

NAVY DIVER PROGRAM

Introduction

The U.S. Navy Diver Program is a challenging and rewarding training program which requires an individual to be self-motivated and physically fit. The opportunities offered by the program have never been greater. As we continue to expand our quest into the ocean depths, the possibilities are limitless. During the course of any given day, Navy divers are on the job around the world: underwater repairs, recoveries, salvage missions, research and development all fall into the realm of today's Navy diver.

History

The U.S. Navy is the forerunner in the development of modern diving and underwater operations. The general requirements of national defense and the specific requirements of underwater reconnaissance, demolition, ordnance disposal, construction, ship maintenance, search, rescue and salvage operations repeatedly give impetus to training and development.

Navy divers trace their history back to the middle of the nineteenth century when they were primarily employed in the salvage and repair of ships, construction work, and military operations. However, until 1912, U.S. Navy divers rarely went below 60 feet. In that year a program to test Haldane's diving tables and methods of stage decompression was established, and then put to dramatic use six months later when the submarine USS F-4 sank near Honolulu, Hawaii. Navy divers salvaged the submarine and recovered the bodies of the crew, completing this major salvage effort working at the extreme depth of 304 feet. The incident led to the establishment of a Navy Diving School at Newport, Rhode Island. When the United States entered World War I, the staff and graduates of the school were sent to Europe, where they conducted various salvage operations along the French Coast.

However, at the end of World War I, diver training programs were cut and the school was not reinstated until after another intense salvage operation on the submarine USS S-51, sunk off Block Island, Massachusetts. Interest in diving was high once again and the Naval School at Diving and Salvage, was reestablished at the Washington Navy Yard in 1927. Additionally, the Experimental Diving Unit (EDU) was moved to the Navy Yard and in the following years, developed the U.S. Navy Air Decompression Tables which have become the accepted world standard.

In World War II, Navy divers were plunged into the war with the Japanese raid on Pearl Harbor. The raid began at 0755, 7 December 1941; by 0915 that same morning, the first salvage teams were cutting through the hull of the overturned battleship USS Oklahoma to rescue trapped sailors. Teams of divers were put to work recovering ammunition from the magazines of sunken ships, to be ready in the event of a second attack. The immense salvage effort that followed at Pearl Harbor was highly successful.

Since World War II, Navy diving has not been limited to tactical combat operations, wartime salvage and submarine sinkings. Fleet diving has become increasingly important and diversified. A major part of the diving mission is the inspection and repair of naval vessels to minimize downtime and the requirement for dry-docking. Other aspects of fleet diving include the recovery of practice and research torpedoes, installation and repair of underwater electronic arrays, underwater construction, and location and recovery of downed aircraft.

Entry Requirements

The U.S. Navy Diver program requires top physical condition and mental attitude that is found in only a small percentage of military men and women. The following requirements have been found to be minimum for students to successfully complete training:

References:

- a. Navy Military Personnel Manual (NMPC) 1220-100
- b. NAVMEDMAN P-117, Manual of the Medical Department, Ch. 15, Art. 66-Diving Duty
- c. ENLTRANSMAN (NAVPERS 15909E) Art. 4.02

Requirements:

1. Male or Female, 30 years of age or less.
2. Be classified in, or a designated striker for a source rating for the program. if not in an approved source rating, the applicant must sign a Page 13 entry to convert to an unmanned source rating within one year of completion of initial training.
Source ratings for Diver (NEC 5343, HM-8427 and HM-8493) are:
BM, FN, IC, SA, DC, GM, MM,
SM, EM, GMG, MR, SN, EN, GMM, OS, STG, ET, HM*, PH, STS, FA, HT, QM, TM.

***HA-HM1 may apply for training as FMF Reconnaissance Corpsman (NECs HM-8427) and Medical Deep Sea Diving Technician (HM-8493) only.**
3. Meet a minimum ASVAB score of AR+WK*=104**, MC=50. *For ASVAB test numbers 5,6, and 7, use WK score. ** **All HM NEC applicants must have a min of 110.**
4. Meet the minimum obligated service (OBLISERV) of 36 months, as of the class convening date of initial training. Applicants having less than the required obligated service shall execute an agreement to extend enlistment, NAVPERS 1070/621, and/or an extension of active duty agreement, NAVPERS 1070/622. A page 13 entry to extend or reenlist at EAOS to meet OBLISERV requirements is authorized if it will prevent economic loss to the individual.
5. Have a clear record (no NJP or Courts Martial) for the previous twelve months.
6. Pass a diving physical examination.
7. Successfully complete the following Physical Screening Test:

<u>Physical evolution</u>	<u>Time limit</u>
Swim continuously, 500 yds utilizing sidestroke and/or breaststroke.	14 MIN
REST	10 MIN
Perform 42 push-ups in 2 min or less.	2 MIN
REST	2 MIN
Perform 50 sit-ups in 2 min or less.	2 MIN
REST	2 MIN
Perform 6 pull-ups, no time limit.	N/A
REST	10 MIN
Run 1.5 miles	12 MIN 45 SEC

*The physical screening test is conducted in running shorts, t-shirt and running shoes

8. Complete a personal interview with a Diving Officer or Master Diver.
9. Pass a hyperbaric pressure tolerance test. This test is conducted in a recompression chamber and is designed to determine if the applicant can successfully adapt to increased atmospheric pressure without adverse physiological reaction. (Waivers to this may be granted if a hyperbaric facility is not accessible due to geographic location. However, the test must be successfully completed before commencement of training.)
10. Waivers will be considered on a case by case basis. All waivers must be approved by Navy Personnel Command code NPC 401D, with medical waivers routed Via BUMED, prior to the commencement of training.

Course Description - U.S. Navy Diver Second Class (A-433-0022)

The mission of a Second Class Diver brings the diver to various diving commands throughout the world where they are expected to perform as underwater diving experts in direct support of fleet salvage operations, underwater maintenance of ships and submarines, and the recovery of sunken or submerged objects. A Second Class Diver performs as an integral member of a diving team and as a hyperbaric chamber operator when treating diving related casualties.

The Second Class Diver Course develops a confident and capable diver. The course was designed by experienced fleet divers, with the purpose of providing the Navy with the best divers to support the various diving communities. Students are trained using current procedures and equipment, emphasizing the development of skills required to successfully serve the fleet.

The course is twenty weeks of intense academic and physical training. Trainees are introduced to basic diving physics and diving medicine. As training progresses, they find themselves in "confidence training," and a practical evaluation of SCUBA operations. Confidence training is the practice of ditch and don of scuba equipment with various problems imposed upon the student by the instructor. In addition, trainees receive instruction on Surface Supplied Diving, Chamber Operations and Underwater Ship Husbandry (UWSH).

Physical Conditioning: Physical training is conducted daily. Morning PT consists of calisthenics and running, with increasing difficulty imposed as the weeks progress. Students participate in runs of two to seven miles, and timed bay swims of 1000 yds using fins while swimming on their backs in 22 min or less.

Drown proofing is introduced early in the course. It requires the student to:

1. Enter the water and survival float for 5 minutes. This is a face-down floating technique.
2. Enter the water using a front roll entry with ankles LOOSELY tied, and perform a modified survival float for 5 minutes. **WARNING: DO NOT TIE OR OTHERWISE SECURE YOUR ANKLES WHILE PRACTICING THIS EVOLUTION. Simply keep your ankles together without restraints.**
3. Enter the water holding a line in both hands behind their back and perform a basic survival float for 5 minutes.

Physics: Students are instructed on gas theory and gas laws as they relate to diving. They are also instructed on proper charting of diving evolutions and other requirements related to diving operations.

Diving Medicine: This covers physiology and diving medicine. The student acquires the knowledge necessary to recognize respiratory problems, gas toxicity,

hypothermia, barotrauma, pulmonary over inflation syndromes, decompression sickness and other diving maladies

Hyperbaric Chamber Operations: In this phase of training the student learns to perform as a hyperbaric chamber operator. Students will become qualified as recompression chamber operators.

Diving Administration: The student is instructed on the Dive Reporting System, and diving administration. This includes Form 2544 and the command smooth log.

Open Circuit SCUBA: This phase of training includes classroom instruction, pool training, open water dives and qualification dives in a pressure vessel assembly. Students function as a topside dive team member and as SCUBA divers.

Surface Supplied Diving: The student performs underwater diving operations on various projects and craft in this module of training. They utilize the MK-20 and MK-21 diving rigs. In addition, the student is instructed on maintenance and repair of this equipment.

With the proven ability to overcome the rigorous mental and physical challenges, the end result is a qualified Second Class Diver who is an effective member of any diving team.

Course Description U.S Navy Diving Medical Technician (A-433-0020)

The mission of a Diving Medical Technician brings the Hospital Corpsman to various diving commands throughout the world where they perform as a diving medical expert in direct support of Fleet, Special Warfare, and Explosive Ordnance Disposal diving operations. Often a Diving Medical Technician performs as a member of a dive team and as a hyperbaric chamber inside tender.

The Diving Medical Technician Course develops a confident and capable diver and was designed by Diving Medical Technicians. The purpose of the course is to provide the Navy with the best medical diving force to support various diving communities. The students are trained using current procedures and equipment, emphasizing the development of skills required to successfully serve the fleet.

The Diving Medical Technician course is twenty-four weeks in length. It is divided into two phases

of training: Second Class Diver and Advanced Diving Medicine for Diving Medical Technicians.

Physics: Students are instructed on gas theory and gas laws as they relate to diving. They are also instructed on proper charting of diving evolutions and other requirements related to diving operations.

Diving Medicine: This covers physiology and diving medicine. The student acquires the knowledge necessary to correctly diagnose and recommend treatment for respiratory problems, gas toxicity, hypothermia, barotrauma, pulmonary over inflation syndromes, decompression sickness and other diving maladies.

Hyperbaric Chamber Operations: In this phase of training the student learns to perform as a hyperbaric chamber operator and inside tender. They are given simulated diving casualties under direct supervision of staff and medical personnel. Students will become qualified as recompression chamber operators and inside tenders.

Diving Administration: The student is instructed on the Dive Reporting System and diving administration and diving medical administration. This includes Form 2544, and the command smooth log, accident injury reporting and diving physicals.

Open Circuit SCUBA: This phase of training includes classroom instruction, pool training, open water dives and qualification dives in a pressure vessel assembly. Students function as a topside dive team member and as SCUBA divers.

Surface Supplied Diving: The student performs underwater diving operations on various projects and craft in this module of training. They utilize the MK-20 and MK-21 diving rigs. In addition, the student is instructed on maintenance and repair of this equipment.

With the proven ability to overcome the rigorous mental and physical challenges, the end result is a qualified Diving Medical Technician who is an effective member of any dive team.

SUGGESTED STUDENT PREPARATION

The following workouts are designed for two categories of people: Category I are for future students that have not been on a regular routine physical training program. Category II is designed for potential students that have had a regular routine physical training program. Usually participants in sports or activities which require a high level of cardiovascular activity, are in category II. Swimming, running, bicycling and wrestling are good examples of such sports.

PREPARATION FOR CATEGORY I

RUNNING: The majority of the physical activities you will be required to perform during diver training will involve a substantial amount of running. The intense amount of running can lead to overstress injuries of the lower extremities in trainees who arrive without physically preparing themselves to handle the activities. Swimming, bicycling and lifting

weights will prepare you for some of the activities at dive school, but **ONLY** running can prepare your lower extremities for the majority of the physical demands you will be required to overcome.

The goal of the category I student is to work up to 16 miles per week of running. After you have achieved that goal, **THEN** and **ONLY THEN** should you continue on to the category II goal of 30 miles per week. Let me remind you that category I is a nine week buildup program. Follow the workout as best you can and you will be amazed at the progress you will make.

RUNNING SCHEDULE I

WEEK	MON	TUES	WED	THURS	FRI	TOTAL
WEEK #1	2 MILES	OFF	2 MILES	OFF	2 MILES	6 MILES
WEEK #2	2 MILES	OFF	2 MILES	OFF	2 MILES	6 MILES
WEEK #3	OFF	OFF	OFF	OFF	OFF	0 MILES
WEEK #4	3 MILES	OFF	3 MILES	OFF	3 MILES	9 MILES
WEEK #5	2 MILES	3 MILES	OFF	4 MILES	2 MILES	11 MILES
WEEK #6	2 MILES	3 MILES	OFF	4 MILES	2 MILES	11 MILES
WEEK #7	3 MILES	4 MILES	OFF	5 MILES	2 MILES	14 MILES
WEEK #8	3 MILES	4 MILES	OFF	5 MILES	4 MILES	16 MILES
WEEK #9	3 MILES	4 MILES	OFF	5 MILES	4 MILES	16 MILES

PHYSICAL TRAINING SCHEDULE I (Perform Mon/Wed/Fri)

Sets X Repetitions

WEEK	PUSH-UPS	SIT-UPS	PULL-UPS

WEEK #1	4X15	4X20	3X3
WEEK #2	5X20	5X20	3X3
WEEK #3	5X25	5X25	3X4
WEEK#4	5X25	5X25	3X4
WEEK #5	6X25	6X25	2X8
WEEK #6	6X25	6X25	2X8
WEEK #7	6X30	6X30	2X10
WEEK #8	6X30	6X30	2X10
WEEK #9	6X30	6X30	3X10

NOTE: For best results, alternate exercises. Do a set of pushups, then a set of sit-ups followed by a set of pull-ups. Do the three sets of exercises with no rest between, take a thirty second rest, repeat for the remainder of the program.

SWIMMING SCHEDULE I

(Alternate sidestroke and breaststroke with no fins 4-5 days a week)

WEEK	SWIM CONTINUOUSLY
WEEK #1	15 MINUTES
WEEK #2	15 MINUTES
WEEK #3	20 MINUTES
WEEK #4	20 MINUTES
WEEK #5	25 MINUTES
WEEK #6	25 MINUTES
WEEK #7	30 MINUTES

WEEK #8	30 MINUTES
WEEK #9	35 MINUTES

Note: If you have no access to a pool, ride a bicycle for twice as long as you would swim. If you do have access to a pool, swim every day possible. Four to five days a week and 200 meters in one session is your initial workout goal. In addition, work to develop your sidestroke on both the left and the right side. Try to swim one direction on the left side, return on the opposite side.

PREPARATION FOR CATEGORY II

Category II is a more intense workout designed for those who have been involved with a regular routine physical training program or those who have completed the requirements of category I. **DO NOT ATTEMPT THIS WORKOUT SCHEDULE UNLESS YOU CAN COMPLETE THE WEEK #9 LEVEL OF CATEGORY I WORKOUTS.**

RUNNING SCHEDULE II

WEEK	MON	TUES	WED	THURS	FRI	TOTAL
WEEK #1	3 MILES	5 MILES	4 MILES	5 MILES	2 MILES	19 MILES
WEEK #2	3 MILES	5 MILES	4 MILES	5 MILES	2 MILES	19 MILES
WEEK #3	4 MILES	5 MILES	6 MILES	4 MILES	3 MILES	22 MILES
WEEK #4	4 MILES	5 MILES	6 MILES	4 MILES	3 MILES	22 MILES
WEEK #5	5 MILES	5 MILES	6 MILES	4 MILES	4 MILES	24 MILES
WEEK #6	5 MILES	6 MILES	6 MILES	6 MILES	4 MILES	27 MILES
WEEK #7	6 MILES	6 MILES	6 MILES	6 MILES	6 MILES	30 MILES

Note: For weeks #8-9 and beyond, it is not necessary to increase the distance of the runs; work on the speed of your 6-mile runs and try to get them down to 7:30 per mile or lower

(this would allow you to complete your run in 45 minutes or better). If you wish to increase the distance of your runs, do it gradually: no more than three miles per week for every week beyond week #9.

PHYSICAL TRAINING SCHEDULE II (Perform Mon/Wed/Fri)

Sets X Repetitions

WEEK	PUSH-UPS	SIT-UPS	PULL-UPS	DIPS
WEEK #1	6X30	6X35	3X10	3X20
WEEK #2	6X30	6X35	3X10	3X10
WEEK #3	10X20	10X25	4X10	10X15
WEEK#4	10X20	10X25	4X10	10X5
WEEK #5	15X20	15X25	4X12	15X15
WEEK #6	20X20	20X25	5X12	20X15

These workouts are designed for long-distance muscle endurance. Muscle fatigue will gradually take a longer and longer time to develop doing high repetition workouts. For best results, alternate exercises each set, in order to rest that muscle group for a short time. The above exercises can get a bit boring after awhile. Here are some more workouts you can use to break up the monotony.

PYRAMID WORKOUTS

You can do this with any exercise. The object is to slowly build up to a goal, then build back down to the beginning of the workout. For instance, pull-ups, sit-ups, pushups, and dips can be alternated as in the above workouts, but this time choose a number to be your goal and build up to that number. Each number counts as a set. Work your way up and down the pyramid. For example, say your goal is "5".

Pull-ups	1	2	3	4	5	4	3	2	1	
Push-ups	2	4	6	8	10	8	6	4	2	2 x number of pull-ups

Sit-ups	3	6	9	12	15	12	9	6	3	3 x number of pull-ups
Dips	2	4	6	8	10	8	6	4	2	Same as push-ups

SWIMMING WORKOUTS II

(4-5 days per week)

WEEK	SWIM CONTINUOUSLY
WEEK #1	35 MINUTES
WEEK #2	35 MINUTES
WEEK #3	45 MINUTES WITH FINS
WEEK #4	45 MINUTES WITH FINS
WEEK #5	60 MINUTES WITH FINS
WEEK #6	75 MINUTES WITH FINS

Note: At first, to reduce initial stress on your foot and calf muscles when starting with fins, alternate swimming 1000 meters with fins and 1000 meters without them. Your goal should be to swim 50 meters in 45 seconds or less.

STRETCH PT

Since Mon/Wed/Fri are devoted to PT, it is wise to devote at least 20 minutes on Tue/Thu/Sat to stretching. You should always stretch for at least 15 minutes before any workout; however, just stretching the previously worked muscles will make you more flexible and less likely to get injured. A good way to start stretching is to start at the top and go to the bottom. Stretch to tightness, not to pain; hold for 10-15 seconds. **DO NOT BOUNCE.** Stretch every muscle in your body from the neck to the ankles, concentrating on the calves, thighs, hamstrings, chest, back, and shoulders.

NUTRITION

Proper nutrition is extremely important now and especially when you arrive at dive school. You must make sure you receive the necessary nutrients to obtain maximum performance

output during exercise as well as to promote muscle/tissue growth and recovery. The proper diet provides all the nutrients for the body's needs and supplies energy for exercise. As well, it promotes growth and repair of tissue and regulates the body processes.

The fastest, most readily used source of energy is carbohydrates. Carbohydrates are divided into two categories; simple and complex. Simple carbohydrates are quickly broken down into fuel, although they provide a fast source of energy to the body they are used very rapidly. For long-distance endurance activities simple carbohydrates alone cannot adequately supply the body with the fuel it requires. In comparison, complex carbohydrates require a slightly longer period of time to break down to fuel. However, that fuel will be utilized over a much longer period of time.

A combination of simple and complex carbohydrates is optimal for proper energy and recovery. Foods rich in complex carbohydrates would include potatoes, pasta, rice, fruits and vegetables. Simple carbohydrates are found abundantly in processed foods. Fig Newton cookies and dried fruit would be healthy sources. Readily available performance nutrition bars generally provide a good ratio of complex to simple carbohydrates, their drawback would be the high cost per bar.

Carbohydrates alone will not provide the body all that it requires. Your diet requires, in addition, a combination of protein and fat. Protein is essential in the diet, especially for active individuals. It contains amino acids which are the building blocks of all muscle within the body. High quality protein will help aid in muscle growth, repair and recovery. Fat, on the other hand, provides the muscles with a long term source of energy. Even in the leanest athletes, the bodies fat storage can potentially provide more than twice the amount of energy as carbohydrates. The trick in utilizing this gold mine of energy is to provide the body with a regular supply. Contrary to popular thought, a diet void of fat will not enable you to lose weight and maintain energy.

The amount of food consumed each day should coincide with the level of exercise you are doing. As a general rule, the average adult male requires approximately 2000 calories per day. As you increase your energy usage you need to increase the amount of fuel you consume. A good practice is to regularly refuel following each substantial workout. This means getting in a balanced amount of nutrients within fifteen to thirty minutes following a workout. This is a good time to utilize those nutrition bars, energy drinks or even a peanut butter and jelly sandwich.

Your basic diet should consist of a proper percentage of each of these nutrients:

Carbohydrates	40-60%
Protein	20-30%
Fats	20-30%

Of all the things you put into your body, water is by far the most important. Depending on your level of exercise, you should be consuming as much as four quarts of water daily. It is very easy to become dehydrated while exercising, this is especially true while in dive school. The single most important rule to remember is to DRINK BEFORE YOU GET THIRSTY!! Substances such as alcohol, caffeine and tobacco increase your body's need for water. So, if you are going to utilize these, do so in moderation. Too much of these substances will definitely harm your body and hinder your performance. Supplemental intake of vitamins, as well, has not been proven to be beneficial. If you are eating a well balanced diet, you will be getting all the vitamins, minerals and trace elements your body requires to get you through the training.

Points of Contact

- **RTC Great Lakes Dive Motivator**
- **Your Command Career Counselor**
- **The Master Diver or senior diver at the nearest U.S. Navy diving activity**
- **Command Master Chief, Naval Diving and Salvage Training Center, 350 S. Crag Road. Panama City, FL 32407 Telephone: (850)235-5268 DSN 436. Email: cmcmdstc@aol.com**
- **PERS 401DC, Navy Personnel Command, 5720 Integrity Dr. Millington, TN 38055-4010. Telephone: (901) 874-3622, DSN 882-3622.**

Email: <mailto:p401dc@persnet.navy.mil>