

TRAINING PROGRAM



SAR TECH

Applicant Physical Fitness Selection Test

Guidelines for Training for the SAR Tech Applicant Physical Fitness Selection Test



The purpose of this document is to provide applicants with the details of the applicant selection test and guidance for training.

This is not an individualized program and therefore we highly recommend that you acquire further training guidance from the PSP fitness staff at your Base/Wing to incorporate these guidelines into your training, and to modify your current training to ensure a well balanced fitness program.

The additional workouts should provide a balance in your training to avoid any injuries due to muscle imbalances (e.g., overloading in one direction of movement).

As each applicant has different strengths and weakness your additional workouts will vary.

There are many training approaches that will facilitate your success, although including workouts similar to the ones contained in this document will maximize your test performance. The individual test components (e.g., treadmill test) are relatively simple to simulate and practicing them will help gauge your level of preparation.

This document is made up of two parts:

Part I: Review of the SAR Tech Selection Test

Part II: Review of the training guidelines

Part 1 – SAR Tech Applicant Selection Test



Overview

The SAR Tech Selection Test has been designed to evaluate the types of fitness that are required for the SAR Tech QL5A course.

This course is very demanding and physical fitness is an important part of the selection process. Although meeting the minimum level of a pass will allow you to meet the physical demands of the course, it is important to understand that SAR Techs must be fit enough to get to the problem (search) in a safe and effective manner with enough physical reserve to be able to deal with the problem (rescue).

The QL5A course includes many combinations of physical challenges such as:

- long periods of work under load (hiking, back-country skiing)
- shorter periods of heavy lifting and carrying
- swimming or diving with equipment

Often, these challenges are encountered in combination and the SAR Tech Selection Test reflects the need to progress from one type of activity to another with only short transition periods.

SAR Tech Selection Test consists of 3 components:

1. **Treadmill:** 25 kg loaded uphill walk/run
5 min transition
2. **Equipment Carry:** shuttling 50 and 52 kg over a 40 m circuit.
30 min rest transition
3. **Pool Swim:** 750 m swim with fins.

Maximal effort is expected throughout the entire test.

To be considered for pre-selection for the QL5A course, applicants must meet the minimum performance standard for each of the 3 components of the SAR Tech Selection Test.

Recovery prior to final evaluations

You should give yourself at least 2 full days of rest before you attempt the official SAR Tech evaluation to ensure fatigue does not compromise your performance.

1. SAR Tech Treadmill Test



Background

SAR Tech candidates often work hard for at least 15-20 minutes, and carrying heavy loads while hiking or back-country skiing. This type of work is repeated many times during a training day.



There are two objectives to the treadmill test:

1. To evaluate your ability to complete a representative sample of endurance work while carrying a typical load.
2. To evaluate your maximal work capacity under load. During the entire test you will carry a 25 kg backpack (similar to the 80 L Bora Arcteryx™ pack that is issued to QL5A students when on course, shown in Appendix A).

Description

The treadmill test has 4 distinct parts:

1. **Warm-up phase:** Walking at 5.6 km/h (3.5 mph) for 6 minutes. The grade starts at 2% and increases to 6% by the end of the warm-up.
2. **Constant work phase:** Walking at 5.6 km/h (3.5 mph) and 8% grade for 15 minutes. Completion of this phase is essential in order for you to meet the minimal standard for this component of the test.
3. **Progressive phase:** The treadmill grade increases by 1% each minute up to a maximum of 15%. Thereafter, the grade stays constant at 15%, but the speed increases by 0.8 km/h (0.5 mph) with every minute. You will complete as many stages as possible until you are too exhausted to continue.
4. **Cool-down phase:** Walking at 4 km/h (2.5 mph) on a flat treadmill (0% grade) for 5 minutes. The cool-down phase begins the moment you quit the progressive phase. Completion of the cool-down phase is mandatory.

Summary of the SAR Tech Treadmill Test protocol

Test Phase	Test Time (minutes)	Treadmill Speed (km/h)/(mph)	Treadmill Grade (%)
Warm-up	0-2	5.6/3.5	2
	3-4	5.6/3.5	4
	5-6	5.6/3.5	6
Constant work Progressive	7-21	5.6/3.5	8
	22	5.6/3.5	9
	23	5.6/3.5	10
	24	5.6/3.5	11
	25	5.6/3.5	12
	26	5.6/3.5	13
	27	5.6/3.5	14
	28	5.6/3.5	15
	29	6.4/4.0	15
	30	7.2/4.5	15
	31	8/5.0	15
	32	8.8/5.5	15
	33	9.6/6.0	15
34	10.4/6.5	15	
35	11.2/7.0	15	
Cool-down	0-5	4/2.5	0

Equipment and Facilities

1. PT clothing: shorts and t-shirt.
2. Sturdy, high-quality running shoes to provide support and traction on the treadmill while under load.
3. For the entire test, including the warm-up and a cool-down, a trekking backpack, **similar to** the 80L Bora Arcteryx™ pack, adjustable at the hips and shoulders and properly loaded to weigh 25 kg (see Appendix A). Similar personal civilian or military packs are acceptable.
4. Calibrated treadmill with capacity for speeds up to 11.2 km/h or 7mph and elevation up to 15%.

Performance Objectives

1. Minimum standard: Complete at least 21 minutes, which includes the 6 minute warm-up and the 15 minute constant work phase.
2. The average score for past QL5A course candidates is 30 minutes.
3. The best score to date for QL5A candidates is 33 minutes.

2. The Equipment Carry Test



Background

QL5A course candidates frequently have to move equipment and/or casualties over relatively short distances. Often, this work involves 6-8 repetitions while carrying loads of 40-55 kg (90-120 lb). This work is generally accomplished with a sense of purpose and, in some cases, urgency.

This test simulates moving equipment from a storage area to a destination (e.g., dive boat, aircraft) and returning to pick up and carry another load of equipment.

Description

Weights are shuttled back and forth over a 40 m course, alternating between loaded and unloaded repetitions:

1. The course is 40 m long (20 m out, around a cone, and 20 m back).

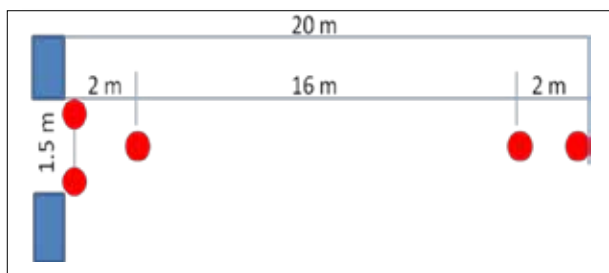


Figure 1: Schematic of Equipment Carry Test Layout. Dots represent positioning cones. Rectangles represent mats for barbell and dumbbell setups.



2. Starting position is standing up.



3. The test begins by lifting the barbell loaded with 2 x 20 kg/45 lb plates on an easy-curl bar and collars for a total of 52kg/115 lb.
4. With barbell in hands, proceed 20 m away from the start point, around a cone, and return to set the bar down in the same place that you started. Do not drop the weights.
5. Repeat the 20 m out and 20 m back circuit with no weight (unloaded). Return to start position.



6. Pick up the two 25 kg (55 lb) dumbbells and complete the second loaded repetition.

7. Repeat the second unloaded 40 m circuit to bring you back to the bar bell.
8. In total, you will cover the 40 m course 8 times under load (4 times with the barbell and 4 times with the dumbbells) and 7 times unloaded, for a total of 15 times through the course.
9. The test ends when you return with the dumbbells to the starting point for the 4th time.
10. The test clock starts when the evaluator says GO after giving the 5 seconds countdown and stops when you return to the starting point with the dumbbells for the 4th time. Your total time to complete the 15 repetitions of the 40 m course is your score.

Note: There is a cone placed 2 m from the starting point and the turn cone.

When you are between these two cones (separated by a distance of 16 m) you can move as quickly as possible. You can walk, shuffle, jog, or run but you must maintain control and move SAFELY.

The area inside the 2 m cones is a “no-run zone”. This rule is in place for safety since you are lifting, lowering and turning with relatively heavy weights in these areas. Warnings will be issued if you do not respect the “no-run zone”.



Equipment and Facilities

1. 20 m flat surface (e.g., gym or field house)
2. 1 set of dumbbells (55 lb)
3. 1 barbell (115 lb, including weight of bar, preferably an easy-curl bar)
4. Gym mat for placement of barbells and dumbbells
5. Gloves
6. 5 cones

Performance Objective

1. All 15 repetitions must be safely completed in 6.5 min or less (390s).
2. The average QL5A candidate completes this test in just under 5 minutes (290s).
3. The fastest time to date on this test is 4.4 min (260s).

3. SAR TECH Swim Test



Background

A significant part of the QL5A course involves work in the water during dive training and sea operations. Almost all 'water work' is done with various types of equipment. SAR Tech trainees regularly do continuous swims of up to 1000 m using fins.

The ability to swim both with and without equipment is important, but this test is completed with fins in order to evaluate the leg strength and endurance required for continuous fining.

The Swim Test requires you to swim 750 m at a pace that represents the ability to make satisfactory progress against wind, wave and/or current in open water.

Description

1. You must complete 750 m of continuous swimming (30 lengths in a 25 m pool). Your total time to complete 750 m (including any time you stop) is your swim test score.
2. You can complete the test using any stroke or by fining.

Equipment and facilities

1. Bathing suit and goggles. Goggles and bathing cap are allowed.
2. Fins. Rubber Aquam™ fins, as shown below are available at all bases for training and testing purposes. It will be important to select the right fin size before your test since there is a 30 min transition time between the end of the Equipment Carry Test and the beginning of the Swim Test.
3. Pool. If no pool available on site, access to a close proximity pool is required in order to perform this 3rd and last component 30 minutes upon completing the equipment carry component of the test.



Performance Objective

1. You must complete 750 m of continuous swimming in 20 minutes or less
2. The average QL5A candidate completes this test in 14 minutes
3. The fastest time to date on this test is 11.7 minutes

Part II - Review of the Training Program



Overall Program Guidelines

1. *Review the Selection Test.* Read this document carefully to ensure appropriate test preparation.
2. *Fitness Checks.* Practice the 3 components of the Selection Test and compare your performance with the suggested performance objectives (e.g., minimum level, average score for recent QL5A students).
3. *Set training objectives.* Based on your fitness checks, and training history maintain or modify your training to focus more on your weaknesses.(e.g., swim) and less on strengths (e.g., treadmill).

The program that follows “assumes” the need for equal preparation in all elements. You may choose to devote more time to one or two components of the test and reduce training time on the other(s). For example, if your aerobic fitness is already ‘excellent’ on the treadmill test but you are a weak swimmer, or if your aerobic swim fitness is low, you might choose to only train for the treadmill test once per week and spend relatively more time in the pool.

4. *Monitor your training in a journal.* This tracking will help you and the PSP fitness staff tailor and modify your training based on your objectives and performance.
5. *Repeat the fitness check.* After 6 and 9 weeks of training, repeat the tests to evaluate your performance. Perform fitness checks after 1-2 days of rest to ensure fatigue is at a minimum. After each fitness check, adjust your training plan accordingly.

Planning Training sessions

The Selection Test can be thought of as a “triathlon”:

1. The Treadmill Test (TM) evaluates aerobic fitness with an added emphasis on leg muscular endurance, as it is performed wearing a heavy back pack similar to the Bora 80(male) / Briza 75 (female) Arcteryx™ (Appendix A). Similar personal packs or military issued packs are permitted.
2. The Equipment Carry (EC) evaluates anaerobic endurance, and muscular strength and endurance.
3. The pool swim (SW) evaluates aerobic fitness in the water with a significant emphasis on leg strength and endurance because the test is performed with Rubber Aquam™ fins, which are available at all base/wing pools (Appendix B).

Because you are training for a sequence of “events” with little opportunity for rest, at least two test components should be trained each ‘task specific’ training day. In the following sample 9-week training plans the test components are grouped together so that equal emphasis is placed on each one. Variation can be developed based on the number of specific training sessions preferred and required.

Sample Work-out Schedule for 9-Weeks of Specific Preparation

week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Rest	<i>Fitness check</i>		TM/EC		EC/SW	
2		TM/SW		TM/EC		EC/SW	
3		TM/SW		TM/EC		EC/SW	
4		TM/SW		TM/EC		EC/SW	
5		TM/SW		TM/EC		EC/SW	
6		TM/SW		TM/EC	Rest	<i>Fitness check</i>	
7		EC/SW		TM/SW		TM/EC	
8		EC/SW		TM/SW		TM/EC	
9		EC/SW		TM/SW	Rest	<i>Fitness check</i>	

Note: TM= treadmill training; EC= equipment carry training; SW= swim training.
Add additional workouts, such as rowing or circuit training based on your personal requirements.

Sample 9-week training plan

Week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Rest	<i>Fitness check</i>			TM/EC		
2		EC/SW			TM/SW		
3		TM/EC			EC/SW		
4		TM/SW			TM/EC		
5		EC/SW			TM/SW		
6		TM/EC		Rest	<i>Fitness check</i>		
7		EC/SW			TM/EC		
8		EC/SW			TM/SW		
9		TM/EC		Rest	<i>Fitness check</i>		

Note: TM= treadmill training; EC= equipment carry training; SW= swim training.
Add additional workouts such as rowing or circuit training based on your personal requirements.

Individualized sample 9-week training plan

Week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	rest	Fitness check	Optional (long 60+ min easy run/bike)	rest	TM/EC	Swim (mixed)	Rowing & circuit trg – muscular endurance focus
2	rest	EC/SW	Run- 2 min x 4 reps Interval trg*	rest	TM/SW	fitness trg –strength focus**	Optional (long 60+ min easy run/bike)
3	rest	TM/EC	Swim (mixed)	rest	EC/SW	Run- 2-3 min x 4 reps Interval trg*	Optional (long 60+ min easy run/bike)
4	rest	TM/SW	fitness trg –strength focus**	rest	TM/EC	Swim (mixed)	Rowing & circuit trg – muscular endurance focus
5	rest	EC/SW	Run- 2-3 min x 4-5 reps Interval trg*	rest	TM/SW	fitness trg –strength focus **	Optional (long 60+ min easy run/bike)
6	rest	TM/EC	Swim (mixed)	rest	Fitness check	optional	Rowing & circuit trg – muscular endurance focus
7	rest	EC/SW	Run- 2:30-3:30 min x 4-5 reps Interval trg*	rest	TM/SW	fitness trg –strength focus**	Optional (long 60+ min easy run/bike)
8	rest	TM/EC	Swim (mixed)	rest	EC/SW	Run- 3-4 min x 4-6 reps Interval trg *	Rowing & circuit trg – muscular endurance focus
9	rest	TM/SW	fitness trg – strength focus**	rest	Fitness check		

Note: TM= treadmill training; EC= equipment carry training; SW= swim training. Other workouts should be at least 45 min.

*Interval training: rest/walk-jog (min) = work time (min)

** Strength focus at 6-8 RM, large muscle group exercises such as deadlifts, squats, cleans, dips, swings, and burpees.

Warm-up and cool-down

For every workout, a 5-10 minute warm-up and cool-down should be included.

1. Each workout must include a structured warm-up of 5-10 minutes in duration. The specific warm-up should include range of motion exercises, a gradual increase in intensity focused on the activities that are prescribed for the training, and can include unloaded technical skills training.
2. Cool-down should include a light intensity aerobic activity followed by 15-30 s stretching of injury prone and major muscle groups.

Preparation for the Treadmill Test

1. Good endurance fitness base from “general” aerobic training (e.g., running, cycling) is recommended.
2. A history of load carriage work (e.g., infantry, walking to work with a pack) will facilitate better performance for the treadmill test. If you have difficulty handling the 25 kg pack (e.g., excessive leg fatigue, back pain) you may need to reduce the load at first and then gradually add weight as your work capacity improves.
3. Proper loading of the backpack is essential to prevent back strain. The weight should be distributed throughout the pack rather than having all the weight in one place (e.g., don’t put a 25 kg sandbag in the bottom of the pack). If you experience discomfort (e.g., back pain) while carrying the pack, it is quite likely that the pack is not properly loaded. See Appendix A for loading technique.

Fitness Check

1. Following the above protocol, attempt the treadmill test to maximum effort. Contact the base PSP fitness staff for assistance.
2. Use the Rating of Perceived Exertion (RPE) scale shown below to gauge your ability to deal with the challenge of the treadmill test and predict your performance.

Borg Scale of Perceived Exertion (RPE)

6		
7	Very, very light	
8		
9	Very light	
10		
11	Fairly light	
12		
13	Somewhat hard	
14		
15	Hard	
16		
17	Very hard	
18		

1. If you rate your effort at the end of the 21st minute (end of the Constant Work Phase or minimal standard) as 15 or less using the Borg Scale (“hard” or lower), then you are probably in very good shape and have an adequate reserve left for the Progressive Phase.
2. If you rate your effort at 19 or 20 (near maximal effort) at the end of the 21st minute, then you have barely passed the test and you will struggle during the Progressive Phase.

Training Guidelines for the Treadmill test

1. Equipment: A properly fitting backpack loaded with 25 kg (55 lb) of weight; a treadmill capable of elevating to a 15% grade and attaining a speed of 11.2 km/h (7 mph).
2. Frequency: Include aerobic endurance/interval training 2 or 3 times per week.
3. Intensity: Hard work is necessary to make improvements in fitness. Use the RPE scale to gauge how hard you are working. If the suggested exercise loads are too easy (10-11 on the Borg Scale), then you may need to make it more challenging (heavier load (up to 25 kg), faster speed or steeper grade). On the other hand, if the suggested loads are too hard (17-18 on the Borg Scale), then you might have to make adjustments so that you can actually complete the workout (lighter load or slower speed or lower grade).
4. During the Selection Test you will be expected to give a maximal effort on the treadmill and then move on to the other elements with little opportunity to rest. Use some of your training sessions to get used to maximal effort.
5. Duration. The duration of the treadmill workouts is determined by your capacity to exercise before fatigue makes you stop.

On a regular basis you should combine one of the other elements with the treadmill (e.g., weights or swim), so that the overall duration of any workout is longer than what is shown below. The total workout time when training two elements should be about 90 min, including warm-up and cool-down.

6. Warm-up and cool-down. Include the warm-up and cool-down portions of the treadmill protocol.
7. Nutrition and hydration. Consumption of water during the Selection Test is allowed. Practice nutritional strategies to find out what foods you should eat and when these foods should be taken (e.g., 2-3 hours before) in order to optimize your energy for the types, intensities and durations of the elements in the Selection Test.

9-week Sample Progression

(To convert km/h to mph: divide km/h by 1.6)

Week	Type ¹	Frequency ² (days/week)	Duration (min)	Recovery mph/% grade	Workload ³ Km/h/% grade
Week 1	CON	1-2	15	NA	5.6/8%
Week 2	CON	1-2	20	NA	5.6/8%
Week 3	CON INT	1 1	25 4-6 x 2 min	NA 5.6/4%	5.6/8% 5.6/12%
Week 4	CON INT	1 1	30 4-6 x 2 min	NA 5.6/4%	5.6/8% 5.6/13%
Week 5	CON INT	1 1	30 5-6 x 2 min	NA 5.6/4%	5.6/8% 5.6/13% (2-3x) 5.6/15% (3x)
Week 6	CON INT	1 1	30 6 x 2min	NA 5.6/4%	5.6/8% 5.6/13% (3x) 6.4/15% (3x)
Week 7	CON INT	1 1	30 6 x 2 min	NA 5.6/4%	5.6/8% 5.6/15% (2x) 6.4/15% (2x) 7.2/15% (2x)
Week 8	CON INT	1 1	30 6 x 2 min	NA 5.6/4%	5.6/8% 5.6/15% (1x) 6.4/15% (1x) 7.2/15% (2x) 8.0/15% (2x)
Week 9	CON INT	1 1	30 6 x 2 min	NA 5.6/4%	5.6/8% 5.6/15% (1x), 6.4/15% (1x) 7.2/15% (1x) 8.0/15% (1x) 8.8/15% (2x)

Note:

¹ CON = Continuous work; INT= Short intervals of hard work followed by a short recovery period (e.g., 6 reps of 2 min work and 2 min relief). Start Interval training with 10-15 min warm-up progressing up to 3.5 mph/8%.

² Depending on the results of your self-evaluation, you might need to devote more (or fewer) workouts per week to training for the Treadmill Test.

³ If you find the suggested workouts either too hard or too easy, you will need to adjust the speed and grade settings up or down. The PSP fitness staff can provide assistance with personalizing this sample program and making it fit your individual needs.

Preparation for the Equipment Carry Test

A good strength-endurance base from “general” strength training is recommended. As a minimum, you should be able to comfortably deadlift 2 x 25 kg/55 lb dumbbells or 52 kg/115 lb barbell 10-12 times (repetitions).

Fitness Check

1. Attempt the Equipment Carry test to determine how quickly you are able to complete the whole test. Contact the PSP fitness staff at your base for assistance.
2. If you are unable to complete the full test or meet the minimal standard (see below) you will need to start at the beginning of the program described below and gradually build your capacity.

Training Guidelines for the Equipment Carry

1. The loads (either dumbbells or barbell) are carried 20 m out and back, alternating between carrying the dumbbells and the barbell.
2. Recovery consists of walking/running 20 m out and back without load (weights). The unloaded pace should allow for sufficient recovery for the next loaded carry.
3. Lifting and lowering of the weights must be done using good technique. Bend the knees, and lift and lower the weights using the legs. Back should be flat and the eyes looking straight ahead. Lift the weight, keeping it close to the shins and thighs until you are fully standing with it. The barbell must be carried in front of body.
4. There is a “NO RUN ZONE” which is 2 m from the end of each 20 m course. Walk around the end cones for safety even in the training phase.
5. Use your feeling of exertion (Borg Scale) to guide your rate of progress. The EC program offers guidelines for progression in speed and load but you can adapt this to your own fitness level and the ease with which you are able to do each week of the program.
6. Warm up prior to training. It is recommended that when doing the “equipment carry training” you first do some slow dead lifts (5-8 reps) using the loads for that training session to reduce the risk of injury.
7. If you find the initial loads and pace (e.g., the first 3 weeks) are not challenging, and you meet the minimal standard, you may start at week 4.
8. 1 rep circuit consists of 20 m out and 20 m back (e.g., 40 m)

The program below provides a general 9-week training program for the equipment carry test.

9-week Sample Progression

Week	Load	Frequency/wk	Reps/circuits of each	UL Pace	LC Pace
Week 1	Db 45 lb Bb 90 lb	1-2	3	walk	walk
Week 2	Db 45 lb Bb 90 lb	1-2	3	fast walk	fast walk
Week 3	Db 45 lb Bb 90 lb	1-2	4	shuffle	fast walk
Week 4	Db 50 lb Bb 100 lb	1-2	3	fast walk	fast walk
Week 5	Db 50 lb Bb 100 lb	1-2	4	shuffle	fast walk
Week 6	Db 50 lb Bb 100 lb	1-2	4	shuffle	shuffle
Week 7	Db 55 lb Bb 115 lb	1-2	3	shuffle/jog	fast walk
Week 8	Db 55 lb Bb 115 lb	1-2	4	shuffle/jog	shuffle
Week 9	DB 55 lb Bb 115 lb	1-2	4	jog/run	shuffle/jog

Note:

LC= load carry repetition; UL= unloaded repetition.

Adjust the pace to ensure safety. You must walk inside the “no run zone”. When the program suggests you shuffle or jog, this only applies to the part of the course outside the “no run zone”. Target times for each repetition: walk – 28 s; fast walk – 24 s; shuffle – 20 s; jog – 18 s.

Preparation for the Swim Test

If using fins is a new experience for you, then we strongly encourage you to seek advice from PSP staff at your base to assist with any changes to your swim technique. Swimming with fins is less dependent on good swim technique, but rather good fining technique which originates from the hip not the knee.

Fitness Check

1. Attempt the Swim Test and see how quickly you are able to complete 750 m in the pool with fins.
2. If you are unable to complete the full test or meet the minimal performance standard (see below) you will need to start at the beginning of the program described below and gradually build your capacity.

Training Guidelines for the Swim Test

1. Experiment with different techniques, however most individuals can easily alter the front crawl to a very efficient stroke with fins. As fins place more emphasis on the lower body than regular swimming, your legs may tire more rapidly than expected.
2. Identify your capacity and then use that as the foundation for development. The following table assumes you can swim 500 m continuously when using fins. Depending on the results of your fitness check, you may need to adjust the distance covered in the continuous swims either up or down.

These guidelines provide a 9-week *general* training program for the swim test.

9-week Sample Program (using fins for some training is essential)

Week	Type ¹	Frequency ² (days/week)	Distance ³ (m)	Recovery	Intensity
Week 1	CON	1-2	500	NA	Easy
Week 2	CON	1-2	600	NA	Moderate
Week 3	CON INT	1-2 1	700 6 x 50 m	NA Easy 50 m	Moderate Hard
Week 4	CON INT	1-2 1	800 7 x 50 m	NA Easy 50 m	Moderate Hard
Week 5	CON INT	1-2 1	800 8 x 50 m	NA Easy 50 m	Moderate Very Hard
Week 6	CON INT	1 1-2	800 5 x 100 m	NA Easy 50 m	Hard Hard
Week 7	CON INT	1 1-2	800 6 x 100 m	NA Easy 50 m or rest	Hard Very Hard
Week 8	CON INT	1 1-2	800 7 x 100	NA Easy 50 m or rest	Hard Very Hard
Week 9	CON INT	1 1-2	800 8 x 100	NA Easy 50 m or rest	Hard Very Hard

Note:

¹ CON = Continuous swimming; INT = Intervals of harder swimming followed by a short recovery period (e.g., 6 reps of 50 m “hard”, each followed by 50 m “easy”).

² This plan is designed to improve your swim time with three challenging workouts each week. If you are already a strong swimmer and your self-evaluation results suggest that you will do well on the Swim Test, you may not need to train in the pool as often.


³ The suggested distances are based on the assumption that you can swim 500 m continuously.


Appendix A



Instructions for Load Carriage Packing and Fitting

Pack Frame Sizing

BORA 80 Male	Sizing Chart		
	Small	Medium	Tall
	40-48 cm	46-53 cm	51-58+ cm

BRIZA 75 Female	Sizing Chart		
	Small	Medium	Tall
	36-43 cm	41-48 cm	46-53+ cm



Measuring Back Length

- Back length is measured from the C7 vertebrae to the top of the iliac crest as shown in the diagram to the right.
- If a measurement falls between 2 sizes it is usually better to go with the smaller of the two sizes.
- It is possible to interchange different size shoulder strap and hipbelt components on many Arc'teryx Packs.



Hipbelt Sizing

- Locate the Iliac Crest, (the top of the most prominent point of the hipbone) and measure around the hips on this point.
- When the hipbelt is properly centered on the hip crest and tightened, the ends of the pads should extend at least 3 inches past the hip crest.



Shoulder Strap Adjustments

- The shoulder straps should contour smoothly and be in contact throughout the entire length of the shoulder strap padding.
- The adjustment buckle at the lower end of the shoulder strap should be positioned roughly even with the centre of the armpit.



Fine tuning: Hipbelt Angle Flare

- Adjust the angle at which the 2-inch webbing exits the front of the padding. Most women require slightly more flare than men (angle at which the belt sits on the hips).



Fine tuning: Load lifters



Range of acceptable load lifter strap angle

- The purpose of the load lifters is to slightly lift the shoulder straps from the shoulders, not to bring the pack in against the back.
- The ideal angle for the load lifter straps is 45 degrees; however, an angle of 30 to 60 degrees is quite acceptable.
- Minimum tension is required for each strap to do its job if the pack is correctly adjusted.

Fine tuning: Load stabilizer



Hipbelt stabilizer strap.

- Reduce movement of the load weight by maximally tightening the strap depicted above.

Organization of load weight

Materials:

1. ArcTeryx™ expedition pack; Bora 80 for men in small, regular or tall or Briza 75 for women in small, regular or tall
2. Six 3 kg concrete or clay bricks
3. Two wool blankets
4. Towels (approximately 10 small)
5. Small sealable bags of sand

Technique:

1. Place a heavy rolled blanket in the sleeping bag compartment of the backpack leaving the separating zipper open. Stuff this compartment as full as possible.
2. Roll each brick in a towel and stack them in the main section of the backpack (two layers of three bricks)
3. Pack extra towels around the bricks for padding and stability.
4. Place another heavy rolled blanket at the top of the pack to fill the volume of the pack
5. Check the weight of the pack to ensure that the load is 25 kg.
 - a. If the pack is too light, fill a small sealable bag with some sand, etc. and pack it into the main section of the back pack. This method will allow small adjustments to bring the weight of the pack to exactly 25 kg.
 - b. If the pack is too heavy, remove a towel and then use the small sealable bag to adjust the weight to 25 kg.

