**DEPARTMENT OF THE NAVY**
COMMANDER
NAVAL EDUCATION AND TRAINING COMMAND
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1552
Ser N00/246
15 AUG 2017

**LETTER OF PROMULGATION FOR NAVY SWIMMING AND WATER SURVIVAL INSTRUCTOR'S MANUAL (NETC P1552/16)**

1. This guidance manual has been extensively revised. Most of the revisions are in response to Human Performance Requirements Review (HPRR) inputs as well as user comments. This revision reflects a continuing effort to increase the manual's utility to the training field. NETC P1552/16 (07-17) is a complete revision and replaces NETC P1552/16 (07-07).

2. This manual is intended for use by military, civil service, and contractor personnel. P1552/16 is written to promote instructional and testing standardization fulfilling the requirements for teaching and testing the skills necessary for Navy swimming and water survival within the NETC domain.

3. This instruction is cleared for public release and is available electronically via the NETC public web site, https://www.netc.navy.mil/directives.htm, or via Total Records Information Management (TRIM).

4. Corrections and comments concerning this manual are invited and should be addressed to the NETC, attention: N3.

5. Reviewed and approved.

K. J. COZAD


# NAVY SWIMMING AND WATER SURVIVAL INSTRUCTOR MANUAL

**NETC P1552/16 (07-17)**

## RECORD OF CHANGES

| Number and description of change | Entered by | Date |
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| CH-1 (REVISED APPENDIX G) | NETCN042 | 10DEC20 |
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Recommended changes to this manual will be forwarded to NETC (N74) via the chain of command. Approved changes will be recorded on the Change Record of this manual.

# TABLE OF CONTENTS

NAVY SWIMMING AND WATER SURVIVAL
INSTRUCTOR MANUAL



## CHAPTERS



## APPENDICES

# CHAPTER 1

# NAVY SWIMMING AND WATER SURVIVAL INSTRUCTOR MANUAL

## PURPOSE

This manual was developed for Naval Education and Training Command (NETC) Water Survival Instructors and Navy Swim Testers. It reflects current methods, instructional procedures, appropriate safety considerations, and is intended as a reference document to promote instructional and testing standardization. The intent of this manual is not to contravene specialized aquatic techniques or requirements set forth in various NETC curricula. This manual covers breath control to avoid hyperventilation and water aspiration, how to stay afloat and conserve energy, how to prevent exhaustion, how to support the head above the water while wearing organizational equipment, how to swim efficiently, how to abandon ship, how to swim underwater, and how to swim through burning oil, surface debris, and rough seas.

## SCOPE

The survival swimming skills, techniques, and procedures outlined in this manual are applicable to teach personnel how to cope with unique aspects of survival at sea. Water survival training experts have developed these procedures to enable swimmers to cope with life and death factors, cold water, darkness, negatively buoyant equipment, restrictive clothing, rough seas, and incapacitating injuries. Many techniques differ from those encountered in recreation and competition swimming manuals, which focus on developing skills and techniques for situations other than survival.

## AUTHORITY

This manual is an official reference for teaching and administering NETC water survival and swimming requirements. It is to be used as a guide in conjunction with other naval publications, manuals and curricula dealing with water survival and swimming. Naval Aviation Schools Command (NASC) Swim Model Manager will provide oversight of all locations conducting Navy

Swim Testing for standards compliance. Model Manager Personnel will conduct assist visits to testing locations when requested.

## RESPONSIBILITY

The U. S. Navy Swimming and Water Survival Instructor Manual (P1552/16) was developed by the NASC Water Survival Model Manager under the direction of NETC. Proposed changes or revisions, and requests for additional copies of this manual shall be addressed to:

Commanding Officer
Naval Aviation Schools Command
181 Chambers Ave Suite C
Pensacola, FL 32508-5400
Attention: Survival Department Head
DSN 459-2249, COM. 850-452-2249

## LEADERSHIP AND COURSE DESCRIPTIONS

### LEADERSHIP

**Swim Tester:** Conducts Third, Second, and First Class Swim Tests

**Basic Swimming and Water Survival Instructor (NEC 9510):** *Qualified to teach Swim Skills Maintenance and Improvement Course CIN: A-060-2222 and Navy Swim Tester CIN: C-012-0015. Conducts Third, Second, and First Class Swim Tests. If assigned to NASC qualified to teach Intermediate Water Survival Course CIN C-050-0605.

**Basic Swimming and Water Survival Instructor-Trainer:** Performs all functions of Basic Swimming and Water Survival Instructor. *Qualified to teach Basic Swimming and Water Survival Instructor Course CIN: A-012-1014 and Navy Swim Tester Course CIN: C-012-0015.

**Qualified Instructor**: Met requirements for assignment as an instructor, including formal instructor training, screening, and other prerequisite skill sets.

**Certified Instructor**: Attained level of proficiency, in addition to instructor qualifications, needed to teach a particular course or portion of a course. The certification process normally begins after the completion of formal training and upon arrival at the learning site.

**COURSE DESCRIPTIONS**

**Swim Skills Maintenance and Improvement Course A-060-2222:** A self-paced course that allows a student to pass First, Second, and Third Class Swim Tests (as well as other Navy-swim courses) by focusing only on their skills with identified deficiencies.

**Navy Swim Tester Course C-012-0015:** A group-paced course that teaches students how to perform each skill needed to pass the First Class Swim Test and the Swim Tester Course.

**Basic Swimming and Water Survival Instructor Course A-012-1014:** Trains personnel to conduct swimming and water survival instruction safely, with standardized courses of instruction.

*More information found in the Catalog of Naval Training Courses.*

# CHAPTER 2

# APPLICATION OF EDUCATIONAL THEORY WHEN TEACHING STUDENTS WATER SKILLS

## INTRODUCTION

NAVEDTRA 134A is the Naval Education and Training Command's official training manual for Navy instructors. It provides a basis for the delivery of instruction in Navy classrooms and laboratories. The procedures and guidance presented in NAVEDTRA 134A form a foundation for the practical application of instructional methods and techniques that are developed through formal instructor training courses.

The Navy Water Survival Instructor should review NAVEDTRA 134A regularly and before reading this chapter to avoid forgetting important teaching skills and theories which, if applied, improve instructor delivery and student retention. The purpose of this chapter is to briefly review learning theories and laws identified in Chapters 3 and 4 of NAVEDTRA 134A and to concentrate on the importance of their application when teaching water skills.

## MOTIVATION

**Motivation Theory**: Simply stated, this theory proposes that individuals accomplish higher order needs only after all lower order needs have been relatively well satisfied. Included among lower needs are physiological requirements and safety. Among higher order needs are desire for knowledge, self-actualization, and aesthetics.

### Applying Motivation Theory

**Motivation Principles:**

1. Needs and Drives
2. Interest
3. Values
4. Attitudes
5. Incentives
6. Achievement

**Needs and drives:** Ensure that basic needs such as warmth, comfort in the water, lack of apprehension, the ability to get a breath, the ability to float, etc., are met before expecting students to master survival skills.

**Interest:** Keep your classes exciting and interesting. Make certain that students are aware of why they are learning a skill. The rationale of learning a skill that one day may save one's life always generates appeal to the student's values of the moral importance of saving lives through water survival training.

**Values:** Appeal to the student's values of moral importance of saving lives through water survival training.

**Attitudes:** Show a positive attitude about water survival training. Students have more desire to learn when instructors show an interest in what they teach.

**Incentives:** Incentives such as distinguished graduate, most improved, best technique, etc., can motivate students.

**Achievement:** Provide students with opportunities to achieve. Experiencing achievements of "building blocks" towards the whole aquatic skill fulfills the strong desire of many to achieve.

## WAYS OF LEARNING

**Ways of Learning:**

1. Imitation
2. Trial and Error
3. Association
4. Insight
5. Transfer

**Imitation:** Demonstrations of water skills must be accurate and thorough to provide a precise role model for students to imitate.

**Trial and Error:** Trial and error learning is effective if students receive proper supervision, reinforcement of correct procedures and immediate feedback on how to correct errors. Ensure labs and practice sessions are staffed with instructors who can correct students when they make mistakes. Trial and error can be unsafe in the aquatic environment unless students are carefully monitored.

**Association**: Association is a comparison of past learning to a new learning situation. Look for similar movements and techniques that students know to assist learning new water skills. For example, the sidestroke arm action is similar to picking apples and putting them into a basket, the kick is similar to the movement of the blades of scissors.

**Insight**: Insight is the understanding that the whole is more than the sum of the parts. This term describes a person's unplanned discovery of a solution to a problem and is often referred to as the "ah-ha" phenomena. Providing the student with a total description of how the body moves through the water when swimming often helps the student with arm, leg, and timing problems because they visualize the purpose of the motions instead of just trying to master the movements themselves.

**Transfer**: Transfer is the process of applying past learning to new but somewhat similar situations. Applying the knowledge of the elementary backstroke kick assists swimmers to develop the breaststroke kick. Mastery of crawl stroke breathing assists student when learning breaststroke breathing.

## LAWS OF LEARNING

1. Readiness
2. Effect
3. Primacy
4. Exercise
5. Intensity
6. Recency

**Law of Readiness:** This law states that students learn best when they are physically, mentally, and emotionally ready to learn. To apply this law to aquatics, ensure that students are not exhausted, in ill health, etc., before teaching. An organized, encouraging, supportive environment on the pool deck can do much to ensure that students are mentally and emotionally ready to learn. Mastery of the basics ensures that students are physically ready to learn more advanced skills. Instructors should also be aware that situations outside their control such as financial problems or family problems could interfere with the student’s desire to learn.

**Law of Effect:** This law states that students learn best from things that result in satisfying consequences. Providing learning goals that students can achieve provides a satisfying consequence for most people. For example, if a student is

unable to swim a mile, provide practice of lesser distances. Positive experience with the lesser distances assists the learning required to master the full distance. Providing students with the benefits of training, and reminding students of these benefits, provides the satisfaction of learning useful skills. Giving praise as students learn parts of a skill provides satisfying consequences, which will assist the student in learning the entire skill.

**Law of Primacy:** This law states that students retain information that they learn the first time longer than they retain information that they must relearn. Teach the correct information and procedures the first time. Teaching progressions should proceed from simple to complex, from known to unknown. Correct student problems immediately to prevent them from becoming "ingrained". Be patient with students who have learned a stroke or aquatic skill improperly, as those students will find it more difficult to relearn the skill than to have learned it properly the first time.

**Law of Exercise:** Practice makes perfect. This law is one of the most important in learning aquatic skills. Provide practice and repetition of skills; ensure that practice and repetition include coaching and critique such that incorrect procedures are not reinforced.

**Law of Intensity:** This law states that vivid experiences are learned better and retained longer. Applying this law to aquatics, utilize active practice sessions, numerous visual aids, and interesting lectures. Within the bounds of safety, select activities that eliminate monotony and provide realism when teaching water survival skills.

**Law of Recency:** All things being equal, the things learned last will be best remembered. The opposite is also true. Reviews, warm-ups, and similar activities are all based on the principle that the more recent the exercise, the more effective the performance. Practicing a skill or new concept just before using it will ensure a more effective performance. Repeat, restate, or reemphasize important matters at the end of a lesson to make sure that the students remember them, instead of inconsequential details.

## FACTORS AFFECTING LEARNING

**Motivation:** Discussed in detail above, motivation is an extremely important factor in a student's ability to learn

aquatic skills. Because the water is vastly different than the land, basic skills such as breathing, moving, and resting must be relearned. The time and effort required relearning these basic skills often test the motivation of even the most tenacious student. Instructors must provide a supportive environment that is conducive to maintaining student motivation.

**The Learning Senses:** NAVEDTRA 134A tells us that people can retain only 10 percent of what they read, 20 percent of what they hear, and 30 percent of what they see. When these senses are combined, however, retention increases dramatically. Estimates tell us that when someone hears and sees, retention can reach 50 percent. Augmenting sight and sound to stimulate thinking can increase retention to 70 percent. Teaching students aquatic skills should include lecture, audio visual aids, demonstration, and frequent practice to ensure students are stimulated in a variety of senses. Stimulation of many senses is the key to learning.

**Individual Differences:** NAVEDTRA 134A provides great detail regarding similarities and differences among students. When instructors are teaching aquatics they must be sensitive to variances that may affect learning. The negative buoyant student may find floating skills difficult but may find underwater skills easy. Instructors should realize that some skills might be more difficult for some people to learn based on buoyancy or even body build. Many students are raised learning to avoid the water. Students with this type of background often have a more difficult time learning water skills than those who were raised with encouragement to swim and participate in water sports.

**Learning Styles:** Most people prefer one of the four styles of learning mentioned below, but use all of the basic leaning styles to some extent based on the situation.

**a. Concrete Learners:** Concrete learners prefer an experience-based approach to learning. They like to be involved with the "real thing". These students prefer to see an aquatic skill demonstration and then try it on their own.

**b. Active Learners:** These learners prefer to learn by taking an active step-by-step approach. Trial-and-error learning appeals to them. These learners prefer to learn an aquatic skill by systematically trying out several procedures before figuring out how to perform the skill properly.

**c. Reflective Learners:** Reflective learners like to observe and make comparisons and contrasts before drawing conclusions. These people learn best from lectures, videos, and reading. They prefer to analyze their observations before attempting to try an aquatic skill.

**d. Abstract Learners:** These learners prefer a theory-based analytical approach to learning. They prefer to read about the principles behind an aquatic skill and to analyze concepts involved in performing the skill before trying the skill itself. Research has shown that students learn best and retain information longer when they are exposed to all four learning styles. NAVEDTRA 134A tells us that up to 90 percent of information can be retained by employing all four techniques. Much less retention is gained employing three or less learning styles.

## SUMMARY

Practical application of the principles of learning will have a great impact on your students' ability to master swimming and aquatic skills. Knowing about these principles isn't enough; you must use them on a daily basis. To transfer your knowledge and skills as an expert in water survival, you must understand what causes students to learn and what can interfere with that learning. Students have enough built-in obstacles to learning without the instructor becoming one also. Learn, understand, and apply the principles of learning, and your students will benefit greatly and your job as an instructor will be easier and more enjoyable.

# CHAPTER 3

# APPLYING PHYSICAL PRINCIPLES WHEN TEACHING STUDENTS WATER SKILLS

## INTRODUCTION

In the water, movement revolves around the center of buoyancy vice the center of gravity as on land. Friction and resistance to movement increases in the water, and water density makes the body feel lighter than on land, yet makes inhaling more difficult. In order to become adapted to the water environment, students must re-learn how to breathe, move, think and act. Instructors must be aware of some basic physical principles and how they affect the swimmer. The American Red Cross Swimming and Diving Manual and the U.S. Navy Diving Manual Volume One are excellent resources for further information.

## THE EFFECT OF WATER ON BODY TEMPERATURE

Heat is crucial to man's environment. The human body functions within a very narrow range of internal temperatures, and contains delicate mechanisms to control that temperature. A swimmer's experience with temperatures on land does not give them a basis with which to evaluate the heat problems encountered in the water. Temperatures below 80 degrees Fahrenheit in the water are uncomfortable to most swimmers and temperatures below 72 degrees can cause the body to lose heat faster than it can be replaced, leading to dangerous lowering of body core temperature. Heat is transmitted from one place to another in three ways: conduction, convection, and radiation. Conduction and convection are responsible for the more rapid cooling of a person in the water than on land, with conduction being the most significant to swimmers.

**Conduction.** Some substances such as iron, helium, and water are excellent conductors of heat. Some, like air, are very poor conductors. A good conductor, if placed between a source of heat and another substance, will rapidly transfer the heat from one substance to the other. A poor conductor will insulate the substances and appreciably slow the transfer of heat. Since water is a good conductor of heat, an unprotected swimmer can

rapidly lose a great deal of body heat to the surrounding water. Conversely, since air is a poor conductor, much less body heat is lost to the surrounding atmosphere. These different properties of water and air explain why 75 degrees on land feels pleasant, yet feels cold in the water.

**Convection.** Convection is the transmission of heat by the movement of heated fluids. Convection is the principle behind the operation of most home-heating systems, which sets up a flow of air currents based on the natural tendency of warm air to rise and cool air to fall. A swimmer in the water can lose heat not only by conduction, but also by convention currents. The warmed water next to the swimmer's body rises and is replaced by colder water from below. The warm water then loses heat to the cooler surroundings. Once cooled, the water sinks, only to be warmed again by the swimmer as part of a continuing convection current cycle. To avoid the increased effect of cooling in the water, swimming pools must be maintained as recommended in Chapter 4. Water that is comfortable to the student greatly enhances learning by eliminating the distraction of being cold.

## BUOYANCY

Because of buoyancy, the upward force that water exerts on an object, the swimmer weighs very little, if anything in the water. This feeling of "weightlessness" has been utilized to train astronauts for space travel. Like the astronaut preparing for space travel, inexperienced swimmers require time and exposure to become acclimated to perform even the most basic skills in the water.

## SPECIFIC GRAVITY

Water has a specific gravity of 1. Objects with a specific gravity of less than 1 float, while objects with a specific gravity greater than 1 sink. Specific gravity among humans varies by muscle mass, amount of fat and bone density. Some individuals will not float, even with a full breath of air, while executing a survival float. The water survival instructor should be keenly aware of whether his student sinks or floats to effectively coach and counsel. Floating postures may have to be augmented with arm sculling and a slight kick to keep the "sinker" at the surface; conversely the "floater" may need more time to master techniques to stay underwater.

## THE WEIGHT OF WATER

Because water is much heavier than air, the chest is surrounded with more pressure than on land. This pressure makes inhaling at the surface of the water more difficult than on land. The swimmer must inhale more deeply to compensate for water pressure around the chest. This phenomenon explains why a swimmer's snorkel is not much longer than 12 inches; beyond this depth, the diaphragm muscles can seldom overcome the water pressure around the chest needed to get sufficient breath from a snorkel. Learning to get an efficient air exchange or "breath control" is perhaps the most essential skill for swimmers to master. Activities that require the swimmer to lift or turn the head to take a breath and return the face into the water are crucial for students to adjust to the differences needed to get an efficient air exchange. Putting the face into the water, bobbing, and rhythmic breathing are essential skills for swimmers to master.

## CENTERS OF MASS AND BUOYANCY

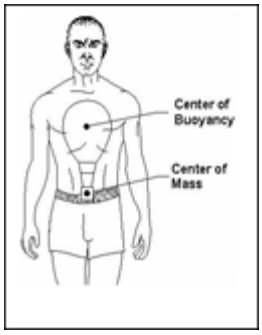


**Fig. 3-1 Center of Mass and Buoyancy**

The center of mass is a point around which an object’s mass is evenly distributed. For humans, the center of mass is usually located near the hips. Being land creatures, we coordinate our movements by keeping the center of mass balanced and supported. An object’s center of buoyancy is a point around which its buoyancy is evenly distributed. Because the lungs provide a large buoyant volume of air, most people's center of buoyancy is located in the chest. In the water, one's position, motion and coordination must be related to the center of buoyancy. The interaction between the center of mass in relationship to the center of buoyancy requires that swimmers must adjust to the simplest tasks such as standing, moving, and floating. The water survival instructor must be patient and realize that even these most basic skills require repeated practice before they can be mastered.

## THE RESISTANCE TO MOVEMENT IN THE WATER

Because water is denser than air the swimmer experiences much more resistance to movement than on land. An object’s form, wave action, and friction contribute to its resistance in the water. A swimmer’s shape and body position contribute to resistance in the water. “Streamlining” in the water reduces

this resistance, and is dependent on the swimmer's form. Swimmers must be made aware of the importance of streamlining when executing strokes and glides. Waves caused by water turbulence or the swimmer's movement through the water produce resistance to swimming. Swimmers can seldom control waves produced by the sea, although Chapter 11 teaches how to swim through rough seas by swimming underneath the troughs of waves when "rough water swimming". Swimmers can reduce resistance caused by waves that they produce by strict attention to proper skill and technique. The surface texture of the swimmer causes friction, which produces resistance to movement through the water. This resistance is increased dramatically by wearing clothing while swimming. Much of this manual covers modified aquatic techniques designed to teach military personnel to swim in organizational clothing.

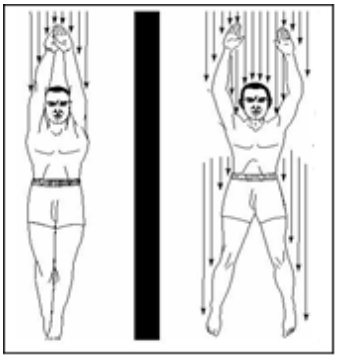


**Fig. 3-2 Example of "Streamlining"**

## TYPES OF PROPULSION

A ship is actually pulled, not pushed, through the water because of the principle of laminar flow. As water moves over the turning propeller blade, its molecules either speed up or slow down so that they stay parallel to the molecules on the other side of the blade. Molecules that slow down because of drag create pressure against the blade, while those that speed up pull the propeller toward them with a force called lift. Lift and drag, propel the ship through the water. Unlike the ship with a propeller, a canoe is moved forward by the backward push of the paddle. The canoe's type of motion is called paddle propulsion. Many instructors think that swimmers propel themselves through the water solely by paddle propulsion. State-of-the-art analysis of stroke mechanics has shown that swim strokes use either one or both forms of propulsion, with laminar flow producing the most efficient movement through the water.

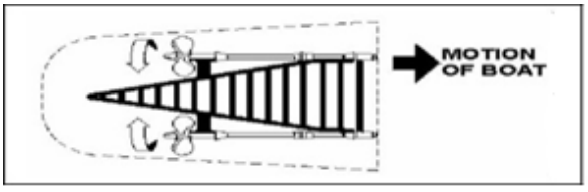



**Fig. 3-3 Principle of Laminar Flow**

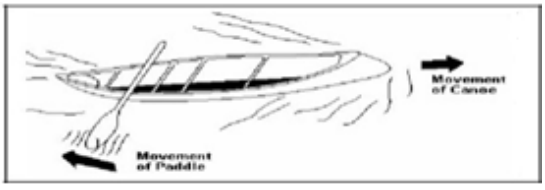



**Fig. 3-4 Principle of Paddle Propulsion**

## INERTIA

**The Law of Inertia states three things**:

1. Force is needed to move a resting body.
2. Force is needed to stop a moving body.
3. Force is needed to change the direction of a moving body.

Static inertia keeps a resting body at rest. The non-moving swimmer must overcome static inertia every time they start to move in the water. Dynamic inertia keeps a moving body moving. If not for form, wave, and frictional resistance, dynamic inertia would keep a swimmer gliding forever.

Understanding static and dynamic inertia promotes effective swimming. More energy is needed to start a stroke than to keep a stroke moving as the resting swimmer must overcome static inertia. It is more efficient to keep moving, than it is to stop and start repeatedly. Once moving, dynamic inertia allows the swimmer to rest during glide strokes. Both static and dynamic inertia are the principles behind teaching a student to perfect a glide. Holding the glide allows the survival swimmer to rest because of dynamic inertia; but holding the glide too long may slow the swimmer down so much that they have to work harder to overcome static inertia. As an instructor, you should perfect the student's gliding strokes with short rests which allow the swimmer to capitalize on dynamic inertia and at the same time keep static inertia from increasing the energy needed to swim. Emphasizing good streamlining during glides reduces form resistance, additionally helping the swimmer capitalize on the benefits of dynamic inertia.

The third statement of the Law of Inertia is that force is needed to change the direction of a moving body. Inertia assists in moving through the water while swimming. As you move faster, more force is needed to change your direction. If you wish to change the direction of travel, force must be applied to change the direction of your body. If you are not swimming in the direction that you wish to travel, incorrect body position or improper stroke mechanics are probably causing forces that overcome the desired direction of travel. It is not uncommon for a beginning swimmer to be unable to swim in a straight line. Body position and aligning arm or leg motion is crucial when teaching students how to control their direction of travel.

## ACCELERATION

The law of acceleration states that the speed of an object is dependent on the amount of force applied to it and the direction of that force. There are two parts to this law. If X amount of force produces Y amount of speed or movement, then 2X amount of force will produce 2Y amount of speed or movement. Applying this part of the law to aquatics, the more force used in the direction of travel, the faster you will swim. The effect of a force occurs in line with the direction in which the force is applied. Applying this part of the law to aquatics, to swim in a straight line one should direct all propulsive forces in that direction. To change direction, one must change the direction of the forces of the arms and legs. Understanding the law of acceleration allows the instructor to realize how to change effectiveness, speed, and direction of survival skills.

## LAW OF ACTION AND REACTION

This law states that every action has an equal and opposite reaction. During paddle propulsion swim strokes, as the arm pushes against the water, the water pushes back, providing resistance, which allows the swimmer to move forward.

## CONSERVATION OF MOMENTUM

Conservation of momentum explains why circular stroke movement is more efficient for swimming than back and forth or linear movement. When linear movement is used in swim strokes, force is needed to stop moving in one direction to overcome dynamic inertia. Additional force is needed to overcome static inertia as movement starts in another direction. Circular movements capitalize on dynamic energy by avoiding forces needed to stop and start. Conservation of momentum explains why instructors often teach students to make believe they are smoothing sand with their hands during treading water, which allows a student to avoid fatigue and bobbing. Another example is teaching a student to “draw a heart” with the breaststroke to encourage non-jerky, non-fatiguing, smooth forward motion.

## THE LAW OF LEVERS

Applying the law of levers has helped researchers analyze strokes to find the best limb positions and motions for effective swimming. The law of levers states that the product of the force and force arm is equal to the product of the resistance and resistance arms. The law of levers describes the

interrelationships among four items: the applied force, the encountered resistance, the force arm, and the resistance arm.

When swimming the crawl stroke, the arm acts as a lever with the shoulder as the pivot point. The shoulder muscles are the applied force and the length of bone between the shoulder and muscle attachment is the force arm. Encountered resistance is water resistance against the arm, and the resistance arm is the distance from the shoulder joint to the middle of the forearm. In the crawl stroke, bending the elbow shortens the resistance arm, reducing the force needed to propel the swimmer forward. For the same reason, bending the arms during treading water provides more upward force than straight arms.


**Fig. 3-5 Reduced Resistance Arm**

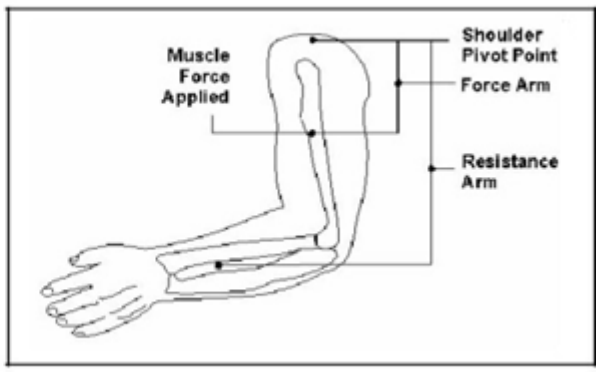



**Fig. 3-6 Law of Levers**

## SUMMARY

The experienced water survival instructor must have a basic understanding of several laws of physics and their effect on swimmers. Understanding these laws assists the instructor in improving the quality of training that they are able to provide to the swimmer. The purpose of this chapter was to review some of these basic physical principles, and show their application to a few examples of aquatic skills and situations.

# CHAPTER 4

# FACILITY REQUIREMENTS

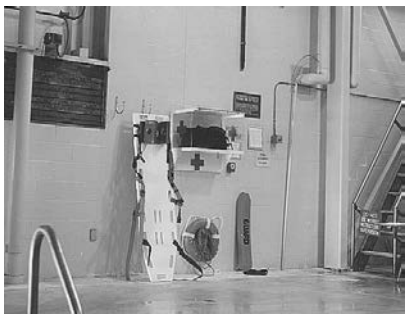
## INTRODUCTION

The facilities used for water survival training throughout the Navy vary in size, design, and accommodations. In some cases, the facility may be the local Young Men's Christian Association, a college, or community owned pool. Ideally, the instructor will use an inside pool with adequate temperature control for water and classroom training.

## MAINTENANCE AND OPERATION

Generally, the maintenance and operation of Navy pools fall under the base Public Works Department. The swim instructor or swim tester has the ultimate responsibility for ensuring that the facility meets the current health and safety standards. Instructors/testers must keep the pool and adjoining deck area free of physical or mechanical hazards such as slippery surfaces, projecting objects, and floating or underwater obstructions. The instructor/tester must also ensure that the pool deck and adjoining areas are clean. The water quality must be maintained per the current Manual of Naval Preventive Medicine (NAVMED P-5010-4). Whenever temperature, turbidity, or chemical content of the pool are in question, the instructor shall consult with the local Navy Hospital/Branch Clinic (Occupational Health or Preventive Medicine Department) or equivalent civilian agency. Swimming pool water turbidity and organic content interfere with disinfectants, reduce visibility, and adversely affect training and safety.

## SAFETY AND RESCUE EQUIPMENT



The instructor is responsible for ensuring that an adequate selection of safety and rescue equipment is readily available. Some pools require lifelines to separate various activities. All pools shall have ring buoy attached to a 1/4" polypropylene retrieving line long enough to reach across the pool. The

ring buoy with line attached should be mounted on the wall in such a manner that it is ready for instant use. Ensure backboards or spine boards are available poolside. The instructor must also ensure that qualified personnel and safety and rescue equipment are available. The equipment must be inspected daily to ensure that it is in good working condition. Specific safety equipment and procedural guidelines for the First, Second, and Third Class Swim Tests are found in Chapter 12 of this manual. Special requirements for training programs are delineated in the appropriate curricula. This manual or the appropriate curricula should be consulted to ensure that equipment and personnel requirements are met prior to commencement of water activities.

## EMERGENCY ACTION PLAN

Facilities that conduct water survival training must have a written plan of action for on-site accident/injury management (NETCINST 1500.13B and OPNAVINST 1500.75C). The plan must be posted in a convenient place, and include emergency telephone numbers, means of transportation for the injured, and location of emergency/first aid equipment.

## HEALTH AND SANITATION

Water can and does transmit disease. The swimming pool environment is particularly adept for spreading infections. Pool regulations (NAVMED P-5010-4) require that swimmers take hot soapy showers before entering the water. Post and enforce this regulation. Personnel with open sores, fever, cough, colds, inflamed eyes, nasal or ear discharge, or any communicable disease shall not be allowed to use the pool under any circumstances. Spitting or urinating in the pool or adjoining areas is prohibited. Swimmers are required to take a cleansing shower and should use ear wash solution (2% Acetic Acid, 95% Isopropyl Alcohol, and 3% Distilled Water) or equivalent after swimming to prevent ear infection.

## AQUATIC PROGRAMS AND FACILITIES

All aquatic facilities and programs operated on naval installations under the auspices of the Chief of Naval Personnel must adhere to policy and guidance set forth in CNICINST 1710.3.

# CHAPTER 5

# TEACHING THE NON-SWIMMER

## INTRODUCTION

Unlike many things we learn, swimming and water survival skills require adaptation to a new environment. In the water, movement revolves around the center of buoyancy vice the center of gravity. Friction and resistance to movement increases and the density of water makes one feel lighter than on land. In order to adapt to this environment, students must re-learn how to breathe, move, think, and act. Instructors must be patient when training students. Learning to adjust to the water takes repeated exposure, extensive practice, and effective instruction. This chapter explains techniques that teach the non-swimmer or poor swimmer how to adapt to the water and to learn skills that allow them to transition to more advanced skills like swimming and survival techniques. The American Red Cross and several other national agencies teach beginning swimming courses which provide an excellent opportunity for designated military personnel to learn the basics needed to start military unique aquatic training programs.

## MENTAL AND PHYSICAL ADJUSTMENT TO THE WATER

The non-swimmer’s first exposure to the water should start in the shallow end. Pool safety, opening the eyes with the face under water, walking and bouncing in chest deep water, bubble blowing, and floating face down and on one’s back allow the novice to experience the water's effects on buoyancy, vision, movement, and breathing. The instructor must be patient as considerable time might be needed for the swimmer to become comfortable with these skills. Before moving to basic skills, students must perform mental and physical adjustment skills comfortably, without hesitation or fear.

## BASIC SKILLS

After the student has mastered mental and physical adjustment to the water, they must be gradually introduced to deeper water while continuing to learn new skills that teach the foundations of swimming. Initial exposure to deep water is best accomplished with a one-to-one ratio between the student and instructor so that maximum safety is provided and so that the

instructor is immediately available to assist with the student's problems and apprehensions. The following skills should be taught to develop basic foundations needed of swimming and water survival:

1. Safety.
2. Short duration breath-holding and picking up objects from the bottom of the pool in chest deep water.
3. Transitioning from standing position to a face float and back float and returning to the standing position.
4. While holding onto the edge of the pool, with the face in the water, demonstrate the ability to breathe regularly (at least 20 times) by lifting or turning the head to inhale through the mouth and exhale through the mouth and nose.
5. Step from side of the pool to chest deep water and recover to a standing position.
6. Jellyfish float in chest deep water for 30 seconds.
7. Survival float in chest deep water for 30 seconds.
8. Tread water in chest deep water for 30 seconds.
9. While face floating, kick and display a rudimentary crawl stroke arm action.
10. While back floating, propel one's self through the water with a flutter kick and a rudimentary elementary backstroke arm action.
11. In chest deep water, turn over from front to back and back to front (log rolling).
12. As students master items #7-#11 in chest deep water, gradually transition to these skills in deeper water.

## SURVIVAL TRAINING PREPARATION SKILLS

Mastery of the following skills ensures students possess basic skills necessary to safely learn more advanced survival skills and swim strokes. Before attempting these skills students must perform basic skills comfortably, without hesitation or fear.

1. Safety
2. While kicking with a kickboard face down, when a breath is needed, turn the head to the side and exhale from the mouth and nose followed by an inhalation through the mouth before returning the face to the water. (Normal breathing for people requires that this skill be performed every 3 to 5 seconds).

3. While kicking with a kickboard face down, when a breath is needed, lift the head up with the neck only and exhale through the mouth and nose followed by an inhalation through the mouth before returning the face to the water.
4. Move from water slightly over the head to shallow water, pushing off the bottom and bobbing to take a breath.
5. Swim a rudimentary crawl stroke for 15 yards.
6. Swim on back for 15 yards.
7. Jump into deep water, surface, transition onto one’s back, and swim to the side of the pool.
8. Jump into deep water, surface, transition to a face down swimming stroke, and swim to the side of the pool.
9. Survival float in deep water for 1 minute.
10. Tread water in deep end for 1 minute.
11. While swimming a face down stroke, turn around and return to starting point.
12. While swimming on one’s back, turn around and return to starting point.
13. Instructors should work with students until all these skills can be accomplished in deep water. After mastering these skills students should be ready to move to other beginning Navy swim courses.

## REDUCING THE STUDENT’S FEARS AND APPREHENSIONS OF THE WATER

To overcome fears of the water, people must adapt to the water environment by learning gradually, moving from the "known" to the "unknown". Instructors must allow students sufficient time to master skills that allow them to feel confident that they can breathe, control their movements, and to feel safe. People must be capable of thinking rationally in the water before they can be safe or learn new water skills. Thinking rationally requires adjustment to the differences between the land and the water. Different physical properties of water cause changes in the human body which inexperienced swimmers must learn to cope with before becoming acclimated, comfortable, and safe. Changes on the human body produced by the water include sudden temperature change, wetness, pressure increase, and the feeling of weightlessness.

The weight of water makes breathing more difficult due to water pressure acting on the chest. Adjusting to these changes can cause increased metabolic and anxiety rates as students “tense up”. Increased metabolic and anxiety rates caused by tensing up are often the cause of fear and panic. Repeated exposure and practice of mental and physical adjustment to the

water skills in a controlled comfortable environment allows students to overcome fear by repeated exposure and acclimation to the differences between the water environment and the land environment.

Most students find when suspended in a vertical position that they float with the surface of the water at about eye level. Floating at this level prohibits breathing; therefore students must learn a means of head lift and breath control to prevent aspirating water. To lift the body high enough to breathe and make progress through the water, students must alter the way they use their arms and legs on land. Attempting to use motions similar to walking generates wasted energy, negative motion (sinking) and exhaustion. These problems can be greatly magnified by the fear that many people have of deep water. The key to overcoming these problems and replacing fear with confidence is to ensure mastery of mental and physical adjustment to the water skills and basic skills so that students know how to easily breathe and propel themselves through the water.

To reduce fear, instruction of basic swimming skills must be taught in an environment that eliminates as much student stress as possible. Instruction should be friendly, helpful, and supportive. Training should be conducted in water that is comfortable for practice of activities requiring a lot of "stand-a-round" time. Instructors should provide clear and interesting lectures, thorough demonstrations, numerous land drills as appropriate, organized water drills with close supervision, and the opportunity for immediate instructor/ student feedback. Training aids such as kickboards, pull buoys, swim fins, diving bricks etc., can greatly enhance learning. Non-swimmers should always start in the shallow end of the pool, working their way to deeper water only after their skills and confidence progress.

## TEACHING BREATHING TECHNIQUES

The importance of being able to breathe properly in a survival situation cannot be overemphasized. Improper breathing can be triggered by cold water, fear, panic, excessive workload, or the natural instinct to hold one's breath when immersed in water. Individuals have actually drowned in rough seas due to aspirating water, even though they were wearing a personal floatation device, which supported their head above water. People have also drowned due to hyperventilation (insufficient breathing causing oxygen depletion) while treading water or

swimming in a calm pool. It is imperative that instructors ensure that swimmers have mastered correct breathing techniques such that the chance of breathing incorrectly in a survival situation is minimized.

Breathing in the water must include a conscious effort to inhale and exhale properly to exchange air deep in the lungs. To prevent aspirating water, the exhalation process must be done with the mouth above water and should be explosive and audible. The process includes exhaling through the mouth and nose and inhaling through the mouth only, as inhaling through the nose can cause water aspiration. The breathing cycle must be equivalent with the amount of oxygen required to support the work being done. The normal stimulus to breathe, caused by carbon dioxide increase, should not be suppressed.

Breathing is a skill that must be mastered for students to progress to any competence in the water. Virtually every swimming instructor would agree that breathing problems plague most novice swimmers.

If people could hold their breath indefinitely or breathe underwater, there would be no danger of drowning and swimming would be easily mastered. Unfortunately, this is not the case. Breathing concerns create anxiety in the beginning swimmer. Breathing, however, is often one of the least discussed topics during most swimming instruction. The survival swim instructor must spend considerable time, especially with novice swimmers, explaining the art of breathing while swimming and performing survival skills.

Breathing practice should begin with putting one’s face into the water and should progress to bobbing and rhythmic breathing. When initially learning to breathe, many beginners jerk their face up and immediately wipe the water off their face. With practice, students will develop the ability to slowly raise the head using only the neck muscles and allow water to run off their face without distress. When students reach this comfort level, they will be ready to learn how to perform the survival float, the crawl stroke, and breaststroke breathing.

Novice swimmers often do not inhale or exhale correctly. They often inhale by inflating the cheeks only or “breathe off the top of their lungs”. Inadequate inhalation can result in hazardous oxygen deficiency, and possible unconsciousness. Instructors should ensure students inhale fully and deeply to

compensate for surrounding water pressure around the chest which makes inhaling in the water more difficult than on land.

Beginners commonly perform small “puffing” exhalations that do not sufficiently void the lungs, or take large breaths followed by little or no exhalation. To correct these problems, instructors should encourage students to explosively exhale just as the mouth clears the water. Explosive exhalation ensures a complete exchange of air and reduces the chance of water inhalation by ensuring air passages are free of water.

Beginners often get water in their nose. To avoid this problem, swimmers should inhale only through the mouth and exhale through the mouth and nose. Some instructors experience success by telling students to say the letter "K" with the lips closed when the face is in the water. This technique forces a small amount of air through the nose, keeping its cavities filled with air instead of allowing water to enter. If the swimmer is upside down in the water, the air in the nose floats out and is replaced with water. Instructors should encourage students to continually keep slight positive pressure in the nose, or allow a small amount of air to flow out thereby eliminating the uncomfortable feeling caused by water in the nose.

## HYPERVENTILATION

Hyperventilation, which is rapid and excessive deep breathing, lowers the body’s carbon dioxide level. A lowered level of carbon dioxide decreases the individual's urge to breathe, because a carbon dioxide increase “triggers” the body to breathe. When the swimmer decreases the natural drive to breathe, the resultant hypoxia (too little oxygen) or anoxia (no oxygen) can result in unconsciousness.

Voluntary hyperventilation, to achieve underwater swimming endurance (time, depth or distance) is extremely dangerous. Numerous individuals have hyperventilated to the point that they become unconscious underwater (without warning) and have drowned. This condition is referred to as "shallow water blackout". Hyperventilation and competitive breath-holding skills or drills are prohibited at naval activities.

Involuntary hyperventilation can be caused by lack of proper training, exposure to cold water, fear, panic, or excessive work. Involuntary hyperventilation can result in a tendency to hold one's breath or not to exchange the air deep in the lungs;

both of which can cause unconsciousness in the water. Survival instructors must ensure students master correct breathing techniques and that proper breathing techniques are part of every aquatic skill.

## SUMMARY

Teaching the basics of swimming and water survival correctly is the key to ensuring students learn to perform life-saving survival skills effectively. Teaching the basics correctly includes training students in new ways to move, breathe, think, and act. The new techniques they learn in the water are often very different than similar skills they perform on land.

# CHAPTER 6

# METHODS OF STAYING AFLOAT

## INTRODUCTION

In situations where one must stay in the water for long periods of time, buoyancy is of primary importance. This chapter discusses Personal Flotation Devices (PFD), the use of clothing for inflation, techniques to stay afloat without inflation, and techniques to maintain body heat while floating in cold water.

## PFD

The PFD is sometimes referred to as a life jacket, life vest, or life preserver. It is the preferred emergency device for staying afloat for long periods of time. A PFD not only helps prevent drowning, but also helps prevent hypothermia (abnormally low body temperature). A well-designed, properly fitted and adjusted PFD will support an unconscious person's head well above water providing efficient breathing and keep the head, a high heat loss area, from becoming submerged in cold water.

PFDs found aboard Navy ships are either an inherently buoyant type or inflatable. Personnel should be familiar with where PFDs are stored and how to don, adjust, and use each type. When wearing the inflation type, personnel must also know how to orally inflate the device. For proper support, PFD’s must be correctly fitted and donned. Improper donning or poor adjustment may not only negate the positive righting movement, but actually position the user's face in the water. Hands-on drills using the PFD are highly recommended. The following narratives describe how to don the Kapok and LPP-1/1A (rubber duck), two of the most common shipboard PFD’s.

### Donning the Kapok

Pass leg straps through both D rings then back under one ring. Step through leg straps. Secure waist straps with a bowknot. Adjust leg straps snugly. Tie a snug bowknot in the upper chest ties. Pass the left collar tie through right D ring. Pass the right collar tie through

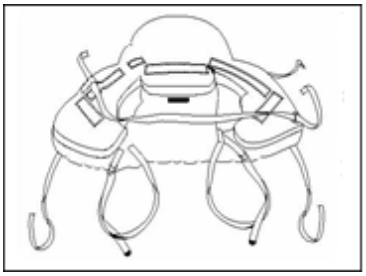


**Fig.6-1 Kapok**

left D ring. Tie a snug bowknot. Secure the chest strap snugly with the clip facing in. If the vest is thrown to a survivor in the water it can be donned in the same manner if one sits on the vest for buoyancy and stability.

**Donning the LPP-1/1A**

Fasten the belt buckle in front with the pouch in the rear. Adjust the belt to size, and then rotate the pouch to the front. Open the snap fasteners on the pouch and remove and unfold the vest. Place the deflated life preserver over the head and pull down on the inflation lanyard to inflate the LPP-1/1A. To orally inflate, locate the oral inflation valve and unscrew the knurled locking ring. Depress the end of the valve stem and blow into it. If orally inflating in the water, blow only a half a breath into the vest at a time to prevent fatigue or possible water aspiration. Once the vest is inflated, release the end of the valve stem and tighten the knurled locking ring.

**Care of PFDs**

PFDs must be readily available and in good working condition. Store them in a clean, dry area away from salt spray, oil, grease, etc. Inspect them periodically to ensure they are free of rips, tears, holes, corrosion/rust on buckles, and rotted material. Inspect kapok filled vests to ensure the vinyl inserts are not damaged. If the kapok is exposed, it will become waterlogged and lose its buoyancy. Inspect inflatable vests carefully for leaks, full carbon dioxide cylinders, and proper function of the inflation unit.

## CLOTHING INFLATION

In the absence of the PFD, survivors should look for any object floating on the surface that provides enough buoyancy to keep the head out of the water in lieu of removing clothing. The survivor should carefully weigh the pros and cons of removing clothing as clothing can protect against hypothermia and offers protection from marine life, fuel oil, and sunlight. Clothing can be used to some extent as a makeshift flotation device. To be effective, buoyancy obtained from inflating clothing must be properly positioned and preferably not require the survivor to hold onto it with both hands. Ideal buoyancy will support the head above water even in rough seas.

**Shirt and Coveralls Inflation**

A small amount of buoyancy may be obtained by blowing air into a shirt. Tuck the collar inside to help seal around the neck. Tie off the bottom of the shirt or tuck it in, button the top button and blow air into the space between the second and third button. Inflation of the shirt causes a bubble of air to accumulate at the survivor's back between the shoulder blades. Coveralls can be inflated in a similar manner by blowing into the top of the zipper.

**Trouser Inflation**

Trousers offer a considerable amount of buoyancy and can be secured around the neck and waist, freeing the hands. Removing the shoes, boots, trousers and then inflating the trousers requires considerable effort. Survivors should not wait until they are exhausted from treading water or swimming to attempt to inflate their trousers. To inflate trousers, use the survival floating technique to remove shoes or boots. Remove low top shoes by placing the toe of one foot on the heel of the other foot and pushing down. Unlace boots and high-topped shoes before performing this maneuver. The swimmer should remember to breathe at a normal pace while removing the shoes and trousers. A common mistake is for the swimmer to keep the face underwater too long, resulting in a buildup of carbon dioxide, a depletion of oxygen, and rapid tiring. While survival floating, remove the trousers keeping the legs right side out. Tie the two legs together using a square or overhand knot.

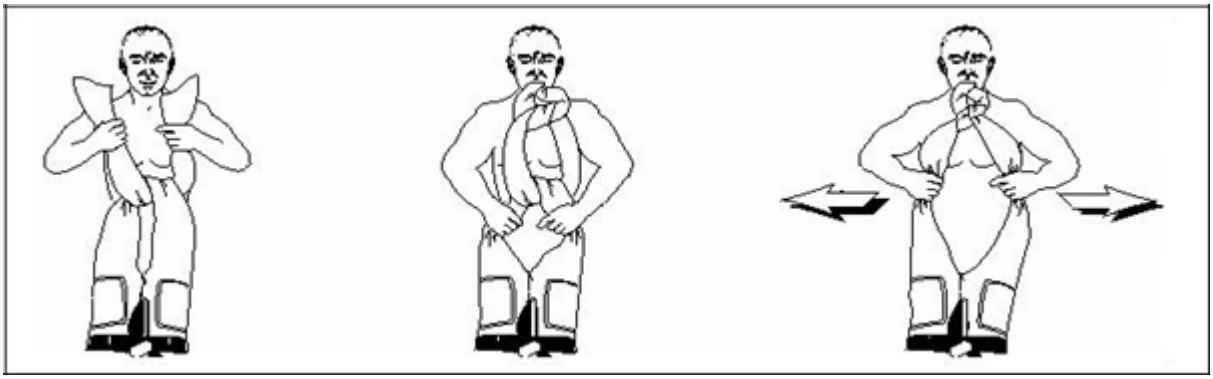


**Fig. 6-2 Tying Off the Trouser Legs**

Tie the knot as close to the end of the trouser legs as possible. Start by tying the first half of the knot about halfway down the legs. Tie the second half near the end of the legs then place the cuffs between the teeth and cinch up the knot by pulling on the middle of the trouser legs. There are

four methods recommended for inflating trousers; over the head, splash, alternate splash, and oral inflation. Lifting trousers over the head is the fastest method, but requires considerable effort and good treading water skills. Blowing air though the waist (oral inflation) requires the least effort, but is the slowest method. Splashing requires more effort than the oral inflation method but is not as fast as the overhead method.

**Over the Head Method**

While treading water, place the trousers on the surface behind you, fly open and facing down, waist open with the seat facing up. With one hand on the top of the waistband on each side of the fly, raise the trousers straight overhead by straightening the arms. Once the trousers are out of the water, quickly force them down in front of you until the waistband is underwater. Care must be taken to raise the trousers high enough to force air into the waist on the way down.

**Fig. 6-3 Over the Head Inflation**

**Splashing Method**

The trousers may be inflated by splashing air into them. Place trousers on the surface of the water in front of you fly facing down. Place one hand on the waistband and hold it about two inches underwater. Raise the other hand above the surface and with a sweeping motion splash air into the trousers.

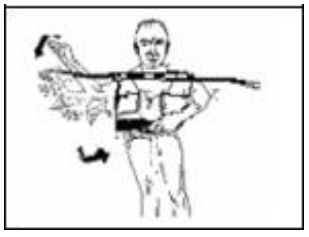


**Fig.6-4 Alternate splashing method**

**Alternate Splashing Method**

Place trousers over the head at the surface of the water in front of you fly facing down. Place one hand on the waistband, and hold it in front of you about two inches under water. Raise the other hand above the surface and with a sweeping motion splash air into the trousers.

**Oral Inflation**

The trousers may be inflated orally while using the survival floating technique. Spread the trousers on the surface in front of you with the fly closed and facing down. Hold the

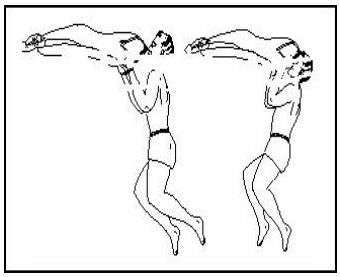


**Fig. 6-5 Oral Inflation**

waistband open using both hands. The waistband should be about two inches underwater. Take a breath and submerge, placing the waistband on the forehead. Blow about half a breath into the trousers until inflated. Blowing all of the breath into the trousers may result in water aspiration.

**Securing the Trousers**

When the trousers are inflated, remove the belt and put it through the center loop in back of the trousers. With the fly facing you, put your head through the opening between the legs. Pull the waist end of the trousers towards your waist, wrap the belt around your waist, and secure it. If the belt is not long enough, simply cinch up the waist opening and hold the trousers with one hand.

**Keeping the Trousers Inflated**

The trousers should be kept wet by splashing water on them periodically. If the trousers are allowed to dry out, they may leak. Air can be forced into trousers by placing your mouth against the material and blowing forcefully. Another method to keep trousers inflated is to open the waist and splash air into the trousers.

## STAYING AT THE SURFACE WITHOUT FLOTATION DEVICES

The ability to remain on the surface of the water without a flotation device, in a position that allows comfortable breathing, and without tiring, is an important skill to learn. The facedown method in this text is effective for personnel who are wearing restrictive or negatively buoyant organizational clothing. The technique of resting on the surface of the water can be used to catch your breath following vigorous swimming or to conserve energy. Caution must be used where the water temperature is cold (for most people, 72 degrees Fahrenheit or below). Placing the head in cold water will rapidly cool the body, eventually leading to hypothermia. Survival swimmers in cold water should quickly assess the situation and use whatever is at hand to provide buoyancy to keep their head out of the water. In cold water, the survival floating techniques described below should be used only as last resort to enable the swimmer to catch his breath or to implement some form of flotation.

## SURVIVAL FLOAT

### Body Position

Place the face in the water; chin at chest, with the back of the head just breaking the surface. The upper back and shoulders are underwater, horizontal to the surface, and the arms are at the surface with the elbows bent and hands separated slightly. Bend at the waist with the hips underwater, lower than the upper body, and the legs dangling beneath. Variations for individual buoyancy can be accomplished by either adjusting the legs by drawing them up toward the chest or extending them out. Also, adjusting the arms by extending them or drawing them in towards the chest can vary buoyancy. These actions balance the floater around the chest, the center of buoyancy. A common fault is for swimmers to cock their head back, lifting their chin off their chest. This "face forward" position causes the hips to shift lower and the body to assume a more vertical position.

### Breathing

The swimmer should pivot at the neck, lifting the chin off the chest until the mouth clears the surface. The waist should remain bent, keeping the shoulders in the same near horizontal position to the surface. As the mouth clears the surface, the swimmer exhales quickly and forcefully through the mouth and nose. The inhalation is performed through the mouth and consists of a deep full breath of air. After the inhalation is completed, the head is lowered to the resting position (chin on the chest). It is important for every breath to be a good, complete exchange of air deep into the lungs. A common fault is for swimmers to breathe off the top of their lungs. This "shallow breathing" causes swimmers to fatigue rapidly. The breathing cycle (breaths per minute) must be compatible with the amount of oxygen required to supplement the expended effort. A momentary pause (one to five seconds) occurs while the face is underwater. No attempt should be made to hold a breath for any set period of time; breathe as needed. The breathing cycle will gradually slow down after vigorous activity declines. Energy spent supporting the head above the water while taking several breaths is energy wasted, floaters should place their face back into the water as soon as they have accomplished a good air exchange. A common fault in breathing includes straightening the waist rather than pivoting at the neck when inhaling. Straightening the waist alters the body position to a more vertical position requiring more effort to breathe.

**Coordination**

**Fig. 6-6 Rest Position**

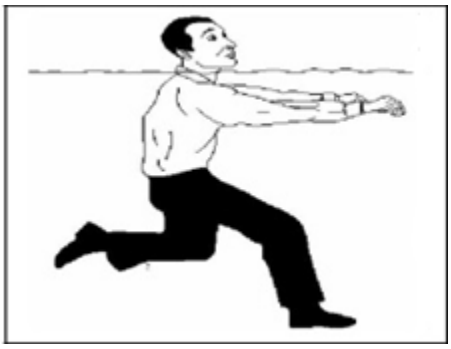


**Fig. 6-7 Breathing Position**

Support the head while breathing with a broad sculling motion of the arms. The sculling motion of the arms is coordinated with the breathing to provide maximum lift when needed. The arms remain near the surface and move on a plane parallel to the surface. The hands press outward (palms facing out) with the hands tilted approximately 45 degrees, thumbs down. Exhalation begins about the time the mouth clears the surface. The scull continues as the breath exchange is completed. The hands press out to a point near the width of the shoulders. At this point, the palms are rotated facing inward, thumbs up, and returned to the starting point. Swimmers who have positive buoyancy (float with back of head on the surface with lungs full and body in proper position) should scull only when supporting the head while breathing. Negatively buoyant swimmers or swimmers wearing negatively buoyant equipment may need to scull continuously or use the legs for additional support while breathing. The most efficient kick is the modified frog kick, which is described in detail in Chapter 7. Deliver the thrust with the legs while the head is up for breathing. Only one or two short, quick kicks are required to support the head while breathing.

**BACK FLOAT**

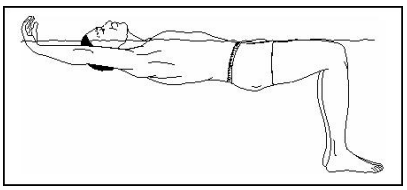


**Fig. 6-8 Back Float**

The back float is effective only in calm water, and can be hazardous in rough seas. If a wave breaks over the face when one is laying on his/her back, water may enter the nostrils causing the floater to aspirate water. Poor swimmers or non-swimmers often prefer the back float because they are uncomfortable putting their face into the water because they have not been trained in proper breath control.

The facedown float mentioned above is almost always the superior method to stay afloat without additional buoyancy assistance. To perform the back float, lie on your back. Leg heavy individuals can lay flat by bending at the knees or extending the arms over the head. Individual body composition, organizational clothing or equipment often makes the floater negatively buoyant. In these cases gentle kicking of the legs and sculling of the arms may be required to keep afloat.

## MAINTAINING BODY HEAT WHILE FLOATING IN COLD WATER

### Heat Escape Lessening Posture (H.E.L.P.)

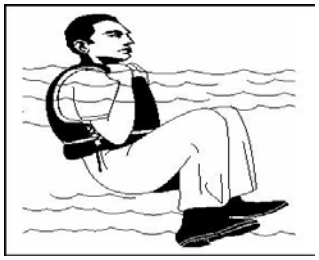


**Fig. 6-9 H.E.L.P. Position**

Since water is a good conductor of heat, and most of the body's heat is lost through the head, placing the head in cold water will rapidly reduce the body's core temperature. Other key heat loss areas are the sides of the chest, the neck, and the groin. The H.E.L.P. technique is a method of floating which protects these high heat loss areas. This technique almost always requires the survivor to use auxiliary flotation such as a lifejacket or survival vest. To execute the H.E.L.P. technique, if possible, cross your legs at ankles, draw your knees up to the chest, and keep your face forward out of the water. Cross arms keeping the upper arms tucked close to the sides of the body and the lower arms crossed over the chest.

### Huddle Position

**Fig. 6-10 Huddle Position**

This position conserves heat and protects high heat loss areas with two or more persons. The huddle position almost always requires auxiliary buoyancy. To execute the huddle, put your arms over each other's shoulders so that the sides of your chests are together and, if possible, intertwine legs.

## SUMMARY

The PFD provides the survivor with the greatest opportunity to survive accidental water entry. Personnel who work in or near the water should always wear a PFD or be able to procure one at a moment's notice. The PFD also provides the best chance of the survivor being able to efficiently execute H.E.L.P. and huddle techniques to reduce the chances of hypothermia. Techniques to utilize clothing for inflation or to survival

float without buoyancy offer disadvantages that would not warrant consideration if one were wearing the PFD.

# CHAPTER 7

# TREADING WATER

## INTRODUCTION

Treading water allows the survivor to check the surface for floating objects, other survivors, rescue craft, etc. You may need to tread water to catch your breath following sudden submergence into cold water, to activate flotation equipment, to get rid of unwanted bulky equipment, or to signal rescue craft. Supporting the head out of the water requires considerable effort, especially when fully clothed. Survivors should quickly remove negatively buoyant equipment and kick off low cut dress shoes. In cold water clothes offer thermal protection, and consideration should be made to leaving them on. High-top laced boots can be removed using the survival floating technique. Flight suits and other coverall type garments are too difficult to remove and should be left on.

## TREADING WATER BODY POSITION

The best body position keeps most of the body under water and allows the survivor to breathe freely. Starting from a vertical position, the swimmer leans forward slightly and tilts the head back. The chin is just clear of the water with the head held vertically and face forward. The knees are drawn up until the swimmer is in a comfortable, almost sitting position with the legs beneath the chest. The arms remain on the surface to scull on a plane parallel to the surface.

## ARM ACTION

The arms scull on a "near horizontal" plane parallel to the surface. Start with the elbows bent, hands in front of the face, separated one to two inches. Tilt hands approximately 45 degrees, thumbs down, and scull outward with the hands, forearms, and upper arms to a point where the hands separate approximately shoulder width. At this point, hands rotate approximately 45 degrees, thumbs up, and scull back to the start position. This action provides continuous lift and very little drag resistance.

## LEG ACTION

Several kicks are available to the swimmer, some more efficient for certain situations:

### Modified Frog Kick

The frog kick is strong and is effective with high top lace boots and long pants. This kick is taught primarily in aviation water survival programs. The leg action is similar to the breaststroke kick except that it is performed in a vertical body position. To execute this kick, bend at the waist in a sitting position with both knees underneath the chest separated about shoulder width. The power phase and recovery of the kick is executed primarily with the calves and feet and requires little hip or thigh movement. Both legs kick and recover simultaneously. During the power phase the knees are kept inboard of the calves and feet. The kick is executed by moving the feet 90 degrees to the calves and pushing sideward and downward on the water with the insides of the calves and the insides and soles of the feet. The last act of the power phase is to "whip" the feet into a position in line with the ankles, toes pointed, in preparation for the recovery. The recovery of the legs is executed by pointing the feet in line with the ankles, and drawing feet and calves upward towards the buttocks. This puts the swimmer in a position where the knees are inboard of the calves and feet, postured to begin the power phase. The leg action is continuous, with the recovery slow, and the thrust just vigorous enough to support the head above the water. While executing the kick, care should be taken not to straighten the thighs or extend the legs until the knees are straight. This causes bobbing and raises the swimmer too high out of the water. Figure 7-1 illustrates this kick.

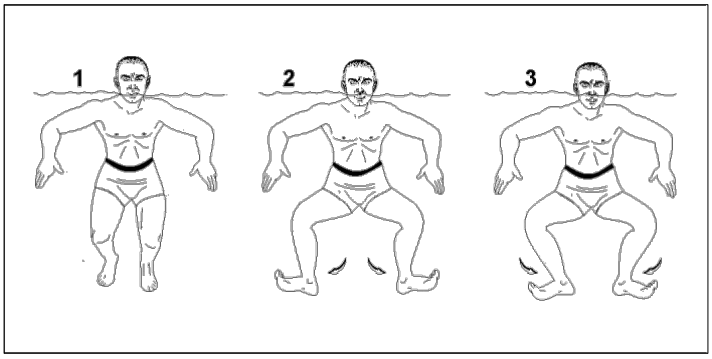



**Fig. 7-1 Modified Frog Kick**

### Rotary or Egg Beater Kick

The rotary or egg beater kick is the most powerful of all treading water kicks. Similar to the modified frog kick, it is effective while wearing high top laced boots and pants. As it is difficult to master, water survival programs seldom teach

this kick. It is used almost exclusively for water polo and synchronized swimming. The power phase and recovery of this kick is identical to the modified frog kick explained above, with the exception being that each leg recovers and kicks alternately, not simultaneously.

**Modified Scissors Kick**

The modified scissors kick is an easy to learn natural motion kick, but ineffective when wearing high top laced boots. The resistance and drag of long pants further reduce its effectiveness. The modified scissors kick is commonly taught by civilian agencies teaching students dressed in swimsuits with no shoes or boots. In the sitting body position, the swimmer separates one thigh forward and one thigh aft with knees underneath the chest. The kick is executed primarily with the feet and calves, thighs almost stationary. At the start of the power phase, the forward foot is bent at a right angle to the calf, toes pointed up and the aft foot in line with the calf, toes pointed aft. The power phase is performed by a simultaneous kick of both legs. The bottom of the forward foot and inside of the calf should press back and downward with the foot whipping down to a position in line with the calf. The aft leg presses down and forward with the top of the foot and calf, and the foot whips to a right angle relative to the calf. During the recovery, the forward foot and calf are eased forward and upward with the foot at a right angle to the calf. The aft calf and foot are eased back and upward with the toe pointed and the foot returning to a position in line with the calf. The leg action is continuous, the recovery slow, and the thrust just vigorous enough to support the head above the water. While executing the kick down, care should be taken not to straighten the thighs or extend the legs until the knees are straight. This causes bobbing and raises the swimmer too high out of the water.

**COORDINATION**

**Modified Frog kick**

The inward scull of the arms is timed with the power phase of the kick, and the outward sculling (maximum lift) timed with the recovery of the legs.

**Rotary Kick**

Arm action not paired with kick.

**Modified Scissors Kicks**

This kick is opposite of the modified frog kick. The outward scull of the arms is timed with the power phase of the kick, and the inward sculling timed with the recovery of the legs.

## BREATHING

The swimmer should inhale and exhale as needed to match the physical demands of treading. No attempt should be made to hold one's breath, or interrupt the breathing cycle to augment buoyancy.

# CHAPTER 8

# SURVIVAL SWIMMING

## INTRODUCTION

The decision to swim in open water must be carefully thought out and well planned. Swimming even short distances in open water may be dangerous if the water is cold, there is a strong current, or if there is rough wave action. In the case of accidental water entry, it is often most logical to stay near the site of water entry to aid in recovery and to conserve energy by floating.

## TERMINOLOGY

**Catch:** A recovery movement of the arms or legs executed just before the power phase in which the arm or leg is initially positioned to make contact with the water to begin the power phase.

**Power Phase:** This phase is a movement of arms or legs of a swimming stroke which generates propulsion through the water.

**Recovery:** A movement of arms or legs of a swimming stroke which returns the arm/leg to the power phase.

**Timing:** The coordination of all movements necessary to perform an efficient swim stroke.

## BREASTSTROKE

The breaststroke is generally considered the best survival stroke when one must swim in open water. The advantages of this stroke include good forward visibility, controlled breathing (the ability to take a breath during the trough of a wave and to return the head into the water during the crest) when swimming in choppy seas, a powerful kick while wearing boots or shoes, and an efficient energy-conserving glide.

**Body Position:** The start and glide position is facedown, streamlined with the waist straight, legs together and extended, and

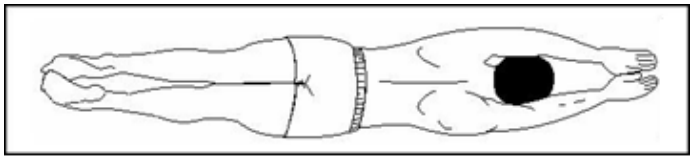


**Fig. 8-1 Breaststroke Body Position**

arms stretched in front of the head with palms approximately 6 to 8 inches below the surface. The head is positioned with the ears between the upper-arms and the waterline near the hairline.

**Arm Action (power phase):** Starting from the glide position, angle the hands slightly downward, turning the palms outward about 45 degrees to the water's surface. With the arms straight, the palms are sculled out until the hands are positioned wider than the shoulders. This is the "catch" position.

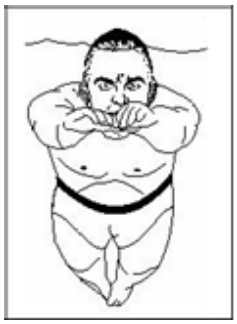


**Fig. 8-2A Arm Action Power Phase**

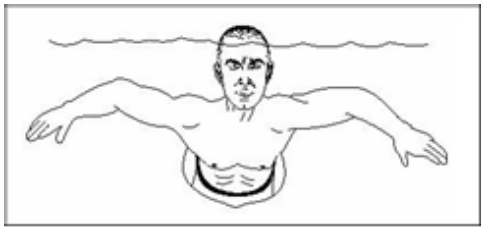


**Fig. 8-2B Arm Action Power Phase**

From this position, bend the elbows and pull with the hands downward and outward until they pass under the elbows with forearms vertical.

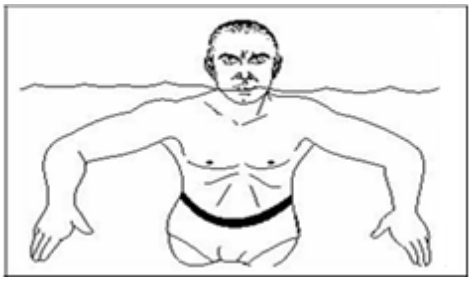


**Fig. 8-2C Arm Action Power Phase**

From this position, rotate the wrists, sculling the hands inward, upward, and slightly aft until the palms are below the chin facing each other and nearly touching.

The elbows should be higher that the hands and lower that the shoulders for effective propulsion. Elbows should point outward, not aft, and should not be allowed to move beyond the shoulders.

**Fig. 8-2D Arm Action Power Phase**

**Arm Action (recovery):** Recover the arms immediately after the power phase. After the hands are sculled in together, move the elbows inward, towards each other. After this motion, with palms angled toward each other, extend the arms forward to the glide position rotating the wrists until the palms are down.

**Fig. 8-3A Arm Action**

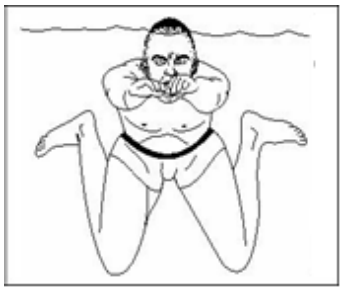


**Fig. 8-3B Arm Action**

**Kick**: From the glide, the leg recovery begins by bending the hips and knees and bringing the heels up toward the buttocks.

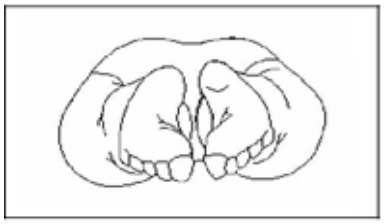


**Fig. 8-4A Breaststroke Kick**

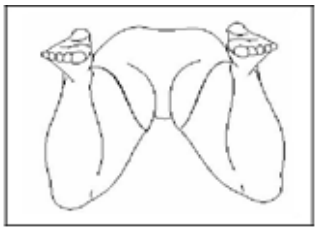


**Fig. 8-4B Breaststroke Kick**

Once heels are at the buttocks, gradually separate the knees and heels until the knees are separated about hip-width and the feet are outside the knees just below the surface. To perform the power phase, rotate the ankles outward to engage the water with the soles of the feet, with a continuous “whipping” action press the feet outward and back, returning the legs to the glide position.

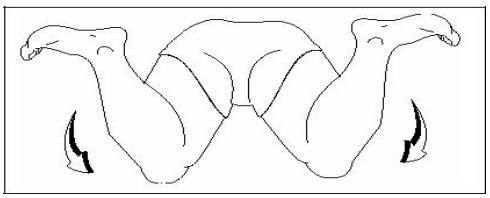


**Fig. 8-4C Breaststroke Kick**

The propulsive action of the legs should begin slowly and speed up to the completion of the kick. The strongest propulsion is accomplished by drawing the feet as far forward as one can without losing proper body position.

**Fig. 8-4D Breaststroke Kick**

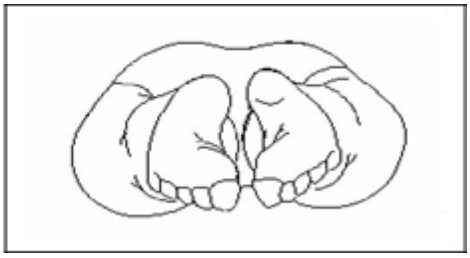


**Fig. 8-4E Breaststroke Kick**

**Breathing:** The head is lifted at the beginning of the power phase of the arms. The head should be lifted with only the neck muscles, just high enough for the mouth to clear the water for a breath. The head is returned into the water, face down, during the recovery and glide. Inhalation should occur from the mouth, and exhalation should occur from the mouth and nose. Exhale slowly and steadily mostly through the mouth as the arms recover until just before the head lifts for the next breath. At this point, explosively exhale the last breath of air and lift the head again for the next breath. In rough seas, the exhalation and inhalation can occur after the head surfaces to ensure that the swimmer does not aspirate water.

**Timing:** Following a glide held just long enough to prevent the loss of forward momentum, arms and legs perform alternately. As the arms begin their power phase, the legs begin their recovery; as the arms begin their recovery, the legs begin their propulsion. Reminding swimmers to "pull and breathe, kick and glide" assists in developing proper coordination.

**Navy Arm Action Modifications:** The weight of operational equipment often requires a wide sculling action of the arms during the power phase to allow more upward force to elevate the head sufficiently to get a breath. Unlike the normal breaststroke arm action, this arm action generates very little forward movement. Instruction of this arm action is frequently seen in Navy commands that train aviators to swim.

**Navy Kick Modifications**: Many Navy commands teach a modification of the breaststroke kick, called the frog kick. This kick is similar to the breaststroke kick with the major difference being that the thighs and knees are rotated out, not under, during the recovery. This action places the swimmer’s legs in a position similar to the stance of a Sumo wrestler with knees, thighs, and feet rotated out and in the same plane as the torso. Propulsion is performed by kicking outward and back with only the bottom of the feet, making the frog kick less

powerful than the breaststroke kick. Many swimmers, however, prefer the frog kick because it's executed with a comfortable rotation of the thighs and knees and produces little knee stress when wearing boots.

**Common Errors with the Breaststroke**

| Error | Correction |
|---|---|
| Arms pulling too far down and other arm problems. | Practice with leg buoy. |
| Head lifting to breathe during arm recovery (head sinking). | Practice arm and head actions while standing in waist-deep water. |
| Head lifted during glide. | Practice arm and head actions while standing in waist-deep water. |
| Improper breathing and fatigue. | See Chapter 5. |
| Ineffective kick. | Kickboard/wall practice. Stress flexed ankles and feet rotated outward and correct finish of kick. |
| Scissors kick with one or both legs. | Kickboard/wall practice. Emphasize avoidance of kicking with the top of the foot. |
| Legs, feet, and trunk too low. | Emphasize head and body position. |
| Knees and thighs too far under. | Kickboard/wall practice. Emphasize proper Kick. |
| Timing. | Emphasize "pull and breathe, kick and glide." |

## SIDESTROKE

The sidestroke is useful when towing equipment, a victim, or to swim if one arm is injured. It provides good sideward visibility but very little forward visibility. The sidestroke kick, called the scissors kick, is less effective when wearing boots because of the loss of ankle movement. It does not offer good breath control when swimming in rough seas.

**Body Position:** To perform the sidestroke, lie on either side. During the glide, the head, back, and legs are straight with the legs fully extended and together with the toes pointed. The bottom arm is extended in front of the swimmer parallel to the surface with the palm down, in line with the body, and a few

inches below the surface of the water. The top arm is fully extended aft with the hand above the thigh. The head lies with the face just high enough to clear the mouth and nose above the water. The bottom ear rests in the water close to the shoulder. The head and back are kept in line throughout the stroke.

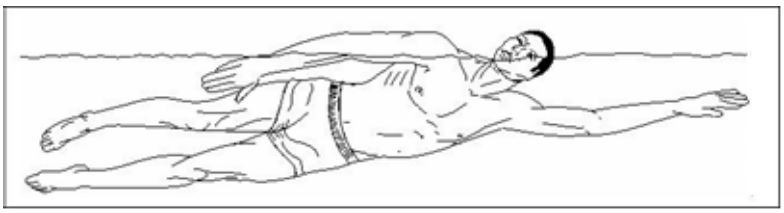


**Fig. 8-5 Sidestroke Body Position**

**Arm Action:** The arms work alternately with different motions for both. While the top arm executes its power phase, the bottom arm executes the recovery phase and vice versa.

**Top Arm:** Recover the top arm by drawing the forearm along the body until the hand is approximately in front of the shoulder of the bottom arm. Keep the palm down angled slightly forward. During the power phase, push the top hand downward slightly and then aft, close to the side of the body, as it returns to the glide position. Start the power phase with the wrist flexed and finish with the wrist extended such that the palm is always facing toward the feet.

**Fig. 8-6A Sidestroke Top Arm Action**

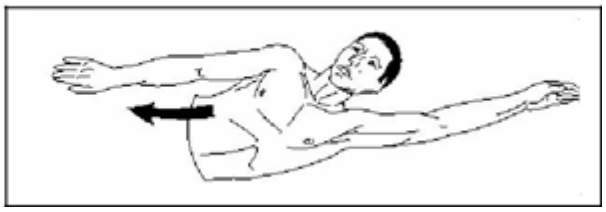


**Fig. 8-6B Sidestroke Top Arm Action**

**Bottom Arm:** From the glide position, rotate the bottom arm slightly placing the palm down and angled slightly outward. From this “catch”, bend the elbow and sweep the hand downward slightly and aft until the hand almost reaches the upper chest. After this power phase, without hesitation, recover the arm by rotating the shoulder and dropping the elbow. Move the hand under the bottom ear until the fingers point forward. Slide the bottom arm forward, rotating it such that the palm is down for the glide position.

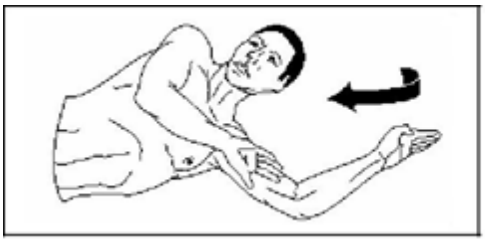


Fig. 8-6C Sidestroke Bottom Arm Action

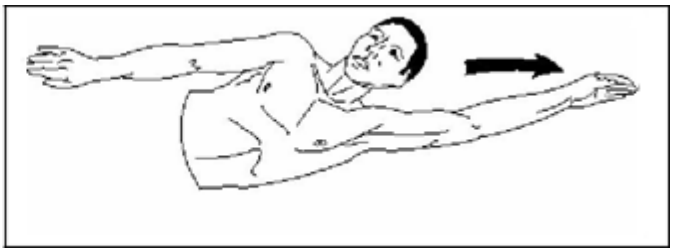


Fig. 8-6D Sidestroke Bottom Arm Action

**Kick:** The kick is called the scissors kick because the legs separate fore and aft, on one plane, like a pair of scissors. The recovery of both legs begins after the glide position by flexing slightly at the hips, bending the knees, and drawing the heels slowly towards the buttocks. Care must be taken during this movement to keep the knees close together, not allowing the bottom knee to drop down. To prepare for the power phase, the legs separate fore and aft. The top leg moves forward, knee leading, until the thigh is approximately 45 degrees to the body. The foot is flexed, pointing up toward the knee. The bottom leg extends aft, slightly to the rear of the swimmer's trunk, with the knee bent and the foot pointed. Just before the power phase, the legs are separated similar to a giant stride. From this position both legs press toward the extended position. As one moves the top foot backward, the ankle moves from a flexed position to a toes-pointed position. The power of the scissors kick is delivered by pushing back on the water with the bottom of the top foot and the top of the bottom foot. After the power phase, do not let the feet pass each other and keep the toes pointed to streamline during the glide.

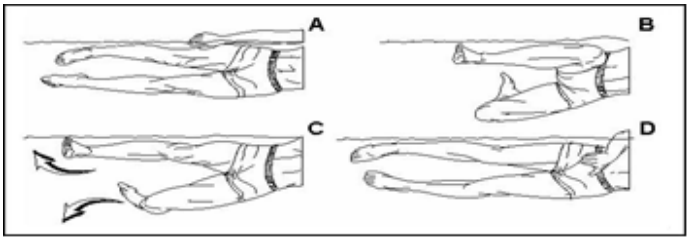



Fig. 8-7 Sidestroke Scissors Kick

**Breathing:** Breathe with each stroke. Inhale through the mouth during the recovery of the top arm and legs, and exhale from the mouth and nose during their power phase.

**Timing:** The recovery and power phase of the top arm and legs work alternately to the recovery and power phase of the bottom arm. Following a glide, held just long enough to prevent the loss of forward momentum, the top arm and legs begin their recovery while the bottom arm begins its power phase. After the

power phase of the top arm and the legs, the recovery of the bottom arm is complete, and all motion is stopped as the swimmer glides.

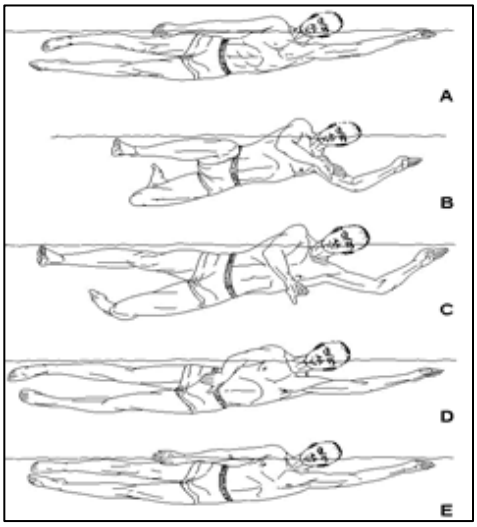


**Fig. 8-8 Sidestroke Timing**

**Navy Head Position Modifications**: When wearing operational equipment, one must often turn the face directly upward, vice sideward, such that the mouth is clear of the water in order to take a breath. This modification is frequently seen in commands training aviators to swim.

**Navy Kick Modifications**: Most civilian agencies train students to extend the top leg forward and the bottom leg aft during the leg recovery of the scissors kick. An alternative kick, the "inverted scissors kick" whereby the bottom leg extends forward and the top leg extends aft is taught at many Navy commands. Both kicks are effective, and the inverted scissors kick is often useful when towing victims or gear.

**Common Errors with the Sidestroke:**

| **Error** | **Correction** |
|---|---|
| Pushing down with the bottom arm. | Land drills. |
| Pulling too far with the bottom arm. | A poor glide is commonly seen with this error. Land drills. |
| Arms not performing recovery and power phase alternately. | Land Drills. Stress how arm action is similar to picking apples and putting them into a basket. |
| Lifted head. | Emphasize laying head in water. |
| Dropping the bottom leg (breaststroke kick). | Land drills/kickboard/wall practice. |
| Legs separating up and down during recovery. | Land drills/kickboard/wall practice. |
| Top ankle not flexed during leg recovery. | Land drills/kickboard/wall practice. Say position of top leg is similar to striding over a hurdle. |

| | |
|---|---|
| Waist bent too much. | Focus on proper kick mechanics. Land drills, kickboard/wall practice. |
| Swimmer lying on stomach. | Focus on proper body position. |

## COMBAT SIDESTROKE

The combat sidestroke is a variation of the sidestroke commonly seen with Special Warfare swimming programs. It is faster than the normal sidestroke, offers good forward and sideward visibility, and has excellent controlled breathing when swimming in rough seas. It is identical to the normal sidestroke with exceptions being head position and breathing. During this stroke the swimmer rotates their head to the side, inhales during the recovery of the top arm, and then places the face into the water during the propulsion of the top arm and the propulsive phase of the kick. This breathing and head action is repeated with each stroke. The head rotation and breathing of this stroke is similar to the crawl stroke.

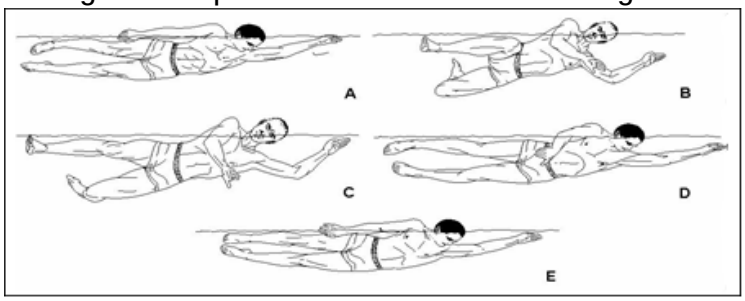


**Fig. 8-9 Combat Sidestroke**

**Kick Modification**: When using fins with this stroke, the swimmer utilizes the flutter kick.

**Common Errors with the Combat Sidestroke:**

| Error | Correction |
|---|---|
| Improper breathing and fatigue. | See Chapter 5. |
| Other problems. | See sidestroke. |

## ELEMENTARY BACKSTROKE

The elementary backstroke offers the swimmer an effective kick while wearing boots and an energy-conserving glide. Disadvantages include difficulty seeing where one is going and the inability to control one's breathing in rough seas.

**Body Position:** To begin arm and leg actions one lays in a streamlined back glide position. The body is face up in a near horizontal position with the back of the head resting in the water. The waist is straight, hips and thighs near the surface slightly lower than the head and shoulders, and the arms extended along the body with palms against the thighs. The legs are fully extended with the toes pointed.

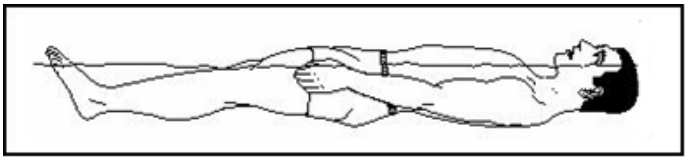


**Fig. 8-10 Elementary Backstroke Body Position**

**Arm Action (recovery):** Beginning from the glide position with arms at sides, bend the elbows and draw both hands up towards the shoulders as if drawing a line along both sides of the torso with the thumbnails. Keep hands and arms just below the surface of the water. Continue to draw the hands along the sides of the body until they reach the armpits. From the armpits, point the fingers outward from the shoulders with palms facing back toward the feet. With fingers leading, extend the arms out sideward until the hands reach up no further than the top of the head. Imagine a 12-hour clock with one's head at 12:00, one's feet at 6:00, and one's arms as the hands of the clock, the left arm extends no further up than 2:00 and the right arm extends no further up than 10:00. Recovery motions should be executed slowly with emphasis on reducing drag.

**Arm Action (power phase):** When arms and hands reach the 10:00 and 2:00 position, the palms and inside of the arms push aft in a broad sweeping motion, elbows straight or slightly bent, and arms return to the glide position. The power phase must be strong enough to smoothly propel the body forward.

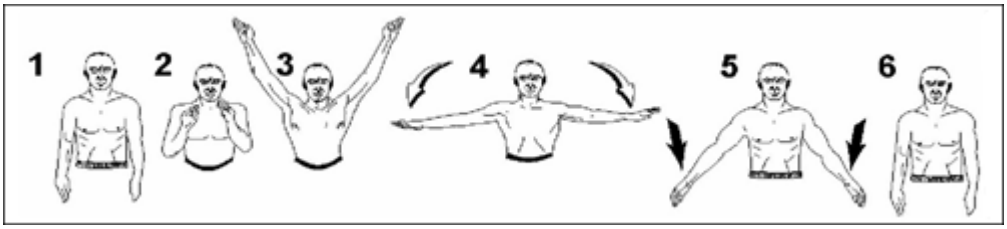



**Fig. 8-11 Elementary Backstroke Arm Action**

**Kick (recovery):** Beginning from the glide position with legs together and extended, while keeping the waist straight, bend the knees and drop the heels downward. During this motion the knees spread apart about as wide as the hips. The next motion is to rotate the knees inward, without spreading them wider, placing the heels to a point under and outside the knees. The last step of the recovery is to flex the ankles and turn the

feet outward to position for the “catch”. Recovery motions should be smooth and continuous.

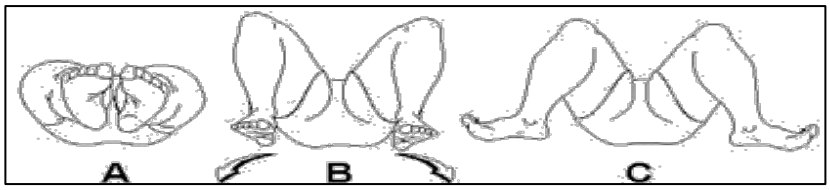



**Fig. 8-12 Elementary Backstroke Kick Recovery Phase**

**Kick (power phase):** The power of the kick is generated by pushing aft with a rounded motion with the inside of the calves and the soles of the feet. At the end of the kick, the legs are returned to the toes-pointed glide position. The kick starts slowly and speeds up at the finish.

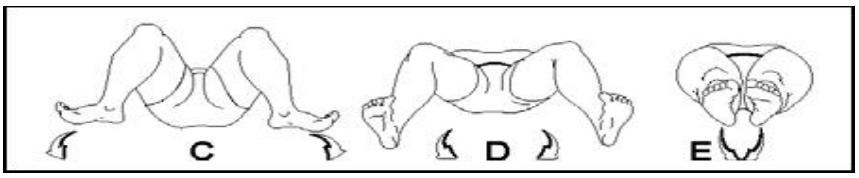



**Fig. 8-13 Elementary Backstroke Kick Power Phase**

**Breathing:** Inhalation occurs with the recovery of arms and legs, and exhalation occurs with the power phase and glide.

**Timing:** Following a glide, held just long enough to prevent the loss of forward momentum, arms begin their recovery just before the legs. The power phases of the arms and legs occur in unison. After the power phase, arms and legs rest in a streamlined position as the swimmer glides.

**Navy Kick Modifications**: Many Navy commands teach a modification of the backstroke kick, called the frog kick. Some swimmers find the frog kick easier to learn because it is executed with a more natural rotation of the thighs and knees and produces little knee stress while wearing boots.

**Arm Modification**: When swimming this stroke utilizing the frog kick rather than the backstroke kick, the swimmer must reach farther up with hands and arms to allow simultaneous power phase of arms and legs.

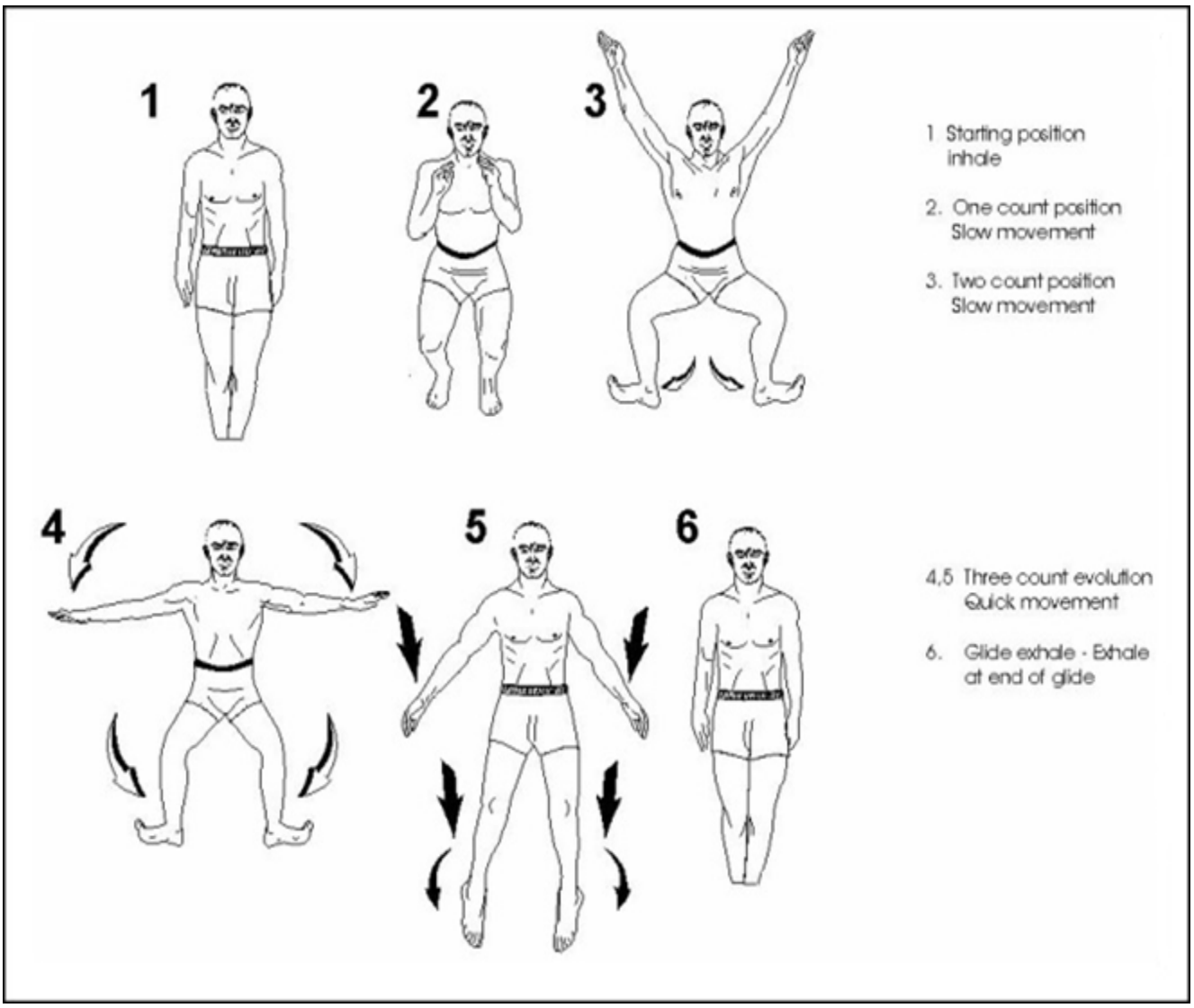



**Fig. 8-14 Elementary Backstroke Timing**

**Common Errors with the Elementary Backstroke:**

| **Error** | **Correction** |
|---|---|
| Bent waist. | Emphasize proper body position. |
| Back arched too much. Commonly causes face to submerge. | Emphasize proper body position. |
| Head up. | Tell swimmer to lay head back. |
| Water washing over face during recovery or pull of arms. | Focus on proper head position and attention to proper arm action. |

| | |
|---|---|
| Improper kick with pointed feet. | Wall/kickboard practice. Emphasize flexed and pointed toes. Ankles and feet face aft. |
| Arms reaching too high. | Land drills, pull buoys. |
| Arms/hands breaking the surface. | Land drills, pull buoys. |
| Timing problems. | Land drills. |

**CRAWL STROKE**

The crawl stroke is the fastest of all strokes and is effective in survival situations when speed is required. It may also be utilized if one's legs are injured. The crawl stroke offers poor forward visibility and is fatiguing while wearing operational clothing.

**Body Position:** The body is prone, near horizontal, and chest down. Depending on one's buoyancy, the head should be positioned with the waterline between the eyebrows and hairline. Personnel with little buoyancy may need to lower the head to raise the hips to straighten the body to improve kicking efficiency. The legs are extended aft, feet together, toes pointed, held just below the surface. Body roll, a rotation around the midline extending along the whole body, is an important aspect of a proper crawl stroke. Body roll results from the high recovery of an arm, the down sweep of the other arm, and the sideways force of the kick produced when the legs roll with the body. Body roll assists a relaxed high elbow recovery, improves arm propulsion, helps maintain efficient body position, and aids effective breathing.

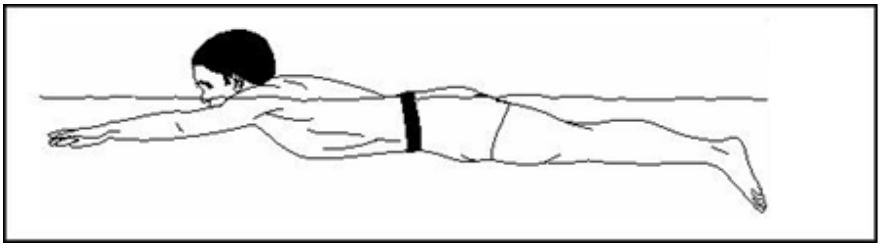


**Fig. 8-15 Crawl Body Position**

**Arm Action:** The arms generate the predominance of the stroke’s propulsion. Correct timing, body roll, and smooth transition from the power phase to the recovery are the components of an effective arm stroke. Arms work alternately, but not completely opposite of each other, as the recovering arm starts to catch up with the stroking arm at the end of the recovery.

**Arm Action (power phase):** Viewing the swimmer from above, the left hand traces a lengthened "S" shape in the water and the right arm traces a reverse "S". The arm speed accelerates as the hand travels through the "S" shape, with the fastest speed at the bottom of the "S" which is the end of the pull. After the body is rolled and the arm is fully extended during the recovery, flex the wrist (palm facing aft) and sweep the hand down and slightly out, just outside the shoulder. This position is where the swimmer first “catches” the water and is the top of the "S". The elbow should be higher than the hand at the start of the pull and should remain higher throughout the arm pull.

As the arm action continues, the elbow bends to a maximum of 90 degrees and the hand and arm sweep back toward the feet with the hand passing just under and near the chest along, but not crossing, the centerline of the body. During this motion, pitch your hand inward and keep you wrist nearly straight. This segment of the arm action is the diagonal part of the "S". The last part of the "S" is performed by straightening the arm and pressing the hand straight back toward the feet while moving it along the side of the body. Bend the wrist back to keep the palm pushing toward the feet. Keep this press going to the full extent of the reach with the power phase ending when the thumb touches the thigh.

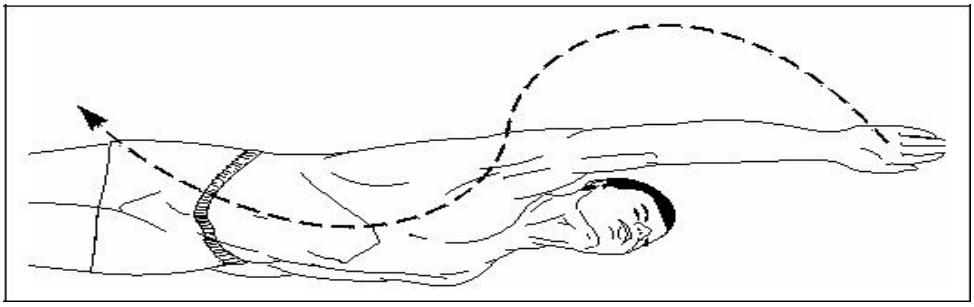


**Fig. 8-16 Crawl Arm Action Power Phase**

**Arm Action (recovery):** Recovery motions should be smooth and relaxed to rest the arm and hand muscles and to produce an even, continuous movement. After completion of the power phase, the elbow is bent and lifted from the water high enough to clear the hand from the water, little finger first and palm rotated inward. The elbow is then moved forward towards the head with the forearm hanging down. When the elbow lines up with the shoulder, the hand is swung forward, and the arm begins to straighten.

Before the arm fully extends, with the elbow bent slightly, enter the hand into the water in front of the shoulder, index

finger first with the entire arm rotated such that the thumb is turned down. The elbow should be kept higher than the rest of the arm and should enter the water last. At this time the body is rolling along its axis on the same side as the recovering arm, assisting a smooth entry of the arm into the water in preparation for “catch” of the power phase.

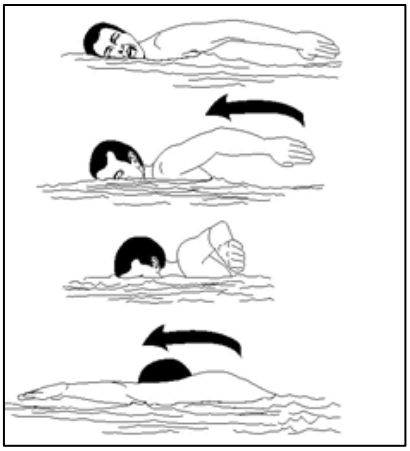


**Fig. 8-17 Crawl Arm Action Recovery Phase**

**Kick:** Legs kick up and down, or "flutter", with the heels just breaking the surface of the water and the legs rolling with the body. The kick originates from the hips and thighs with the knees straight, or slightly flexed, depending on what phase of the kick they are in. Ankles are loose and relaxed throughout the kick. Maintaining loose ankles throughout the kick is a crucial component of an effective kick. Legs work alternately, when one leg is kicking down, the "downbeat", and the other leg is kicking up, the "upbeat".

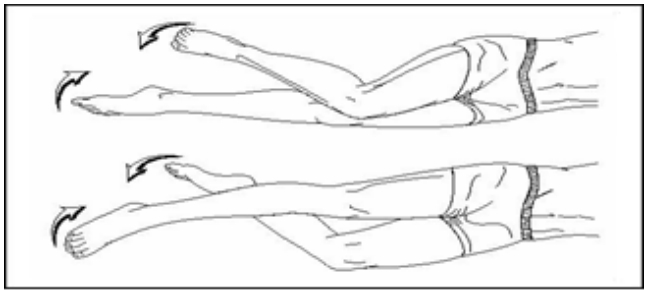


**Fig. 8-18 Crawl Flutter Kick**

Kick (power phase): The downbeat is the power phase of the kick. The downbeat begins at the hip with the thigh kicking downward while the calf and foot are still moving upward. For most of the downbeat, the knee is slightly flexed. Propulsion occurs when the leg is straightened. Straightening your leg initiates a motion, which continues through the whole leg and ends with the foot. At the end of the kick, with the foot turned slightly inward, the foot snaps downward, generating a motion as if one were kicking a soccer ball.

**Kick (recovery):** The upbeat is the recovery phase. The leg stays nearly straight during the upbeat. The leg is raised toward the surface until the heel just breaks the surface in preparation for the downbeat. The distance the feet separate during the kick depends on the length of the swimmer's legs with

normal feet separation ranges being 12 to 18 inches. The number of kicks per arm cycle varies.

The number of kicks is measured for one arm cycle: the time measured from the start of an arm pull on one stroke to the time that same arm starts to pull on the next stroke. Generally more kicks per arm cycle occur during faster swims, while fewer kicks per arm cycle happen during slower swims. Most common are two to six kicks per arm cycle.

**Breathing:** Breathing occurs by turning the head and inhaling during the recovery of one arm. Breathing should not include a pause of the arm action. Swimmers may breathe with each arm cycle, every 1 and 1/2 arm cycles alternating sides, or every other arm cycle. The swimmer should choose a breathing cycle that meets the physical demands of the swim and is comfortable to perform. Begin the turn of the head as the arm on the breathing side starts to pull. The mouth clears the water at the end of the pull, and inhalation occurs at the start of the arm's recovery. The face is returned to the water when the arm recovers forward.

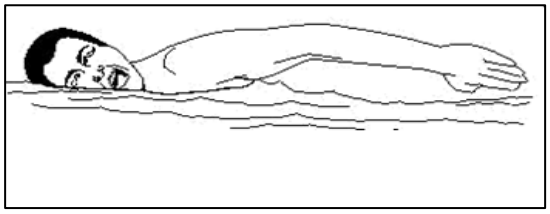


**Fig. 8-19 Breathing**

When inhaling, the swimmer should keep the forehead slightly higher than the chin with the opposite ear in the water. This head position allows the swimmer to breathe in a trough created as the head moves through the water. Body roll further assists the swimmer to turn the head to breathe. Exhalation occurs underwater slowly through the mouth and nose between head turns and inhalation occurs when the mouth surfaces. Inhaling large amounts of air is unnecessary as the opportunity to breathe occurs frequently with each arm stroke.

**Timing:** The arms stroke continuously, the legs kick continuously, breathing occurs with the recovery of an arm, and the body rolls to the left and right matched with the recovery of one arm and the down sweep of the other arm.

**Navy Breathing Modifications:** To avoid aspiration of water in rough seas, exhalation begins as the head begins to turn and finishes with the mouth at the surface. Inhalation should be a quick bite of air as the head begins to rotate back to the face down position.

**Common Problems with the Crawl Stroke**

| Error | Correction |
|---|---|
| Breathing problems (coughing, fatigue, etc.). | See chapter 5. |
| Swimming with head too high. | Indicates breathing problems. See chapter 5 use kickboard, or side of pool breathing drills. |
| Swimming with head too low. | Tell students to raise the head. |
| Head bobbing, not turning. | See chapter 5 if students have breathing problems. Use kickboard or side of pool breathing drills. |
| Hands out of the water first during arm recovery. | Emphasize high elbow recovery. Pull buoy practice. |
| Straight arm recovery. | Same as above. |
| Forearms and hands dragging during arm recovery. | Same as above. |
| Straight arm pull (no ”S”). | Emphasize “S”. Pull buoy practice. |
| Bent knees during recovery. | Kickboard/wall practice. Kicking with swim fins also helpful. |
| Straight knee kick during downbeat. | Kickboard/wall practice. Kicking with swim fins also helpful. |
| Stiff ankle kick. | Kickboard/wall practice. Kicking with swim fins also helpful. |
| No body roll. | Emphasize roll focusing on its occurring with the recovery of one arm and the down sweep of the other arm. |

**SUMMARY**

If the decision is made to swim in a survival situation, mastery of swimming strokes will increase chances of survival by offering the most efficient propulsion with the least expenditure of energy. The energy saved by efficient swimming may be needed later to produce body heat, climb into a raft, or activate signal and rescue devices.

# CHAPTER 9

# UNDERWATER SWIMMING AND SURFACE DIVES

Underwater swimming is advantageous in a variety of survival situations. Swimming underwater to traverse through burning oil is explained in Chapter 11. It is recommended after abandoning ship to protect the survivor from being struck by other sailors jumping off the side. Also swimming under the crest of a wave helps make headway in rough seas.

## UNDERWATER STROKES

The breaststroke can be modified for underwater swimming. An underwater version of the breaststroke can be executed with timing being the same as the surface breaststroke. The swimmer can elect not to use the arms at all, keeping them stretched out in front to feel for obstructions if the water is exceptionally murky. Modifying the breaststroke by extending the arm pull backward to the thighs while still using the “pull, kick, glide” timing produces the fastest underwater stroke.

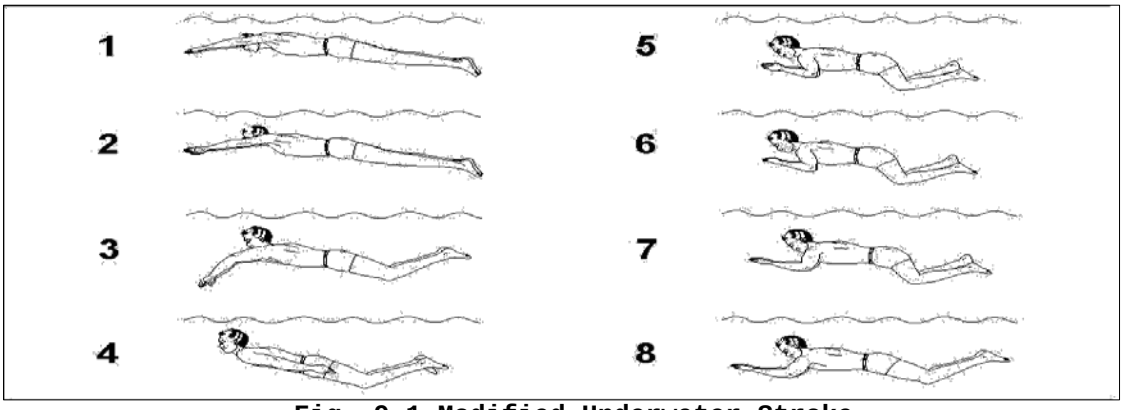



**Fig. 9-1 Modified Underwater Stroke**

## CORRECTING COMMON UNDERWATER SWIMMING PROBLEMS

**Student Unable to Hold Their Breath Sufficiently:** Allow student to hold their breath with the face underwater in the shallow end of a pool counting thirty seconds to grow accustomed to breath holding underwater. Once the swimmer is consistently successful, move to deep water to practice underwater swimming and breath holding.

**!!SAFETY NOTE!!**

Hyperventilation, several rapid inhalations and exhalations, is not allowed. This activity decreases $CO_2$ levels in the body, reducing the swimmer's normal desire to breathe. Hyperventilation can lead to "shallow water blackout", drowning, and death.

**Swimmer Experiences Difficulty Staying Underwater:** Head position is the key to staying at the proper depth and conserving energy. To maintain depth while swimming underwater, raise or lower the head and reach the arms in the desired direction while pulling. When the head is up, the body goes up. When the head is down, the body goes down. If the head is kept level (face down), the body moves forward horizontally. Flexing or extending the hips following head movement assists directing the body up or down. Buoyant swimmers may need to direct much of their arm pull downward to counteract the tendency of their body to float.

**Swimmer Makes Poor Headway**: A common fault is for the swimmer to "look up" or forward. This changes the body position, creates additional resistance, and can cause the swimmer to surface. Encourage the swimmer to keep the body as streamlined as possible during the glide. If the kick is inefficient, refer to the description of kicks described in the breaststroke section of Chapter 8. Ensure the coordination of arm and leg motion is one of the efficient methods illustrated above.

## SURFACE DIVES

Surface dives are used to quickly submerge. Surface dives may be necessary for lifesaving, evading an enemy, or to dive quickly beneath the crest of a wave or a patch of burning oil. Feet first and head first surface dives are described below.

**Feet First Surface Dive:** This dive is recommended when the water is murky and the swimmer is uncertain of depth, or is concerned about hitting underwater obstructions. Start this dive by treading water vertically and simultaneously pressing both hands down vigorously to the sides of the thighs while executing a strong scissors or breaststroke kick. These movements help raise the body out of the water to assist a rapid descent. A deep breath should be taken at the top of the rise. As the body moves downward, keep the body vertical and in a streamlined position. When downward momentum slows, turn the

palms outward and sweep the hands and arms upward to get more downward propulsion. When the swimmer gets to proper depth, the body must be tucked and rolled to a horizontal position to extend the arms and legs to swim under water.

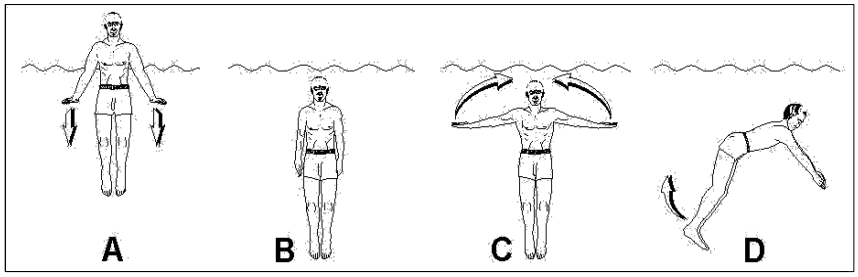



**Fig. 9-2 Feet First Surface Dive**

**Head First Surface Dives**

**Tuck Surface Dive:** To perform the tuck surface dive, get forward momentum with a swimming stroke. Inhale quickly, sweep the arms backward to the thighs, and turn the palms down. Tuck the chin to the chest, bend at the hips to a right angle and tuck the legs. Roll forward until the body is almost upside down. Then quickly extend the legs upward while pressing arms and hands forward, palms down, toward the bottom. A breaststroke arm pull may be used to gain greater depth. If one is uncertain of water depth, or it is less than 8 feet deep, keep an arm extended toward the bottom to protect the head.

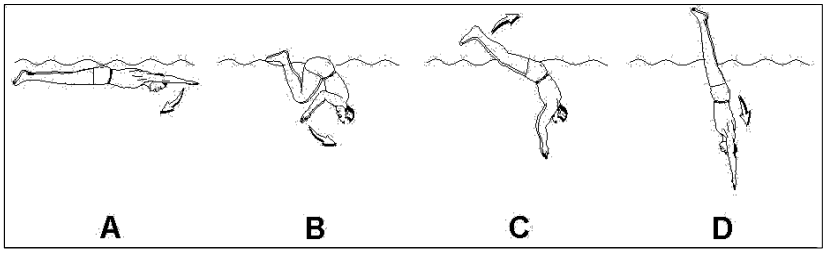



**Fig. 9-3 Tuck Surface Dive**

**Pike Surface Dive:** The pike surface dive bends and straightens the body like a jackknife with the legs kept straight and together throughout the dive. Gain forward momentum using a swimming stroke. Sweep the arms backward to the thighs and turn the palms down. Tuck the chin to the chest, bend at the waist about 90 degrees and reach forward and downward with the arms. Straighten the waist bringing the legs upward, straight, and together. This final action fully extends the body to a streamlined nearly vertical position with the weight of the legs

and forward momentum drive propelling the swimmer deep underwater without additional arm movement.

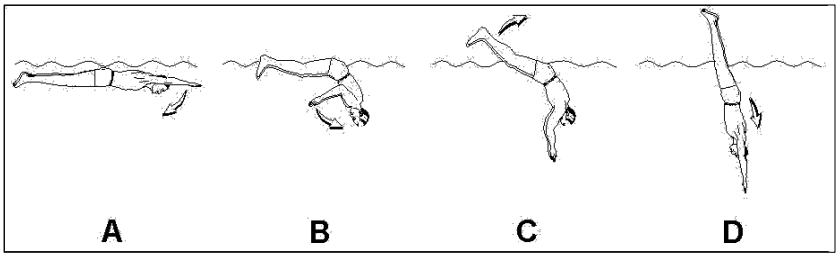



**Fig. 9-4 Pike Surface Dive**

## CORRECTING SWIMMERS EXPERIENCING DIFFICULTIES WITH SURFACE DIVES

Problems with surface dives are almost exclusively caused by problems coordinating arms, legs, and body motions. Provide the student with numerous demonstrations and adequate practice time to perfect surface diving.

# CHAPTER 10

# ABANDON SHIP

## INTRODUCTION

Naval personnel may accidentally fall off a ship or be ordered to abandon ship. Whether accidentally falling or purposely jumping, it is important to make preparations to enter the water properly. The body should enter the water feet first in a vertical streamlined position. Impacting the water in other than a vertical position may result in serious injury if one strikes floating debris, other survivors, or enters the water from a great height. Proper arm and leg position protect the survivor from impact with floating debris. If the swimmer pinches the nostrils it will prevent water from entering the nose and mouth and also prevent aspiration of water due to the gasp reflex when one enters cold water.

## PREPARING TO JUMP

When given the order to abandon ship, go quickly to the designated area and put on a personal flotation device (PFD). Depending on the ship, the PFD may be an inflatable vest ($CO_2$ bottle) or a buoyant material vest (Kapok). The inflatable vest should not be inflated until you are in the water clear of the impact area. Regardless of the PFD type, don and adjust it properly to provide maximum security and proper floatation. After correctly donning the PFD, quickly assemble at the designated abandon ship station. Remove helmet, headgear, gas mask, etc. Do not remove clothing, boots, or shoes. Prior to jumping, check the area below to ensure that there are no obstructions, floating debris, or similar hazards.

## PROCEDURES

Stand erect and look at the horizon. Using your right/left hand, pinch your nose with the thumb and forefinger and cup your chin in the palm with the little finger anchored under the chin. Tuck the right/left elbow close to the body. Reach across with the other hand (over the top of the right/left arm) and grab the biceps of the right/left arm or clothing near the shoulder. Tuck the elbow close to the body. Step off; do not jump. Immediately after stepping off, cross the legs at the ankles.

Keep the body vertical by continuing to look at the horizon. Do not attempt to slow the downward momentum by uncrossing arms or legs. Maintain this position until after impact with the water and all downward motion stops. When downward momentum stops, orient yourself and immediately swim away from the impact area. If wearing an uninflated PFD, swim away from the jump area underwater to avoid being struck by other jumpers. If wearing a buoyant vest, swim away on the surface. After clearing the jump area, inflate your PFD and look for other survivors, life rafts, etc.

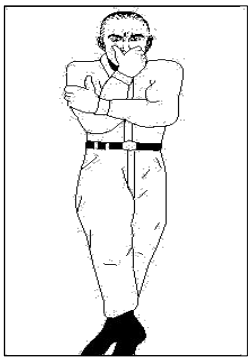


**Fig. 10-1**
**Abandon Ship**
**Body Position**

## FALLING OFF THE SHIP

If you should fall overboard, immediately try to assume the water entry position and perform the procedures noted above. The illustration demonstrates proper abandon ship body position.

## CORRECTING SWIMMERS EXPERIENCING DIFFICULTIES WITH ABANDON SHIP DRILL

**Refusal to Jump and Fear of Heights:** Rationalize with the swimmer about the importance of being able to perform this skill. Start with repeated jumps off the side of the pool, gradually increasing the height of the jump, until student is able to master the correct height.

Severe cases of acrophobia (fear of heights) may be beyond the training and skill of the Navy Swim Instructor. These cases shall be referred to the appropriate medical authority.

Pushing swimmers off towers, diving boards, etc., is not recommended as it often increases fears and does not develop the personal decision to jump, which is needed during actual survival situations.

**Difficulties with Underwater Swimming:** Refer to Chapter 9 of this manual.

**!!SAFETY NOTE!!**

Hyperventilation, several rapid inhalations and exhalations, is not allowed. This activity decreases $CO_2$ levels in the body, reducing the swimmer's normal desire to breathe. Hyperventilation can lead to "shallow water blackout", drowning, and death.

# CHAPTER 11

# SURFACE OIL/DEBRIS, BURNING OIL, AND ROUGH WATER SWIMMING

## INTRODUCTION

This chapter covers methods and decisions one must make to swim through surface oil, debris, burning oil, and rough water.

## SWIMMING THROUGH SURFACE OIL AND DEBRIS

Swimming through floating debris may be necessary following egress from an aircraft or abandoning ship. Debris commonly includes fuel, oil, and pieces of the ship or aircraft. Grasping large debris is often beneficial as it increases personal floatation and offers a larger target for rescuers to spot. Floating liquids such as fuel, oil, or toxic chemicals should be avoided as fumes may cause respiratory problems, interfere with vision, or irritate the skin. Ingestion of these substances may result in serious intestinal injuries. Survivors should quickly assess the situation and avoid these areas. If unable to avoid these areas, swim against the wind or current (whichever is moving the debris) toward the nearest clear area; swimming against the wind or current causes the liquids to move past the swimmer quickly. The survivor who is not wearing buoyant equipment and is not fatigued may elect to swim underwater to an area free of floating liquids. Several methods of underwater swimming are explained in detail in Chapter 9 of this manual.

If one must swim on the surface through floating liquids, the best stroke to use is a modified breaststroke. The head remains up, facing forward, with the mouth just above the surface. The body is propelled by a breaststroke kick. The arms/hands are used to keep the head up for forward visibility and to splash debris to either side. Begin the arm action by extending the arms forward on the surface, palms down, hands separated approximately shoulder width. From this position, scull the hands toward the face by bending the elbows and rotating the palms. Stop aft hand movement just in front of the face, and then rotate the palms forward. At this point, with the water surface approximately at the center of the palms (hands half out of the water), quickly push forward with the

hands, flexing at the elbow and wrist to a point just outside shoulder width. These actions generate the splash. The stroke is coordinated so the thrust of the kick is delivered as the arms splash forward. During the recovery of the legs, the arms scull towards the face. There is no glide as in the conventional breaststroke.

**Fig. 11-1 Surface Oil and Debris Swim Stroke**

**COMMON PROBLEMS WITH SWIMMING THROUGH SURFACE OIL AND DEBRIS**

| Error | Correction |
|---|---|
| Weak splash. | Instruct students to splash both forward and sideward. |
| Coordination. | Remind students that the arms and legs are not as coordinated as in the breaststroke. |
| Incorrect kick. | Refer to “breaststroke”. See chapter 8. |

## SWIMMING THROUGH BURNING OIL OR FUEL

Floating fuel or oil from a ditched aircraft or sinking ship may ignite, producing thick black smoke and hot flames. Survivors of World War II shipwrecks were filmed swimming through burning oil. Survivors of an aircraft ditching have found themselves engulfed in burning fuel, ignited in some cases by signal flares thrown by rescue personnel. Many naval personnel survived by swimming through, under, or around burning fuel/oil.

## BURNING OIL SURFACE STROKES

When engulfed in burning debris with an inherently buoyant vest or other buoyant equipment, the "Surface Debris Swim" described above is appropriate. A turbulent water method is described as follows: While vertical to the surface, use one arm to splash forward and to the side, followed by a scull to recover. The hand of the other arm is held along the side of the face to protect it from heat and flames. The body is moved

forward with a slow turn utilizing the breaststroke kick. This forward motion, combined with a slow turn toward the direction of splash, is used to keep burning debris from striking the swimmer from behind or from the side. The swimmer should breathe while turning a 360-degree circle toward the splashing arm. The forward motion should be toward the nearest clear area and against the wind, or current, acting on the floating fuel.

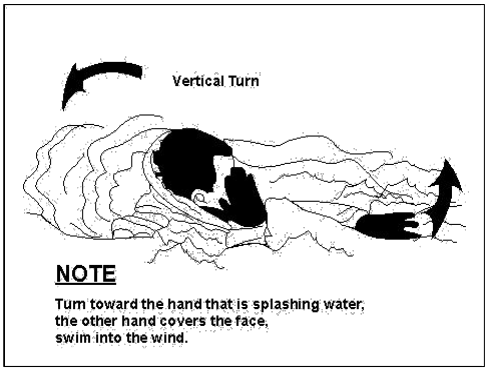



**Fig. 11-2 Burning Oil Surface Stroke**

**COMMON PROBLEMS WITH THE TURBULENT WATER BURNING OIL SWIM**

| Error | Correction |
|---|---|
| Rotating/splashing in the wrong direction. | Coach as needed. |
| No forward motion or rotation. | Assist student with kick. |

## BURNING OIL UNDERWATER STROKE

If the survivor is not wearing an inherently buoyant life vest, escaping underwater is probably the best choice. The most appropriate underwater stroke covered in Chapter 9 should be used. Before submerging, look for a clear area and try to determine the wind or current direction. Face into the wind/current, perform a feet first surface dive, level off underwater by bending at the waist, and swim horizontally about 4-5 feet beneath the surface to the clear area. Do not attempt to swim great distances underwater or to the point of exhaustion. If one must come up for a breath before reaching a clear area, swim underwater for only a few feet and surface to breathe with the following technique: change to a vertical position, look up, extend hands above the head, and breaststroke kick to support and lift the body until hands break the surface. Maintain this position while the hands vigorously splash forward and sideward, clearing a small area. When the area is clear of flames, kick to raise the mouth above the surface. As the head clears the surface, turn the face to either side, exhale quickly, take one quick breath, and perform a feet first surface dive. If one must remain on the surface, use either the surface debris swim or the turbulent water maneuver described above.

**COMMON PROBLEMS WITH BURNING OIL UNDERWATER STROKE**

| Error | Correction |
|---|---|
| Weak splash. | Coach as needed. |
| Sinking. | Assist students with kick. |

## ROUGH WATER SWIMMING

An ocean is an ever-changing environment that can range from calm to extremely rough, with waves over 50 feet high and dense streaks of wind-blown spray. Surviving in rough seas can be difficult, even with adequate personal flotation gear. Individuals have drowned in rough seas from aspirating water, even while wearing a personal flotation device. Preventing water aspiration in rough seas requires proper breathing techniques.

This is especially true at night with wind-blown spray. Inhaling through the mouth and exhaling through the mouth or nose allows the swimmer to separate the air from the water. The head must be in a vertical upright position to prevent water from running down the throat into the lungs. A swimmer should put their back to the wind and cup one hand over the mouth.

Developing this breathing technique requires practice. Swimmers have been successful swimming through choppy seas by swimming underneath wave crests and surfacing to breathe at wave troughs. This swim can be simulated in a swimming pool by allowing swimmers to swim underwater, (about 25 yards), surfacing for one breath every 10-15 feet.

**Note:** Swimmers should use a pike or tuck surface dive as described in chapter 9 to submerge underneath wave crests.

**COMMON PROBLEMS WITH ROUGH WATER SWIMMING**

| Error | Correction |
|---|---|
| Lingering on the surface, coughing, or inability to get a breath. | Assist the student with breath control. |
| Problems with the surface dive. | See chapter 9 of this manual. |
| Problems with underwater swimming. | See chapter 9 of this manual. |

# CHAPTER 12

# ADMINISTERING FIRST, SECOND, AND THIRD CLASS SWIM TESTS

## INSTRUCTIONS FOR NAVAL EDUCATION AND TRAINING COMMAND (NETC) SWIMMING AND WATER SURVIVAL INSTRUCTORS TO ADMINISTER THIRD, SECOND, AND FIRST CLASS SWIM TESTS:

Guidelines for Third, Second, and First Class Swim Tests are found in NETC curricula. Use these curricula to administer Navy Swim Qualification Tests. To obtain curricula, contact model managers office: Naval Aviation Schools Command, Survival Department, Model Manager Division 181 Chambers Ave., Suite C, Pensacola, FL 32508, DSN 459-2191, Commercial 850-452-2191 or visit our website at http://www.netc.navy.mil/nascweb/model_manager/index.html.

## INSTRUCTIONS FOR SWIM TESTERS

A Swim Tester certification is current for a maximum of three years, or the end of a tour, whichever comes first. If a Swim Tester's Cardiopulmonary Resuscitation, First Aid, or Lifeguard qualification expires before this time then the Swim Tester qualification is suspended immediately until certification is attained. If an individual aspires to be a Swim Tester at a new command, they must complete the following requirements: Ensure currency in lifeguarding or equivalent Navy Enlisted Classification (NEC), obtain verification of qualifications from Naval Aviation Schools Command (NASC) Course Curriculum Model Manager (CCMM), and obtain permission and Swim Tester designation letter from their Commanding Officer.

**Navy Swim Tester**: A Navy Swim Tester is an individual who has completed the Navy Swim Tester Course (CIN: C-012-0015). A Navy Swim Tester is authorized to administer the First, Second, and Third Class Swim Tests under the guidelines of this manual, but is not authorized to conduct swim training or remedial swim instruction. Swim Testers may provide nearby locations where sailors who fail the swim test can obtain remediation.

**Navy Swim Instructor**: A Navy Swimming and Water Survival Instructor (NEC 9510) is an individual who has completed the Basic Swimming and Water Survival Instructor Course (CIN: A-012-

1014) or a Naval Aviation Water Survival Instructor Course (CIN: B-570-0101) earning (NEC 9504). A Navy Swim Instructor is authorized to administer the First, Second, and Third Class Swim Tests and conduct swim training using approved Navy curricula or this manual.

**GENERAL INFORMATION APPLICABLE TO FIRST, SECOND, AND THIRD CLASS SWIM TESTS**

**Who can be tested**: These tests are designed for active duty Navy personnel. Consult the CCMM in all cases before testing active duty U.S. Army, U.S. Air Force, U.S. Coast Guard, U.S. Marine Corps, Department of Defense civilians, contractors, or foreign personnel both active duty and civilian.

**Description of Swim Qualifications:** The U.S. Navy's swim qualifications consist of three classes of swimmers. The following is a description of each classification:

**Third Class Swimmer**: Is described as a person who can stay afloat and survive without the use of a Personal Flotation Device (PFD) in optimum conditions. The Third Class Swimmer qualification is the minimum entry-level requirement for all U.S. Navy personnel.

**Second Class Swimmer**: Is described as a person who can stay afloat and survive without the use of a PFD indefinitely in open water under optimum conditions long enough to be rescued in a man-over-board situation. The Second Class Swimmer qualification is used as an entry-level requirement for Small Boat Operators.

**First Class Swimmer**: Is described as a person who can stay afloat and survive without the use of a PFD indefinitely under optimum conditions and can assist others. A First Class Swimmer must maintain a current lifeguarding certification or equivalent NEC per Appendix D of this manual.

**Equipment Requirements:** Facilities must have a telephone with posted emergency numbers and have backup methods of communication. Pools must have a fixed or portable audible alarm to signal pool evacuation. A whistle or air horn is sufficient. Swimmers shall be briefed on the signal and what action to take. The following equipment shall be pool-side, ready for immediate use, and shall be inspected prior to testing: U.S. Coast Guard approved ring buoys with manila or polypropylene retrieving lines. Retrieving lines shall be 1/4" diameter or larger and 50

feet or longer in length. Rescue tubes, one each for the person administering the test and each lifeguard (Torpedo buoys may be substituted). Mask and fins for life guards performing duties as a safety swimmer. Test candidates are not allowed to wear googles, masks, fins, snorkels, or ear plugs. Pool requires a fully equipped backboard with head immobilizer, and minimum of three straps for the victim’s chest, hips, and thighs. A First Aid kit must be on site.

**Safety:** Swimmers shall be instructed that hyperventilation, or rapid deep breathing, to achieve underwater swimming endurance can result in shallow water blackout or drowning, and is strictly prohibited. Watch students carefully. Be alert for swimmers who appear to be underwater too long. Weak swimmers often over-estimate their abilities in desperate attempts to avoid failure.

In all cases, swimmers shall be prevented from pushing themselves to an emergency situation by lending assistance before a rescue is required. Personnel administering tests and lifeguards shall instruct swimmers to grab a ring buoy, etc., before an actual rescue is required. With proper techniques Navy Swim Qualification Tests can be achieved without extreme physical exertion.

Staff shall terminate testing if the swimmer's safety is in question, or if the swimmer is expending too much energy to safely perform the test. If a swimmer shows signs of panic, fear, extreme fatigue, or lack of confidence; stop the test, identify the problem, and determine whether or not to continue testing. Staff shall be alert for any unusual behavior that indicates a student is experiencing difficulty and shall act immediately to ensure the swimmers safety.

Hazing and improper or degrading rituals are strictly prohibited.

If a swimmer becomes ill or is injured, staff shall remove the student from training or testing, ensure appropriate medical care is provided, document the illness/injury, and report the incident to the appropriate chain of command.

Students enrolled in CIN: A-060-2222 shall fill out screening sheet (Appendix C) prior to testing.

## ADMINISTERING THE THIRD CLASS SWIM TEST

**Required Personnel:** A current qualified Navy Swim Tester, Navy Swimming and Water Survival Instructor, or Naval Aviation Water Survival Instructor, and one qualified lifeguard as per Appendix D of this manual are required for five swimmers or less. If all swimmers are placed in deep water (deep water defined as water too deep to stand with mouth and nose above the surface) an additional in-water lifeguard must be added for each five swimmers or portion thereof.

**Grading:** Students shall be graded per Chapter 13 of this manual.

**Description:** This test consists of two modules. Module One is composed of three separate events: a deep water jump, a 50-yard swim, and a 5-minute survival float. During the 5 minute survival float, swimmers must demonstrate either the prone (face-down) survival float or the supine (back float). Module one events can be conducted separately and in any order. Swimmers who successfully pass an event of Module One do not have to repeat that particular event. Module Two consists of shirt and trouser or coverall inflation. Module One must be conducted before Module Two. Modules One and Two do not have to be conducted on the same day. If swimmers become fatigued or winded after an event, provide them ample time to catch their breath before attempting the other event. The survival float (Module One) and the Shirt and Trouser/Coverall inflation must occur in deep water. Deep water is defined as water too deep to stand with mouth and nose above the surface.

**Instructions:** Students enrolled in CIN: A-060-2222 shall fill out screening sheet (Appendix C) prior to testing.

**Deep Water Jump:** A lifeguard must be in the water equipped with a mask, fins, and a rescue tube. Jumpers must be spaced such that there is no chance of a swimmer jumping onto another swimmer. Jumps must be performed from a minimum height of five feet. Water depth underneath the platform must be a minimum of eight feet. Swimmers must display the ability to swim to the surface unassisted. The body position is graded to the standards in Chapter 13. All swimmers will be strongly encouraged to maintain proper body position until momentum slows underwater.

**50 Yard Swim**: Swimmers must complete the distance without stopping, standing, or holding onto the sides of the pool. Any or all of the four strokes can be used, but any or all must be graded to the performance standard identified in Chapter 13.

Care should be given to ensure that ample space is provided such that students do not run into, or swim over, one another.

**Survival Float**: A lifeguard must be in the water equipped with mask, fins, and a rescue tube for up to five students. An additional lifeguard must be in the pool for every additional five swimmers or any portion thereof.

Students must be graded per Chapter 13 of this manual. Students displaying improper breathing during survival floating will be removed from the water within the first minute, or sooner, if their safety is in jeopardy.

**Module Two (shirt and trouser or Coverall Inflation)**

A lifeguard must be in the water equipped with a mask, fins, and a rescue tube for up to five students. An additional lifeguard must be in the pool for every additional five swimmers or any portion thereof.

Swimmers must be graded in accordance with Chapter 13 of this manual. Students displaying problems with shirt/trouser or coverall inflation must be removed from the water before becoming exhausted.

## ADMINISTERING THE SECOND CLASS SWIM TEST

**Required Personnel:** A current qualified Navy Swim Tester, Navy Swimming and Water Survival Instructor, or Naval Aviation Water Survival Instructor, and one qualified lifeguard as per Appendix D of this manual are required for ten swimmers or less. If all swimmers are placed in deep water at once (water too deep to stand with mouth and nose above the surface) an additional in-water lifeguard must be added for each 10 swimmers, or portion thereof.

**Grading:** Students will be graded per Chapter 13 of this manual.

**Description:** The Second Class Swim Test consists of: a deep water jump, 100-yard swim demonstrating 25 yards each of the crawl stroke, breaststroke, sidestroke, and elementary backstroke. Immediately after completion of the swim, without leaving the water, students will survival float (face down) for 5 minutes and transition to a back float before exiting the water.

**Instructions:** Students enrolled in CIN: A-060-2222 shall fill out screening sheet (Appendix C) prior to testing. Swimmer Third Class is a prerequisite to Swimmer Second Class. Swimmers displaying problems during any portion of the test must be removed from the water before becoming exhausted.

**Deep Water Jump:** A lifeguard must be in the water equipped with mask, fins, and a rescue tube. Jumpers must be spaced such that there is no chance of a swimmer jumping onto another swimmer. Jumps must be performed from a minimum height of five feet. Water depth underneath the platform must be a minimum of eight feet. Swimmers must display the ability to swim to the surface unassisted. The body position will be graded in accordance with Chapter 13 of this manual.

**100 Yard Swim Test:** The 100–yard swim must be accomplished without holding on to, or resting on, the sides of the pool for any time longer than is needed to perform a turn. Walking on the bottom, stopping to float, or resting constitutes a failure. Care must be given to ensure that ample space is provided such that students do not run into, or swim over, one another.

**Survival (face down) and Back Float:** Floating must conform to Chapter 13 of this manual. The swimmer must survival float for five minutes. Holding on to the edge of the pool constitutes failure of the test. Swimmer will transition to the back float.

## ADMINISTERING THE FIRST CLASS SWIM TEST

**Required Personnel:** A Navy Swimming and Water Survival Instructor, Navy Swim Tester, or Naval Aviation Water Survival Instructor, and one qualified lifeguard as per Appendix D of this manual are required for twenty swimmers or less. If all swimmers are placed in deep water at once (defined as water too deep to stand with mouth and nose above the surface) an additional in-water lifeguard must be added for each 20 swimmers, or portion thereof.

**Grading:** Students will be graded per Chapter 13 of this manual.

**Description:** The First Class Swim Test consists of: completion of the Second Class Test, verification of civilian lifeguarding certification (or NEC as specified in Appendix D) proficiency in the four survival strokes, and a 25 yard underwater swim surfacing twice to demonstrate the surface burning oil technique.

**Instructions:** Students enrolled in CIN: A-060-2222 shall fill out screening sheet (Appendix C) prior to testing. Verification of lifeguarding: Check swimmer's lifesaving certification, or NEC. Only candidates with current lifesaving certifications, or equivalent NEC, are eligible to participate in the First Class Swim Test. For questions regarding the validity of lifeguarding certifications NOT identified by Appendix D consult NASC CCMM (850)452-2191.

Administer the Second Class Test. Apply the following exceptions: First Class Standards identified in Chapter 13 of this manual must be used to grade survival strokes. "Required Personnel" shall follow First Class Standards.

Administer the Underwater Swim/Burning Oil Maneuver. Use First Class Swim Standards in Chapter 13 of this manual to grade and conduct the test. Care should be given to ensure that ample space is provided such that students do not run into, or swim over, one another.

## DOCUMENTING COMPLETION OF TRAINING AND TESTING

### Verification of test completion by the Swim-Tester or Instructor

Swim Instructors and Swim Testers shall complete APPENDIX G and instruct students to deliver it to their Training Officer.

### Documentation of Swim Tests by the Command Training Officer

The Command Training Officer shall ensure entry of First and/or Second class swim tests in Fleet Training Management and Planning System (FLTMPS) and in the member's service record upon receipt of APP G-1 provided to servicemember by Swim Tester.

The following steps shall be used to make FLTMPS entries:

1. Select the Learning Event Completion Form menu button at the top of the screen.
2. Select the GMT and Other Training link.
3. Select the Search by Category/Group/Course Radio Button.
4. Select course category "HIGH RISK SWIM QUALS".
5. Select C-0015-1 for First Class Swimmer or C-0015-2 for Second Class Swimmer.
6. Select the Activity for Report (should default to the Training Officer's UIC). Once the activity is selected in the filter box, click on the Run Report button.

7. Select the Calendar link to set the date for the completion.
8. Find the name of the individual who completed the training and select the check box by their name.
9. When finished, scroll to the bottom and click on the SAVE button.

**NOTE:** Completion of Swimmer Third class is a required event for all Navy Accession Schools, therefore verification is usually not required in FLTMPS.

# CHAPTER 13

# PERFORMANCE STANDARDS FOR THIRD, SECOND, AND FIRST CLASS SWIM TESTS

## INTRODUCTION

The following charts shall be used to determine acceptable standards for Navy Swim Qualifications. In all cases where there are questions or "gray areas" as to whether the swimmer is performing correctly, make the decision not to pass the swimmer. This decision ensures that swimmers pass with no ambiguity, and that gray area swimmers receive more practice, which leads to better survival skills.

**SWIM SKILLS ASSESSMENT:** The optional Swim Skills Assessment consists of four tests that ensure a candidate swims well enough to safely attempt the Third Class Swim Test. All skills must be performed within the criteria written below for swimmers to attempt Third Class Swim Test. In all cases where the test administrator feels that the student is unsafe to participate in the Third Class Swim Test, even if they have passed these skills, the swimmer shall not test.

**1. Shallow Water Swim**: The purpose of this test is to ensure that the swimmer possesses elementary breathing techniques. If they cannot pass the Shallow Water Swim Test, the swimmer shall not be allowed to progress to the Deep Water Swim, Tread, or Float.

The swimmer must demonstrate rhythmic breathing i.e., regular breathing accomplished by putting the face into the water, lifting/turning the head to take a breath, and returning face into the water. This breathing must be comfortable and regular. Breathlessness, gasping, coughing, erratic breathing, and swallowing water are unacceptable. Swimmer must be in water shallow enough such that, if needed, they can stand with the head above the water. Swimmer must swim the 15-yard distance without walking, standing, or holding on to the side of the pool longer than time needed to execute a turn.

**2. Deep Water Swim:** The purpose of this test is to ensure the candidate can swim in deep water. If the swimmer does not pass the Deep Water Swim, they shall not be allowed to progress to Treading Water or Survival Float. Swimmer must swim 15 yards in water deep enough that they are unable to stand with the head above the water.

**3. Treading Water**: The purpose of this test is to ensure the swimmer can safely keep their head above the surface in deep water. Swimmers unable to pass treading water shall not be allowed to progress to the Survival Float. In water too deep to stand, with the head above the surface, the swimmer must keep their mouth and nose above water for 1 minute.

**4. Survival Float**: The purpose of this test is to ensure the swimmer will not panic when their face is submerged, demonstrates breath control, and can provide a means of conserving energy in deep water. In water too deep to stand, with the head above the surface, the swimmer must lay face down for one minute, lifting the head up regularly to breathe. Breathing should be slightly above resting rate (approximate 15-20 breaths per minute). Breathlessness, gasping, erratic breathing, and swallowing water are unacceptable. Swimmers must stay on the surface at all times. Any arm and/or leg motion necessary to stay afloat that does not generate forward or backward movement is acceptable.

**THIRD CLASS SWIMMER**

**ABANDON SHIP JUMP (TOWER JUMP)**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Waist must be straight. Head held with the neck straight, eyes staring forward. |
| Arms: | Arms must be crossed with the hand of the arm closest to the chest pinching the nose with thumb and forefinger and the little finger positioned on the bottom of the jaw beneath the chin. The hand of the arm furthest from the chest grasps the biceps and triceps of the opposing arm. |
| Legs: | Legs must be straight and crossed at the ankles. |

**BREASTSTROKE**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Body must be face down |
| Arms: | Any arm stroke acceptable as long as recover and propulsion occurs underwater. |
| Kick: | Any kick acceptable as long as recovery and propulsion occurs underwater. |
| Breathing: | Swimmer must display continuous ability to lift the head up, get a breath, and return the face into the water with each arm stroke. |
| Coordination: | Any coordination of arms, legs, and breathing acceptable. **(Swimmer must appear safe to swim prescribed distance.)** |

**SIDESTROKE**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Swimmer must lie on either the left or right side. |
| Arms: | Any arm stroke is acceptable as long as recovery and propulsion occurs underwater. |
| Kick: | Any kick is acceptable as long as recovery and propulsion occurs underwater. |
| Breathing: | Inhalation and exhalation may be performed at any stage of the stroke. |
| Coordination: | Any coordination between arms and legs is acceptable. **(Swimmer must appear safe to swim prescribed distance.)** |

**ELEMENTARY BACKSTROKE**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Swimmer must be on their, back. |
| Arms: | Any arm stroke is acceptable as long as recovery and propulsion occurs underwater. |
| Kick: | Any kick is acceptable. |
| Breathing: | Mouth and nose must remain above the surface. Inhalation and exhalation may be performed at any stage of the stroke. |
| Coordination: | Any coordination among arms and legs is acceptable. **(Swimmer must appear safe to swim prescribed distance.)** |

**CRAWL STROKE**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Swimmer must face down. |
| Arms: | Any arm action where one arms pulls while the other arm recovers is acceptable. |
| Kick: | Any kick, or no kick, is acceptable. |
| Breathing: | Must display continuous ability to lift/turn head up, get a breath, and return the face into the water. |
| Coordination: | Any coordination among arms, legs and breathing is acceptable. **(Swimmer must appear safe to swim prescribed distance.)** |

**SURVIVAL FLOAT (OPTION 1 OF 2): PRONE (FACE DOWN)**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Any face down posture is acceptable. |
| Arms: | Any arm action is acceptable, with no forward or backward movement. |
| Kick: | Any kick, or no kick, is acceptable, with no forward or backward swimmer movement. |
| Breathing: | Swimmer must inhale from the mouth and exhale from the mouth and nose. Breathing should be slightly above resting rate (approximately 15-20 breaths per minute). Breathlessness, gasping, erratic breathing, or swallowing water is unacceptable. |
| Coordination: | Swimmer's arm and leg actions must keep them on the surface at all times. Swimmer must stay in the general starting location; excessive forward or backward movement is unacceptable. **(Swimmer must appear safe, calm, and relaxed for five minutes.)** |

**SURVIVAL FLOAT (OPTION 2 OF 2): SUPINE (BACK)**

| COMPONENT | ACCEPTABLE PERFORMANCE STANDARDS |
|---|---|
| Body position: | Any supine position that allows the swimmer to float on their back is acceptable. |

| | |
|---|---|
| Arms: | Are allowed to scull as needed to stay afloat and/or keep the mouth and nose above the surface of the water. |
| Kick: | Leg motions must be limited to only enough activity to remain afloat. |
| Breathing: | Breathing should be slightly above resting heart rate (approximately 15 to 20 breaths per minute). Breathlessness, gasping, erratic breathing, and/or swallowing water are unacceptable. Pinching the nostrils is not allowed. |
| Coordination: | Swimmer's arm and leg actions must keep them on the surface at all times. Swimmer must stay in the general starting location; excessive forward or backward movement is unacceptable. **(Swimmer must appear safe, calm, and relaxed for five minutes.)** |

**SHIRT AND TROUSER OR COVERALL INFLATION**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Shirt inflation: | Swimmer must stay at the surface. Back of shirt must contain a "bubble" of air. |
| Trouser removal: | Swimmer must stay near the surface. Struggling and sinking is unacceptable. |
| Trouser inflation: | Swimmer must stay on the surface at all times (except blow method). Any method to fill trousers is acceptable. Trouser must be filled sufficiently so the swimmer can float motionless. |
| Coverall inflation: | Swimmer must stay on the surface at all times. Coveralls must be filled sufficiently so that the swimmer can float motionless. |

**SECOND CLASS SWIMMER**

**ABANDON SHIP JUMP (TOWER JUMP)**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Waist must be straight. Head held with the neck straight, eyes staring forward. |
| Arms: | Arms must be crossed with the hand of the arm closest to the chest pinching the nose with thumb and forefinger and the |

| | |
|---|---|
| | little finger positioned on the bottom of the jaw beneath the chin. The hand of the arm furthest from the chest grasps the biceps and triceps of the opposing arm. |
| Legs: | Legs must be straight and crossed at the ankles. |

The strokes for the Second Class Swim Test will be given in the following order:

- Crawl stroke
- Breaststroke
- Sidestroke
- Elementary backstroke

**CRAWL STROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Prone (face down) |
| Arms: | Recovery and propulsion of one arm must alternate with the recovery and propulsion of the other arm. Arm recovery must occur out of the water. |
| Kick: | Alternating movement (flutter kick) of legs is required. No set count of kicks to arm pulls. No other kick is acceptable. |
| Breathing: | Must display ability to breathe, and return the face into the water. The breathing must occur with the recovery of an arm. |
| Coordination: | Any timing of the arms, legs, and breathing is acceptable. **(Swimmer must appear comfortable when swimming prescribed distance.)** |

**BREASTSTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Prone. |
| Arms: | Breaststroke type arm action with simultaneous pull and recovery actions of the arms is required. Arms/hand actions may pull past the shoulders but not to the side of the body. |

| | |
|---|---|
| Kick: | Kick must be a breaststroke or frog kick. Flutter and scissors kicks are unacceptable. Kicks where one or both feet are pointed during the propulsion are acceptable. Kicking actions may not break the surface of the water. |
| Breathing: | Must display continuous ability to lift the head and breathe during the pulling action of the arms. Face must be in the water during the recovery of the arms. |
| Coordination: | Any timing among arms, legs and breathing may occur. **(Swimmer must appear comfortable when swimming the prescribed distance.)** |

**SIDESTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Left or right side. |
| Arms: | Alternating arm actions whereby one arm pulls while the other arm recovers. Arm actions must occur underwater. |
| Kick: | Kick must be a scissors kick. Flutter and breaststroke kicks are unacceptable. Kicking actions may not break the surface of the water. |
| Breathing: | Inhalation and exhalation may be performed at any stage of the stroke. Submersion of the face during the power phase (combat sidestroke breathing) is acceptable. |
| Coordination: | Top arm must recover and propel simultaneously with the recovery and propulsion of either the top or bottom leg. **(Swimmer must appear comfortable to swim prescribed distance.)** |

**ELEMENTARY BACKSTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Supine (Face up). |
| Arms: | Arms may extend beyond the shoulder as long as recovery and propulsion occur underwater. Arm actions that break the surface of the water are unacceptable. |

| | |
|---|---|
| Kick: | Kick must be a breaststroke or frog kick. Flutter and scissors kicks are unacceptable. Kicks where one or both feet are pointed during the propulsion are acceptable. Kicking actions may not break the surface of the water. |
| Breathing: | Breathing anytime is acceptable. Mouth and nose must remain above the surface. |
| Coordination: | Recovery and propulsion of arms and legs must be simultaneous. **(Swimmer must appear comfortable to swim prescribed distance.)** |

**SURVIVAL FLOAT**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Prone. |
| Arms: | Arms bent at the elbows, sculling only as needed to lift the head for breathing and to maintain the body at the surface. No forward or backward swimmer movement allowed. |
| Kick: | Kicking should be performed only as necessary to keep the body at the surface. No forward or backward swimmer movement allowed. |
| Breathing: | Swimmer must inhale from the mouth and exhale from the mouth and nose. Breathing rate should be slightly above resting (approximate 15-20 breaths per minute). |
| Coordination: | Arm and leg actions must keep swimmer on the surface at all times. **(Swimmer must appear calm and relaxed for 5 minutes.)** |

**BACK FLOAT**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Supine. |
| Arms: | Arms may be in any position to keep the swimmer from sinking. If needed, sculling is allowed. No forward or backward swimmer movement allowed. |

| | |
|---|---|
| Legs: | If needed, slight kicking to keep the swimmer from sinking is acceptable. No forward or backward swimmer movement allowed |
| Breathing: | Swimmer must inhale from the mouth and exhale from the mouth and nose. Breathing should be slightly above resting rate. |
| Coordination: | Swimmer must be on the surface at all times. **(Swimmer must appear calm and relaxed.)** |

**FIRST CLASS SWIMMER**

The strokes for the First Class Swim Test will be given in the following order:

- Crawl stroke
- Breaststroke
- Sidestroke
- Elementary backstroke

**CRAWL STROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Swimmer must be face down. |
| Arms: | Recovery and propulsion of one arm must alternate with the recovery and propulsion of the other arm. Arm recovery must occur out of the water. Arm action must generate efficient propulsion. |
| Kick: | Alternating up and down (flutter kick) of legs is required. A minimum of two kicks per arm cycle is mandatory. Scissors or breaststroke kicks are unacceptable. Ankles must be loose, and knees slightly flexed. |
| Breathing: | Must display continuous ability to turn the head to the side, get a breath, and return the face into the water. Breathing must occur with the recovery of an arm. |

| | |
|---|---|
| Coordination: | Arms, legs and breathing must display a rhythmic pattern. **Correct procedures must be consistent. The swimmer must demonstrate stroke proficiency.** |

**BREASTSTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Body must be face down. |
| Arms: | Breaststroke arm action with simultaneous pull parallel to chest and simultaneous recovery is required. Arms/hand actions that pull beyond shoulders are unacceptable. |
| Kick: | The recovery and propulsion of both legs must be performed in unison. The kick of both legs must resemble the breaststroke or frog kick. Flutter kicks and sidestroke kicks are unacceptable. Kicks where one or both feet are pointed during the propulsion are unacceptable. Kicking actions may not break the surface of the water, and must generate efficient propulsion. |
| Breathing: | Must display continuous ability to lift the head up and get a breath during the power phase of the arms. Face must be down during the recovery phase of the arms. |
| Coordination: | Alternate arm and leg actions are required; arms recover during the power phase of the kick. Legs recover with power phase of the arms. Breathing must occur during the power phase of the arms. Swimmer must demonstrate a glide. **(Correct procedures must be consistent. The swimmer must demonstrate stroke proficiency.)** |

**SIDESTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Swimmer must lie on either the left or right side. |

| | |
|---|---|
| Arms: | Arm stroke must resemble a sidestroke arm action. Alternating arm actions whereby one arm pulls while the other arm recovers is required. Arm actions must occur underwater. |
| Kick: | Kick must be a scissors kick. Either a regular or inverted kick is acceptable. Kick must generate efficient propulsion. |
| Breathing: | Inhalation must occur with the recovery of the top arm and the legs. Exhalation must occur with the power phase of the top arm and the legs. Submersion of the face during the power phase (combat sidestroke breathing) is acceptable. |
| Coordination: | Top arm must recover and propel simultaneously with the recovery and propulsion of either the top or bottom leg. Correct procedures must be consistent. The swimmer must demonstrate stroke proficiency. |

**ELEMNTARY BACKSTROKE**

| **COMPONENT** | **ACCEPTABLE PERFORMANCE STANDARDS** |
|---|---|
| Body position: | Swimmer must be on their back. |
| Arms: | The arm stroke must be the elementary backstroke arm action. Arms, which recover to a point lower than the shoulder, or recover high enough to be in line with the body while stretched over the head, are unacceptable. Arm actions that break the surface of the water are unacceptable. |
| Kick: | The recovery and propulsion of both legs must be performed in unison. The kick of both legs must be a breaststroke kick or frog kick. Flutter kicks and sidestroke kicks are unacceptable. Kicks where one or both feet are pointed during the propulsion are unacceptable. Kicking actions may not break the surface of the water, and must generate efficient propulsion. |

| | |
|---|---|
| Breathing: | Inhalation must occur during the recovery of arms and legs. Exhalation must occur during the propulsion of the arms and legs. |
| Coordination: | The recovery and propulsion of the arms must occur in unison with the recovery and propulsion of the legs. Swimmer must demonstrate a glide. **(Correct procedures must be consistent. The swimmer must demonstrate stroke proficiency.)** |

**UNDERWATER SWIM**

**Acceptable performance standards:** Any method of swimming under water is acceptable as long as the body does not break the surface, except when the swimmer demonstrates the burning oil maneuver.

**BURNING OIL MANEUVER**

**Acceptable performance standards:** Swimmer must surface only twice during the 25-yard swim to demonstrate the burning oil maneuver. When surfacing, only one breath may be taken. At least one forward/backward splash and one sideward splash must occur at the surface. The head must be turned to the side.

# APPENDIX A

# GUIDELINES, MANUALS, AND PUBLICATIONS FOR STANDARDS COMPLIANCE

**REFERENCES**

☐ ARC Swimming and Diving

☐ ARC WSI Instructors' Manual

☐ ARC Lifeguard Training

☐ ARC CPR/AED for the Pro Rescuer

☐ CNICINST 1710.3 (Series)

☐ MCO 1500.52 (Series)

☐ NAVEDTRA 134A

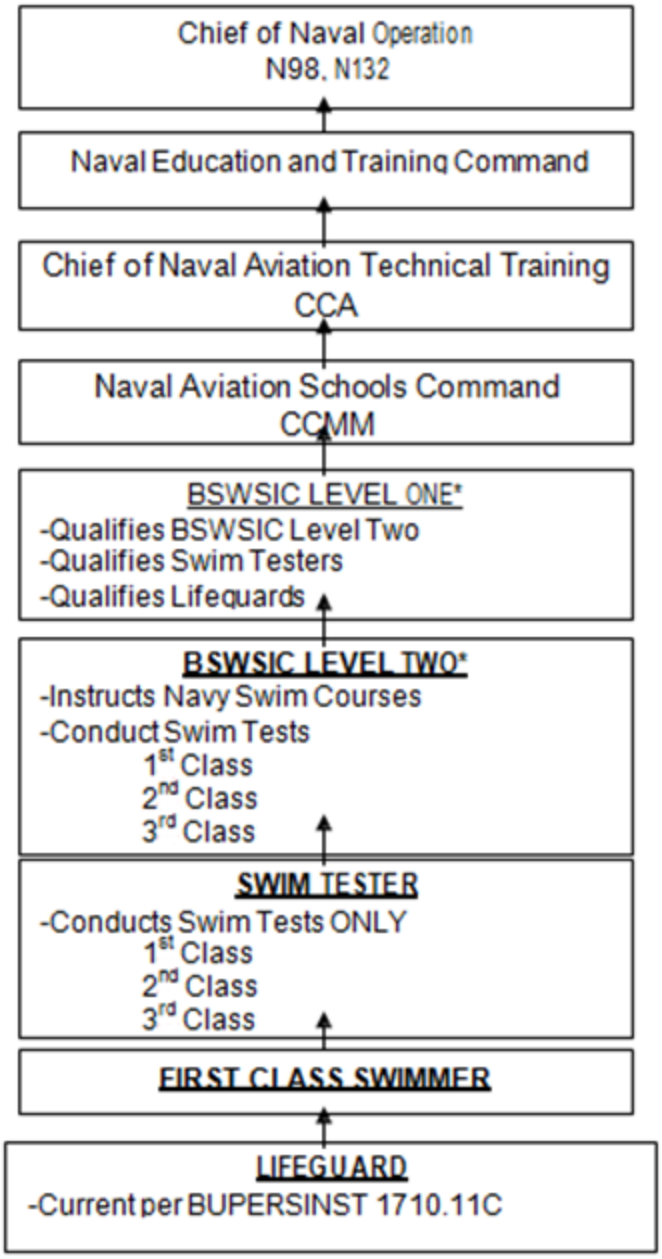
☐ NAVMED P-5010-4

☐ NAVOPMED P-1550-1

☐ NAVSEA 0927-LP-001-9111 (Rev. 3)

# APPENDIX B

# NAVY SWIM PROGRAM AUTHORITY BREAKDOWN




*With proper PQS and authorization, each level of BSWSIC is qualified to perform duties of subordinate levels. For more information, contact Navy Swim Program Manager: DSN 459-2191, COMM: (850) 452-2191.

# APPENDIX C

# MEDICAL SHEETS AND DROP ON REQUEST AND TRAINING TIME OUT POLICY

## MEDICAL SHEETS

For the current high risk training medical sheet refer to the following link. https://app.prod.cetars.training.navy.mil/cantrac/vol2.html

## DROP ON REQUEST (DOR) AND TRAINING TIME OUT (TTO) POLICY

Swim Tests are voluntary. Accordingly, you have the option to individually request termination of testing. Any time you make a statement such as “I quit”, “DOR” or words to that effect, you shall be immediately removed from the testing environment and referred to the appropriate division or testing officer for administrative action.

**Basic Time Out Test Participant Briefing:** A 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 procedures or requirements. TTO is also an appropriate means for one to obtain relief if they are experiencing pain, heat stress, or other serious physical discomfort. The purpose of the TTO is to correct the situation of concern, provide clarifying information, or remove the test participant or tester 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 class). The tester shall attempt to relieve and remove the student from the possible hazardous environment. If an adequate number of testers/ lifeguards are available to allow training to continue safely, the lead instructor may elect to do so. However, if this is not practical, testing will be stopped until the situation is corrected.

**DOR Test Participant Briefing:**

1. Policy. In all cases where test participant states a desire to DOR from voluntary testing based on concern for personal well-being, appropriate action shall be initiated. This includes removal from training, referral of the test participant for medical, counseling, or remedial action as appropriate, and review of the testing environment including testing 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 testing following a DOR.

2. Procedures. After removal from voluntary testing, the test participant shall submit a written statement detailing the reasons for DOR. The statement should clearly indicate that the student wants to DOR (e.g., I, (name), desire to be removed from testing for the following reason(s): ...). A standard Special Request/Authorization Form (NAVPERS 1336/3) may be used. The request shall be submitted directly to the testing or division officer and shall become a part of the student's service record. The student shall be removed from testing.

a. Training or Division Officer’s Interview. The loss of an able person from testing represents a waste of valuable resources, assets, time, and effort. Often, test participants who DOR do not give the real, or complete, reasons for their requests. The interviewer, using no overt or implied coercion or threats, shall make a reasonable effort to determine:

(1) The real motivation for the request.

(2) If the decision to DOR is the result of some testing factor which may lead other test participants to DOR. If so, can testing be changed to alleviate this factor without adversely affecting program objectives?

(3) If the test participant desires to reenter the program.

(4) If test participant retention is warranted, are there actions (counseling, change of tester, or special assistance) which might cause the test participant not to DOR? Are such actions justified in view of the impact upon the overall testing program and upon other test participants?

b. The interview need only be detailed enough to satisfy the CO or OIC that the test participant understands the gravity of DOR, and that the reasons for the DOR are known, or that further questioning is unlikely to reveal additional information.

c. No one in the DOR chain shall refuse to forward a request or to remove the test participant from testing, nor shall anyone delay a request in an effort to arrive at the cause of the DOR, or threaten/coerce a student to reconsider.

3. Post-Interview Procedure. If, after the interview, a test participant still desires to DOR, the interviewer shall refer them to the reviewing officer for further interviews or administrative action. A signed, written summary of the interview and recommended actions shall be provided by the interviewing officer to the reviewing officer.

**STATEMENT OF UNDERSTANDING**

I, (Print Name)_____, having been thoroughly briefed on the Swim Test Procedures, DOR and TTO policies, do fully understand the policies and their implication.

_____ _____
Signature Date

**PRIVACY ACT STATEMENT**

Under the authority of title 10 U.S.C. 5013, Secretary of the Navy; 10 U.S.C. Chapter 55, Medical and Dental Care; 5 U.S.C. 301, Departmental Regulations; and Executive Order 9397 (SSN), information is required to screen you for training. The personal information will be used to determine the presence of any condition which would contraindicate participation in water survival training. The DOD ID Number is used only for report filing. Disclosure of requested information is voluntary to prevent illness or injury. Failure to provide the requested information may preclude participation in water training and may warrant further medical evaluation.

# APPENDIX D
# TRAINING PREREQUISITES AND EQUIVALENCIES

Refer to CNICINST 1710.3 (Series). Contact Swim Model Manager DSN: 459-2191, COM: (850)452-2191 for anyone not on this list.

**FIRST CLASS SWIMMERS**

Must possess current lifeguard certification or approved Navy Enlisted Classification (NEC) per CNICINST 1710.3 (Series). Must be able to pass the First Class Swim Test.

**NEC's AND MARINE OCCUPATIONAL SPECIALTIES CONSIDERED FIRST CLASS SWIMMERS***

**Extensive water training of the Diver, SPECWAR, and Water Survival Instructor NEC's listed below meets or exceeds the swimming and water survival skills of a Navy First Class swimmer. Therefore, members awarded the following NEC's are considered First Class Swimmers:**

| | | |
|---|---|---|
| 0107[2] | 5343 | 8403 |
| 0170 | 5344 | 8427 |
| 0918[3] | 5345 | 8493 |
| 1140[1] | 5351 | 8494 |
| 1190[1] | 5352 | 9312[2] |
| 5326 | 5931 | 9313[2] |
| 5333 | 5932 | 9314[2] |
| 5335 | 5933 | 9315[2] |
| 5337 | 6480[1] | 9230[2] |
| 5341 | 7201[1] | 9504 |
| 5342 | 7815 | 9510 |

* To serve as a lifeguard for Navy Swim qualification tests, these NEC's must possess current certification in Cardiopulmonary Resuscitation/First Aid. For Officers, civilians, etc. who have completed training but have no NEC, contact Swim Model Manager DSN: 459-2191 or COMM: 850-452-2191

[1] Billet and Officer Designator Codes (BODC's).
[2] Navy Officer Billet Classification Codes (NOBC's).
[3] Marine Occupational Specialty (MOS).

**SWIM TESTERS**

If the individual is a First Class Swimmer, he/she must attend follow on training to become a Swim Tester. Minimum entry for the Swim Tester course is Second Class Swimmer and a Command Endorsement letter.

**SECOND CLASS SWIMMER**

Officer and enlisted aircrew who have completed Intermediate Water Survival Training C-050-0605 and are current in initial or refresher aviation water survival training are considered equivalent to Second Class Swimmer.

# APPENDIX E

# NROTC SWIM TEST ADMINISTRATOR

Naval Reserve Officers Training Corps (NROTC) swim qualification tests shall conform to the "Required Personnel" sections of Chapter 12 of NETC P1552/16 during each respective test, with the following exception: An NROTC Swim Test Administrator (STA) may be used to replace the Navy Swim Tester if an additional qualified lifeguard is present. At a minimum, an NROTC STA shall be an E-7 or above, be a Navy Second Class Swimmer, be Cardiopulmonary Resuscitation and First Aid qualified, and have completed the NROTC STA training.

**NOTE:** An NROTC STA is only authorized to qualify NROTC staff and students. The NROTC STA qualification is good only while the member is attached to their unit. The qualification shall expire upon transfer from the unit.

Contact the Navy Swim Program Manager: DSN: 459-2191 or COMM: (850) 452-2191 for any questions regarding qualifications.

# APPENDIX F
# USMC Equivalency Courses

USMC Marine Combat Instructor of Water Survival (MCIWS) MOS 0918 may qualify as Navy Swim Tester with proper distance learning cross over. Contact Naval Aviation Schools Command Water Survival Model Manager for more information. Contact the Navy Swim Program Manager: DSN: 459-2191 COMM: (850) 452-2191 for any questions regarding qualifications.

# RECORD OF SWIM QUALIFICATION

**1.** MEMBER INFORMATION

| **1a.** Last Name | **1b.** First Name | **1c.** MI | **1d.** NOS/Rank |
|---|---|---|---|
| | | | |

| **1e.** Member's Command | **1f.** Location of Assessment |
|---|---|
| | |

| MED SCREEN/TTO | YES | NO |
|---|---|---|

CIRCLE ONE:

USN USMC USAF USCG USA DOD CIVILIAN DOD CONTRACTOR OTHER

**2. SWIM SKILL ASSESSMENT (P1552/16 CHAPTER 13)**

| SHALLOW WATER SWIM 15 YARDS IN CHEST DEEP WATER | | DEEP WATER SWIM 15 YARDS IN WATER OVER HEAD | | TREAD WATER FOR 1 MINUTE | | SURVIVAL FLOAT FOR 1 MINUTE | |
|---|---|---|---|---|---|---|---|
| Yes | No | Yes | No | Yes | No | Yes | No |

***If all skills are mastered, and additional testing is required, continue to section 3 for swim qualifications. If not, skip to section 4***

**3. SWIMMER ASSESSMENT CHECK LIST**

**CRITERIA FOR SWIM ASSESSMENTS ARE LOCATED AS FOLLOWS; THIRD CLASS SWIMMER ASSESSMENT (P1552/16 CHAPTER 12 + CHAPTER 13), SECOND CLASS SWIMMER ASSESSMENT (P1552/16 CHAPTER 12 + CHAPTER 13), FIRST CLASS SWIMMER ASSESSMENT (P1552/16 CHAPTER 12 + CHAPTER 13)**

**MODULE ONE**

| DEEP WATER JUMP FROM A MINIMUM OF 5 FEET | Yes | No |
|---|---|---|

**Swim Distance (Circle one)**

50 Yards (3rd Class swimmer) 100 Yards (1st and 2nd class swimmer, 25 yards each)

**Skills test: Circle swimmer proficiency level**

**1st Class 2nd Class 3rd Class**

| CRAWL STROKE | | BREASTSTROKE | | SIDESTROKE | | ELEMENTARY BACKSTROKE | |
|---|---|---|---|---|---|---|---|
| Yes | No | Yes | No | Yes | No | Yes | No |

| SURVIVAL FLOAT FOR 5 MINUTES | | TRANSITION TO BACK FLOAT (1st and 2nd class only) | |
|---|---|---|---|
| Yes | No | Yes | No |

**MODULE TWO (3RD CLASS SWIM TEST ONLY)**

| SHIRT AND TROUSER OR COVERALL INFLATION | Yes | No |
|---|---|---|

**ADDITIONAL REQUIREMENTS ( 1ST CLASS SWIM TEST ONLY)**

| 25 YARD UNDERWATER SWIM: DEMONSTRATE BURNING OIL MANUEVER ( BREAKING SURFACE TWICE) | Yes | No |
|---|---|---|
| DOES SWIMMER HOLD CURRENT LIFE GUARD CERTIFICATION OR APPROVED NEC PER APPENDIX D | Yes | No |

**4. CERTIFICATION**

THE ABOVE LISTED INDIVIDUAL HAS BEEN ASSESSED AND IS CERTIFIED AT THE FOLLOWING SWIM QUALIFICATION LEVEL (A FLTMPS ENTRY IS REQUIRED TO DOCUMENT CERTIFICATION. THIS SHEET ALONE IS USED TO ASSIST SWIM TEST ADMINITRATOR IN EVALUATION.)

| UNSAFE TO TEST | THIRD CLASS SWIMMER | SECOND CLASS SWIMMER | FIRST CLASS SWIMMER |
|---|---|---|---|

| **4a.** Full Name and Rank of Certifying Individual (Print or Type) | **4b.** Signature of Certifying Individual | **4c.** Date (DD MMM YY) |
|---|---|---|
| | | |

**5. Notes (optional)**

Privacy Act Statement

1. Authority: U.S.C. 301, Departmental Regulations and E.O. 9397
2. Principal Purpose: To record candidates swim skills assessment
3. Routine Use: The blanket routine uses that appear at the beginning of the department of the Navy' compilation in the Federal Register apply.
4. Mandatory or voluntary disclosure and effect on individual not providing information: Providing the information is voluntary; however, failure to do so may preclude participation in the Navy Swim Test.