

OUTLINE SHEET 5.1-1

PRINCIPLES OF PHYSICAL FITNESS AND DRY-LAND
CONDITIONING PROGRAM

INTRODUCTION

Physical training is designed to provide the Rescue Swimmer with a balance and progression of physical training which will develop both upper and lower body strength and cardiovascular endurance.

ENABLING OBJECTIVES:

- 5.1 Describe the fundamentals of physical conditioning exercises.
- 5.2 Perform Level One physical conditioning exercises.
- 5.3 Perform Level Two physical conditioning exercises.

TOPIC OUTLINE

A. Principles of Physical Fitness

- 1. Objectives of Rescue Swimmer conditioning program.
 - a. Achieve a level of conditioning which allows the Rescue Swimmer to operate for 30 minutes in a sea state of three (minimum). There is no substitute for practical preparation, but a comprehensive dry land conditioning program will assist toward this goal.
 - b. Pass the Rescue Swimmer Fitness Test (per OPNAVINST 3130.6).
 - c. Enhance performance of Rescue Swimmer duties while reducing risk of injury to self or survivor.
- 2. Job performance is enhanced for the Rescue Swimmer by maintaining the following:
 - a. Wellness: is an approach to optimal health and emphasizes the swimmer's deliberate effort to stay healthy and achieve the highest potential for well being. Wellness is an ongoing process which requires daily decisions in areas of proper nutrition, stress management, disease prevention, substance abuse control, and physical fitness.

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- b. Physical Fitness: is defined as the general capacity to adapt and respond favorably to physical effort. A physically fit rescue swimmer is able to perform normal daily activities effectively and have enough energy remaining to complete the SAR mission.

3. General Principles

- a. Overload - system must be stressed to loads greater than it is accustomed to in order to improve.

Increase resistance, repetitions, intensity, or duration during exercise.

- b. Specificity - effects of exercise limited to system being stressed. To be a good swimmer, you must swim.

- c. Progression - is continually applying overload to experience gain. (Training effect)

4. Aerobic Conditioning

- a. Includes aerobic endurance, cardiorespiratory fitness, cardiopulmonary fitness, and heart rate training. Aerobic exercise requires large amounts of oxygen, large muscle groups, is rhythmical in nature, and should be maintained over time at a moderate intensity.

- b. Examples include swimming, running, bicycling, etc. Weight-lifting and most team sports are not aerobic activities.

- c. A good aerobic training program conforms to the F-I-T-T principle:

- (1) Frequency - minimum three times a week. If exercising daily, "Cross-Train" (alternate different activities) so skeletal muscles are not over-trained.

- (2) Intensity - heart and breathing rate must be accelerated, but only to a level which can be maintained for extended periods of time. This is 60% - 75% of an individual's maximum heart rate. As a general guideline, an exerciser should be breathing hard yet still able to talk while performing aerobic activities.

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- (3) Type - must be an aerobic activity.
- (4) Time - continuous exercise for a minimum of 20 minutes.

5. Anaerobic Conditioning

- a. Activities which are not long term or rhythmic in nature. They allow the body to recover between efforts. Many team sports and strength/speed training are considered anaerobic.
- b. Two workouts a week can build strength (given sufficient intensity).

WARNING. Do not exercise the same skeletal muscle group on successive days. Minimum 48 hours rest is required between work-outs to avoid over-use injuries and optimize gains.

- c. A muscle which is too fatigued to contract can still be exercised using a technique called "negatives". For example, an exerciser performing pull-ups will reach a point where he/she can no longer lift themselves. The partner then assists (or "spots") the exerciser by QUICKLY lifting him/her all the way up. The exerciser SLOWLY returns to the starting position. Do not rest at the top or bottom of the cycle. This process can be repeated until the muscle achieves total failure.

6. Ideal Workout

- a. An adequate warm-up period (light jogging, jumping jacks) increases the core temperature 1-2°, warming up the muscles for more effective stretching and exercise.
- b. Slow, steady stretching reduces the risk of strains and improves performance. Avoid ballistic (jerking) stretches - they can cause strains. Avoid unsupported bending at the waist - it can cause back trouble.
- c. Training period - aerobic or anaerobic.
- d. A cool-down period of light exercise helps the body return to its normal state.

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7. Preventing Dehydration

- a. Dehydration, a below normal level of water in the body, is a dangerous situation which can lead to heat injuries (heat stress and heat stroke) in the worst case and muscle cramps (including "side stitches") and sub-par performance at a minimum.

WARNING

Exercisers, especially in hot, humid environments, are especially vulnerable to dehydration. Up to two quarts of water per hour may be lost through sweating during exercise and one quart per day is lost through urine.

- b. Drink large amounts of clear, non-alcoholic, non-caffeinated, non-carbonated beverages before, during and after exercise.
 - (1) Water.: The recommended amount for adults is ten 8oz cups during a normal day.
 - (2) Sports drinks with less than 8% dissolved sugar.

Make your own: 1 gallon water, 6 oz sugar, 1 TBSP salt, flavored Koolaid sweetened with fructose (not sugar).
 - (3) Six to eight ounces of fluid consumed every 20 minutes of exercise can help replenish the sweat lost during exercises.
- c. By the time an active individual feels thirsty, he/she is behind the "dehydration power curve."

NOTE

The best indication of adequate hydration is clear to light yellow urine.

8. Exercises to avoid.

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- a. Knee care. Avoid exercises which require the knee to bear weight while bent beyond 90 degrees.
 - b. Back care.
 - (1) Avoid unsupported bending at the waist (ie, standing toe touch).
 - (2) Avoid doing flutter kicks, leg levers, and good morning darlings in excessive amounts. These common exercises, mistakenly thought to strengthen the abdominal, predominantly work the Illio Psoas (hip flexor) muscles. These muscles are attached to the top front of the leg, wrap around outside the hip, and attach to the back of the pelvic girdle. Over-developed hip flexor cause a lordotic (sway-backed) spinal curve and result in lower back pain.
9. Rest and Basic Nutrition
- a. The Rescue Swimmer School is a very demanding physical program. Hard work-outs without adequate rest or nutrition will result in over-use injuries and illness.
 - b. Adequate rest is vital if muscles are to recover and gain strength.

Seven to nine hours of uninterrupted sleep is adequate for many adults, however, participants in RSSTP programs need to "listen to their body" and get more sleep as required.
 - c. Proper nutrition provides the Rescue Swimmer with the energy required to perform duties.
 - (1) Carbohydrates: Provide energy and is the main fuel source to the cells within the body. Glucose is the main product of carbohydrate digestion. Carbohydrates are usually referred to as the following:
 - a. Simple: derive from fruits and sugars. (IE. Soda, candy, cake, ECT.)
 - b. Complex: derive from vegetables, grains, fruits, and beans.

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(2) Avoid fatty, fried, and oily foods.

10. Conclusion

- a. The Rescue Swimmer School Dry Land Conditioning program is a comprehensive, total body workout designed by an exercise physiologist from the Naval Aeronautical Medical Institute. Special emphasis is given to muscle groups utilized in Rescue Swimming, specifically the pulling muscles of the upper body and the muscles in front of the thigh (which power the flutter kick).
- b. The principles of this unit apply to the training environment and the fleet.