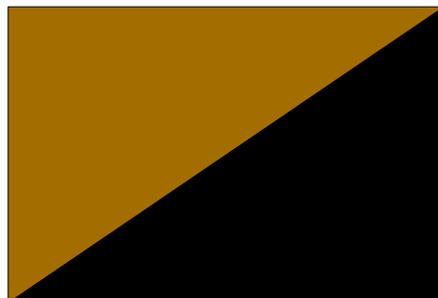


CANADIAN SPECIAL OPERATIONS REGIMENT

PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM



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CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

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Authors:

Mark Carlson MSc (c), CEP, CSCS

Sue Jaenen MSc., CEP

Director General Personnel and Family Support Services

The authors would like to acknowledge the following contributors:

Phil Bourque MSc., CEP, CSCS

Conor MacDonald MSc

Callum Winton BBS., CEP, CSCS

Vincent Meunier BEP., CEP, CSCS

Barry Stockbrugger MSc., CEP, CSCS

Director General Personnel and Family Support Services

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INTRODUCTION

The Canadian Special Operations Regiment (CSOR) was officially stood up as a new unit of the Canadian Forces (CF) on 13 August 2006. CSOR is a high-readiness Special Operations Force (SOF) capable of conducting and force generating for integrated Special Operation Task Forces (SOFTs) to execute operations on behalf of the Government of Canada. CSOR membership is comprised of Canadian Army, Navy, and Air Force Regular and Reserve personnel who are intelligent, **physically fit**, and in possession of a host of skills that enable them to operate effectively in challenging environments (www.cansofcom.forces.gc.ca). Furthermore, as described in the Canadian Forces Health and Fitness Strategy (Canadian Forces Health and Physical Fitness Strategy, 2007) our Special Operations Forces have the most physically demanding occupations within the CF. Therefore it is essential that CSOR Operators have the physical capacity to efficiently and effectively perform the demands of the job. Extremely high levels of physical fitness and personal motivation are critical for the successful completion of the CSOR Assessment Phase (AP).

The purpose of this comprehensive fitness training program is to assist candidates in their preparation for the rigorous physical demands of the CSOR AP. The CSOR AP is a structured assessment process designed to measure performance while placing candidates under physical and mental stress in order to determine a candidate's suitability to undertake the Special Operations Basic Qualification course and ultimately be employed as a CSOR Operator. Therefore the physical demands placed on candidates during the selection process reflect the actual job and training demands. The following training program is designed to assist you in achieving the high levels of physical fitness necessary to complete the CSOR AP.

This is an extremely strenuous training program. Prior to attempting it, it is recommended that you can successfully achieve the following (or equivalent):

- **20 MSR (Level 9)**
- **40 Push-ups**
- **40 Sit-ups**
- **5 Pull-ups**
- **13 KM Ruck March in 2 hrs 26 min carrying 35 Kg load**

These are the minimum physical fitness requirements for application with CSOR as an Operator. Pursuing this program without an adequate base level of fitness may put you at risk of serious injury.

KEYS TO SUCCESS

Whenever embarking on a new physical fitness training program there are certain key concepts to keep in mind.

1. **Check Your Health:** You need to ensure that you are in good enough health to complete the program and to avoid any injury/injuries. It would be wise to obtain medical clearance prior to attempting this program, and all candidates should complete the PAR-Q. (Refer to pg 5)
2. **Rest Recovery Nutrition:** Vital components of any training program are adequate levels of recovery, rest, re-hydration and nutrition. Insufficient recovery, rest, hydration and nutrition can lead to sub-optimal physical gains, overtraining and possible decreases in performance during the CSOR AP. Rest and recovery days are built into the program in specific places to ensure that you are properly rested to optimize your training gains. In addition you must ensure that you are fully re-hydrated, re-fuelled and nourished (see page 6), and getting approximately 8 hours of sleep per night.
3. **Monitor your Heart Rate (HR):** As you exercise your HR increases in order to supply the working muscles with more oxygen and fuel to meet the demands of the physical exertion. By taking your HR during exercise you know how hard your heart and in extension how hard you are working. This allows you to gauge the intensity of your training sessions and thus increase your effectiveness; that is, if you are not working hard enough then you can make an adjustment immediately to get the most out of your training session or vice versa, if you are working too hard you can decrease your intensity so that you are able to finish your session. You can take your HR by pressing gently on the side of your neck with your index and middle fingers until you feel a pulse (this may require moving your fingers around slightly), then simply count the number of pulses you feel on your fingers over 15 seconds and multiply by 4. That is, 20 pulses for 15 seconds equates to a HR of 80 beats per minute (bpm). Another reliable method to monitor your HR is by using a commercial heart rate monitor.
4. **Warm Up / Cool Down:** By completing a warm-up you will increase muscle temperature, core temperature and blood flow, which will result in faster muscle contractions, increased rates of force development, improvement in muscle strength and power, increased oxygen delivery to working muscles and enhanced metabolic reactions. In short by warming up you will mentally and physically prepare yourself for your training session and thus get the most out of each and every training session. An effective warm-up includes light activity such as 8 – 12 minutes of easy jogging followed by 8 – 12 minutes of dynamic stretching. Cooling down after an intense training session is vital for your body's ability to recover from the stress that it just encountered. By completing a cool down after a training session you allow the body to remove metabolic waste produced and heat as well as deliver fluids, fuel and hormones, which will enhance recovery and limit post training stiffness and soreness. An effective cool down consists of 10 – 15 min of light activity followed by 8-12 min of static stretching. A

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

structured Warm-up and Cool-down is included in a separate file entitled PHYSICAL EXERCISES, for your convenience.

5. **Injury Management:** Injury prevention is a secondary goal of this training program however unfortunately injuries can occur that are beyond your control. If you do sustain an injury it is crucial that you take immediate action to minimize damage and enhance healing. The **RICE** strategy outlined below will help to ensure that inflammation is reduced and that recovery / healing are initiated. It is always wise to seek medical attention as soon as possible after sustaining an injury or if a minor injury persists.
 - a. **Rest** the injured body part.
 - b. **Ice** the injured area for 10 – 20 min every 2 – 3 hours.
 - c. **Compress** the injured area with an elastic bandage or towel if swelling occurs.
 - d. **Elevate** the injured area above the level of the heart.
6. **Train Smart:** Training Smart incorporates using proper technique, protecting your back, training with a partner, taking care of your feet and legs and ensuring that equipment is safe.
 - a. **Proper technique:** A separate file describing the correct technique for each exercise prescribed in this program, along with images, is included for your reference and guidance. Furthermore one training session each week during weeks 2-5 of the training program is dedicated to practicing, reinforcing and learning correct lifting technique. Incorrect lifting technique can result in injury! It is wise to use a lighter load when attempting lifts that are new or that you are not experienced with. Remember to breathe correctly when lifting, that is exhale when you exert against a resistance and inhale during the less stressful (recovery) phase of the exercise.
 - b. **Protect your Back:** Ensure that you incorporate correct lifting posture of your back that is, where your back has its natural and gentle S-curve, and lift with your legs. Avoid extreme positions and twisting with a load, and always face the object you are going to lift.
 - c. **Train with a Partner:** Training with a partner can provide both motivation and support, assistance if you sustain an injury and a "spotter" for when you are doing resistance exercises with free weights.
 - d. **Feet and Legs:** Wear training shoes that are appropriate for the training that you are doing (i.e. running shoes for running etc.), and make sure that your footwear fits properly. Wash and dry your feet after each workout and apply moisturizer appropriately. Run on flat even surfaces like tracks, asphalt and level grass.
 - e. **Safe Equipment:** Check to make sure that equipment, benches etc., are stable and safe. Check the collars on free weights and make sure that dumbbells (DB) are secure. Finally, check the floor surface for clutter or slippery areas.
7. **Training in the Heat:** Prolonged intense physical activity (as prescribed in this manual), can result in heat illnesses such as exertional heat stroke and heat exhaustion. These conditions occur most frequently in hot and humid conditions, and can result in withdrawal from training, collapse during or soon after activity and cause damage to

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

your internal organs. Some signs and symptoms of the onset of heat stress include: dizziness, disorientation, confusion, irritability, headache, loss of balance, profound fatigue and hyperventilation. As your body temperature increases you begin to sweat which results in fluid loss and can lead to dehydration. Dehydration reduces endurance exercise performance, decreases time to exhaustion and increases body heat storage. Therefore it is very important to replace your fluids (re-hydrate) to prevent heat stress. Here are some strategies to assist you when you are training in the heat:

- a. Avoid training outdoors during the hottest times of the day – usually between 1100 – 1500 hrs.
 - b. Wear white loose fitting dry fit clothing that allows for air to circulate throughout permitting evaporation and heat dissipation.
 - c. Acclimatize yourself to the heat by completing short repeated bouts of exposure in the heat.
 - d. Liberally apply water / sweat- proof 30+SPF sunscreen to all exposed areas.
 - e. Make sure you are fully hydrated prior to each training session by drinking beverages slowly throughout the day and ensure that urine output is normal and clear.
 - f. Re-hydrate at a rate of 0.4 – 0.8 liters per hour during exercise. After exercise consume 1.5 liters of fluid for each kilogram of body weight lost during exercise.
 - g. The best replacement fluids are electrolyte drinks with 4-8% carbohydrates; cool to cold in temperature, and in volumes of about 250 mL every 15 min.
8. **Talk to Your Supervisor:** Time is the biggest obstacle that you will face when trying to complete the full 12 week training program. Speak with your supervisor and explain the program requirements. In some instances supervisors will allow candidates to complete one of the two prescribed workout sessions during work hours while the second session is to be completed on your own time.
9. **Talk to PSP Staff:** After reading the manual if you have questions or require assistance, do not hesitate to talk to a member of your PSP staff. They can assist you with the Fitness Checks; help you to tailor the program to your specific needs, and coordinate group training sessions if there are a number of candidates from your unit participating in the selection process.
10. **Fuel for Fitness:** The twice a day training program and CSOR AP are very physically demanding. Therefore it is vital that you nourish your body properly, to be successful and get the greatest return for your training investment. In the Nutrition and Exercise table below are some tips for achieving adequate fuel for your body. (Reproduced from the Army Fitness Manual, Land Forces Command) For further information please see the Top Fuel for Top Performance website at <http://www.forces.gc.ca/health-sante/ps/hpp-pps/nw-mn/tf-bs-eng.asp>.

Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	1. Has your doctor ever said that you have a heart condition <u>and</u> that you should only do physical activity recommended by a doctor?
<input type="checkbox"/>	<input type="checkbox"/>	2. Do you feel pain in your chest when you do physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	3. In the past month, have you had chest pain when you were not doing physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	4. Do you lose your balance because of dizziness or do you ever lose consciousness?
<input type="checkbox"/>	<input type="checkbox"/>	5. 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?
<input type="checkbox"/>	<input type="checkbox"/>	6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
<input type="checkbox"/>	<input type="checkbox"/>	7. Do you know of <u>any other reason</u> why you should not do physical activity?

If
you
answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

- If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:
- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
 - take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- if you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- if you are or may be pregnant — talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____

DATE _____

SIGNATURE OF PARENT
or GUARDIAN (for participants under the age of majority) _____

WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.



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Nutrition and Exercise

	BEFORE	DURING	AFTER			
WHEN	3-4 hours before exercise	1-2 hours before exercise	During exercise less than 1 hour	During exercise more than 1 hour	0-30 minutes after exercise	2-3 hours after exercise
GOAL	<ul style="list-style-type: none"> • Provide energy and prevent dehydration and hunger during exercise 		<ul style="list-style-type: none"> • Stay hydrated 	<ul style="list-style-type: none"> • Stay hydrated and provide energy 	<ul style="list-style-type: none"> • Replace fluids and rebuild muscles 	
FOOD	<ul style="list-style-type: none"> • Eat a balanced meal rich in carbohydrate with some protein and low in fat 	<ul style="list-style-type: none"> • Eat a snack high in carbohydrates combined with a protein source 	<ul style="list-style-type: none"> • Not needed 	<ul style="list-style-type: none"> • If needed, easily digested foods high in carbohydrates 	<ul style="list-style-type: none"> • Eat a snack as soon as possible • Aim for a low fat, high carbohydrate snack 	<ul style="list-style-type: none"> • Eat a meal containing carbohydrates, protein and low in fat (include foods from the 4 food groups)
FLUID	<ul style="list-style-type: none"> • Drink approximately 300-500 ml of water to maintain urine output <p>Tip: Urine amount and color is a good indication of hydration status. Aim for pale yellow!</p>	<ul style="list-style-type: none"> • Drink approximately 150-350 ml of water 	<ul style="list-style-type: none"> • Drink water to thirst. 	<ul style="list-style-type: none"> • Drink 150 to 350 ml of water every 15 or 20 minutes • Add a source of carbohydrates and minerals 	<ul style="list-style-type: none"> • Drink fluids ASAP <p>Tip: 1.5 litres of fluid needed for every weight loss kg during exercise</p>	
SUGGESTIONS	<p>Meal Suggestions</p> <ul style="list-style-type: none"> • Rice, vegetables, lean meat and milk • Pasta with tomato/lean meat sauce, apple sauce, milk • Lean meat sandwich and juice • Pancakes with fruit, yogurt and nuts <p>Tip: Avoid trying new foods or drinks before or during competition</p>	<p>Snack Suggestions</p> <ul style="list-style-type: none"> • Bagel and chocolate milk • Granola bar, apple, and milk • Sport or energy bar with juice • Pita with hummus and vegetable juice • Peanut butter on bread with milk • Low-fat muffin and fruit yogurt • Fig bars and yogurt 		<p>Sports drink</p> <ul style="list-style-type: none"> • Commercial or homemade <p>Recipe</p> <ul style="list-style-type: none"> 500 ml orange juice 500 ml water 1.5 ml salt <p>Be careful! Energy drinks and soft drinks are <u>not</u> good options as they slow rehydration</p>	<p>Snack Suggestions</p> <ul style="list-style-type: none"> • Bagel and orange • Granola bar and juice • Low-fat muffin • 2 fig bars and yogurt 	<p>Meal Suggestions</p> <ul style="list-style-type: none"> • Pasta with tomato/lean meat sauce, cheese and a side salad • Chicken and vegetable rice, fruit salad and milk • Tuna sandwich, raw veggies and a glass of milk • Chili, bread and milk

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

HOW TO USE THIS MANUAL

The training program is broken down into three levels (I, II & III) and is designed to take you to from Level I to Level III in 12 weeks, including three Fitness Check weeks and a Taper week just prior to the onset of the CSOR AP. If you need to repeat certain weeks, or you don't reach Level III in all components by the end of week 11 then your preparation time will be longer.

Page 8 is the MAIN EXERCISE PRESCRIPTION PAGE. It is your guide to completing the training program. It includes the fitness check weeks (1, 6 & 11) the taper week (12) and the exercise prescription. The program is broken down into 4 two week training blocks, with training days numbered 1 through 7. Day 1 is normally Monday but can be any day of the week that you decide to start the program. Days 4 and 7 are designated rest and recovery days each week to ensure that you build your fitness, resist overtraining and ensure that the quality of training is maintained throughout the week.

Every training method or modality that you will use to enhance your fitness levels are indicated on the MAIN EXERCISE PRESCRIPTION PAGE. Along with each training method is the training load for that day including intensity, duration / distance. Each training method is described in further detail and with more information later on in the manual to assist you. Finally each training day (including fitness checks and taper weeks) are broken down into AM / PM workout sessions.

The final week (12) is a taper week and should immediately precede the start of the CSOR AP. It involves reducing the amount of training while maintaining the intensity of the training sessions. This will continue to provide you with positive training effects while reducing both physical and mental fatigue levels, allowing for the greatest chance of success.

It is essential that you follow the exercise prescription as laid out to avoid injury and overtraining and to obtain optimal performance results from your training.

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

MAIN EXERCISE PRESCRIPTION PAGE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
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FITNESS CHECK - WEEKS 1, 6, 11

AM PM	2400 m RUN	SQUATS / PULL-UPS BENCH PRESS / SIT-UPS	WEIGHTLOADED MARCH: 7KM 35 KG	STRETCH	8 KM RUN	PUSH-UPS / VERTICAL JUMP 400 m RUN	REST
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EXERCISE PRESCRIPTION - WEEKS 2 & 3

AM PM	STRENGTH (15 RM) / CORE (15) AEROBIC CONTINUOUS 10 KM	MUSCULAR INTERVALS SWIMMING (600 m) / CORE (S) (45s)	STRENGTH (5 RM) WEIGHTLOADED MARCH 10 KM 35 KG	EASY JOG / STRETCH STRETCH	MUSCULAR INTERVALS TECHNIQUE LIFT / CORE (25)	STRENGTH (10 RM) / POWER (1 set) TEMPO RUN (25 min) / CORE (20)	REST
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EXERCISE PRESCRIPTION - WEEKS 4 & 5

AM PM	STRENGTH (10 RM) / CORE (15) AEROBIC CONTINUOUS 10 KM	MUSCULAR INTERVALS SWIMMING (600 m) / CORE (S) (60s)	STRENGTH (15 RM) WEIGHTLOADED MARCH 10 KM 35 KG	EASY JOG / STRETCH STRETCH	WEIGHTLOADED MARCH: 7 KM 45 KG TECHNIQUE LIFT / CORE (25)	STRENGTH (5 RM) / POWER (2 sets) TEMPO RUN (30 min) / CORE (20)	REST
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EXERCISE PRESCRIPTION - WEEKS 7 & 8

AM PM	STRENGTH (8 RM) / CORE (25) WEIGHTLOADED MARCH 12 KM 35 KG	MUSCULAR INTERVALS SWIMMING (800 m) / CORE (S) (60s)	STRENGTH (12 RM) AEROBIC INTERVALS 5 KM (1.5:1)	EASY JOG / STRETCH STRETCH	WEIGHTLOADED MARCH 7 KM 50 KG SWIMMING (800 m) / CORE (30)	AEROBIC CONTINUOUS 8 KM / CORE (20) STRENGTH (5 RM) / POWER (2 sets)	REST
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EXERCISE PRESCRIPTION - WEEKS 9 & 10

AM PM	STRENGTH (12 RM) / CORE (25) WEIGHTLOADED MARCH 13 KM 35 KG	MUSCULAR INTERVALS SWIMMING (800 m) / CORE (S) (75s)	STRENGTH (5 RM) AEROBIC INTERVALS 5 KM (2:1)	EASY JOG / STRETCH STRETCH	MUSCULAR INTERVALS SWIMMING (800 m) / CORE (30)	STRENGTH (8 RM) / POWER (2 sets) WEIGHTLOADED MARCH 7KM 45 KG	REST
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EXERCISE PRESCRIPTION - TAPER WEEK 12

AM PM	STRENGTH (12 RM) / CORE (20) AEROBIC CONTINUOUS 5 KM	MUSCULAR INTERVALS SWIMMING (400 m) / CORE (S) (45s)	STRENGTH (10 RM) POWER (2 sets) / CORE (15)	EASY JOG / STRETCH STRETCH	WEIGHTLOADED MARCH 6 KM 35 KG STRETCH	AEROBIC CONTINUOUS 2 KM STRETCH	REST
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CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

FITNESS CHECK

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
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WEEKS 1, 6, & 11

	2400 m RUN	SQUATS / PULL-UPS BENCH PRESS / SIT-UPS	WEIGHTLOADED MARCH 7 KM (35 KG)	STRETCH	8 KM RUN	PUSH-UPS / VERTICAL JUMP 400 m RUN	REST
AM PM							

PURPOSE: To aid you in evaluating your current fitness level in order to ensure that you're training is progressing adequately for successful completion of the CSOR AP. Furthermore, the Fitness Check week is used as an unloading week where the overall volume of work is lower during these weeks to facilitate optimal recovery and physical fitness gains. The Fitness Check weeks encompass a variety of physical fitness components including: Aerobic Power (2400 m Run), Aerobic Capacity (8 km Run), Anaerobic Capacity (400 m Run), Upper Body Strength (Push-ups, Pull-ups, Bench Press), Lower Body Strength (Squats), Lower Body Power (Vertical Jump), Abdominal Strength (Sit-ups), and Work Capacity (Weightloaded March).

INSTRUCTIONS: Using the Fitness Check Table below, determine your level on each of the 10 fitness items and record your level and score (time, weight, distance) on the Progress Report form. This will allow you to evaluate your performance, and identify areas where you need to improve to reach Level III. Detailed instructions on how to complete each of the 10 fitness exercises is outlined below with further descriptions and images of the Upper Body Strength, Lower Body Strength and Abdominal Strength in a separate file entitled PHYSICAL EXERCISES for your convenience. **NOTE: REMEMBER TO ENSURE THAT YOU PREPARE YOURSELF PROPERLY PRIOR TO EACH TEST BY COMPLETING THE WARM-UP, AND COOL DOWN AND STRETCH AFTER EACH TEST TO PROMOTE OPTIMAL RECOVERY AND AVOID MUSCLE STIFFNESS AND SORENESS.**

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

TEST ITEMS:

AEROBIC POWER (2400 m) Run: This equates to 6 laps of a 400 m track, or measure out the distance on a flat course. Pace yourself to ensure that you achieve your best average speed.

AEROBIC CAPACITY (8 km) Run: This can be run over a flat measured course or 20 laps of a 400 m track. Again, to achieve your best average speed select an appropriate pace and maintain throughout the duration of the run.

UPPER BODY STRENGTH (Push-ups, Pull-ups, Bench Press):

- **Push-ups:** Take a position with hands flat on the floor shoulder-width apart, fingers pointing forwards, back straight and head up. Lower yourself until you reach a 90 degree bend in the elbows and rise until arms are straight. Note the number of push-ups completed without stopping. Complete the exercise smoothly and continuously without rushing.
- **Pull-ups:** Take a position with an overhand grip on the bar, with hands approximately shoulder width apart. Raise yourself until your chin is above the bar and lower until your arms are straight. Pause momentarily at the bottom and ensure that you do not swing or kip. Note the number of pull-ups completed without stopping.
- **Bench Press:** Take a position with feet flat on the floor, hips, shoulders, and head in contact with the bench and grasp the bar with an overhand grip slightly wider than shoulder width apart. Lift the load above the chest, approximately above the nipples, with arms fully extended. Lower the bar to approx 2 inches above the chest and pause momentarily. Then push the bar back up to the starting position. Work with a partner to ensure safety. Prior to the test complete a warm-up and start the test with a 70 kg load. If you can lift this comfortably continue and do as many reps as possible. If you struggle with this load drop down to 60 kg, or if you can complete more than 20 reps increase the load accordingly on the next Fitness Check.

LOWER BODY STRENGTH (Squats): Take a standing position with your feet approximately shoulder width apart, toes pointing slightly outwards, back erect, head up and barbell resting on your shoulders. Squat down to a 90° angle at the knees while keeping the head up, and return to the starting position. Prior to the test do a warm-up using a light load (i.e. 5-6 reps at 50% of the testing load), then start the test with a load of 70 kg. Work with a partner to ensure safety.

- If you can lift this comfortably complete as many reps as possible, if not then drop down to 60 kg for your fitness check.
- If you successfully complete 20 reps at 70 Kg then increase the load to 80 Kg for the next Fitness Check and so forth.

ABDOMINAL STRENGTH (Sit-ups): Take a position on your back with your feet flat on the ground, your knees bent to 90°, your hands behind your ears and elbows pointed forwards. Without lifting and dropping the hips, keeping the elbows pointed forwards,

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

feet in contact with the ground and your hands touching your head, sit-up so that your elbows touch the top of your knees, return to the starting position ensuring that your shoulder blades make contact with the ground. Complete as many as you can in one minute. Note the number of successful sit-ups completed in one minute.

LEG POWER (Vertical Jump): Place a vertical line on a wall extending from the floor to a height of 300 cm. Stand next to the line, raise your arm as high as possible while keeping your heels on the ground and note the height that you can reach. Step slightly away from the wall, place your feet shoulder width apart and with a full arm swing and deep knee bend jump and touch as high as possible rest 10 – 15 seconds and repeat. Repeat 3 times and record the highest height that you can touch. Subtract your reach (step 1) from your highest score to determine your actual score.

7 KM WEIGHTLOADED MARCH (35 kg): Complete the prescribed ruck march in the time indicated while carrying the specified load. In order to avoid injury DO NOT attempt to complete the march at a faster pace than specified.

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

Table 1 - FITNESS CHECKS

FITNESS COMPONENTS	EXERCISE	LEVEL I	LEVEL II	LEVEL III
AEROBIC CAPACITY	2400 m RUN	10:57 - 10:06	10:05 - 9:22	9:21 - 8:45
	8 km RUN	41:31 - 38:31	38:30 - 35:56	35:55 - 33:40
ANAEROBIC CAPACITY	400 m RUN	1:28 - 1:22	1:21 - 1:16	1:15 - 1:12
UPPER BODY STRENGTH	PUSH-UPS	40 - 47	48 - 54	55 - 61
	PULL-UPS	8- 12	13 - 15	16 - 19
	BENCH PRESS 60 kg	6 - 13 reps	14 - 18 reps	19 - 21 reps
	70 kg	1 - 9 reps	10 - 14 reps	15 - 18 reps
	80 kg		5 - 11 reps	12 - 15 reps
	90 kg		1 - 7 reps	8 - 12 reps
LOWER BODY STRENGTH	SQUATS 60 kg	11 - 15 reps	16 - 17 reps	18 - 19 reps
	70 kg	7 - 12 reps	13 - 15 reps	16 - 17 reps
	80 kg	5 - 10 reps	11 - 13 reps	14 - 16 reps
	90 kg	2 - 7 reps	8- 11 reps	12 - 14 reps
ABDOMINAL STRENGTH	SIT-UPS	41 - 46	47 - 52	53 - 58
LEG POWER	VERTICAL JUMP cm	45 - 52	53 - 59	60 - 66
WORK CAPACITY	7 km 35 kg	1:19:00	1:19:00	1:19:00

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

STRENGTH CIRCUIT TRAINING

DAY 1	DAY 3	DAY 6
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PURPOSE: To ensure that you have adequate levels of muscular strength in order to successfully complete the CSOR AP.

INSTRUCTIONS: The required repetitions and intensity are indicated in brackets by repetition maximum (e.g. 15 RM – this means that you choose a load that is sufficient to allow you to perform the required number of reps only that is, if you are able to perform more than the required reps then the load is too light and if you cannot complete the required number of reps then the load is too heavy) on the MAIN EXERCISE PRESCRIPTION PAGE for each strength training session. For each session you will complete 2 sets or rounds of one of the circuits as indicated below. That is: Strength session 1 = Circuit I; Strength session 2 = Circuit II etc. All exercises are to be completed in a circuit format that is move from one exercise to the next with minimal rest in between. At the completion of each circuit recover for 2-4 min then repeat. Detailed descriptions and images of each exercise are located in an additional file termed PHYSICAL EXERCISES, for your convenience. Each circuit is designed to include 1 full body exercise, 3-4 lower body exercises, and 3-4 upper body exercises. Exercises are to be completed in the order specified below for optimal results.

<u>CIRCUIT I</u>	<u>CIRCUIT II</u>	<u>CIRCUIT III</u>	<u>CIRCUIT IV</u>
SUMO DEADLIFT TO HIGH PULL	THRUSTERS	DB DEADLIFT TO OVERHEAD PRESS	THRUSTERS
BACK SQUAT	DEADLIFT	FRONT SQUAT	SUMO DEADLIFT
BENCH PRESS	PUSH-UP ALT HAND ON MB	NARROW GRIP BENCH PRESS	SB BENCH PRESS
PULL-UPS	ALT DB ROW ON BENCH	LAT PULLDOWNS	PULL-UPS
BULGARIAN SPLIT SQUAT	STEP UP TO BENCH	DB 45° LUNGE	OVERHEAD SQUAT
HINDU PUSH-UPS	DB PUSH-UP TO ROW	UPRIGHT ROW	PUSH-UP WITH FEET ON MB
BENT OVER ROW	DB OVERHEAD PRESS	MB PUSH-UPS	INVERTED ROW
T-PUSH-UP	DB FARMERS WALK 20 m	INVERTED ROW FEET ON SB	DB FARMERS WALK 20 m

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

CORE TRAINING

DAY 1	DAY 2	DAY 5	DAY 6
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PURPOSE: To ensure that your core musculature is adequate in order to successfully complete the CSOR AP.

INSTRUCTIONS: The required repetitions (e.g. 20) or duration (e.g. 60sec) are indicated in brackets on the MAIN EXERCISE PRESCRIPTION PAGE for each core training session. For each Core session you will complete 2 sets or rounds of either CIRCUIT II or CIRCUIT III, similar to the STRENGTH circuits described above. When CORE (S) is prescribed (see MAIN EXERCISE PRESCRIPTION PAGE) you will complete CIRCUIT I - STABILIZATION, where you will hold the position correctly for the prescribed duration. All exercises are to be completed in a circuit format that is move from one exercise to the next with minimal rest in between. At the completion of each circuit recover for 2-4 min then repeat. Detailed descriptions and images of each exercise are located in an additional file termed PHYSICAL EXERCISES, for your convenience.

CIRCUIT I - STABILIZATION

PLANK
V-SIT
PRONE COBRA
T-STABILIZATION
EAGLE
SIDE PLANK - BOTH SIDES

CIRCUIT II

SB KNEES TO CHEST
MB RUSSIAN TWIST
WINDSHIELD WIPER
SIT-UP
CHOP
SB ROLL OUT
DEAD BUG

CIRCUIT III

BIRD DOG
MOUNTAIN CLIMBER
STAR
SUPERMAN
STRAIGHT LEG HIP RAISE
SIT-UP
RAISED LEGS CRUNCH

AEROBIC CAPACITY TRAINING

DAY 1	DAY 3	DAY 6
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PURPOSE: To ensure that your aerobic capacity is sufficient to successfully complete the CSOR AP.

NOTE: For weeks 2-5 aerobic training will be completed on Day 1 & Day 6, and on weeks 7-10 aerobic training will be completed on Day 3 & Day 6

INSTRUCTIONS: There are 3 distinct modalities utilized within this training program to achieve the stated purpose. They include Aerobic Continuous (AC), Tempo Run, and Aerobic Intervals (AI). Info regarding Day and Time (AM / PM) of aerobic training sessions can be found on the MAIN EXERCISE PRESCRIPTION PAGE. This training program takes a three pronged approach to determining exercise intensity i) Absolute or time based (Table 2), ii) Relative or Heart Rate (HR) based (Table 3), and iii) Feeling based (Table 4). Detailed Instructions for how to complete each Aerobic Training modality are as follows:

AEROBIC CONTINUOUS: - Run continuously maintaining a constant pace throughout. Determine from the main EXERCISE PRESCRIPTION PAGE the distance to be completed for the particular day you are at within the program. Consult Table 2 to determine how long it should take you to complete the run (depending on what level you are at - see FITNESS CHECKS) and the % maximal heart rate you should be working at. For example: For a 10 KM run at Level I working @ 75% you need to complete the run between 54 - 58 min. Next determine your age predicted maximal heart rate (MHR) $(220 - \text{age})$ and determine what your resting HR (RHR) is. Then determine your training HR (THR) by using the formula $\text{THR} = [(\text{MHR} - \text{RHR}) \times \text{intensity}] + \text{RHR}$. For example for a 25 year old the age predicted MHR is $(220 - 25)$, with a RHR of 60 bpm working at 75%, the $\text{THR} = 161$ bpm (for a more detailed example see the Heart Rate section below). Next determine what Zone you are in by consulting Table 3. And lastly consult Table 4 to determine how you should be feeling during the run, for example in Zone 2 "you can converse and have the urge to go faster; breathing deepens.

TEMPO RUN: Similar to Aerobic Continuous, a tempo run is a faster paced run with a shorter duration. Determine the duration for the tempo run from the MAIN EXERCISE PRESCRIPTION PAGE, and then complete the run at an intensity of 85% or above you MHR, and in Heart Zone Feeling 3-4

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

AEROBIC INTERVALS: Aerobic intervals similar to Fartlek training involves easy running of 65 - 74% MHR (Zone 1) combined with bouts of fast running 85 - 90% MHR (Zone 3). The MAIN EXERCISE PRESCRIPTION PAGE indicates the distances to be completed along with the easy to hard running ratio (EASY : HARD), that is during weeks 7 & 8 you will see 5 KM (2:1) - which means you will run 2 minutes easy and one minute hard for a total distance of 5 KM.

Table 2 - AEROBIC TRAINING DISTANCES AND TIMES

DISTANCE / INTENSITY		Level I		Level II		Level III	
10 KM	70%	1:03:02	- 0:58:28	0:58:27	- 0:54:34	0:54:33	- 0:51:07
	75%	0:58:49	- 0:54:34	0:54:33	- 0:50:55	0:50:54	- 0:47:42
8 KM	75%	0:47:03	- 0:43:39	0:43:38	- 0:40:44	0:40:43	- 0:38:09
	80%	0:44:07	- 0:40:55	0:40:54	- 0:38:11	0:38:10	- 0:35:46
5 KM	85%	0:25:57	- 0:24:05	0:24:04	- 0:22:28	0:22:27	- 0:21:03
	90%	0:24:31	- 0:22:44	0:22:43	- 0:21:13	0:21:12	- 0:19:53
2 KM	90%	0:09:48	- 0:09:05	0:09:04	- 0:08:29	0:08:28	- 0:07:57
	95%	0:09:17	- 0:08:37	0:08:36	- 0:08:02	0:08:01	- 0:07:32
1 KM	95%	0:04:39	- 0:04:19	0:04:18	- 0:04:01	0:04:00	- 0:03:46
	100%	0:04:25	- 0:04:06	0:04:05	- 0:03:49	0:03:48	- 0:03:35

Table 4

Heart Zone Feeling

<u>Zone 1</u> Comfortable to talk & breathe through your nose.
<u>Zone 2</u> You can converse and have the urge to go faster; breathing deepens.
<u>Zone 3</u> Breathing becomes noticeable; but not too difficult; conversation is restricted to short sentences.
<u>Zone 4</u> Breathing becomes heavy; difficult & uncomfortable; experience muscle burn because of lactate buildup.
<u>Zone 5</u> Extremely difficult & uncomfortable; you will feel breathless & may hear pounding in your chest; intense desire to slow or stop.

Table 3 - THR ZONES

MHR	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
	Easy		Moderate		Hard		Very Hard		Maximum	
RHR	65%	74%	75%	81%	82%	90%	91%	97%	98%	100%

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

HEART RATE (HR): To determine your training HR you will first need to check your resting heart rate (RHR). To do this simply take your HR for 30 sec when you wake up in the morning and multiple by 2. Next determine your age predicted maximum heart rate (MHR) by subtracting your age from 220. Finally to determine your training heart rate (THR) enter your information into the following formula $THR = [(MHR - RHR) \times \text{intensity}] + RHR$. An example follows for a 25 year old with a RHR of 60 beats per min. Complete table 3 above with your personal HR information to use as a reference while you train.

AGE = 25

RHR = 60

MHR = $(220 - 25) = 195$

THR = $[(195 - 60) \times 65\%] + 60 = 147.75$ or 148

THR = $[(195 - 60) \times 74\%] + 60 = 159.9$ or 160

Table 5 - EXAMPLE THR ZONES

MHR	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
195	Easy		Moderate		Hard		Very Hard		Maximum	
RHR	65%	74%	75%	81%	82%	90%	91%	97%	98%	100%
60	148	160								

MUSCULAR INTERVAL TRAINING

DAY 2	DAY 5
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PURPOSE: To ensure that your aerobic / anaerobic power is sufficient to successfully complete the CSOR AP and to supplement your strength training.

NOTE: For weeks 4,5,7,8 muscular intervals will be completed on Day 2 only, and on weeks 2,3,9,10 muscular intervals will be completed on Day 2 & Day 5.

INSTRUCTIONS: Consult the MAIN EXERCISE PRESCRIPTION PAGE to determine the exact day and time (either AM or PM) to complete the muscular interval training sessions. For each Muscular Interval training session you will complete one of the Interval

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

sessions and corresponding physical exercises described below, starting with Interval Session 1 then moving to 2 and so forth. ****ENSURE THAT YOU COMPLETE AN EXTENSIVE WARM-UP PRIOR TO EACH MUSCULAR INTERVAL TRAINING SESSION!** After completing a proper warm-up begin each training session with a run according to tables 6 & 7 below (For example if you are at Level I, run 200 m in 42 - 50 sec) followed by a set of physical exercises (i.e. 20 Squats and 20 Push-ups). Rest for 2 min and continue until you have completed the training session that is another 200 m run in 42 - 50 sec then 15 Squats and 15 Push-ups etc. Detailed descriptions of each exercise are located in a separate file entitled PHYSICAL EXERCISES for your convenience.

Table 6 - MUSCULAR INTERVALS

INTERVAL SESSION 1	REPS	INTERVAL SESSION 2	REPS	INTERVAL SESSION 3	REPS
1. RUN 200 m	1	1. RUN 200 m	1	1. RUN 400 m	1
SQUATS	20	MB OVERHEAD SQUATS	20	BURPEE JUMPS	20
PUSH-UPS	20	MB PUSH-UPS	20	SIT-UPS	20
2. RUN 200 m	1	2. RUN 200 m	1	2. RUN 400 m	1
SQUATS	15	MB OVERHEAD SQUATS	15	BURPEE JUMPS	15
PUSH-UPS	15	MB PUSH-UPS	15	SIT-UPS	15
3. RUN 200 m	1	3. RUN 400 m	1	3. RUN 400 m	1
SQUAT THRUSTS	20	MB SQUAT THROW	20	MOUNTAIN CLIMBER	20
SIT-UPS	20	MB RUSSIAN TWIST	20	PRONE COBRA	20
4. RUN 400 m	1	4. RUN 1000 m	1	4. RUN 400 m	1
SQUAT THRUSTS	15	MB SQUAT THROW	15	MOUNTAIN CLIMBER	15
SIT-UPS	15	MB RUSSIAN TWIST	15	PRONE COBRA	15
5. RUN 400 m	1	5. RUN 400 m	1	5. RUN 400 m	1
LUNGES	20	MB LUNGE	20	SQUAT JUMPS	20
HINDU PUSH-UPS	20	MB SIT-UPS	20	T-PUSH-UPS	20
6. RUN 1000 m	1	6. RUN 200 m	1	6. RUN 400 m	1
LUNGES	15	MB LUNGE	15	SQUAT JUMPS	15
HINDU PUSH-UPS	15	MB SIT-UPS	15	T-PUSH-UPS	15

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

Table 7 - MUSCULAR INTERVAL RUN TIMES

DISTANCE / INTENSITY		Level I		Level II		Level III	
1 KM	95%	0:04:39	- 0:04:19	0:04:18	- 0:04:01	0:04:00	- 0:03:46
	100%	0:04:25	- 0:04:06	0:04:05	- 0:03:49	0:03:48	- 0:03:35
	105%	0:04:12	- 0:03:54	0:03:53	- 0:03:38	0:03:37	- 0:03:24
400M	105%	0:01:41	- 0:01:34	0:01:33	- 0:01:27	0:01:26	- 0:01:22
	110%	0:01:36	- 0:01:29	0:01:28	- 0:01:23	0:01:22	- 0:01:18
	115%	0:01:32	- 0:01:25	0:01:24	- 0:01:20	0:01:19	- 0:01:14
200M	105%	0:00:50	- 0:00:47	0:00:46	- 0:00:44	0:00:43	- 0:00:41
	110%	0:00:48	- 0:00:45	0:00:44	- 0:00:42	0:00:41	- 0:00:39
	115%	0:00:46	- 0:00:42	0:00:41	- 0:00:40	0:00:39	- 0:00:37

SWIM TRAINING

DAY 2	DAY 5
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PURPOSE: To ensure that your swimming specific aerobic power and capacity are adequate in order to successfully complete the CSOR AP. Furthermore swimming is a low impact activity that challenges your aerobic fitness.

INSTRUCTIONS: Complete the prescribed swimming distance indicated on the MAIN EXERCISE PRESCRIPTION PAGE. You may vary the type of stroke that you use throughout each session.

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

TECHNIQUE LIFT

DAY 5

PURPOSE: To reinforce correct lifting technique in order to build the technical foundation for further more complex training and to facilitate your active recovery.

INSTRUCTIONS: Complete 3 sets of 15 repetitions for each exercise listed below. Ensure that you focus on proper technique for each and every repetition, and move in a smooth, continuous, and controlled manner throughout a full range of motion. Begin without adding weight to the bar and once you are comfortable with your technique progress to using light weights. **DO NOT** at any point during one of these sessions attempt any of the lifts listed below with moderate to heavy weights. Detailed descriptions and images of each exercise are located in an additional file termed PHYSICAL EXERCISES, for your convenience.

TECHNIQUE LIFT EXERCISES

BACK SQUAT	DEADLIFT
FRONT SQUAT	DROP SQUAT
OVERHEAD SQUAT	HIGH PULL

POWER TRAINING

DAY 1	DAY 3	DAY 5
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PURPOSE: To ensure that you are able to move your body explosively and quickly in order to successfully complete the CSOR AP.

CSOR PRE-SELECTION PHYSICAL FITNESS TRAINING PROGRAM

INSTRUCTIONS: Complete the prescribed number of sets as indicated in brackets after POWER on the MAIN EXERCISE PRESCRIPTION PAGE. The amount of repetitions for each exercise is listed below. Ensure that you complete the POWER training prior to beginning the STRENGTH training (see MAIN EXERCISE PRESCRIPTION PAGE). Focus on quality of repetitions that is reacting quickly, limiting your time on the ground and being explosive. ****ENSURE THAT YOU COMPLETE AN EXTENSIVE WARM-UP PRIOR TO EACH POWER TRAINING SESSION!** Detailed descriptions and images of each exercise are located in an additional file termed PHYSICAL EXERCISES, for your convenience.

PLYOMETRIC EXERCISES	REPS
FRONT / BACK HOPS	20
SIDE TO SIDE HOPS	20
TUCK JUMPS	12
ALTERNATING JUMPS ON STEP	10
SINGLE LEG JUMPS ON STEP	10

WEIGHTLOADED MARCHING

DAY 2	DAY 5
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PURPOSE: To ensure that you are able to cover long distances carrying a heavy load in order to successfully complete the CSOR AP.

INSTRUCTIONS: Complete the prescribed Weightloaded march specified on the MAIN EXERCISE PRESCRIPTION PAGE. See the Table below to determine the time required to complete each march. In order to avoid potential injury DO NOT attempt to complete any of the prescribed marches faster than the time specified.

Table 8 - WEIGHTLOADED MARCH LOADS AND TIMES

6 KM 35 KG	7 KM 45 KG	7 KM 50 KG	10 KM 35 KG	12 KM 35 KG	13 KM 35 KG
1:07:00	1:41:00	1:52:00	1:52:00	2:15:00	2:26:00