NAVY FITNESS

STAY HEALTHY • STAY FIT • STAY NAVY

Navy Basic Fitness Orientation

Staff Training Manual

Welcome to Navy Fitness!

As a new Navy Fitness staff member, we would like to welcome you to the team. Navy Fitness is proud of the staff, facilities, and programs that are offered to our Sailors and families and all other MWR customers around the globe. As a Navy Fitness team member, it is important to be skilled and knowledgeable to assist our customers . The objective of the Navy Basic Fitness Orientation is to provide all staff members with the basic fundamentals of fitness, as well as the practical applications of the equipment that resides within the fitness facility.

Through this training, we hope to provide the knowledge and skills to not only enhance your own health and fitness, but that of our customers as well. Inspiring you to Stay healthy– Stay Fit—Stay Navy.

CNIC

★ FLEET ★ FIGHTER ★ FAMILY

Navy Basic Fitness Orientation
Course Agenda

Introduction	**5 minutes**
Fitness 101:	
Resistance Training Lecture	**20 minutes**
Practical Lab: Resistance Training	**30 minutes**
Cardiorespiratory Training Lecture	**20 minutes**
Practical Lab: Cardiorespiratory Training	**20 minutes**
Flexibility Lecture/Demonstration	**15 minutes**
Promoting N921	**10 minutes**
Test	

American College of Sports Medicine:

Exercise Guidelines

Cardiovascular:

> 5 days per week of moderate exercise, or >3 days per week of vigorous exercise, or a combination of moderate and vigorous exercise on 3-5 days. 30-60 minutes of purposeful moderate exercise or 20-60 minutes of vigorous exercise, or a combination of moderate and vigorous exercise per day in either one continuous session or in multiple sessions of >10 minutes to accumulate the desired duration.

Resistance:

2-3 days/wk, adults should also perform resistance exercises for each of the major muscle groups, 8-20 repetitions of 1-4 sets depending on what training outcomes are desired.

Flexibility:

Crucial to maintaining joint range of movement, completing a series of flexibility exercises for each of the major muscle-tendon groups on >2-3 days/wk and performing 60 seconds of total stretching time for each flexibility exercise.

Neuromotor:

Involves balance, agility, coordination, and gait and are recommended >2-3 days per week for 20-30 min for a total of 60 minutes of neuromotor exercise per week.

Benefits of Resistance Training

Resistance training has many health and physiological benefits, including:

Increased physical work capacity: As we get stronger, the physiological adaptations allow us to lift, push, pull, and carry more. This added strength will greatly affect our physical work capacity.

Increased joint flexibility: Resistance training trains our muscles to work in a full-range of motion (ROM) which helps to strengthen our joint flexibility.

Improved Body composition: Body composition is the relative amounts of fat and lean tissue in our bodies, which we generally refer to as percent body fat. Strength training allows us to rebuild/build lost muscle tissue and gain muscle tone.

Health Enhancement: Resistance training has proven to provide numerous health benefits, including:

Injury Prevention

Increasing Bone Mineral Density

Glucose Metabolism

Decrease bodyfat

Reduction of arthritic pain

Improved cholesterol levels

Gastrointestinal transit

Decrease risk/manage depression

Basic Resistance Training Guidelines

Frequency: 2-3 days a week

Intensity: 75% of maximum resistance

Time: 8-12 repetitions of each exercise

Type: Full body, starting largest muscle groups to smallest

Legs—Chest– Back– Shoulders– Arms– Core

Basic Exercise Principles

There are four key exercise principles of training:

Overload—Progression—Specificity—Periodization

Overload: Whether it is strength training or cardiovascular training, in order to get stronger or faster, you have to push the body to adapt to greater than normal physiological demands. If you want to get stronger, you have to lift heavier; if you want to get faster, you have to increase your pace.

Progression: This principle is often overlooked, but important when it comes to injury prevention. When training, it is important to gradually progress. An increase of only 5% for gradual strength gains is recommended.

Specificity: Training to produce specific results. For example, if an individual wants to be a strong runner, they must run and train the muscles used in running. If one wants to get bigger or stronger or more powerful, they must use the correct training variables to attain those goals.

Goal	Repetitions	Weight	Training methods
Hypertrophy	6-12	70-85% 1RM	High-volume training, such as super-sets, light-heavy pyramids
Strength	1-5	85-100% 1RM	Very heavy weight including exercise like Squats, deadlifts, bench press
Endurance	12-25	50-70% 1RM	Light/medium weights with short rest periods
Power	1-10	30-45% 1RM	Lifting light weights, but as quickly as possible

Reference: National Academy of Sport Medicine. 2013. NASM: Essentials of Sports Performance.

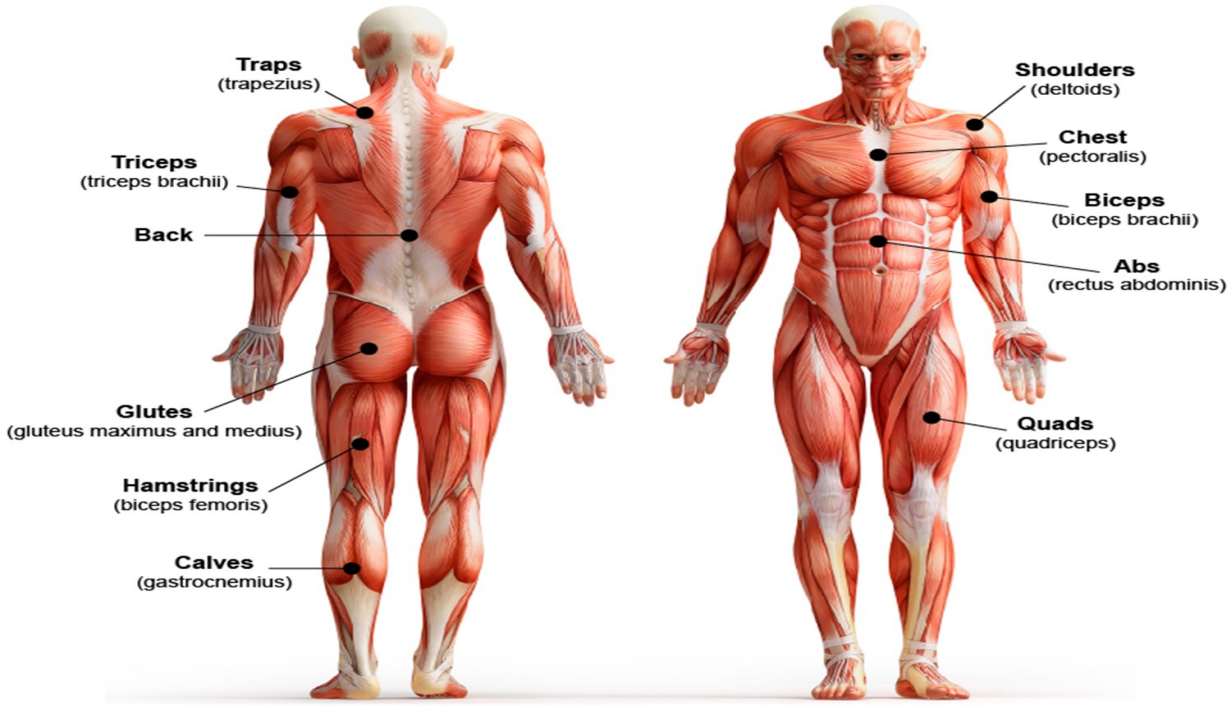
Periodization: An organized approach to training that involves progressive cycling of various aspects of training. In order to attain and maximize gains in strength, size, or performance levels, training plans must include specific phases that allow one to train all aspects of fitness. An example of a periodization would be:

Weeks 1-4 : Stabilization

Weeks 5-8: Strength

Weeks 9-12: Power

Basic Muscle Anatomy



Major Muscle Group	Selectorized Equipment	Free Weights
Quadriceps	Leg extension, Leg press	Squat, Lunge, Deadlift, Step-up
Hamstrings	Seated/Standing/prone leg curl, leg press	Squat, Lunge, Deadlift, Step-up
Pectoralis Major	Chest cross, Pec dec, chest, Bench/Incline/Vertical press, assisted bar dip	Bench press, Incline/Decline Bench press, Bench fly, bar dip
Latissimus Dorsi	Lat Pull Down, Seated row	Pullover, Pulldown, Bent-over Row, Pull-up
Deltoids	Lateral raise, Overhead press	Military Shoulder press, front/ lateral raises
Biceps	Preacher curl, biceps curl	Preacher curl, barbell curl
Triceps	Low triceps extension, high triceps extension	Overhead triceps extension, triceps pressdown, triceps kickback
Erector Spinae	Low back	Trunk extension
Rectus Abdominis	Abdominal curl, Rotary torso	Trunk curl, Twisting knee-lift trunk curl

Fitness Equipment

Navy Fitness has state-of-the-art Fitness Centers that include top-of-the-line equipment. Whether it is cardiovascular or strength equipment, our customers are provided with a variety of options to meet their individual fitness needs.

Gym patrons often ask, "What's the difference between machines and free-weights?", "Is one better than the other?" Machines and free-weights both offer great benefits in attaining one's fitness goals, but it is important to understand the differences.

Machines	Free Weights
Targets isolated muscles	Incorporates multiple muscle groups
Fixed Range of Motion (ROM)	Can work in multiple planes (Frontal, Sagittal, Transverse); functional/neuromotor
Safer to use; spotters not necessary	Strengthening of full body stabilization
Useful for rehabilitation exercises	Injury risk higher if improper form is used; spotters may be needed

- Mac

Alternate Equipment

We do not only have to use machines or free-weights, there are a lot of pieces of equipment in the facility that can work just as effectively, such as the TRX system, tubing, kettlebells, medicine balls, and even stability balls, just to name a few.

Alternate Equipment is used by many to train their **neuromotor skills** (i.e. balance and agility) or often referred to as "functional skills". For example, an standard push-up can be progressed from a strength exercise to a neuromotor exercise by simply adding the BOSU or Exercise ball. By placing the hands on an unstable surface, it requires the core to become more engaged and challenges the user to maintain their balance and stability throughout the entire movement of the exercise, thereby strengthening their neuromotor skills.

Neuromuscular Training Guidelines

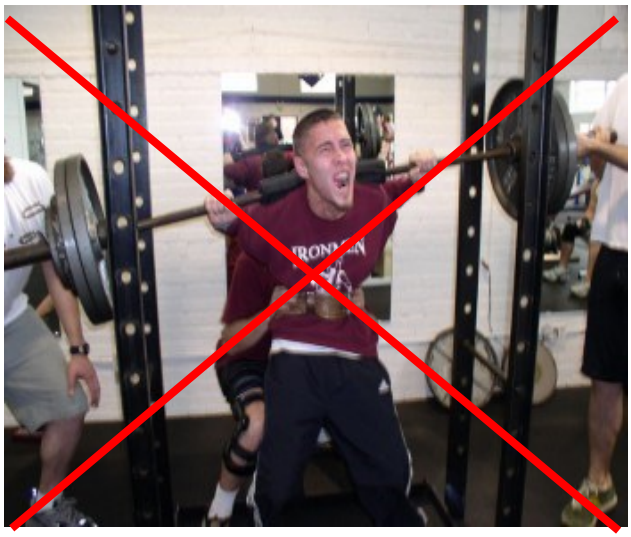
Involves balance, agility, coordination, and gait and are recommended >2-3 days per week for 20-30 min for a total of 60 minutes of neuromotor exercise per week.

If you are unsure how to use this equipment, work with one of the trainers or take a class that uses this equipment to get a feel for these great tools.

Safety: Spotting

Spotting is used as a safety measure when individuals are seeking to achieve strength gains by overloading the muscle. When done correctly, spotting provides an opportunity to elicit gains during a training session while maintaining a safe lift throughout the movement. However, if spotting is done incorrectly, it can be dangerous for not only the lifter, but the spotter as well.

Always use proper form and adhere to the ACSM checklist for spotting.



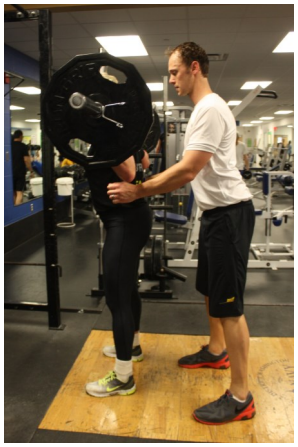
Key points to remember when spotting:

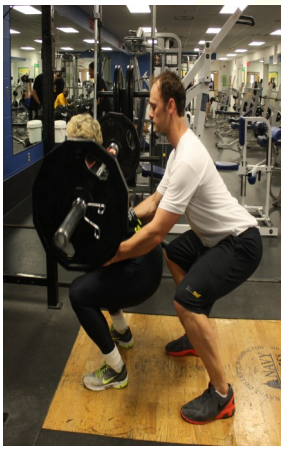
1. To know how to spot a lift, one must understand the mechanics of the exercise.
2. Overhand, underhand, neutral grip? To spot properly, it is important to know which grip is used. See pictures on page 11 for more details.
3. Communicate: Know how many repetitions that the individual plans to achieve. Clearly communicate the liftoff and re-racking of weight.
4. Never take eyes off the lifter. Stay focused at their movement and the weight being lifted.
5. If uncomfortable spotting, for any reason, get another individual to spot.

ACSM Checklist for Spotting

1. **Know proper exercise technique**
2. **Know proper spotting technique**
3. **Be sure you are strong enough to assist the lifter with the resistance being used or get help**
4. **Know how many repetitions the lifter intends to do**
5. **Be attentive to the lifter at all times**
6. **Stop lifters if exercise technique is incorrect or they break form**
7. **Know the plan of action if a serious injury occurs**

Proper Spotting Technique



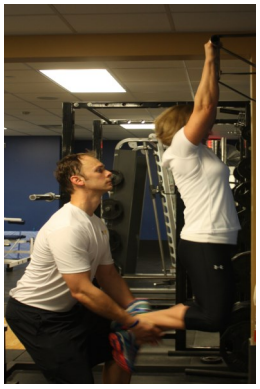


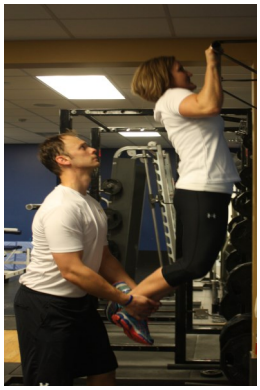
Squat

Stand erect and very close to the athlete. Place the feet shoulder-width apart with the knees slightly flexed. At the athlete's signal, assist with lifting and balancing the bar as it is moved out of the rack. Move in unison with the athlete as the athlete moves backward to the starting position. Once the athlete is in position, get into a hip-width stance with the knees slightly flexed and the torso erect. Position the hands near the athlete's hips, waist, and torso. Move in unison with the athlete through the entire movement.

Bench Press– Alternating Hand-grip

Stand erect & very close to the head of the bench. Place feet shoulder-width apart with the knees slightly flexed. Grasp the bar with a closed, alternated grip inside the athlete's hands. At the athlete's signal, assist with moving the bar off the supports. Guide the bar to a position over the athlete's chest. Keep the hands in the alternated grip position close to, but not touching, the base as it descends.





Assisted Pull-up/Dip

Stand close behind athlete, knees bent for support. As athlete hangs from bar, let feet rest in both hands (holding top of feet or ankles). Allow athlete to push off hands for support, when needed.

*Support holding under the ribcage may also be used, if athlete allows.

Dumbbell Press

Stand very close to the head of the bench. Place the fee shoulder-width apart with the knees slightly flexed. Grasp the athlete's forearms near the wrists. At athlete's signal, assist with moving the dumbbells to a position over the athlete's head and face. Release the athlete's forearms smoothly. Keep the hands near, but not touching, the athlete's forearms as the dumbbells descend/ascend. .

*Essentials of Strength Training and Conditioning. National Strength and Conditioning Association. 3rd Edition.

Cardiorespiratory Training

Cardiorespiratory Training:

The ability of the heart and lungs to take in and transport adequate amounts of oxygen to the working muscles, allowing activities that involves continuous movement of large muscles (i.e. running, swimming, biking) to be performed over long periods of time.

Benefits of

Cardiorespiratory Training

- Lowered Blood Pressure
- Lowered cholesterol
- Decreased risk for disease
- Increased cardiac function/efficiency
- Helps alleviate stress
- Decreased risk of some diseases
- Increased bone density
- Decreased percent body fat
- Increased life expectancy
- Decreased risk of obesity

Cardiorespiratory training has many benefits. First and foremost, when we think of the strongest muscle in our body, what do you usually think of? The jaw? Tongue? Gluteus maximus?

While the jaw is the strongest muscle as it pertains to force, as it relates to "does the most work", the heart is the strongest muscle in the human body. A person's heart is estimated to beat 40 million times a year and maintains this level of work throughout one's lifetime.

Through cardiorespiratory training, we are able to strengthen the heart and increase the cardiac output (how much blood the heart pumps per minute), increasing the cardiac function and efficiency. Strengthening the heart thereby leads to lowered blood pressure, lowered cholesterol, decreased risk for disease (specifically, Coronary heart disease), and ultimately, increases one's life expectancy.

Cardiorespiratory Training Methods

Steady Pace training

Steady Pace training (often referred to as Long, Slow Distance training) is a key component in strengthening the Aerobic system. This type of training requires one to maintain the same, steady, constant pace over time/distance. It is done at a consistent and comfortable effort level while staying in the aerobic training zone .

Interval training

Interval training divides endurance training sessions into harder and easier segments. Intervals are done in work to rest ratios, depending on an individual's specific training goals. Interval training is a great tool to add to one's training plan and effective in building strength, speed, and losing fat.

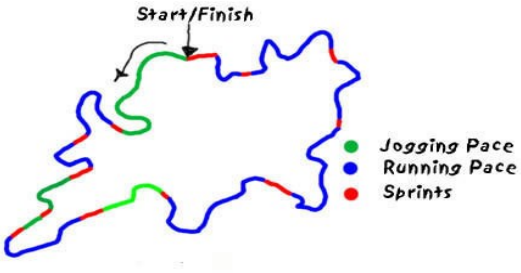
An example of an interval would be:

Sprint 30 seconds, recover 30 seconds

Fartlek training

Fartlek training, Swedish for "Speed Play", is an unstructured, interval-based training method that alternates moderate to high spurts of intensity followed by easier intensity throughout the workout. An example would be:

Run/Sprint to stop sign, walk to next stop sign, repeat.



Cross training

Cross training incorporates the use of different types of training methods to achieve the same fitness goal and maintain general conditioning. Cross training is often used as a preventative measure to minimize the occurrence of overuse injuries. For example, a runner could supplement one of their scheduled runs with Elliptical training or deep water running. This will help to minimize the effect of the constant, reoccurring impact that running has on joints.

Cardiorespiratory Training Intensity

Cardiorespiratory Training Guidelines

> 5 days per week of moderate exercise, or >3 days per week of vigorous exercise, or a combination of moderate and vigorous exercise on 3-5 days. 30-60 minutes of purposeful moderate exercise or 20-60 minutes of vigorous exercise, or a combination of moderate and vigorous exercise per day in either one continuous session or in multiple sessions of >10 minutes to accumulate the desired duration.

Training Intensity

When training, understanding intensity (level of effort) is important in attaining a specific training goal. Training intensity is the level of effort expended during a training session which effects both frequency and duration of training. There are various methods that can be used to assess intensity levels including: Heart Rate, Perceived Exertion, and Talk Test.

Heart Rate (Target Heart Rate)

Using the Karvonen formula, one can find their appropriate training heart rate to ensure that they are training within the appropriate intensity ranges for their specific training goal. Using one's age and Resting Heart Rate (RHR)*, numbers are input into the formula to provide a training heart rate range (THRR).

Minimum Training Heart Rate:

220– Age = Maximum Heart Rate (MHR)

MHR—Resting Heart Rate (RHR) = HRR

HRR X .60 (Min. Intensity) + RHR =THRR (min.intensity)

Maximum Training Heart Rate:

220– Age = MHR
MHR– RHR– HRR

HRR X .95 (Max. Intensity) + RHR = THRR(max.intensity)

THRR = Minimum Intensity% to Maximum Intensity %

*Resting Heart Rate: To attain RHR, take pulse first thing in the best for three consecutive days and calculate the average of the three .

Rate of Perceived Exertion (RPE)

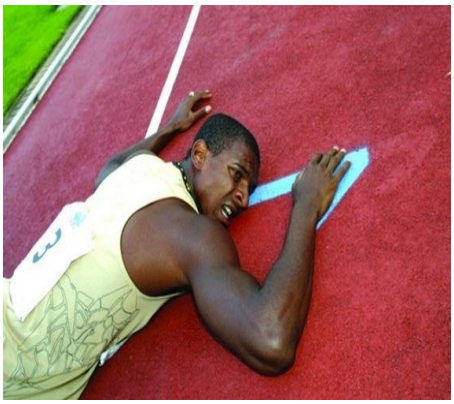
Using the RPE scale, individuals determine their intensity level in accordance with the guidelines provided. This method is easy to use for individuals and/or Group Exercise. See RPE chart for easy to read guidance of each level of exertion.

Talk Test

Using the same perimeters in the RPE scale, one would assess their intensity level by their ability to talk or hold a conversation. If you are able to carry a conversation, your intensity level is relatively light. However, if you can barely speak a work, your activity level is very hard.

Overexertion

When working in a fitness facility, it is important to observe patrons and watch for any signs of risk or injury. Individuals that work out at intensity levels that are too high may experience signs of overexertion. It is important to understand these signs and know the emergency response plan in case medical treatment is needed.



Signs of Overexertion include, but not limited to:

Extreme Shortness of breath	**Sweating profusely/Stop sweating**
Low abdominal pain	**Nausea**
Blue lips and/or finger	**Heart rates higher than recommended THRR**
Lack of coordination	**Chest Pain**
Irregular/fluttering HR	**Sore or painful muscles**

Flexibility

Flexibility, often one of the most overlooked, but most critical components to fitness, must be a part of every training plan. **Flexibility is the ability of a joint to move freely through its full range of motion (ROM).** Injuries are often caused by one's limited ability to execute movement patterns through a full ROM. Increased flexibility is shown to enhance performance and decrease the risk of injury.

Other benefits of flexibility training include:

Improved circulation	Enhanced relaxation
Improved posture	Reduced stiffness
Improved muscle coordination	Reduced muscle tension

ACSM Guidelines for Proper Stretching

1) Determine posture or position to be used. Ensure proper position and alignment prior to the stretch.
2) Emphasize proper breathing, inhale through the nose and exhale through pursed lips during the stretch.
3) Hold end points progressively for 30-90 seconds and take another deep breath.
4) Exhale and feel the muscle being stretched, relaxed, and softened so that further ROM is achieved.
5) Discomfort may increase slightly, but continue to focus on breathing.
6) Repeat the inhale-exhale-stretch cycle until the end of the available range for the day.
7) Do not bounce or spring while stretching.
8) Do not force a stretch while holding the breath.
9) Increased stretching range during exhalation encourages full body relaxation.
10) Slowly reposition from the stretch posture and allow muscles to recover at natural resting length.

*ACSM's Resources for the Personal Trainer. 1st ed. Baltimore: Lippincott Williams & Wilkins,

Flexibility

Flexibility Guidelines:

Crucial to maintaining joint range of movement, completing a series of flexibility exercises for each of the major muscle-tendon groups on >2-3 days/wk and performing 60 seconds of total stretching time for each flexibility exercise.

Dynamic Stretching

Before any activity, the body must be properly warmed up to not only improve performance, but to prevent injuries. Dynamic stretching incorporates movements that mimic the exercises/training that is about to be performed. For example, runners would include exercises such as high knees, butt kicks, standard knee marches– exercises that effectively target the primary muscles used in running (Glutes, Quads, Hamstrings, Hip Flexors). Dynamic stretching can also be used in strength training by including weight-free movements that mimic the strength exercises used in the training plan. For example, prior to executing a loaded bench press, one may include a warm-up solely with the bar.

Static Stretching

Static Stretching is a slow, sustained stretch commonly used at the end of one's training session. Stretches are held for 30-60 seconds with no movement. While some still use static stretches prior to a workout, they should be used sparingly in the beginning and predominantly at the end of the workout to be most beneficial.

Navy Fitness: Who we are

What is Navy Fitness?

Navy Fitness (N921) provides programs and support to Sailors (Active Duty/Reservists), family members, retirees, and DoD civilians across the Navy enterprise.

Navy Fitness is comprised of three core programs:

- **Fitness (Fitness, Sports, and Aquatics),**
- **All Navy Sports**
- **Deployed Forces Support**

What is CNIC?

Commander Navy Installations, Command (CNIC) is responsible for shore installations management under the United States Navy. All MWR (Morale, Welfare, and Recreation) personnel work for CNIC.

Navy Fitness (N921) falls under N9 (Fleet and Family Services) which provides programs and services to Sailors and family members across the Navy enterprise. Currently, Navy Fitness operates 113 fitness facilities across 70 installations, provides fitness and recreational support for Sailors ashore and afloat, as well as provides support to Navy Operational Support Centers (NOSCs) for Navy Reservists across the United States.

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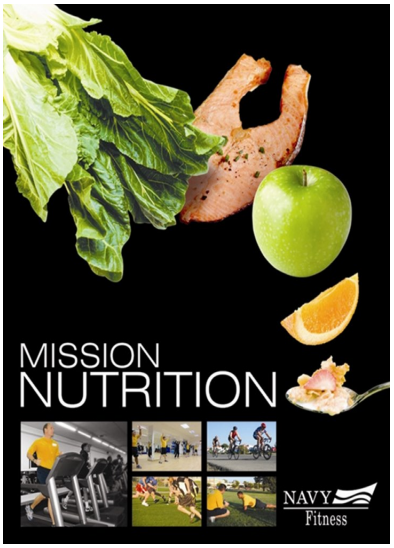
Core Programs of Navy Fitness

Navy Operational Fitness & Fueling System

Navy Operational Fitness and Fueling System (NOFFS) was developed in 2008 to provide Sailors with a safe and effective workout that encompasses both fitness and nutrition. Apps are available to download for free, including the original NOFFS series, Operational, and Sandbag, Strength, and Endurance Series. Workouts and meal builders are available at their finger touch. Staff training courses are available for all staff to participate in.



Mission Nutrition

Mission Nutrition is a standardized, science-based 2 day long course focused on improving your nutritional knowledge and awareness. In this class, you will learn about a variety of every day nutrition topics and ways to improve your eating habits as well as your overall health. Topics include grocery shopping, weight control and balance, fueling for performance, the effect of emotional eating among many other relevant subjects for discussion.

Command Fitness Leader

The Command Fitness Leader (CFL) Program provides support and assistance to CFLs. CNIC executes the 5-day CFL Certification course in which Sailors are trained and certified to be CFLs for their command. CFLs are responsible to the Physical Readiness of their commands via conducting the PFA, providing Command PT/FEP classes, and handling of administrative matters related to the PFA.

Core Programs of Navy Fitness

Deployed Forces Support

Deployed Forces Support enhances the quality of life for more than 180,000 Sailors and Marines at sea and forward-deployed Navy ground forces. Sports, recreational programs, physical fitness equipment, social activities (parties/ picnics), tours, subsidies/rebates and gear locker checkout are just a few of the morale-enhancing opportunities offered.

Deployed Forces Support Coordinators (DFSCs) are civilian recreation and fitness professionals exclusively dedicated to supporting the MWR needs of the fleet and forward-deployed ground forces.

The Navy's MWR Civilian Afloat Program is comprised of afloat fitness (Fit Boss) and recreation specialists (Fun Boss) who serve aboard aircraft carriers, amphibious assault ships and tenders to work together in providing fitness and recreation programs for shipboard Sailors.

All-Navy Sports

All-Navy Sports allows Sailors who possess the athletic skills to compete above the intramural level, in team or individual sports, a chance to represent the Navy at higher-level athletic competitions.

All-Navy teams participate in the Department of Defense's Sports program and compete in the Armed Forces Championships against teams from the Marine Corps, Army and Air Force.