

To improve aerobic fitness, you have to challenge your body’s oxygen transport system. This is done by exercising at an appropriate frequency, intensity and duration.

Frequency

Aerobic fitness training should be performed 3 to 5 times a week.

Duration

The duration of each exercise session is related to the number of training sessions per week. If exercise training is conducted 3 days per week, each session should include 50 to 60 minutes of continuous activity. If you train 5 days a week, each training session should be 30 to 40 minutes in length.

Intensity

The intensity of training is the most important aspect of an aerobic training session. The training intensity must be high enough to improve your aerobic fitness. Your heart rate is the gauge as to whether your training intensity is sufficient. Use a heart rate monitor or learn to take your own pulse by placing your fingers on the underside of your wrist and counting the heart beats felt. It is best to stop exercising and count your pulse for 10 seconds then multiply it by 6 to get your heart rate for one minute.

To improve your aerobic fitness, your heart rate must be kept above the threshold throughout the training session. The threshold heart rate when training for policing is 80% of your maximum heart rate. To calculate your maximum heart rate, subtract your age from 220.

Thus, to improve your aerobic fitness level, the threshold heart rate is 80% x (220 - your age).

As an example, for a 20-year-old, the threshold training heart rate is 80/100 x (220 - 20) = 160 beats per minute or 27 beats per 10 seconds. Hence, an effective training program for a 20-year-old would be to exercise 5 days per week for 30 to 40 minutes each day with the heart rate continuously above 160 beats per minute throughout the exercise session.
Type of Activity
To improve aerobic fitness, the exercise training must involve large muscle activity such as running, cycling, cross-country skiing, swimming or active sports like basketball, soccer and squash. It is best to choose an activity with which you are already familiar. Exercising with a partner will provide greater motivation to continue the activity.

Maintenance Program
Generally, a 6-week training period of 5 days per week for 40 minutes each day will bring about substantial training improvements. After the 6-week period, you should be ready to switch to a maintenance program of 3 days per week for 45 minutes per day with your heart rate continuously above the training threshold throughout each exercise session.

Sample Workout
Try a resistance workout on Monday, Wednesday and Friday and an aerobic work-out on Tuesday, Thursday and Saturday.

Alternatively, perform both resistance and aerobic workouts 6 days a week, focusing the resistance training on different muscles on alternate days.

Begin your combined aerobic and resistance training with 30 minutes of aerobic exercise at your target heart rate, followed by 20 minutes of resistance training for the arms, shoulders and back one day and 20 minutes of resistance training for the legs the next day.

All workouts should begin with a 5 to 10-minute warm-up of stretching and light calisthenics. End all workouts with a 5-minute stretching cool-down.
Pursuit/Restraint Circuit

To simulate the pursuit/restraint circuit, try the following outdoors:

- distribute a total of approximately 7.5 kg (16.5 lb) of sand into several small plastic bags and tape them to a belt;
- locate a set of stairs with 5 steps and a 1.5 metres (5 ft) wooden or chain link fence that are close together. The fence should have a toe-hold 18 inches above the ground.
- place a marker approximately 8 metres (27 ft) from both the stairs and the fence;
- enlist a friend who weighs approximately 68 kg (150 lb);
- screw a large eye hook into a wall 1.2 metres (4 ft) above the ground, then attach a 35 kg (75 lb) weight, such as bag of sand, to a rope. Thread the rope through the eye hook and attach approximately 2 metres (6 ft) away from the eye hook to a sturdy piece of wood such as the handle of a hockey stick.

The following circuit should be performed without stopping while wearing the weighted belt.

The first element:

- Starting at the marker, run 8 metres (27 ft) to the stairs and climb up and down the stairs, and run back to the marker (Stage 1).
- Next, run 8 metres and scale up and over the 1.2 metre (4 ft) fence, then climb up and down the stairs again, and return to the marker (Stage 2).
- Repeat the 8-metre run and climb up and down the stairs, returning to the marker (repeating Stage 1).
- Then, repeat the 8-metre run and scaling of the fence plus stair climb for a second time (repeating Stage 2).
- Do one final 8-metre run to and climb of the stairs to complete a 100-metre (332 ft) run.
Next:
With your back toward the eye hook, grab the stick attached to the 35 kg (75 lb) weight with both hands and push it away from the eye hook until the weight is lifted off the ground (Figure 8).

Keeping the weight elevated, side-step through 4, 180° half-circles; 2 to the left and then 2 to the right.

Next, ask a friend who weighs about 68 kg (150 lb) to stand facing away from you with his/her arms straight down. Grasp his/her wrists and force them together behind the back. Ask your friend to resist your pressure.

Return to the 32 kg (70 lb) weight and facing the eye hook, grip the stick with both hands and pull the weight off the ground, then side-step through another 6, 180° arcs (Figure 9).

Finally, repeat the retraction of your friend’s arms once more, then have him/her lie down on the ground and drag him/her 15 metres (50 ft) by grasping him/her under the arms and around the chest.
Aerobic Fitness
Completing stage 7.0 in the Aerobic Shuttle Run requires approximately the same level of aerobic fitness as running 2.4 km (1.5 miles) in 12.0 minutes. You can test yourself by running for 11.5 minutes then measuring the distance you covered using your car’s odometer.

Improving Back Health

Years of riding in a patrol car or sitting at a desk can result in poor back health. However, the majority of back problems can be avoided by a regular routine of stretching and strengthening the muscles that support your back.

Stretching for Back Health

Stretching should be done slowly, without bouncing. Hold each stretch for a least 10 seconds and as long as 30 seconds. Push the stretch to the point that it begins to get painful, then hold the stretch and when the tension releases stretch a bit farther.

Examples of Stretches for the Back:

**Single bent-knee leg lifts.** (Figure 10) While lying on your back with your knees bent, place your hands around the shin or hamstring of one leg and attempt to pull the knee as close as possible to the chest. Repeat with the other leg.

**Double bent-knee leg lift and curl.** (Figure 11) While lying on your back with your knees bent, place your hands around the shins or hamstrings of both legs and attempt to pull the knees as close as possible to the chest, then curl your head up gently toward your knees.
Lower back rotation. (Figure 12) Lie on your back and while keeping your shoulders flat on the ground, bend one knee and raise the leg to a 90° angle, then rotate it across the other leg and while pushing gently with your hand, attempt to bring the knee as close as possible to the ground. Repeat with the other leg.

Upper back rotation. (Figure 13) In a sitting position with the right leg straight on the ground, lift your left foot over the knee of the straight right leg and put it flat on the ground beside the right knee. Place your right elbow against the left side of the bent left knee and, while applying pressure with your right elbow, rotate your upper body and head to the left. Repeat in the opposite direction.
Hip stretch. (Figure 14) Extend the right leg straight backward with the right knee touching the floor and position the left knee above the left ankle. Place both hands on the floor on opposite sides of the leg for balance and push down gently on your hips. Alternate legs.

Back extension. (Figure 15) Standing with your knees slightly bent, place your palms on the back of your hips and gently push your hips forward.

**FIGURE 14 HIP STRETCH**

**Improving Strength and Endurance for Back Health**

Detailed guidelines for improving strength and muscular endurance are provided in the Pursuit/Restraint section on pages 15 to 17. Examples of muscular strength and endurance exercises to improve back health are: crunches, reverse crunches, recumbent cycling, straight leg hip raises, sitting knee-ups, and prone simultaneous opposite arm and leg lifts.

**FIGURE 15 BACK EXTENSION**
To assist you with your preparation for the A-PREP a Personal Training Diary is provided. Record your training activities after each workout.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
</table>
| • walk – jog 30 min  
• ten 50 m sprints |         |        |        |        |
| Day 2  | • upper and lower body weight training |        |        |        |
| Day 3  | • swim 30 min  
• ten 25 m sprints |        |        |        |
| Day 4  | • upper body weight training  
• cycle 40 minutes |        |        |        |
| Day 5  | • walk – jog 30 min  
• ten 50 m sprints |        |        |        |
| Day 6  | • upper and lower body weight training |        |        |        |
| Day 7  | • jog 40 min |        |        |        |

**Aerobic Fitness:**
Try to be active at least 3 times per week, for 50 – 60 minutes each time or 5 times per week for 30 – 40 minutes each time.

**Muscular Strength and Endurance:**
Perform 3 sets of 6 – 10 repetitions of an exercise at a resistance which is 80 – 90% of your maximum lifting capacity. Strength train every other day.
A Final Word

The information in this booklet has made you aware of what you will face and how you might prepare for the A-PREP, but these guidelines do not guarantee that you will pass the A-PREP test. By following the guidelines provided in this publication, however, you will improve your aerobic fitness, muscular strength and muscular endurance, which are essential fitness capabilities for safe and effective policing.

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With any physical exercise program, there is a risk of physical injury. If you are unsure of your medical condition, and especially if you have any cardiovascular, pulmonary or metabolic disease, or a family history of such diseases, you should consult with your doctor before beginning or changing your exercise program. It is advisable to exercise with a partner and to use caution when using exercise equipment. The Ontario Ministry of Community Safety and Correctional Services and the Alberta Solicitor General and Public Safety shall not be liable for any damages, direct or indirect, special or consequential, which result from the use of equipment or exercise programs depicted in this brochure, including, without limiting the generality of the foregoing, any damages arising from injury.