

# *Aviation Rescue Swimmer School*

Principles of Physical Fitness and  
Dry Land Conditioning

LT 2.1

# TRAINING TIME OUT (TTO)

A Training Time Out (TTO) may be called by any student or instructor in any training situation where they are concerned for their own or another's safety, or they request clarification of it, procedures or requirements. TTO is also an appropriate means for a student to obtain relief if he or she is experiencing pain, hear stress, or other serious physical discomfort. The purpose of the TTO is to correct the situation of concern, provide clarifying information, or remove the student or instructor from the possible hazardous environment. A TTO may be signaled with the abbreviation TTO, the words Training Time Out, crossed hands in a (T), a raised clenched fist, or other specific signals which will be briefed prior to a specific lab, test, or exercise. If the TTO signal is not acknowledged, the signaler shall shout "Time Out" (or other action as required by the training activity). The instructor shall attempt to relieve and remove the student from the possible hazardous environment. If an adequate number of instructors are available to allow training to continue safely, the lead instructor may elect to do so. However, if this is not practical, training will be stopped until the situation is corrected.

# DROP ON REQUEST (DOR)

In all cases where a student states a desire to DOR from voluntary training based on concern for personal well-being, appropriate action shall be initiated, including removal from training, referral of the student for medical, counseling or remedial action as appropriate, and review of the training environment, including training techniques. The scope and depth of these actions shall be determined by the nature of the complaint and the risk incurred in the training. A written summary of actions taken shall be made a permanent entry to the student's service record. In no case shall a student be coerced or threatened to induce him or her to return to training following a DOR.

# 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

- 2.1 State the fundamentals of physical conditioning.
- 2.2 Perform proper physical conditioning exercises and Physical Training Level 1, 2 and 3 tests in accordance with the lesson guide.
- 2.3 State the importance of proper technique and form when utilizing weight lifting equipment.
- 2.4 Demonstrate proper techniques for developing and maintaining overall muscular strength utilizing weight lifting equipment, without injury to personnel or damage to equipment.

# Objectives of a Rescue Swimmer conditioning program

- 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.

# Objectives of a Rescue Swimmer conditioning program

- Pass level 1, 2, and 3 Fitness Test and the Rescue Swimmer Fitness Test (per OPNAVINST [3130.6](#)).
- Enhance performance of Rescue Swimmer duties while reducing risk of injury to self or survivor.

# Job performance is enhanced for the Rescue Swimmer by maintaining the following:

- 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.

Job performance is enhanced for the Rescue Swimmer by maintaining the following:

- 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.

# General Principles

## Note

Aviation Rescue Swimmers are not unlike multi sport athletes in that they must be able to perform a variety of physically demanding tasks on land and water. The Aviation Rescue Swimmer requires a variety of training workouts, which focus on different goals. Because of the high level of multi dimensional fitness required by the Rescue Swimmer 6-10 training sessions per week may be required.

# General Principles

- Overload - system must be stressed to loads greater than it's accustomed to in order to improve.
- Increase resistance, repetitions, intensity or duration during exercise.
- Specificity - effects of exercise limited to system being stressed. To be a good swimmer, you must swim.
- Progression - is continually applying overload to experience gain. (Training effect)

# Aerobic Conditioning

- Includes aerobic endurance, cardio respiratory 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.
- Examples include swimming, running, bicycling, etc. Weight-lifting and most team sports are not aerobic activities.

# Aerobic Conditioning

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

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

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 be able to talk while performing aerobic activities.

Type – must be an aerobic activity.

Time – continuous activity for a minimum of 20 minutes.

# Anaerobic Conditioning

- 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.
- Two workouts a week can build strength (given sufficient intensity).

# Anaerobic Conditioning

## **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.

# Anaerobic Conditioning

- 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 top or bottom of the cycle. This process can be repeated until the muscles achieves total failure.

# Ideal Workout

- An adequate warm-up period (light jogging, jumping jacks) increases the core temperature 1-2 degrees, warming up the muscles for more effective stretching and exercise.
- 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.

# Ideal Workout

- Training Period - aerobic or anaerobic.
- A cool-down period of light exercise helps the body return to its normal state.

# Preventing Dehydration

- 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.

# Preventing Dehydration

## Warning

Exercises 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.

# Preventing Dehydration

- Drink large amounts of clear, non-alcoholic, non-caffeinated, non-carbonated beverages before, during and after exercise.

# Preventing Dehydration

- Water:

The recommended amount for adults is ten 8 oz cups during a normal day.

- 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).

# Preventing Dehydration

- Six to eight ounces of fluid consumed every 20 minutes of exercise can help replenish the sweat lost during exercise.
- By the time an active individual feels thirsty, he or she is behind the "dehydration power curve."

## NOTE

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

# Exercises to avoid

## ■ Knee care

- Avoid exercises which require the knee to bear weight while bent beyond 90 degrees.

## ■ Back Care

- Avoid unsupported bending at the waist (ie, standing toe touch).

# Exercises to avoid

- Avoid doing flutter kicks, leg levers, and horizontal scissor kicks 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.

# Rest and Basic Nutrition

- The Rescue Swimmer School is a very demanding physical program. Hard workouts without adequate rest or nutrition will result in over-use injuries and illness.

# Rest and Basic Nutrition

- 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 this program need to “listen to their body” and get more sleep as required.

# Rest and Basic Nutrition

- Proper nutrition provides the Rescue Swimmer with the energy required to perform duties
- Carbohydrates: Provide energy and is the main fuel source to the cells within the body. Glucose is the main product of carbohydrate digestion.

# Rest and Basic Nutrition

Carbohydrates are usually referred to as the following:

- Simple: derived from fruits and sugars. (i.e. soda, candy, cake ect.)
- Complex: derived from vegetables, grain, fruits, and beans.
- Avoid fatty, fried and oily foods.

## Conclusion:

- 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).
- The principles of this unit apply to the training environment and the fleet.

# STRETCH SET

- ANKLE ROTATIONS
- JUMPING JACKS
- ROTATOR CUFF STRETCH
- TRICEP STRETCH
- QUADRICEP STRETCH
- INSIDE HURDLER STRETCH
- GROIN STRETCH
- KNEE TO CHEST
- BOTH KNEES TO CHEST
- BACK TWIST
- CALF STRETCH
- ACHILLES STRETCH

# CALISTHENICS SET

- PULL UPS
- 4 COUNT LUNGES
- PUSH UPS
- BENT KNEE SIT UPS
- PULL UPS
- 2 COUNT SQUATS
- WIDE ARM PUSH UPS
- CRUNCHES
- 4 COUNT DIRTY DOGS

# CALISTHENICS SET CONT

- 4 COUNT OBLIQUE CRUNCHES
- 4 COUNT SUPERMANS
- 4 COUNT FLUTTER KICKS
- TRICEP PUSH UPS
- CALF RAISES
- CROSS KNEE OBLIQUE CRUNCHES
- 8 COUNT BODY BUILDERS
- HIP FLEXOR STRETCH

# STRETCH SET FOR STRENGTH TRAINING AND SWIMMING STRETCHES

- PUSH UPS
- ARM CIRCLES
- FLUTTER KICKS
- LUNGES
- CRUNCHES
- ABDOMINAL STRETCH
- ROTATOR CUFF STRETCH
- CHEST STRETCH
- TRICEP STRETCH
- QUADRICEP STRETCH
- INSIDE HURDLER STRETCH
- KNEE TO CHEST
- BOTH KNEES TO CHEST
- BACK TWIST

# STRENGTH TRAINING EXCERSISES

## CORE

PULL UPS  
SQUATS  
DEAD LIFTS  
MILITARY PRESS  
BENT OVER ROW  
BENCH PRESS  
BENT KNEE SIT UPS  
CRUNCHES  
CROSS KNEE OBLIQUE SIT UPS

## AUXILIARY

SEATED CABLE ROW  
TRICEP CABLE PRESS DOWNS  
INCLINE DUMBBELL BENCH  
PRESS  
DUMBBELL BICEP CURLS  
LEG PRESS  
LATISSIMUS PULL DOWNS  
BENT KNEE SIT UPS  
CRUNCHES  
CROSS KNEE OBLIQUE SIT UPS

# POST SWIM/STRENGTH TRAINING STRETCH SET

- ROTATOR CUFF STRETCH
- CHEST STRETCH
- TRICEP STRETCH
- QUADRICEP STRETCH
- INSIDE HURDLER STRETCH
- KNEE TO CHEST
- BOTH KNEES TO CHEST
- BACK TWIST
- CALF STRETCH

# Physical Training Test Out

- Pull-ups
- Lunges
- Regular Width Push-ups
- Bent Knee Sit-ups
- Wide Arm Push-ups
- Crunches
- Flutterkicks
- Tricep Push-ups
- Run

# SQUATS



# SQUATS CONT.



# DEAD LIFTS



# DEAD LIFTS CONT.



# MILITARY PRESS



# MILITARY PRESS CONT.



# BENT OVER ROW



# BENT OVER ROW CONT.



# BENCH PRESS



# BENCH PRESS CONT.



# SEATED CABLE ROW



# SEATED CABLE ROW CONT.



# TRICEP CABLE PRESS DOWN



# TRICEP CABLE PRESS DOWN



# INCLINE BENCH PRESS



# INCLINE BENCH PRESS CONT.



# DUMBBELL BICEP CURL



# DUMBELL BICEP CURL CONT.



# LEG PRESS



# LEG PRESS CONT.



# LAT PULL DOWN



# LAT PULL DOWN CONT.



# Review

- What are some examples of Aerobic exercises?
- *Swimming, running, bicycling, etc.*

# Review

- What can you do to prevent dehydration?
- *Drink large amounts of water and sports drinks.*

# Review

- Aerobic exercise should be maintained at what percentage of maximum heart rate to be effective?

60%-80%

# Review

- What are some examples of foods high in carbohydrates?
- *Grains, bread, pasta, rice, potatoes, etc.*

