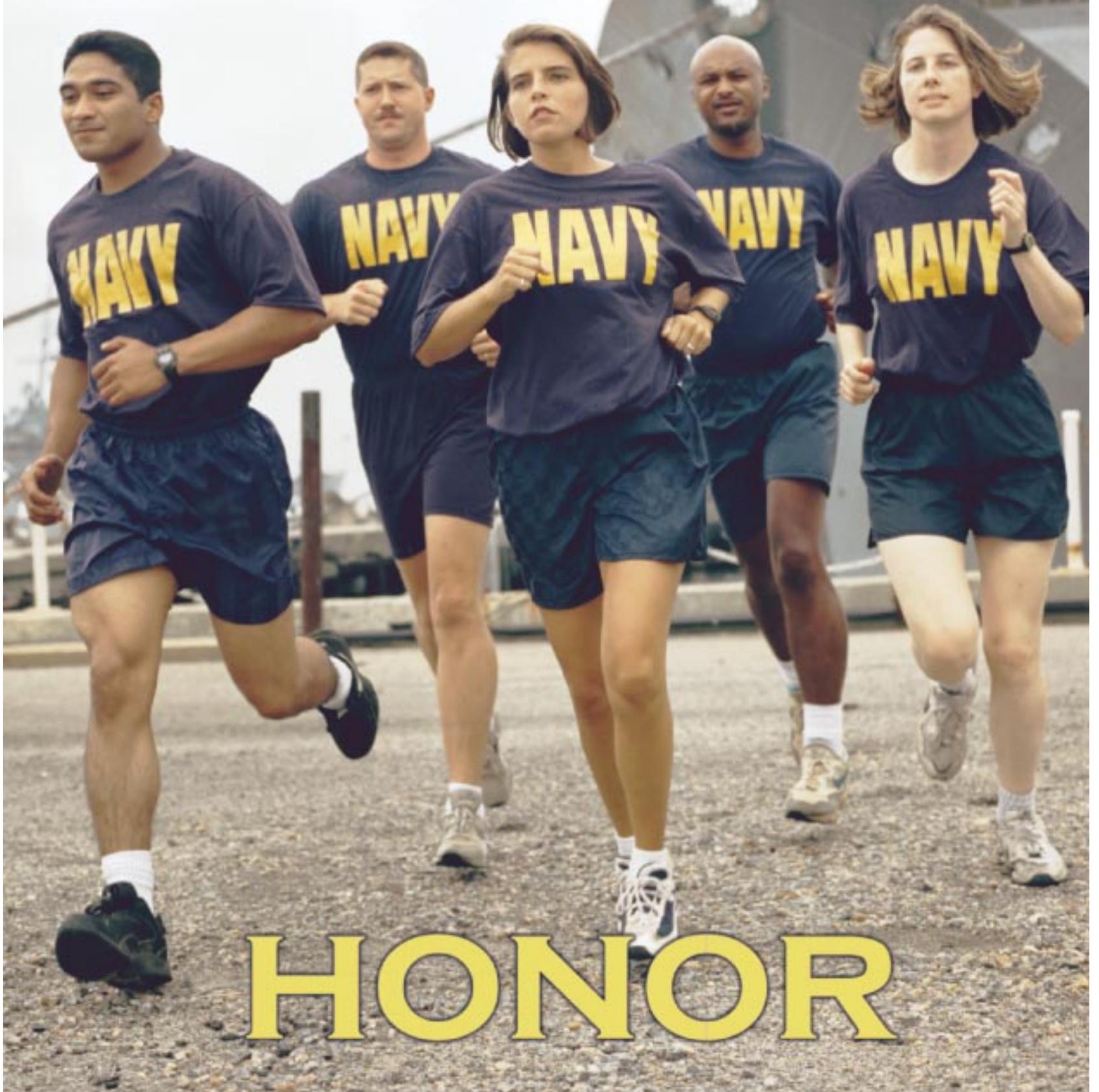




# U.S. NAVY

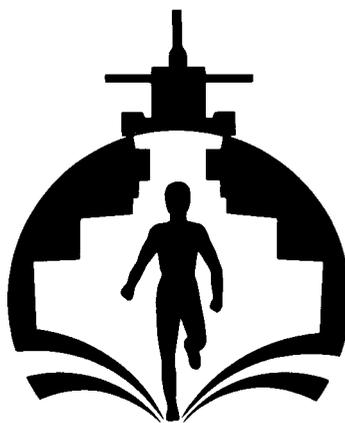
## PERSONAL TRAINING PLAN



**HONOR**

## ACKNOWLEDGMENTS

This booklet is a component of the Physical Fitness Enhancement Initiative by the Navy Environmental Health Center. It was developed in cooperation with the Cooper Institute for Aerobics Research; Dallas, Texas.



Reviewed and Approved

A handwritten signature in black ink that reads "R.L. Buck". The signature is written in a cursive style and is positioned above a horizontal line.

R.L. Buck

Commanding Officer

U.S. Navy Personal Training Plan  
(NEHC-TM 6100.98-4, October 1998)

# **U.S. NAVY**

## **PERSONAL TRAINING PLAN**

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# PHYSICAL FITNESS OVERVIEW



Physical fitness is an essential and critical component of readiness. Fitness is much more than the absence of disease. It is a state of being that includes strong, flexible muscles and an efficient system for getting oxygen and nutrients to the body.

Muscular strength and endurance activities help your muscles become stronger, giving them both the raw strength and ability to work repeatedly without undue fatigue.

Flexibility or stretching exercises are necessary to prevent injury to the muscles and joints, and to allow the muscles to work efficiently through a full range of motion.

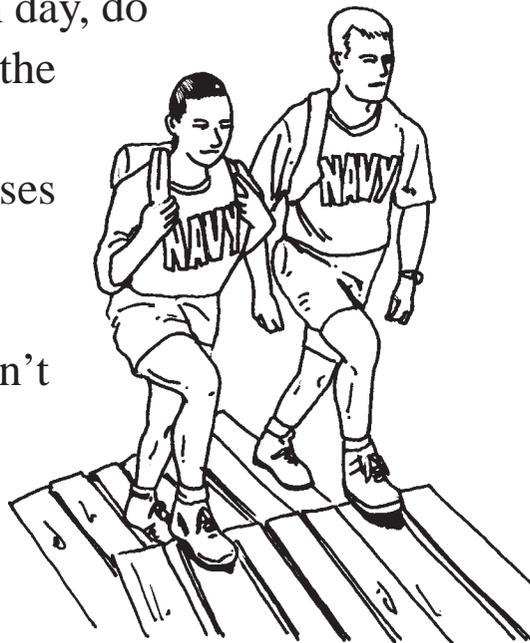
Cardiovascular activities, such as running and swimming, help the heart, lungs and blood vessels become more effective at delivering to the muscles what they need to function—oxygen and glucose.

Physical fitness is a state of being that must be maintained. You have to specifically exercise the muscles and joints where you want improvement. It is both a

science and an art, requiring effort and balance. It is also achievable by everyone, despite body type, family health history, and past habits.

You may or may not be ready to make all the changes it takes to achieve maximum fitness, but you're probably ready to do **something**. Each day, do what you can—walk around the block, do a few push-ups, do some of the stretching exercises shown on page 7.

And on days when you aren't able to get moving, don't get discouraged. Just plan ahead for the next day. Building new habits, even positive ones, takes some work, so don't get discouraged by temporary setbacks.



Physical fitness can be achieved working by yourself, with your family, or with your friends. Many people find working out with a partner to be motivating. Find someone who is at about the same fitness level as you, and jointly make a commitment.

# **STRETCHING/INJURY PREVENTION**

Stretching is important for everyone, from the Olympic athlete to the most committed couch potato. Stretching makes the muscles, ligaments and tendons more flexible and elastic-like. Rather than tearing or breaking when under strain, a flexible muscle is more likely to stretch and give. Flexibility prevents injuries, like back injuries and sprained ankles, and helps you perform everyday tasks with greater ease.

Stretching is joint specific—you have to target each muscle group and joint separately. The stretches on page 7 should be done at least 5 days a week, and every day is better. Develop a routine where you do each stretch 1 to 3 times for at least 10 to 30 seconds. Set aside time and get in the habit of doing them.

It's best to warm up first by walking, jogging, etc. for 3 to 5 minutes. Then stretch. Afterwards do your workout or play your sport, like softball, volleyball, or basketball.

Then stretch again after you've cooled down and your heart rate is almost back to normal. Never stretch a cold muscle. Always warm up first!

Also, always do slow static stretching. Don't swing or bounce. Stretch until you feel tension, but not pain.



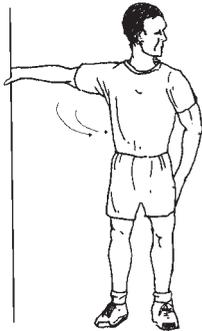
Neck Stretch



Upper Back Stretch



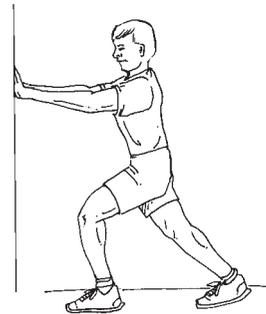
Triceps Stretch



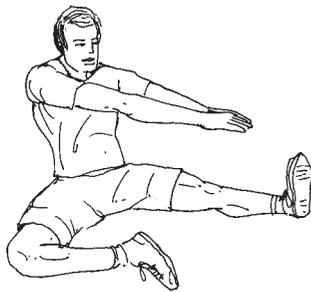
Chest & Biceps Stretch



Butterfly (Groin)  
Stretch



Calf Stretch



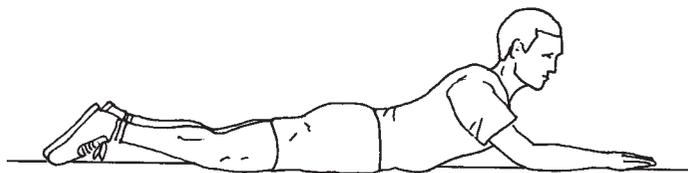
Hamstring Stretch



Lower Back Stretch  
(1 knee)



Quadriceps Stretch



Back Extension Stretch

# CARDIOVASCULAR FITNESS

Cardiovascular fitness is the result of doing activities that exercise your heart, lungs and blood vessels. The type activity you need to achieve cardiovascular fitness is aerobic, which uses large muscle groups at an intensity that can be sustained for a long period of time.

Activities such as running, jogging, brisk walking, stair climbing, rowing, swimming, aerobic dance, and bicycling should make you work hard enough that you're breathing harder and perspiring some. A good rule of thumb is that you can carry on a light conversation, but can't sing. A more exact way to gauge your intensity is to aim for your target heart rate. If you don't know how to determine what your heart rate should be, ask your PRT coordinator or a fitness professional to help.

Your workout should last at least 20 minutes, not including your warm-up, cool down, or stretching.

To be sure you're getting a good workout, follow the *FITT* Principle:

- **F** Frequency: 3-5 times a week
- **I** Intensity: Target Heart Rate, or Talk but can't Sing
- **T** Time: 20 to 60 minutes of aerobic activity
- **T** Type of Activity: Something you enjoy



# **EXPLANATION OF AEROBICS POINTS SYSTEM**

On the following two pages is a listing for aerobic points you can earn by walking, running or swimming. The points were developed, along with scoring for many other activities, by Dr. Kenneth Cooper, and first appeared in his best-seller book *Aerobics*. The system was updated in Dr. Cooper's 1982 book *The Aerobics Program for Total Well-Being*. The points are the same for men and women.

Your goal should be to work up to earning at least 30 points per week. You may not be there now. If not, be patient. If you're interested in activities other than walking, running or swimming, or in other distances and times, refer to *The Aerobics Program for Total Well-Being*.

To record your points, get a small calendar or notebook. Each day, record your activity and how many points you earned. Your personal goals will depend on what you want to accomplish. If training for a sporting event, your goals will be higher than if you are just beginning to work out. Just 10 points a week will result in significant improvements for the previously sedentary person. The athlete may earn 100 or more points a week. A reasonable goal is to earn 6 points five days a week.

## COOPER AEROBICS POINTS FOR RUNNING/FAST WALKING (MEN AND WOMEN)

<b>1.0 mile</b>		<b>3.0 miles</b>	
over	20:01 min ..... 0	over	1hr 1 sec ..... 2
20:00 -	15:01 min ..... 1	1:00:00 -	45:01 min ..... 5
15:00 -	12:01 min ..... 2	45:00 -	36:01 min ..... 8
12:00 -	10:01 min ..... 3	36:00 -	30:01 min ..... 11
10:00 -	8:01 min ..... 4	30:00 -	24:01 min ..... 14
8:00 -	6:41 min ..... 5	24:00 -	20:01 min ..... 17
6:40 -	5:44 min ..... 6	20:00 -	17:10 min ..... 20
under	5:43 min ..... 7	under	17:09 min ..... 23
<b>1.5 miles</b>		<b>4.0 miles</b>	
over	45:01 min ..... 0	over	1:20:01 ..... 3
45:00 -	30:01 min ..... 1/2	1:20:00 -	1:00:01 ..... 7
30:00 -	22:31 min ..... 2	1:00:00 -	48:01 min ..... 11
22:30 -	18:01 min ..... 3 1/2	48:00 -	40:01 min ..... 15
18:00 -	15:01 min ..... 5	40:00 -	32:01 min ..... 19
15:00 -	12:01 min ..... 6 1/2	32:00 -	26:41 min ..... 23
12:00 -	10:01 min ..... 8	26:40 -	22:53 min ..... 27
10:00 -	8:35 min ..... 9 1/2	under	23:00 min ..... 31
under	8:34 min ..... 11		
<b>2.0 miles</b>		<b>5.0 miles</b>	
over	40:01 min ..... 1	over	1:40:01 ..... 4
40:00 -	30:01 min ..... 3	1:40:00 -	1:15:01 ..... 9
30:00 -	24:01 min ..... 5	1:15:00 -	1:00:01 ..... 14
24:00 -	20:01 min ..... 7	1:00:00 -	50:01 min ..... 19
20:00 -	16:01 min ..... 9	50:00 -	40:01 min ..... 24
16:00 -	13:21 min ..... 11	40:00 -	33:21 min ..... 29
13:20 -	11:27 min ..... 13	33:20 -	28:35 min ..... 34
under	11:26 min ..... 15	under	28:34 min ..... 39
<b>2.5 miles</b>		<b>6.0 miles</b>	
over	50:01 min ..... 1 1/2	over	2:00:01 ..... 5
50:00 -	37:31 min ..... 4	2:00:00 -	1:30:01 ..... 11
37:30 -	30:01 min ..... 6 1/2	1:30:00 -	1:12:01 ..... 17
30:00 -	25:01 min ..... 9	1:12:00 -	1:00:01 ..... 23
25:00 -	20:01 min ..... 11 1/2	1:00:00 -	48:01 min ..... 29
20:00 -	16:41 min ..... 14	48:00 -	40:01 min ..... 35
16:40 -	14:19 min ..... 16 1/2	40:00 -	34:19 min ..... 41
under	14:18 min ..... 19	under	34:18 min ..... 47



## COOPER AEROBICS POINTS FOR SWIMMING (MEN AND WOMEN)

<b>200 Yards</b>		<b>900 Yards</b>	
over	6:41 min ..... 0	over	30:01 min ..... 0
6:40 -	5:01 min ..... 1.25	30:00 -	22:31 min ..... 7.13
5:00 -	3:21 min ..... 1.67	22:30 -	15:01 min ..... 9.00
under	3:20 min ..... 2.50	under	15:00 min ..... 12.75
<b>400 Yards</b>		<b>1000 Yards</b>	
over	13:21 min ..... 0	over	33:21 min ..... 0
13:20 -	10:01 min ..... 2.50	33:20 -	25:01 min ..... 8.25
10:00 -	6:41 min ..... 3.33	25:00 -	16:41 min ..... 10.33
under	6:40 min ..... 5.00	under	16:40 min ..... 14.50
<b>500 Yards</b>		<b>1200 Yards</b>	
over	16:41 min ..... 0	over	40:01 min ..... 0
16:40 -	12:31 min ..... 3.12	40:00 -	30:01 min ..... 10.50
12:30 -	8:21 min ..... 4.17	30:00 -	20:01 min ..... 13.00
under	8:20 min ..... 6.25	under	20:00 min ..... 18.00
<b>600 Yards</b>		<b>1400 Yards</b>	
over	20:01 min ..... 0	over	46:41 min ..... 0
20:00 -	15:01 min ..... 3.75	46:40 -	35:01 min ..... 12.75
15:00 -	10:01 min ..... 5.00	35:00 -	23:21 min ..... 15.67
under	10:00 min ..... 7.50	under	23:20 min ..... 21.50
<b>700 Yards</b>		<b>1600 Yards</b>	
over	23:21 min ..... 0	over	53:21 min ..... 0
23:20 -	17:31 min ..... 4.88	53:20 -	40:01 min ..... 15.00
17:30 -	11:41 min ..... 6.33	40:00 -	26:41 min ..... 18.33
under	11:40 min ..... 9.25	under	26:40 min ..... 25.00
<b>800 Yards</b>		<b>1800 Yards</b>	
over	26:41 min ..... 0	over	1:00:01 ..... 0
26:40 -	20:01 min ..... 6.00	1:00:00 -	45:01 min ..... 17.25
20:00 -	13:21 min ..... 7.67	45:00 -	30:01 min ..... 21.00
under	13:20 min ..... 11.00	under	30:00 min ..... 28.50

The Cooper Aerobics Points System, from  
*The Aerobics Program for Total Well-Being*  
 Copyright © 1982 by Kenneth H. Cooper



# MUSCULAR STRENGTH

Developing muscular strength is very important for several reasons, including improved performance, prevention of injuries, enhanced personal appearance, maintenance of good posture, and even increased bone mass.

People use many different methods to develop strength, including free weights, resistance machines, and body weight activities such as push-ups, curl-ups and pull-ups. Regardless of the method, improvement will result only through overloading the muscle in a progressive manner. Overload can be achieved by any combination of the following:

- Increase the amount of weight lifted;
- Increase the repetitions in a set;
- Increase the number of sets; and
- Decrease the rest time between sets.

Women should not be afraid of resistance training. Only under rare circumstances do women develop much bulk from lifting weights. Most women will experience noticeable muscle toning, greater muscle definition, and increases in strength.

On the next page are some tips to help you plan your strength training workout.



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## **STRENGTH TRAINING TIPS**

- Work muscles that are opposite to each other, that is on each side of a joint  
Example: biceps and triceps
- Perform a minimum of 8-10 separate exercises each workout
- Plan your workouts to last less than 1 hour
- Perform at least one set of 8-12 reps of each exercise
- Perform these exercises at least 2 nonconsecutive days each week
- Use proper technique for each exercise
- Perform each lift through a full range of motion
- Perform both lifting and lowering portion of exercise in a controlled manner
- Maintain a normal breathing pattern. Don't hold your breath
- Work out with a training partner. Never lift heavy free weights without a spotter

---

## **Caution About Ergogenic Aids**

Some athletes try to gain an advantage by using drugs and other substances, also called ergogenic aids, to enhance performance and accelerate muscle growth. Most do not work at all, and many have significant risk. Every substance with potential benefit carries some dangers. Eating a well-balanced diet can provide you with all the nutrients you need.

On the following pages are guidelines that may help you make decisions about ergogenic aids.

Name		Claims	Comments
<i>Amino Acids</i>		Increase muscle mass; increase growth hormone production	No valid scientific evidence that individual amino acids or combinations of single amino acids provide any benefit.
<i>Antioxidant Vitamins (C, E) (betacarotene)</i>		Protect muscles from damage during intensive stress	Research data is not conclusive.
<i>Arginine/Ornithine</i>		Increase muscle mass through stimulation of growth hormone	Early studies showed promise, but more recent, studies show no effect.
<i>Bee Pollen</i>		Enhance recovery from exercise; increase energy level	Studies show no effect on athletic performance. May cause severe allergic reaction.
<i>Caffeine</i>	 	Increase endurance performance by increasing the release of free fatty acids, thereby slowing the use of oxygen	Works for some people in middle distance and endurance sports. Banned at high levels by the International Olympic Committee. Side effects include cardiac arrhythmia, and dehydration.
<i>Carbohydrate</i>		Reduce fatigue by restoring and maintaining blood glucose	Eat a well balanced, high carbohydrate diet; use high carbohydrate foods, beverages and bars to replenish glucose during exercise that lasts <b>more than 1 hour.</b>



<b>Name</b>		<b>Claims</b>	<b>Comments</b>
<i>Chromium Picolinate</i>		Promote muscle gain and fat loss	Studies to date have been poorly conducted.
<i>Creatine Monohydrate</i>		Increase energy; promote muscle development; burn fat; delay fatigue	May be most useful in short duration power and strength activities. May cause weight gain due to water retention. Safety of long-term use not yet determined.
<i>DHEA</i>		Increase energy levels; decrease body fat; increase intelligence; enhance memory	Significant side effects. Long-term effects are not known. Banned in Olympic and NCAA competition.
<i>Ginseng</i>		Enhance energy; improve concentration; enhance weight loss	Well-designed studies have not shown the promised effects.
<i>L-carnitine</i>		Increase aerobic power and energy; reduce body fat	Claims have not held up to well-controlled studies. Not well absorbed. Large doses may cause diarrhea.
<i>Ma Huang (ephedrine)</i>		Increase energy; enhance weight loss	A stimulant with many side effects. The FDA warning: don't buy products with ma huang or ephedrine. Deaths have been reported using these products.
<i>Smilax</i>		Increase testosterone, muscle mass, and strength	No valid research evidence to support claims.

## **Navy Environmental Health Center**

For information on ordering additional copies or obtaining an 8 1/2 x 11” copy of the U.S. Navy Personal Training Plan (NEHC-TM 6100.98-4), visit the Navy Environmental Health Center Homepage:

<http://www-nehc.med.navy.mil>

See Health Promotion Section



# Aerobic Exercise Program



Name \_\_\_\_\_

Exercise Objectives \_\_\_\_\_

Realistic Exercise Schedule (days per wk/time per workout) \_\_\_\_\_

F.I.T. Principle (ACSM exercise guidelines)

Frequency: Exercise at least 3 times per week.

Intensity: Exercise within your target rate range specific to your goals (50-90% Maximum Heart Rate (MHR)).

Your personal exercise heart rate is \_\_\_\_\_ to \_\_\_\_\_. Your 10-sec heart rate is \_\_\_\_\_ to \_\_\_\_\_.

For assistance in finding your personal exercise THR, contact your local MWR Fitness Coordinator or a Certified Personal Trainer.

Time: Exercise at least 20 to 60 minutes.

Type: Aerobic activities are those that can be sustained for a long period of time. Examples include running, rowing, swimming, cycling, aerobic dance, skiing, stair climbing, and rollerblading.

Activity	THR	Date									
	Min										

- Warm up prior to and cool down after each workout (2-5 min).
- Increase your flexibility by stretching before and after each workout.
- Over-exertion can be hazardous to your health. Stay within your training heart rate when exercising.
- Do not stop abruptly after exercise to prevent blood pooling (blood accumulating in the extremities).
- Cool down gradually and lower your heart rate to 100 beats per min or 16 for a 10 second count per completion.
- Be sure that your body is adequately hydrated. At least a cupful per 15 min of exercise is recommended.
- When exercising, be careful in extreme weather conditions, especially hot, humid weather.
- Remember to use protective equipment, i.e., helmet, elbow, knee pads when needed.



# Stretching Program



Name \_\_\_\_\_

Exercise Objectives \_\_\_\_\_

Realistic Exercise Schedule (days per wk/time per workout) \_\_\_\_\_

- Warm up 3-5 minutes before stretching
- Stretch to a point of mild tension
- Prevent bouncing movement when stretching
- Hold each stretch for 10 to 30 seconds
- Repeat each stretch 3 to 5 times



Neck Stretch



Upper Back Stretch



Triceps Stretch



Chest & Biceps Stretch



Hamstring Stretch



Quadriceps Stretch



Calf Stretch



Butterfly Stretch



Lower Back Stretch  
(1 knee)



Back Extension Stretch

Stretch	Date										
Neck Stretch											
Upper Back Stretch											
Triceps Stretch											
Chest & Biceps Stretch											
Hamstring Stretch											
Quadriceps Stretch											
Calf Stretch											
Butterfly/Groin Stretch											
Lower Back Stretch											
Back Extension Stretch											



# (Exercise) Target Heart Rates

<u>Age</u>	<u>EMHR</u>	<u>60%</u>	<u>65%</u>	<u>70%</u>	<u>75%</u>	<u>80%</u>	<u>85%</u>
18	202	121	131	141	152	162	172
19	201	121	131	141	151	161	171
20	200	120	130	140	150	160	170
21	199	119	129	139	149	159	169
22	198	119	129	139	149	158	168
23	197	118	128	138	148	158	167
24	196	118	127	137	147	157	167
25	195	117	127	137	146	156	166
26	194	116	126	136	146	155	165
27	193	116	126	135	145	154	164
28	192	115	125	134	144	154	163
29	191	114	124	134	143	153	162
30	190	114	123	133	143	152	162
31	189	113	123	132	142	151	161
32	188	113	122	132	141	150	160
33	187	112	122	131	140	150	159
34	186	112	121	130	139	149	158
35	185	111	120	130	138	148	157
36	184	111	120	129	138	147	156
37	183	110	119	128	137	146	156
38	182	109	118	127	137	146	155
39	181	109	118	127	136	145	154
40	180	108	117	126	135	144	153
41	179	107	116	125	134	143	152
42	178	107	116	125	134	142	151
43	177	106	115	124	133	142	150
44	176	106	114	123	132	141	150
45	175	105	114	122	131	140	149
46	174	104	113	122	131	139	148
47	173	104	112	121	130	138	147
48	172	103	112	120	129	138	146
49	171	103	111	120	128	137	145
50	170	102	110	119	128	136	145
51	169	102	110	118	127	135	144
52	168	101	109	118	126	134	143
53	167	100	109	117	125	134	142
54	166	100	108	116	125	133	141
55	165	99	107	116	124	132	140
56	164	98	107	115	123	131	139
57	163	98	106	114	122	130	139
58	162	97	105	113	122	130	139
59	161	97	105	113	121	129	137
60	160	96	104	112	120	128	136
61	159	95	103	111	119	127	135
62	158	95	103	111	119	126	134
63	157	94	102	110	118	126	133
64	156	94	101	109	117	126	133
65	155	93	101	109	116	124	132
66	154	92	100	107	116	123	130
67	153	92	99	107	115	122	130
68	152	91	99	106	114	121	129
69	151	91	98	105	113	120	128
70	150	90	97	105	113	120	127