US NAVAL SPECIAL WARFARE/NAVY SPECIAL OPERATIONS
Physical Training Guide
(Last Revised June, 2008)

US Naval Special Warfare/Navy Special Operations programs require their personnel to possess extraordinary levels of fitness (strength, speed, endurance, agility) in a variety of challenging settings. Each training pipeline is extremely rigorous both physically and mentally. Candidates for BUD/S, SWCC, EOD, DIVER, and AIRR will face unique and strenuous physical challenges which are reflected in the training for their respective programs.

DISCLAIMER: Preparation for this training can be equally strenuous. You should consult a physician before you begin any strenuous exercise program, such as the one described here, or any diet modification, especially if you have or suspect that you may have heart disease, high blood pressure, diabetes, or any other adverse medical conditions. If you feel faint or dizzy at any time while performing any portion of this training program, stop immediately and seek medical evaluation. The United States Government and any service member or civilian employed by the United States Government disclaims any liability, personal or professional, resulting from the misapplication of any training procedure, technique, or guidance described in this guide.

The Physical Screening Test (PST) is a general indicator of whether you have the baseline fitness necessary to complete these demanding programs. For example, statistical analyses have shown that higher PST scores (particularly faster Run and Swim times) correlate with a greater likelihood of completing BUD/S. You should realize that a candidate who enters BUD/S having only achieved the minimal PST standards has a very low probability of completing the program. It is also true that a candidate with very high PST scores is not guaranteed of success, but the odds are several times greater. Your goal should be to exceed minimal PST standards and achieve a score that predicts a greater likelihood of success in your program. A general ranking of PST scores for BUD/S candidates is:

	Run	Swim
HIGH:	<9:44	<9:17
MED:	9:44-10:38	9:17-10:35
LOW:	>10:38	>10:35

Summary of Major Principles

Every week, perform one LSD (Long Slow Distance), one CHI (Continuous High Intensity [short]), and one INT (Interval) workout for running and swimming. Perform strength training (weight lifting) 4-6 times per week (upper and lower body on separate days). Perform calisthenics, core exercises and flexibility training 4-6 days per week. Perform specific injury prevention exercises as needed. Perform all activities regularly and consistently. Gradually build up the workload from a safe and manageable level to the highest level of fitness possible in the time available before taking the PST. Continue

to develop fitness throughout DEP and during your Special Warfare/Special Operations program.

General Training Guidelines

Exercise is physical activity for the purpose of promoting health. **Training** is distinct from exercise in that it involves physical activity performed with the goal of improving performance on a designated task or event. Your specific training goal is to improve performance on the PST, and the workouts you perform should be selected with that goal in mind. Some key words that describe effective training include **systematic** (having a planned and organized approach rather than doing workouts randomly or haphazardly); **progressive** (improvement in a gradual, steady, continual manner); **consistent** (making a commitment to train regularly, without doing too much or too little during any training phase); and **specific** (concentrating efforts on the activities that will be tested). A certain amount of cross-training (alternative activities such as cycling, rowing, rope jumping, etc.) is fine for the sake of variety, when facilities are unavailable, to rehab injury, or to supplement your basic training – but remember that optimal results on the PST will come from focusing most of your attention on becoming a solid runner and swimmer, as well as developing the necessary muscular endurance for maximum pull-ups, push-ups, and sit-ups. Training should be balanced, but you should work to improve your weakest areas and not focus as much attention on areas where you already excel. In other words, if you are a solid runner but a weak swimmer, don't spend all your time running just because you are good at it. It is recommended that you move out of your comfort zone and spend enough time in the water to become a solid swimmer as well.

Effective training requires adequate time, and it is important to emphasize the need for steady, continual, relatively slow and systematic progress. Avoid attempts to maximize fitness in unrealistically short time periods. It is suggested that individuals with a moderate fitness level and a history of prior training and sports participation allow a **minimum** of 13 weeks of specific preparation to follow the program outlined in this training guide. It is suggested that individuals with low fitness or no history of organized training allow a **minimum** of 6 months (26 weeks) of specific preparation. You can use your abilities to swim 500 yards and run 1.5 miles as an estimate of your fitness. Perform a timed swim and a timed run. If you plan to enter BUD/S and swim 500 yards slower than 10:35 or run 1.5 miles slower than 10:38, you should be prepared to allow more than the minimum of 13 weeks to train for the PST. The 13-26 weeks recommendation is a generalization, calculated to give you a reasonable chance of performing acceptably on the PST, but there is no absolute duration for the training program. Remember there is no upper limit to fitness and since performance in Naval Special Warfare/Navy Special Operations programs correlates with PST scores, you should strive to maximize fitness as much as possible. The lower your initial fitness level, the more time you will need to realize your full potential.

As a general training recommendation to reduce injuries and avoid premature burnout, make sure to increase your workload (total time and volume of training, especially running and swimming) by **no more** than 5-10% from the previous week.

Description of Workout Formats

Training programs feature workouts of various types in different categories often referred to as "training bands". Different training bands include workouts of different lengths and intensities, designed to target specific physiological adaptations. It is beyond the scope of this introduction to discuss the physiological aspects of training, but a description of three basic training bands to help prepare you for the PST is provided below. In general, weekly training sessions should be a mix of longer workouts at lower intensities and shorter workouts at higher intensities, including interval sessions. To determine the appropriate intensity for interval sessions, it will be necessary to do timed performances of the PST 1.5-mile run and 500-yard swim.

LSD = Long Slow Distance (a.k.a. "Steady State"). The intensity of LSD work is low to moderate. The pace should feel relatively easy and relaxed. These workouts build endurance and provide relative recovery between more intense sessions. A general method to determine the appropriate intensity is to use the "Talk Test". You should be able to talk comfortably in short sentences/phrases while training, drawing breath between phrases. If you can't speak you are working too hard and if you can speak continually you are not working hard enough. The overall focus should be on duration more than intensity. A person with exceptional fitness might perform 40-90 minutes of continuous movement in one session. A practical goal for a BUD/S candidate is to build up to being able to comfortably run 5-6 miles or swim 1-1 ¼ miles without stopping.

CHI = Continuous High Intensity (a.k.a. "Anaerobic Threshold"). These sessions typically involve moving for 15-20 minutes without stopping, at a pace approximately 90-95% of the **maximal** pace you could hold for that duration. The workout should be very demanding but not totally exhausting. On a scale of 1-10, with 10 being the greatest effort possible, the workout should feel like 8-9. With low fitness, one repetition of 15-20 minutes is sufficient, but as fitness improves 2-3 repetitions may be required. When performing more than one repetition, allow sufficient recovery between repetitions so you can maintain the desired intensity of 90-95% of maximal pace. Some will be able to recover more quickly than others, so there is no set time period, but a reasonable recovery period is approximately half of the work time. During this time, keep moving at a low intensity (slow jog, brisk walk, or easy stroke). Do not come to a complete stop.

INT = Interval (alternate short, intense work intervals with periods of recovery). The format consists of running ¼-mile intervals or swimming 100-yard intervals, allowing a recovery period of 2-2 ½ times the amount of time it takes to perform the work interval (1:2-2.5 work:recovery ratio). Your intensity or pace should be slightly faster than the pace of your most recent 1.5-mile run or 500-yard swim. For example, if you recently completed a 1.5-mile run in 10:30, the base pace per ¼ mile was 1:45. Initially the interval training pace for ¼-mile repeats should be roughly 4 seconds faster than the base pace. Using this example you would attempt to run each ¼-mile repeat in an average time of approximately 1:41. For swimming, your initial interval pace should be roughly 2 seconds faster than your base pace per 100 yards for a timed 500-yard swim. For example, if you completed a 500-yard swim in 10:30, the average pace per 100 yards was

2:06, and your average time to complete 100-yard intervals should be approximately 2:04. Appropriate paces for interval workouts are summarized in **Table 1**.

With a low level of fitness it may be necessary to begin with 4-5 intervals per session. It is recommended you progressively build toward completing 8-10 intervals. Do not run or swim more than 10 intervals during an interval session. When you can complete 10 intervals in the prescribed times, work on gradually performing the intervals a little faster each week. Work on consistency, trying to keep little variation between your fastest and slowest interval and pacing yourself to be fastest at the end of the workout. Occasionally (such as every 4th or 5th week) it may be beneficial to increase your intensity (faster pace) using shorter, more frequent intervals. For example, 16-20 x 220-yard running intervals or 16-20 x 50-yard swimming intervals. The guidelines for recovery in **Table 1** are broad, to allow individuals to utilize the recovery period that will help optimize performance. Allow enough recovery time to maintain the proper work intensity, without taking excessive time or wasting time. To promote faster/more complete recovery, it is desirable to utilize a certain amount of *active* recovery, such as walking briskly or jogging slowly for part of the time between ¼-mile running intervals.

Table 1: Interval Paces

If Your RUN Time Is:	Then Your 1/4 Mile Repeat Time Is:	And Your Recovery Time Is:	If Your SWIM Time Is:	Then Your 100 Yard Repeat Time Is:	And Your Recovery Time Is:
8:00-8:30	1:16-1:21	2:32-3:23	8:00-8:30	1:34-1:40	3:08-4:10
8:30-9:00	1:21-1:26	2:42-3:35	8:30-9:00	1:40-1:46	3:20-4:25
9:00-9:30	1:26-1:31	2:52-3:48	9:00-9:30	1:46-1:52	3:32-4:40
9:30-10:00	1:31-1:36	3:02-4:00	9:30-10:00	1:52-1:58	3:44-4:55
10:00-10:30	1:36-1:41	3:12-4:13	10:00-10:30	1:58-2:04	3:56-5:10
10:30-11:00	1:41-1:46	3:22-4:25	10:30-11:00	2:04-2:10	4:08-5:25
11:00-11:30	1:46-1:51	3:32-4:38	11:00-11:30	2:10-2:16	4:20-5:40
11:30-12:00	1:51-1:56	3:42-4:50	11:30-12:00	2:16-2:22	4:32-5:55
12:00-12:30	1:56-2:01	3:52-5:03	12:00-12:30	2:22-2:28	4:44-6:10
12:30-13:00	2:01-2:06	4:02-5:15	12:30-13:00	2:28-2:34	4:56-6:25
13:00-13:30	2:06-2:11	4:12-5:28	13:00-13:30	2:34-2:40	5:08-6:40
13:30-14:00	2:11-2:16	4:22-5:40	13:30-14:00	2:40-2:46	5:20-6:55
14:00-14:30	2:16-2:21	4:32-5:53	14:00-14:30	2:46-2:52	5:32-7:10
14:30-15:00	2:21-2:26	4:42-6:05	14:30-15:00	2:52-2:58	5:44-7:25
15:00-15:30	2:26-2:31	4:52-6:18	15:00-15:30	2:58-3:04	5:56-7:40
15:30-16:00	2:31-2:36	5:02-6:30	15:30-16:00	3:04-3:10	6:08-7:55

General Comments: Run training should be performed in appropriate running shoes, not boots. It is recommended that you seek advice from an experienced professional at an established running store, or a Sports Medicine professional. The Combat Swimmer Sidestroke is used during the PST and during all training at BUD/S. At BUD/S almost all swimming is done with fins, but the PST is performed without fins. Most of your swimming in preparation for the PST should be performed using the sidestroke without fins. You may occasionally use the freestyle stroke for greater speed/intensity (such as

during interval training). You may occasionally use fins for part of a workout, but use caution since use of fins without proper pre-conditioning can lead to injury.

General Muscular Endurance

The PST requires muscular endurance to perform numerous push-ups, sit-ups and pull-ups. Strength training and core exercises will partially address this requirement, but specific preparation for these test exercises is necessary. Using proper technique, perform sets of push-ups, sit-ups and pull-ups 3-5 times per week, resting 1-2 minutes between sets. **Note that while the PST requires the exercises to be performed as rapidly as possible, in training the best adaptations will come by performing the exercises in a slow and controlled manner.** The negative or downward portion should take at least twice as long as the positive or upward portion, to achieve maximum benefits by resisting gravity. Approximately once per week, perform a max set (maximal number of consecutive repetitions) to assess your progress. See **Table 2** for specific training recommendations. See the descriptions below of each exercise to see how it must be performed during the PST. While training, you may occasionally do alternate versions for variety and additional fitness adaptations.

Table 2: Push-up/Sit-up/Pull-up Progressions

Push-ups & Sit-ups				Pull-ups			
If Your Max Is	<40			If Your Max Is	<6		
Your Workout Is	Sets 5-6	Reps 10-15	Total 50-90	Your Workout Is	Sets 5-6	Reps 2-3	Total 10-18
If Your Max Is	40-60			If Your Max Is	6-9		
Your Workout Is	Sets 4-5	Reps 15-20	Total 60-100	Your Workout Is	Sets 4-5	Reps 4-5	Total 16-25
If Your Max Is	60-80			If Your Max Is	10-12		
Your Workout Is	Sets 4-5	Reps 20-25	Total 80-125	Your Workout Is	Sets 4-5	Reps 5-6	Total 20-30
If Your Max Is	80-100			If Your Max Is	13-15		
Your Workout Is	Sets 3-4	Reps 30-40	Total 90-160	Your Workout Is	Sets 3-4	Reps 8-10	Total 24-40
If Your Max Is	>100			If Your Max Is	>15		
Your Workout Is	Sets 3-4	Reps 40-50	Total 120-200	Your Workout Is	Sets 3-4	Reps 10-12	Total 30-48

Push-up

Description

- Begin in the "up" or "front-leaning" rest position, with feet together and palms on floor directly beneath or slightly wider than shoulders.
- Back, buttocks, and legs should remain straight from head to heels at all times. Palms and toes remain in contact with the floor.

- Lower the entire body as a single unit by bending the elbows until the arms form right angles, then return to the starting position by extending the elbows, raising the body as a single unit until the arms are straight.

Variations

- Include wide, narrow (triceps), and dive bomber.
- Use caution with any push-up variation, since placing the hands in any position other than beneath the shoulders may create painful stress on the elbows.
- Additional challenge can be created by lifting one foot off the floor, or by placing the feet on a raised surface slightly higher than the hands.

Sit-up

Description

- Begin by lying flat on floor with knees bent and heels approximately 10 inches from buttocks.
- Arms should be folded across the chest with hands touching the upper chest or shoulders. The feet may be stabilized if desired.
- To perform the exercise, curl the body up, touching the elbows to the thighs just below the knees, keeping the hands in contact with the chest or shoulders.
- After touching elbows to thighs, lie back till the shoulder blades touch the floor.

Variations

- With fingers placed loosely behind neck (don't pull on neck), curl the trunk up and rotate so the right elbow contacts the left knee; lower trunk to floor and bring left elbow up to right knee; continue alternating rotations from right to left.
- Keeping shoulders on the floor and knees bent, alternate drawing each knee up to the opposite elbow. Return each leg so the foot rests on the floor while the other knee is drawn up.
- With arms across chest or fingers behind neck, keeping the knees bent, lift the legs and hips off the floor drawing the knees towards the shoulders. After the abdominals have been fully contracted, lower the hips and legs until the feet touch the floor.
- Note: for all abdominal exercises, keep the pelvis neutral and the lower back pressed to the floor, to avoid putting stress on the lumbar spine.

Pull-up

Description

- Begin suspended from the bar in a dead hang with arms and shoulders fully extended, palms shoulder width apart and pronated (overhand grip, facing away).
- Pull body up until chin is even with or above the top of the bar.
- Legs may be crossed or uncrossed as desired, but no kipping or jerking motions allowed.
- Lower the body in a controlled fashion until arms and shoulders are fully extended.

Variations

- Narrow or wide grip

- Supinated grip ("chin up" with underhand grip, palms towards the body, to more completely isolate the biceps)
- Hang from bar with hands adjacent and on opposite sides of the bar, palms facing inward in opposite directions, and alternately pull the right and left shoulders up to the bar (also called "mountain climber" or "commando" pull-ups)

Strength Training/Weight Lifting

Muscular strength (the ability to produce force during a single contraction) should be developed when preparing for the PST, not only to enhance performance on the actual test, but also to facilitate the overall training process and reduce the risk of injury. While strength relative to body weight (such as performing multiple pull-ups or being able to easily climb a rope) is crucial for performance in programs such as BUD/S, pure strength is also desirable. You will benefit from following a strength training program which adheres to the guidelines of the American College of Sports Medicine, or ACSM (links to guidelines are provided below). However, a strength training program should not detract you from pursuing competency in running and swimming. Don't concentrate all your time and energy in the weight room. It is not necessary to add mass to benefit from strength training. Proper lifting aids in injury prevention but take care to lift properly and avoid injuries *caused* by lifting. A well-designed and properly supervised program for general strength should be followed. There are many different training protocols (number of sets, reps, etc.) for building strength, and numerous methods of providing adequate resistance (free weights, machines, body weight, etc.) A recommended format is to perform a single set of 8-12 repetitions (reps) of various exercises that target major muscle groups. A second set of a given exercise may occasionally be performed to provide additional training stimulus, but in most cases one set is sufficient to produce significant increases in strength. A single set should be performed using a weight that cannot be lifted more than 8-12 times giving maximal effort and using proper technique. Perform a maximum of 8-10 total **sets** per session. If any exercises are performed twice, these count as additional sets. It is recommended you use a split routine of upper body and lower body exercises on alternate days. Move from one exercise to the next quickly, only resting the amount of time it takes to set up the proper weight at the next station. This approach is time-efficient and promotes greater overall intensity and some cardiorespiratory adaptations. Below is a list of exercises you might incorporate into your strength program. This list is not definitive, and individuals may create personalized routines based on equipment availability and individual preferences. The general format is to alternate a variety of exercises that involve pushing (extension) with pulling (flexion) and target several major muscle groups.

Upper Body Exercises: Lat pull-downs, shoulder (military) press, biceps curl, bench press or incline press, seated row pull, deltoid lateral raise (no more than 45° elevation), upright row, triceps extension or dips. Lower Body Exercises: Lunges, leg curl, back hyperextension, leg press or squats, and heel raises.

For general strength training guidelines from the American College of Sports Medicine (ACSM), visit:
http://www.bodybuildbid.com/articles/miscellan/weightrainguid.html

For more information and more detailed guidelines, visit:
http://www.fitness.gov/Digest-September2005.pdf

Core Strength
In addition to developing the strength of large muscle groups using traditional exercises such as the bench press or squat, it is important to develop the strength and endurance of core muscles in the abdominal and spinal regions. This will improve overall body balance and alignment, improve stability, and reduce injury. Sit-ups and push-ups, which should be performed regularly in preparation for the PST, are important core exercises. Additional core exercises include the bridge, plank, and bird dog. See **Table 3** for specific training recommendations. Work up to being able to complete the sets and reps listed in each time period. You don't have to make each jump all at once.

One more note about core strength: effective training is as much about learning to activate the lesser-used muscles as it is about increasing their strength. An important core muscle that should be activated during each session is the *transverse abdominis*. You can feel this muscle activated when you cough, and one technique to make sure it is active during core exercises is to cough before performing a core exercise and to make sure you feel this muscle contracting during the exercise.

Table 3: Core Exercise Progressions

Exercise	Week 1-6	Week 7-11	Week 12-16	Week 17-21	Week 22-26
Bridge	2 x 20 reps (alternating)	2 x 25 reps (alternating)	3 x 20 reps (alternating)	3 x 25 reps (alternating)	3 x 30 reps (alternating)
Plank	2 x 30 sec	2 x 45 sec	3 x 40 sec	3 x 50 sec	3 x 60 sec
Side Plank (each side)	2 x 30 sec	2 x 40 sec	2 x 45 sec	2 x 50 sec	2 x 60 sec
Bird Dog	2 x 20 reps (alternating)	2 x 25 reps (alternating)	3 x 20 reps (alternating)	3 x 25 reps (alternating)	3 x 30 reps (alternating)
Superman	2 x 10 reps	3 x 8 reps	2 x 12 reps	3 x 10 reps	3 x 12 reps
Wipers	2 x 20 reps	2 x 25 reps	3 x 20 reps	3 x 25 reps	3 x 30 reps

Bridge
Description
- Lie on back with knees bent and feet about ten inches from buttocks.
- Keep arms at sides or folded across the chest and keep the pelvis neutral.
- Raise the hips off the floor, creating a straight line between the knees, hips and shoulders.
- Lift the right foot off the floor and extend the leg until it is straight and creates a line from the shoulder through the hip, knee and foot.

- Meanwhile, support the body's weight by statically contracting the glutes and hamstring of the left leg. Make sure to keep the pelvis neutral and horizontal; don't let it dip toward the unsupported side.
- Hold the contraction for 3-4 seconds before lowering the pelvis to the floor with both feet near the buttocks in the original starting position. Lift the left foot off the floor and extend the leg while supporting the body's weight with the right leg in the same manner for 3-4 seconds.
- Continue to alternate between legs.

Plank

Description

- Lie face down on floor with legs straight and feet together, place forearms on floor with elbows directly below shoulders, then raise body off the floor so weight is supported by toes and forearms.
- Hold body in this position by statically contracting the core muscles, maintaining a straight line from heels to shoulders.

Variations

- Lift each arm and leg off the floor one at a time in turn, holding each position for several seconds before moving to the next position. Make sure the torso remains stable.
- Hold one arm and the opposite leg off the floor simultaneously.

Side Plank

Description

- Lie on one side supporting body weight on one forearm with elbow below shoulder and resting the other arm along the side of the body.
- Don't let the hips sag towards the floor. Hold the spine and legs in a straight line by statically contracting the core muscles.
- Hold for desired length of time and switch to the other side.

Variations

- Maintain core contraction while lifting the top leg off the floor by abducting the hip.
- Raise the body higher off the floor by extending the support arm completely straight and supporting the weight with one hand, meanwhile extending the opposite arm straight above the body.

Bird Dog

Description

- Begin on hands and knees, with hands directly below shoulders and head & neck aligned with back.
- Raise the right arm until it is fully extended and parallel to the floor. Simultaneously raise the left leg until it is fully extended. The arm, leg and back should all be in the same horizontal plane.
- Keep the torso stable; do not let the hip drop on the unsupported side.

- Hold for 3-4 seconds, then lower the upraised arm and leg to the starting position, and raise the opposite arm and leg to the same extended positions.

Superman
Description
- Lie face down on floor with legs straight, feet together and arms straight and extended overhead.
- Keeping arms and legs straight, lift both hands and both feet several inches off the floor and hold for 3-4 seconds.
- Relax for 1-2 seconds and repeat.

Variation
- Keeping arms and legs straight, lift one hand and the opposite foot several inches off the floor and hold for 3-4 seconds. Return to starting position and simultaneously lift the other hand and foot. Continue to alternate lifting opposite hands and feet.

Wipers
Description
- Lie on your back with legs extended straight and together, and arms outstretched away from the body.
- Lift the legs together till they are perpendicular to the ground (hips flexed to 90 degrees). Keeping the hips flexed to 90 degrees, rotate the lower torso and pelvis to one side so the legs contact the ground.
- Rotate the lower torso and pelvis through a 180 degree arc till the legs contact the ground on the other side. Swing the legs back and forth through a 180 degree arc (like a windshield wiper). Each arc counts as one rep.
- Keep the upper back, both arms and shoulder blades in contact with the ground at all times.

Flexibility
Flexibility requirements vary depending on the activity. The degree of an individual's flexibility varies depending on training background and anatomical limitations. Though the amount of time and effort devoted to flexibility (stretching) will not be the same for everyone, **some** time should be devoted to maintaining or enhancing flexibility. It is recommended that stretching exercises be performed following running and swimming workouts, while muscle and connective tissue temperature is still elevated. For more information, visit:
http://www.fitness.gov/digest_jun2000.htm

Nutrition
Eating the right foods, in the right amounts, at the right times, all impact performance and the effectiveness of training. Good nutrition is part of the overall healthy lifestyle encouraged for all candidates. However, there is no need for supplements or any type of commercial products that claim to enhance performance. While such products may be legal and are widely available, there is no conclusive *clinical* evidence that they will improve performance. Excessive consumption of supplements is financially costly and

potentially unsafe. Furthermore, supplements are not regulated by the FDA and there are no product manufacturing standards. Commercial products may contain banned substances that would cause you to fail a drug test. In short, there is no real upside and plenty of downside to taking supplements. For general nutrition information about supplements as well as other useful information such as nutrient content of specific foods, visit:
http://www.nutrition.gov/

For more specific information about the relationship between nutrition and physical performance, visit:
http://www.fitness.gov/faq.pdf

http://www.fitness.gov/nutrition.pdf

http://www.fitness.gov/Reading_Room/Digests/Digest-March2004.pdf

Injury Prevention
Injuries reduce training time and may prevent individuals from reaching their performance objectives (excelling on the PST or passing BUD/S). Genetic predisposition, poor technique, erratic or inconsistent training, inadequate recovery, poor nutrition, inadequate strength or poor flexibility, and/or performing too much work without properly ramping up may all contribute to injury. Discounting genetic factors, all of these problems are largely avoidable. Proper preparation can reduce the likelihood of sustaining an injury or at least reduce the severity of injuries that do occur. The rigors of BUD/S tend to increase the incidences of certain injuries beyond that of the general population, but specific injury-prevention strategies can help mitigate these injuries. Basic stretching and strengthening exercises are recommended in preparation for BUD/S. Potential problem areas should be emphasized as part of the regular conditioning program. These areas include the calf, gluteals & ITB, hip flexors & quadriceps, hamstring, and shoulder.

Warm-Up & Cool-Down
Every workout should begin with a warm-up and end with a cool-down. Warm-ups and cool-downs are necessary to allow you to get the most benefit from your training and reduce the risk of injury. Before vigorous exercise, the body requires time to make physiological adjustments such as elevating metabolism, mobilizing energy sources, making circulatory adjustments to the active muscles, and beginning sweat output for thermoregulation. Following exercise, continued low-intensity activity will allow the body's elevated systems to gradually return to baseline values and facilitate the removal of accumulated waste products. In general, the more intense the training session, the longer the warm-up and cool-down periods should be. Warm-ups for LSD sessions may involve 5-10 minutes of easy jogging or paddling while gradually building the intensity to a comfortable level for beginning the workout. As the workout begins, you may continue to build intensity so that you comfortably finish the workout at a faster pace than you started. For CHI and INT workouts, you should warm up for 10-15 minutes or more. Gradually build intensity from an easy jog or stroke for several minutes,

eventually adding 4-5 high-intensity bursts lasting from 15 to 30 seconds. The warm-up should elevate your heart rate substantially, increase your breathing rate, and activate a sweat response. As you begin your workout, pace yourself to finish faster than you started (referred to as "negative splitting" in racing jargon). A proper cool-down following LSD workouts may involve 2-3 minutes of easy jogging or stroking followed by 2-3 minutes of brisk walking. Time periods for CHI or INT cool-downs should be extended until you are breathing easily and your heart rate is close to its normal resting value. It is recommended you perform stretching exercises near the end of the cool-down period, before tissue temperatures return to resting values.

General Workout Schedule

Table 4 provides a generic workout schedule as an example of how the various workouts used to prepare for the PST and BUD/S might be organized in a given week. Training with an AM-PM format (such as lifting and core work in the morning, and running or swimming plus stretching in the evening) is beneficial, allowing more recovery and a higher quality of work for each session. However, if necessary, all training can be performed in one extended block of time. The exact order of activities (cardio-lifting-calisthenics or core) may not be critical, since there are pros and cons to each possible sequence. However, it is important to do stretching exercises only after thoroughly warming up, such as following running or swimming. If performing several activities in one session, it may be beneficial to perform your weakest activity first while you are still fresh. Take care to avoid over-exercising a given body part with too many exercises or activities in the same day. Note that the schedule does not place upper body strength training and swimming or lower body strength training and running on the same days. Since there is some overlap between the demands of weight lifting, calisthenics (push-ups, sit-ups, pull-ups) and core exercises, do not combine more than two of these routines on a given day.

Table 4: Weekly Training Schedule

	Mon	Tue	Wed	Thu	Fri	Sat
Run	LSD		INT		CHI	
Swim		CHI		LSD		INT
Lift	Upper	Lower			Upper	Lower
Calisthenics		✓	✓	✓		✓
Core	✓		✓	✓	✓	
Stretch	✓	✓	✓	✓	✓	✓

The process begins with a timed 500-yard swim and 1.5-mile run to assess baseline fitness levels and establish a yardstick for future improvement. A general progression to increase workload over 13 weeks would be to increase LSD workout distance by a standard weekly increment. For example, begin with a 3-mile run in the first week and add ¼ mile each week until 6 miles is achieved, or begin with a 1000-yard swim and add 100 yards each week until 2200 yards is achieved. Your interval progression may involve starting with 4 intervals (¼-mile running or 100-yard swimming) during the first week and adding an additional interval every second week until 10 intervals can be

completed in your prescribed time. This basic model can be modified slightly depending on whether you begin with a low or a high level of fitness, you are a slower runner or swimmer, or you have any other specialized circumstances. **Table 5** summarizes how workload across the different training bands may be progressed over several weeks.

Table 5: Workout Progressions

	LSD		CHI	INT
Week	Run (miles)	Swim (yards)	Run & Swim (minutes)	Run & Swim (reps)
0	1.5 (timed)	500 (timed)		
1	3	1000	15	4
2	3.25	1100	15	4
3	3.5	1200	16	5
4	3.75	1300	16	5
5	4	1400	17	6
6	4.25	1500	17	6
7	4.5	1600	18	7
8	4.75	1700	18	7
9	5	1800	19	8
10	5.25	1900	19	8
11	5.5	2000	20	9
12	5.75	2100	20	9
13	6	2200	2 x 12	10
14	6.25	2300	2 x 12	10
15	6.5	2400	2 x 12	10
16	6.75	2500	2 x 14	10
17	7	2600	2 x 14	10
18	7.25	2700	2 x 14	10
19	7.5	2800	2 x 16	10
20	7.75	2900	2 x 16	10
21	8	3000	2 x 16	10
22	8.25	3100	2 x 18	10
23	8.5	3200	2 x 18	10
24	8.75	3300	2 x 18	10
25	9	3400	2 x 20	10
26	9.25	3500	2 x 20	10

Individuals beginning specific preparation with a higher level of fitness may choose to begin with a higher training volume (such as a 5-mile run rather than a 3-mile run, as indicated in Week 9 of **Table 5**). Individuals with several weeks or months to prepare may choose to increase their LSD work by performing longer sessions and/or increasing the number of sessions per week (see **Table 6** for an example). Additionally, as fitness improves, it will be helpful to occasionally (say, once per week) incorporate a longer session of activity (2-3 hours) such as hiking, canoeing, road cycling, or mountain biking at a comfortable but steady pace to improve physical and mental endurance. However, be sure to ramp up the total workload slowly and gradually as your fitness improves. Don't attempt a workload that will lead to overtraining or cause burnout. Do not perform CHI or INT sessions beyond one per week for running and swimming.

Table 6: Weekly Training Schedule (Increased LSD Sessions)

	Mon	Tue	Wed	Thu	Fri	Sat
Run	**LSD 8 miles**		**INT 10 x ¼ mile**	**LSD 4 miles**	**CHI 2 x 20 minutes**	
Swim	**LSD 1500 yards**	**CHI 2 x 20 minutes**		**LSD 3000 yards**		**INT 10 x 100 yards**
Lift	**Upper**	**Lower**			**Upper**	**Lower**
Calisthenics		✓	✓	✓		✓
Core	✓		✓	✓	✓	
Flex	✓	✓	✓	✓	✓	✓

Candidates who don't possess balanced fitness (are clearly slower in either running or swimming) should devote a greater percentage of their training time to improve the slower activity. SEAL candidates with a swim time slower than 10:35 or a run time slower than 10:38 (considered a "Low" PST ranking), while the other activity is "Med" or "High", should focus more attention on the slower event. **Table 7** is an example of a generic schedule weighted toward improving a slower swimmer. A strong swimmer with limited running ability would reverse the schedule. If a candidate is slow in both running and swimming, overall fitness should be built from the ground up in a balanced fashion.

Table 7: Weekly Training Schedule For A Slow Swimmer

	Mon	Tue	Wed	Thu	Fri	Sat
Run		**INT**			**LSD**	
Swim	**LSD**		**CHI**	**LSD**		**INT**
Lift		**Upper**	**Lower**		**Upper**	**Lower**
Calisthenics	✓		✓	✓		✓
Core	✓	✓		✓	✓	
Flex	✓	✓	✓	✓	✓	✓

How Long Does The Program Last?

It is recommended the program be performed a minimum of 13 weeks, but it can be extended indefinitely. **Table 8** summarizes the information already provided in this document regarding scheduling of cardio and strength activities and distance targets for running and swimming over a 26 week period. Beyond 26 weeks, it is recommended you do not increase INT or CHI distances. Rather, your focus should be on gradually and progressively increasing intensity for the set distances of these workouts. The amount of LSD work you perform can slowly and gradually be increased as long as training continues. However, beyond 9-10 miles of running per week and 3500-4000 yards of swimming per week, the improvements in fitness become proportionately smaller relative to the time invested. If you perform large amounts of LSD work, be sure to keep the pace

relatively easy and relaxed. If you follow these recommendations as you prepare for the PST and as you wait to begin your Special Warfare/Special Operations program, you will possess the necessary fitness to perform well on the PST but also avoid burning out. You will therefore be in position to continue developing fitness throughout the duration of your program.

Limited Facilities/Special Considerations

Facilities required to prepare for the PST include a running surface (track, park, or road with low traffic) and a pool. It is assumed that all candidates will be able to find suitable locations for running. Some candidates may be challenged to find appropriate and accessible facilities for swim training. Ideally, training will be conducted in a well-maintained and supervised pool such as a high school, university, or YMCA. The basic PST training program recommends three swimming workouts per week, and depending on an individual's location and the proximity of facilities, some planning and travel may be required. Swimming less than three times per week is not ideal, but once or twice per week is better than no swimming. Candidates should make every effort to locate training facilities in their area and travel if necessary. USA Swimming, the national governing body for the sport, maintains a web site with a tool to help locate pools and swimming clubs in your area. Searches can be performed by city, state, or zip code at the following link:
http://www.usaswimming.org/usasweb/DesktopDefault.aspx?TabId=503&Alias=Rainbow&Lang=en

A pull-up bar is required to perform pull-ups. Push-ups and sit-ups can be performed almost anywhere. Additional strength training should also be performed. Free weights and machines are commonly employed to provide resistance. Most candidates should be able to find well-maintained and supervised facilities such as a high school or health club within a reasonable distance. If facilities with free weights or machines are not accessible, it is still possible to build strength by being creative and applying other sources of resistance such as body weight, elastic bands, or household objects. Your muscles really don't care where the resistance comes from; give them a challenge, and they will adapt.

With minor or temporary injuries, such as a sore knee from running or a sore shoulder from swimming, it may be beneficial to perform some cross-training by substituting an alternate activity for a session or two. Select an activity that is low-impact, such as stationary cycling or an elliptical machine, and perform approximately the same duration and intensity as originally scheduled. You should be able to perform the activity without undue pain during or after the session. Serious or persistent injuries should be evaluated by a medical professional.

Keeping Training Records

It is recommended you keep a record of your training. This will allow you to see your progress as well as provide a hard copy history you can show to a mentor or coach. A tangible record of your performances allows you to establish specific goals and can increase your motivation to train. Training records make it easier to avoid training

mistakes or recognize potential problems before they become serious. Record basic information such as time and distance for running and swimming workouts (including individual times for each interval during interval workouts); number of reps of calisthenics and core exercises; and details of strength workouts (exercises, sets, reps, and amount of weight lifted). You may also choose to record more detailed information such as notes about your diet, the environment (temperature, humidity, wind), psychological state of mind (relaxed, anxious, energized, listless), amount of sleep, persistent soreness, or any other variable that might affect your training.

Table 8: 26 Week Combined Run/Swim/Lift Schedule

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
Week	Cardio	Strength	Cardio	Strength	Cardio	Strength	Cardio	Strength	Cardio	Strength	Cardio	Strength
1	Run LSD 3 miles	Upper/ Core	Swim CHI 15 min	Lower/ Push-Sit-Pull	Run INT 4 reps	Core/Push-Sit-Pull	Swim LSD 1000 yds	Core/Push-Sit-Pull	Run CHI 15 min	Upper/ Core	Swim INT 4 reps	Lower/ Push-Sit-Pull
2	Run LSD 3.25 miles	Upper/ Core	Swim CHI 15 min	Lower/ Push-Sit-Pull	Run INT 4 reps	Core/Push-Sit-Pull	Swim LSD 1100 yds	Core/Push-Sit-Pull	Run CHI 15 min	Upper/ Core	Swim INT 4 reps	Lower/ Push-Sit-Pull
3	Run LSD 3.5 miles	Upper/ Core	Swim CHI 16 min	Lower/ Push-Sit-Pull	Run INT 5 reps	Core/Push-Sit-Pull	Swim LSD 1200 yds	Core/Push-Sit-Pull	Run CHI 16 min	Upper/ Core	Swim INT 5 reps	Lower/ Push-Sit-Pull
4	Run LSD 3.75 miles	Upper/ Core	Swim CHI 16 min	Lower/ Push-Sit-Pull	Run INT 5 reps	Core/Push-Sit-Pull	Swim LSD 1300 yds	Core/Push-Sit-Pull	Run CHI 16 min	Upper/ Core	Swim INT 5 reps	Lower/ Push-Sit-Pull
5	Run LSD 4 miles	Upper/ Core	Swim CHI 17 min	Lower/ Push-Sit-Pull	Run INT 6 reps	Core/Push-Sit-Pull	Swim LSD 1400 yds	Core/Push-Sit-Pull	Run CHI 17 min	Upper/ Core	Swim INT 6 reps	Lower/ Push-Sit-Pull
6	Run LSD 4.25 miles	Upper/ Core	Swim CHI 17 min	Lower/ Push-Sit-Pull	Run INT 6 reps	Core/Push-Sit-Pull	Swim LSD 1500 yds	Core/Push-Sit-Pull	Run CHI 17 min	Upper/ Core	Swim INT 6 reps	Lower/ Push-Sit-Pull
7	Run LSD 4.5 miles	Upper/ Core	Swim CHI 18 min	Lower/ Push-Sit-Pull	Run INT 7 reps	Core/Push-Sit-Pull	Swim LSD 1600 yds	Core/Push-Sit-Pull	Run CHI 18 min	Upper/ Core	Swim INT 7 reps	Lower/ Push-Sit-Pull
8	Run LSD 4.75 miles	Upper/ Core	Swim CHI 18 min	Lower/ Push-Sit-Pull	Run INT 7 reps	Core/Push-Sit-Pull	Swim LSD 1700 yds	Core/Push-Sit-Pull	Run CHI 18 min	Upper/ Core	Swim INT 7 reps	Lower/ Push-Sit-Pull
9	Run LSD 5 miles	Upper/ Core	Swim CHI 19 min	Lower/ Push-Sit-Pull	Run INT 8 reps	Core/Push-Sit-Pull	Swim LSD 1800 yds	Core/Push-Sit-Pull	Run CHI 19 min	Upper/ Core	Swim INT 8 reps	Lower/ Push-Sit-Pull
10	Run LSD 5.25 miles	Upper/ Core	Swim CHI 19 min	Lower/ Push-Sit-Pull	Run INT 8 reps	Core/Push-Sit-Pull	Swim LSD 1900 yds	Core/Push-Sit-Pull	Run CHI 19 min	Upper/ Core	Swim INT 8 reps	Lower/ Push-Sit-Pull
11	Run LSD 5.5 miles	Upper/ Core	Swim CHI 20 min	Lower/ Push-Sit-Pull	Run INT 9 reps	Core/Push-Sit-Pull	Swim LSD 2000 yds	Core/Push-Sit-Pull	Run CHI 20 min	Upper/ Core	Swim INT 9 reps	Lower/ Push-Sit-Pull
12	Run LSD 5.75 miles	Upper/ Core	Swim CHI 20 min	Lower/ Push-Sit-Pull	Run INT 9 reps	Core/Push-Sit-Pull	Swim LSD 2100 yds	Core/Push-Sit-Pull	Run CHI 20 min	Upper/ Core	Swim INT 9 reps	Lower/ Push-Sit-Pull
13	Run LSD 6 miles	Upper/ Core	Swim CHI 2 x 12 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2200 yds	Core/Push-Sit-Pull	Run CHI 2 x 12 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
14	Run LSD 6.25 miles	Upper/ Core	Swim CHI 2 x 12 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2300 yds	Core/Push-Sit-Pull	Run CHI 2 x 12 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
15	Run LSD 6.5 miles	Upper/ Core	Swim CHI 2 x 12 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2400 yds	Core/Push-Sit-Pull	Run CHI 2 x 12 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
16	Run LSD 6.75 miles	Upper/ Core	Swim CHI 2 x 14 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2500 yds	Core/Push-Sit-Pull	Run CHI 2 x 14 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
17	Run LSD 7 miles	Upper/ Core	Swim CHI 2 x 14 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2600 yds	Core/Push-Sit-Pull	Run CHI 2 x 14 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
18	Run LSD 7.25 miles	Upper/ Core	Swim CHI 2 x 14 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2700 yds	Core/Push-Sit-Pull	Run CHI 2 x 14 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
19	Run LSD 7.5 miles	Upper/ Core	Swim CHI 2 x 16 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2800 yds	Core/Push-Sit-Pull	Run CHI 2 x 16 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
20	Run LSD 7.75 miles	Upper/ Core	Swim CHI 2 x 16 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 2900 yds	Core/Push-Sit-Pull	Run CHI 2 x 16 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
21	Run LSD 8 miles	Upper/ Core	Swim CHI 2 x 16 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3000 yds	Core/Push-Sit-Pull	Run CHI 2 x 16 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
22	Run LSD 8.25 miles	Upper/ Core	Swim CHI 2 x 18 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3100 yds	Core/Push-Sit-Pull	Run CHI 2 x 18 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
23	Run LSD 8.5 miles	Upper/ Core	Swim CHI 2 x 18 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3200 yds	Core/Push-Sit-Pull	Run CHI 2 x 18 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
24	Run LSD 8.75 miles	Upper/ Core	Swim CHI 2 x 18 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3300 yds	Core/Push-Sit-Pull	Run CHI 2 x 18 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
25	Run LSD 9 miles	Upper/ Core	Swim CHI 2 x 20 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3400 yds	Core/Push-Sit-Pull	Run CHI 2 x 20 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull
26	Run LSD 9.25 miles	Upper/ Core	Swim CHI 2 x 20 min	Lower/ Push-Sit-Pull	Run INT 10 reps	Core/Push-Sit-Pull	Swim LSD 3500 yds	Core/Push-Sit-Pull	Run CHI 2 x 20 min	Upper/ Core	Swim INT 10 reps	Lower/ Push-Sit-Pull

Perform **daily** stretching/flexibility exercises following cardio training