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SPARTEN

A TOTAL BODY FITNESS PROGRAM FOR HEALTH AND PHYSICAL READINESS

E. J. MARCINIK

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SPARTEN

A TOTAL BODY FITNESS PROGRAM FOR HEALTH AND PHYSICAL READINESS

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Cover: Research studies involving approximately 1000 Navy recruits from the Recruit Training Command, San Diego, CA have been instrumental in the development of the SPARTEN training system.

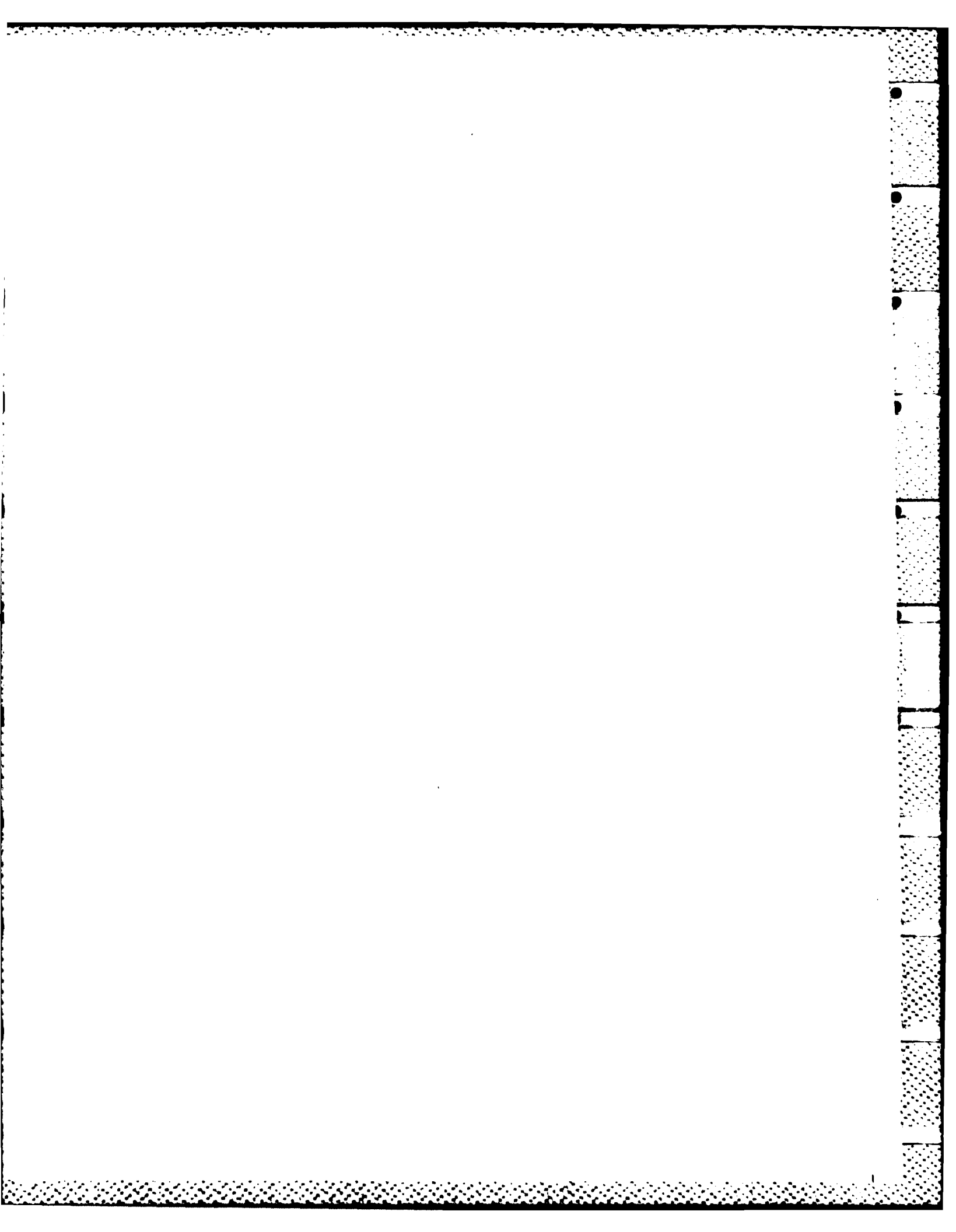
INTRODUCTION

SPARTEN (Scientific Program of Aerobic and Resistance Training Exercise in the Navy) is a total body fitness program designed for use by Navy ship and shore based commands by exercise physiologists from the Naval Health Research Center, San Diego, CA (1). The development of the SPARTEN program comes in response to a Department of Defense directive ordering each military service to design physical training programs that meet the specific physical requirements of their personnel (2). The decision to develop job-relevant physical training programs for Navy men and women is based on research conducted by the Navy Personnel Research and Development Center, San Diego, CA. Their research findings indicate that while general shipboard tasks oblige only moderate aerobic demands these evolutions often require high levels of muscular strength to perform (3).

Essentially, the SPARTEN program offers a balanced plan of aerobic training for maintenance of health and progressive resistance training for optimal job performance (4) and prevention of job-related injuries (5). Each SPARTEN exercise period involves a bout of circuit weight training (CWT) performed on a multi-station weight machine. The prescribed exercises are designed to develop all of the major muscle groups of the body and when performed in rapid succession promote development of the cardiorespiratory system. Many of these exercises also closely simulate the basic body efforts (i.e., lifting, pushing, pulling) commonly undertaken during the performance of muscularly demanding shipboard work.

Research studies to date have showed aerobic/circuit weight training (A/CWT) methods to be superior to aerobic/calisthenic conditioning for development of total body fitness. SPARTEN training has proven to be especially effective in enhancing the upper torso muscular strength of Navy men (6) and women (7).

Since critical space and time restrictions are frequently encountered onboard Navy ships, the compact nature of the exercise equipment and the brief training periods inherent to CWT appear to make this mode of conditioning highly applicable for shipboard use (8). Because of its continuous nature, CWT can lead to modest development or at least maintenance of aerobic capacity (9). CWT therefore appears to be ideal for implementation aboard ships where the opportunity for aerobic exercise is limited. Table I shows changes in fitness of Navy men and women following participation in CWT programs (9) and



A/CWT programs (6,7).

RESEARCH FINDINGS

Table I - Fitness Changes Following Aerobic/Circuit Weight Training (A/CWT) and Circuit Weight Training (CWT) Programs for Navy Men and Women

	<u>A/CWT</u> % Change		<u>CWT</u> % Change	
	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>
<u>Upper Torso Dynamic Strength</u>				
Shoulder Press	+13.5	+28.0	+15.5	+15.6
Bench Press	+ 7.2	+ 9.6	+10.3	+13.9
Arm Curl	+13.5	+35.7	+13.0	+24.0
Lat Pulldown	+15.3	+ 9.5	+15.5	+11.8
<u>Lower Torso Dynamic Strength</u>				
Leg Press	+19.8	+20.3	+10.7	+15.2
Knee Extension	+24.5	+23.4	+24.8	+30.4
<u>Muscular Endurance</u>				
Bench Press	+85.7	+57.2	+39.6	+65.7
Leg Press	+43.2	+47.3	+28.2	+44.4
<u>Stamina</u>				
Maximal Work Capacity on Bicycle Ergometer	+19.9	+15.5	+ 3.0	+ 2.3

Participants completed 2-3 circuits on a multi-station gym three times per week on alternate days. Subjects trained at 40-60% of determined one repetition maximum (1RM) strength following a cycle of 15 seconds of work at a station with 15 seconds to move to the next station.

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SPARTEN Program Outline

Participants in the SPARTEN (Scientific Program of Aerobic and Resistance Training Exercise in the Navy) total body fitness program will follow a regimen of aerobic/circuit weight training.

Warm-Up

A warm-up period consisting of a series of stretching exercises should be performed prior to each training session. Selected exercises include a hamstring stretch, buttock stretch, back stretch, shoulder stretch, arm stretch, and arm circles. This set of stretching exercises is designed to enhance range of movement about a joint and prevent muscle and joint injuries.

Circuit Weight Training Program

To develop muscular strength and endurance abilities necessary to perform strength demanding shipboard work, a program of circuit weight training is recommended. This strength enhancement program will also help to enhance physical appearance achieved from improved muscular tone. During each circuit training session participants will be required to perform a series of calisthenic exercises and strength enhancement exercises on a multi-station weight training device. Recommended exercises include the following: push-ups, flutter kicks, body builders, jumping jacks, run-in-place, arm curl, lat-pulldown, leg press, arm dips, sit-ups, bench press, hip flexor, shoulder press, knee extension, and pull-ups. During the circuit weight training bout each individual should follow a standardized work/rest cycle, i.e., participants should exercise for a defined period of time at each station (15 seconds) then after a short rest interval (15 seconds) proceed to the next station. Depending on equipment availability, exercises other than those suggested above may be incorporated into the circuit training format.

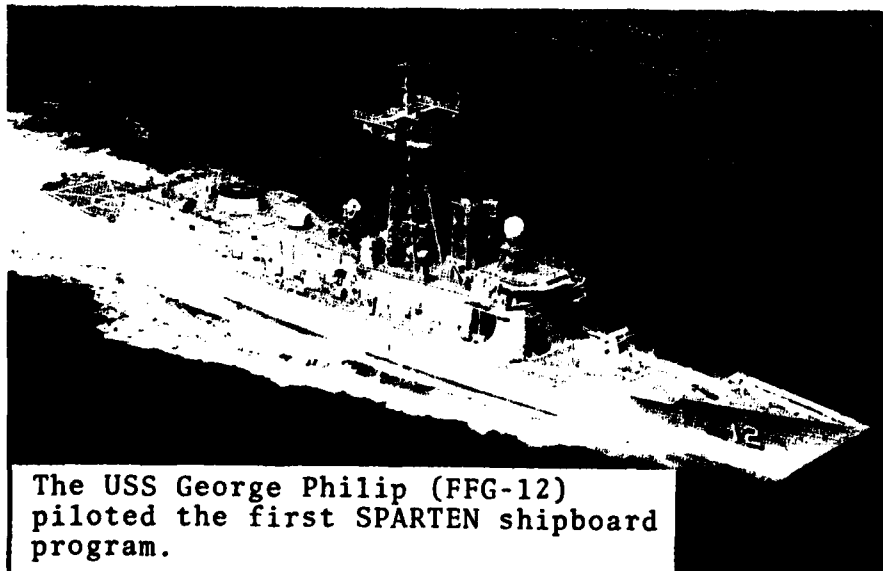
Running Program

In order to provide a training stimulus of sufficient intensity to

develop cardiorespiratory fitness, if appropriate space is available, individuals should pursue a continuous running program. The running program will also aid in achieving acceptable percentage body fat levels from increased daily energy expenditures. To determine if you are exercising at the proper intensity a determination of training heart rate is necessary. You can take your heart rate pulse at the carotid artery (at either side of the neck) or at the radial artery (on the wrist). The pulsations you feel at these pressure points result from the heart's beating and sending out blood through the arteries. The first pulsation you feel when you start timing should be counted as "zero." Then continue counting the pulsations for 10 seconds. Multiply this value by 6 and you have your heart rate per minute. You can determine your actual heart rate during exercise by stopping and taking your heart rate as previously described. You can determine your own training heart rate by multiplying .7 by your maximum heart rate. Maximum heart rate = (220 - age for men) and (225 - age for women).

Cool Down

To prevent pooling of blood and promote circulation, a brief walk/jog following the vigorous portion of the exercise program is recommended.



The USS George Philip (FFG-12) piloted the first SPARTEN shipboard program.

Supporting Rationale for SPARTEN Shipboard Fitness Program

Physical fitness can be separated into five basic components: Muscular strength, muscular endurance, cardiorespiratory or aerobic capacity, flexibility, and relative body composition. A scientifically designed physical conditioning program based on sound physiological principles should be structured to optimally develop all of these fitness abilities. Whereas certain activities are excellent for developing one or two of these major components, e.g., jogging develops aerobic capacity and resistance training develops strength and muscular endurance, few, if any, activities have been identified which substantially improve performance in most or all of these major fitness components.

By placing resistance training into a circuit training format the SPARTEN system offers a program for total body fitness. Performed most efficiently on a multi-station weight machine, resistance exercises involve all of the major muscles of the body and are executed at an intensity to significantly improve muscular strength and endurance. Also since exercises are executed in a continuous fashion, oxygen consumption is of sufficient magnitude to stimulate aerobic development and caloric demands are such to induce significant reductions in body fat content. Contrary to popular belief, resistance exercises performed thru the full range of movement also promote greater joint and muscle flexibility.

For shipboard utilization the SPARTEN system offers a variety of advantages including:

1) Total Body Conditioning.

Development/maintenance of all the major components of physical fitness, including muscular strength, muscular endurance, cardiorespiratory capacity, flexibility, and relative body composition.

2) Personalized Exercise Program.

Personnel of varying fitness levels can participate as a group and all optimally benefit from this program since each individual exercises at a certain percentage of his/her one repetition maximum for that exercise.

3) Time and Space Efficiency.

Each individual rotates from station-to-station on the weight training machine at a 15 sec/15 sec work/rest cycle. Therefore it takes approximately 15 minutes to complete 2 circuits on the machine (1 circuit = 15 exercises). Most multi-station weight machines are functional in a space as small as 20' x 25'.

To enable shipboard personnel to meet prescribed Navy physical fitness standards, a model fitness instruction developed by the USS GEORGE PHILIP (FFG-12) is provided. (See Appendix A.)



Crewmembers onboard the USS GEORGE PHILIP (FFG-12) participate in a SPARTEN workout during deployment.



Navy women have found circuit weight training to be especially helpful in improving arm strength and enhancing muscular tone.

Stretching Program

Proper Stretching Techniques

Stretching should be done slowly without bouncing. Stretch to where you feel a slight, easy stretch. As you hold this stretch, the feeling of tension should diminish. If it doesn't, just ease off slightly into a more comfortable stretch. The easy stretch reduces tension and readies the tissues for the developmental stretch. Hold only stretch tensions that feel good to you. The key to stretching is to be relaxed while you concentrate on the area being stretched. Don't worry about how far you can stretch, performed on a regular basis stretching will improve your flexibility in a relatively short period of time. (See Appendix B for location of major muscle groups)

Hamstring Stretch



Fig. 1



Fig. 2



Fig. 3

General Description - While standing erect, cross one foot over the other with the heel of the crossed heel up. This keeps the pelvis straight. Reach down, touch the floor and hold for 15 seconds. Do this 2 times, then cross the other leg and repeat 2 times.

Muscles Stretched -
◦ calves
◦ hamstrings

Training Recommendations - Hamstring stretch should be done slowly without bouncing.

Buttock Stretch



Fig. 4



Fig. 5

General Description - Standing position, hands at side. Raise knee toward chest, grasp front of leg and assist knee to chest by pulling up and inward. Hold for 15 seconds then return to starting position. Repeat 2 times for each leg.

Muscles Stretched - ° gluteals

Training Recommendations - Lean back against wall if necessary, for greater support and stability.

Back Stretch



Fig. 6



Fig. 7

General Description - Standing position, feet as wide apart as possible, legs straight, with hands on hips. Bend forward at waist, touch palms to deck, hold for 15 seconds then return to starting position. Repeat.

Muscles Stretched - ° lower back
° hamstrings

Training Recommendations - Back stretch should be done slowly without bouncing.

Shoulder Stretch



Fig. 8



Fig. 9

General Description - With arms overhead, hold the elbow of one arm with the hand of the other arm. Keeping knees slightly bent, gently pull your elbow behind your head as you bend from your hips to the side. Hold for 15 seconds. Repeat 2 times for each side.

Muscles Stretched - °triceps
°trapezius
°deltoids

Training Recommendations - This stretch should be done gradually and should be held at a position that feels comfortable to you.

Arm Stretch



Fig. 10

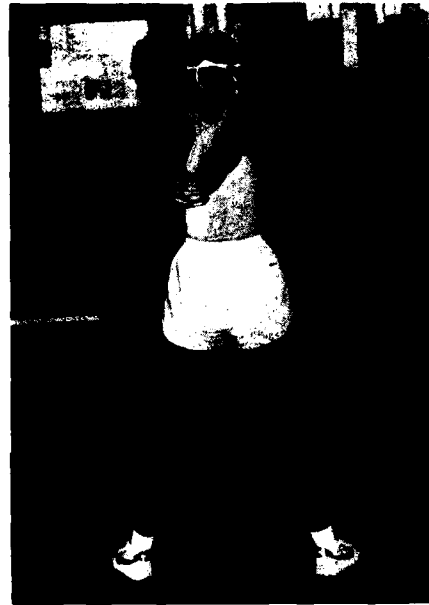


Fig. 11

General Description - With fingers interlaced behind your back, slowly turn your elbows inward while raising your arms. Hold for 15 seconds. Repeat.

Muscles Stretched - °triceps
°deltoids

Training Recommendations - Raise arms only to the point of mild tension.

Arm Circles



Fig. 12



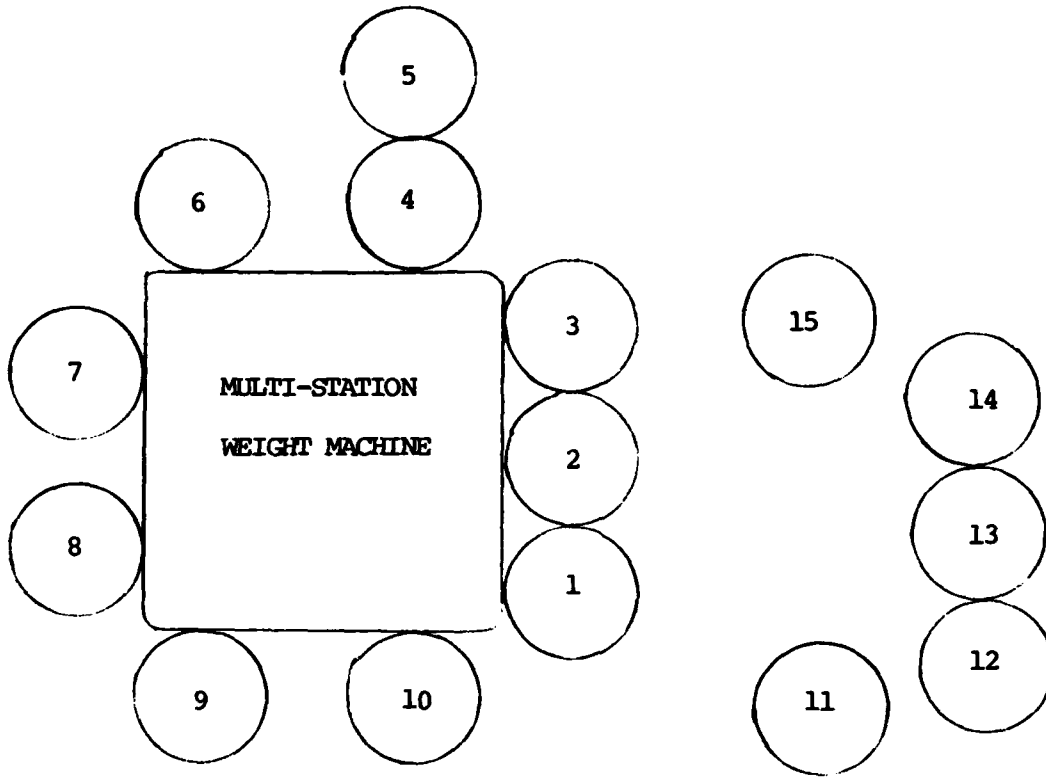
Fig. 13

General Description - Standing with your feet about 12 inches apart, raise your arms over your head and then swing them down across your body in front and return them to the starting position. After 5 rotations in one direction, reverse the direction for 5 rotations and then repeat the whole cycle of 10 for a total of 20 rotations.

Muscles Conditioned - °deltoids
°trapezius

Training Recommendations - Perform this exercise through the full range of motion at a moderate rate of speed.

CIRCUIT WEIGHT TRAINING PROGRAM



Station	1	Pull-up	Station	9	Shoulder Press
"	2	Arm Curl	"	10	Knee Extension
"	3	Lat-Pulldown	"	11	Push-Up
"	4	Leg Press	"	12	Body-Builders
"	5	Arm Dip	"	13	Jumping Jack
"	6	Sit-up	"	14	Flutter Kick
"	7	Bench Press	"	15	Run-in-Place
"	8	Hip Flexor			

Training Recommendations

1. During each circuit weight training session participants may begin to exercise at any of the 15 exercise stations. Participants should move sequentially from station-to-station, i.e., an individual starting at station 4 (leg press) should move to station 5 (arm dip) then station 6 (sit-up), etc.
2. It is recommended that participants exercise for 15 seconds at each station and be allowed 15 seconds to move to the next station and adjust weights. To facilitate this training format, it is suggested a supervisor blow a whistle at 15-second intervals during each workout.
3. Depending upon space and equipment availability the recommended exercise stations listed above may be deleted and alternative exercises may be added.

Circuit Weight Training Program

Proper Breathing

Breathing while engaged in weight training should be synchronized with the exercise. There is a physiological need for breathing during each and every repetition of any exercise. Adherence to the proper breathing pattern facilitates the function and efficiency of an exercise. The most consistent and efficient method that can be utilized in determining how to breathe properly is to inhale whenever the resistance is being lowered or pulled toward the body and exhale when the resistance moves away from the body (e.g., blow the weight away from the body).

The lifter should never hold his breath while training. On occasion, an inexperienced lifter holds his breath in order to "gut out" an extra repetition. More-often-than-not, this practice results in a decrease in the efficiency of the exercise. In addition, holding one's breath while training can also produce either dizziness or unconsciousness. This condition is the result of the Valsalva Phenomenon. This phenomenon results from the build-up of inner thoracic (inner rib cage) pressure due to the great pressure or force of a weight on an individual's body who is holding his breath. This pressure, built up inside the rib cage, compresses the right side of the heart which in turn restricts the flow of blood, and consequently O_2 to the entire body. Some exercises bring on the symptoms of the Valsalva Phenomenon more readily than others (i.e., squat, seated or military press, deadlift, biceps curl, bench press).

Proper Strength Training Techniques

The rules for proper exercise can be stated very briefly. 1) Perform exercises using full range of motion to assure development of the entire length of the involved muscles and to increase flexibility. 2) Perform all exercises in a smooth, controlled manner at a moderate pace. Do not try to throw or jerk the weight up during the lifting phase. 3) Proper technique in lowering the weight is just as important as proper form is in lifting the weight. During the

lowering phase control the weight at all times, do not let gravity do the work for you. The weights being lowered should not touch the remainder of the weight stack during the lowering phase. 4) The most important factor in strength development is how you perform the exercise. Push yourself to the point of muscular failure. No development in strength will occur unless the point of muscular failure is reached. The bottom line is, the greater the effort you put into each exercise the greater your strength development will be!



Navy female recruits receiving basic training at the Recruit Training Command, Orlando, FL, showed significant improvements in muscular strength during an 8-week SPARTEN program.

Pull-up



Fig. 14



Fig. 15



Fig. 16

General Description - Hanging position, cross legs and bend knees. Exhale. Pull-up chin above level of handles. Inhale. Lower to starting position.

Muscles Conditioned - ° biceps
° latissimus dorsi

Training Recommendations - It is recommended that women hang from the chin handles and bring knees to chest.



Fig. 17

Arm-Curl



Fig. 18



Fig. 19

General Description - Stand erect, body braced backward. Grip bar at shoulder width. Exhale. Curl palms towards shoulders and bring bar in an arc towards chest. Inhale. Lower bar to starting position.

Muscles Conditioned - ° biceps
° forearms

Training Recommendations - Elbows should be positioned at side of body during this exercise

Lat-Pulldown



Fig. 20



Fig. 21

Fig. 22



General Description - Face machine, kneel directly under bar, hips forward, wide grip on bar. Exhale. Pull bar down to back of neck. Inhale. Straighten arms to starting position.

Muscles Conditioned -
◦ latissimus dorsi
◦ trapezius

Training Recommendations - When adjusting for proper lat bar height, place pin in slot from a kneeling position.



Fig. 23

Leg Press

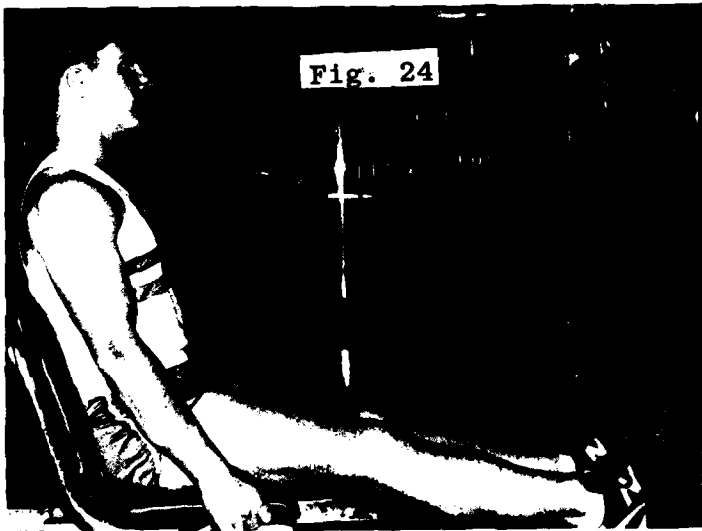


Fig. 24

General Description -

Sit erect with lower back against back of seat, legs flexed with feet against pedals, grasp hand grips.

Exhale.

Extend legs.

Inhale.

Return to starting position.

Muscles Conditioned -

- gluteals
- hamstrings

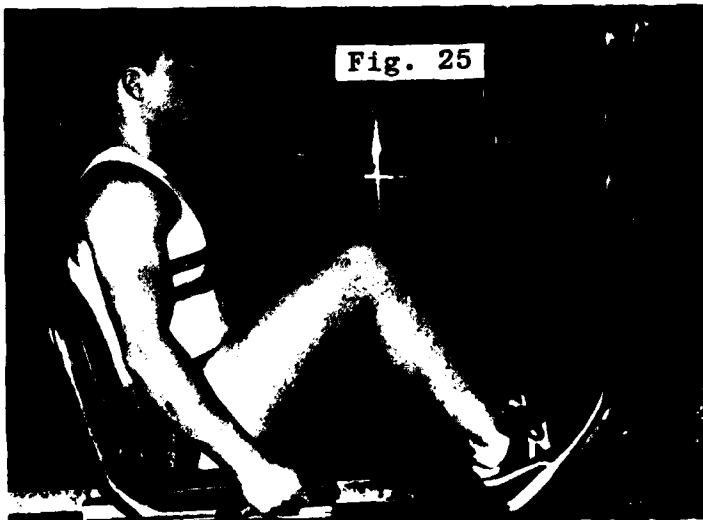


Fig. 25

Training

Recommendations - Do not allow legs to lock out during extension phase of lift.

Seat should be adjusted to create a 90° angle at the knee joint.



Arm Dips

←Fig. 26



Fig. 27→

General Description - Face Machine, grasp handles, jump to upright position, arms straight, cross feet, bend knees. Exhale. Bending arms at elbows, lower chest to bar. Inhale. Push back up to starting position.

Muscles Conditioned - ° triceps; ° deltoids

Training Recommendations - lower body as far as possible during this exercise.



←Fig. 28



Fig. 29→

Sit-ups



Fig. 30



Fig. 31

General Description - Lie on back on incline board, hook feet under rollers, bend knees, hands folded across chest. Exhale. Curl up touching elbows to thighs. Inhale. Return to starting position.

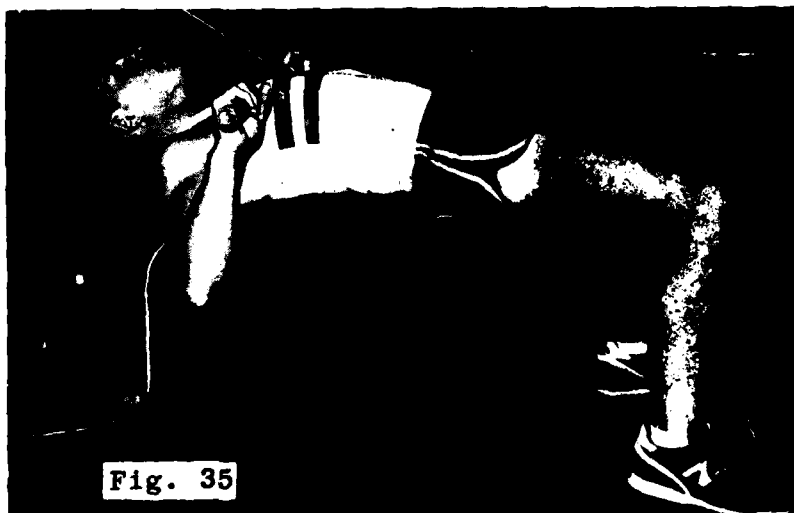
Muscles Conditioned -
° abdominals

Training Recommendations -
Keep back straight during this exercise.

Fig. 32



Bench Press



General Description -

Lie with back on bench, feet on floor, grip bar at shoulder width.
Exhale.
Press weight up.
Inhale. Lower bar to chest.

Muscles Conditioned -

- pectoral
- deltoids

Training Recommendations

Keep back flat on bench during lifting phase of this exercise.



Fig. 36



Fig. 37

Fig. 38



Hip Flexor

General Description - Facing away from machine, jump up and grasp handles, supporting body with elbows. Exhale. Pull knees to chest. Inhale. Allow legs to drop down. Control action both up and down.

Muscles Conditioned -
◦ Abdominals

Training Recommendations -
Control leg action during lowering and lifting phases of this exercise.



Fig. 39
←



Fig. 40



Shoulder Press

General Description - Sit facing machine, shoulders touching handles, back erect, feet inside rung of stool. Exhale. Extend arms fully. Inhale. Lower to starting position.

Muscles Conditioned - °deltoids
°triceps

Training Recommendations - Do not arch back during lifting phase of this exercise.

Knee Extension



Fig. 42

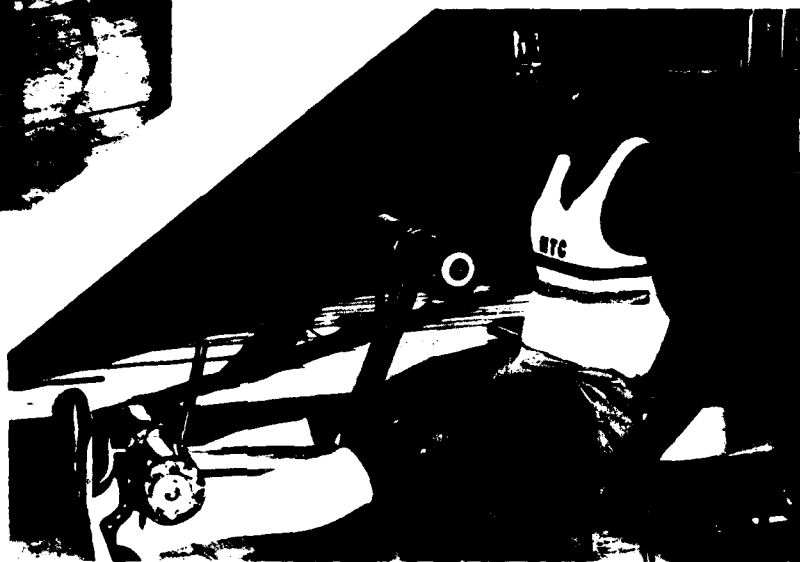


Fig. 43

General Description - Sit erect, back of knees at end of bench, place feet under lower rollers, grip edges of bench. Exhale. Extend both legs. Inhale. Lower weights to starting position.

Muscles Conditioned - • quadriceps

Training Recommendations - Free weights should be used if arm curl station is operational.

Push-ups

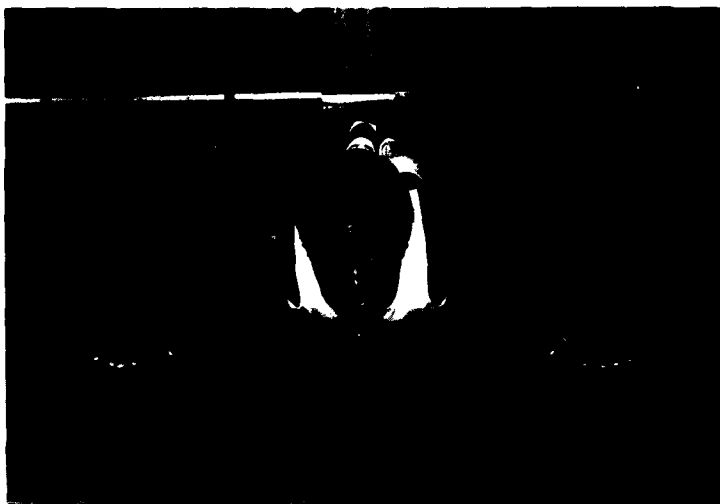


Fig. 44



Fig. 45

General Description - Place hands under shoulders, fingers pointed forward, palms flat on deck. Push up to straighten arms, keeping back straight. Lower body by bending elbows to touch deck. Maximum number in 15 seconds.

Muscles Conditioned - ° triceps
° deltoids

Training Recommendations - A modified push-up with knees bent on deck is recommended for women.

Body Builders



Fig. 46



Fig. 47

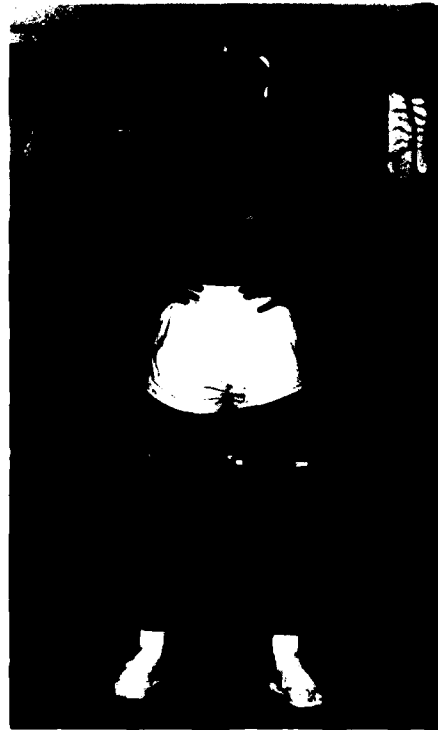


Fig. 48

General Description - Squat slowly, placing hands on deck between your knees. Kick legs back to assume raised push-up position. Pull legs forward, then stand upright with hands on hips. Repeat for 15-second period.

Muscles Conditioned - °quadriceps
°hamstrings

Training Recommendations - This exercise should be performed at a moderate rate of speed.

Jumping Jacks



Fig. 49



Fig. 50



Fig. 51

General Description - From standing position move feet apart, at same time extend arms from sides and touch hands together over head. Without stopping, bring feet together and arms back to original position.

Muscles Conditioned - ° deltoids
° calves

Flutter Kicks



Fig. 52



Fig. 53

General Description - Lay flat on stomach, arms extended above head, legs extended. Raise legs and upper torso so that only belly is touching deck. Kick legs rapidly for 15-second count.

Muscles Conditioned - ° lower back

Training Recommendations - This exercise should be performed with arms and legs fully extended.

Run in Place

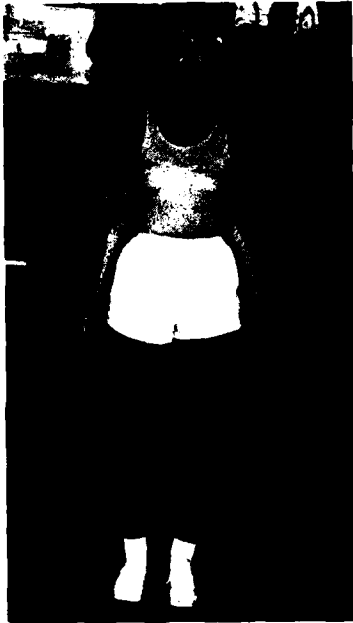


Fig. 54



Fig. 55

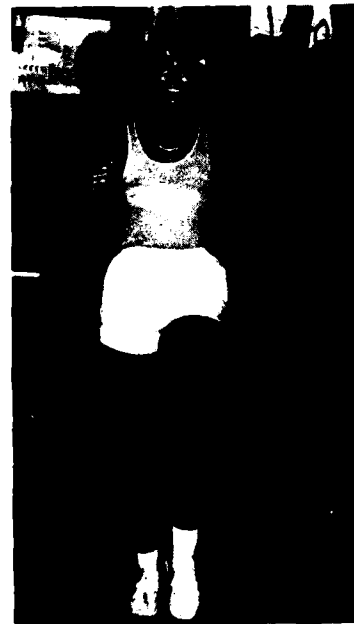


Fig. 56

General Description - From standing position, run-in-place raising feet at least 4 inches off the deck.

Muscles Conditioned - ° calves

Training Recommendations - Arms should be pumped in rhythmic fashion during this exercise.

CIRCUIT WEIGHT TRAINING SCHEDULE (Ship Commands)

Basic Conditioning Program

<u>Week</u>	<u>Frequency</u>	<u>Intensity</u>	<u>Duration</u>	<u>Work/Rest Cycle</u>
1 - 4	3 days/week	60% 1RM	2 circuits	15 sec/15 sec
5 - 9	3 days/week	60% 1RM	2 circuits	15 sec/15 sec
9 - 12	3 days/week	60% 1RM	3 circuits	15 sec/15 sec

Advanced Conditioning Program

<u>Week</u>	<u>Frequency</u>	<u>Intensity</u>	<u>Duration</u>	<u>Work/Rest Cycle</u>
13 - 16	3 days/week	60% 1RM	2 circuits	30 sec/15 sec
17 - 20	3 days/week	60% 1RM	2 circuits	30 sec/15 sec
21 - 24	3 days/week	60% 1RM	2 circuits	30 sec/15 sec

Training Recommendations

1. It is recommended that exercise sessions be conducted 3 times per week on alternate days.
2. Exercise intensity level is calculated by determining the maximum weight an individual can lift for each of the weighted exercises. Participants then may exercise at approximately 60% (round to nearest weight plate) of their determined one repetition maximum (1RM) strength. Weights should be adjusted accordingly every 4 weeks. (See Appendix C, Dynamic Strength Test Instructions)
3. To complement this circuit weight training program specific aerobic exercises, i.e., running, swimming, etc., are recom-

mended 3 times per week.

- In order to record training progress it is advised that each individual should keep an account of training weight values (60% 1RM) for each exercise.
- An example exercise card is shown below:

EXERCISE CARD

Name: _____

Week:	1 - 4		5 - 8		9 - 12	
	<u>1RM</u>	<u>60% 1RM</u>	<u>1RM</u>	<u>60% 1RM</u>	<u>1RM</u>	<u>60% 1RM</u>
Shoulder Press	<u>100</u>	<u>60</u>	---	---	---	---
Knee Extension	<u>140</u>	<u>80</u>	---	---	---	---
Arm Curl	<u>80</u>	<u>50</u>	---	---	---	---
Lat-Pulldown	<u>140</u>	<u>80</u>	---	---	---	---
Leg Press	<u>300</u>	<u>180</u>	---	---	---	---
Bench Press	<u>120</u>	<u>70</u>	---	---	---	---

RUNNING CIRCUIT WEIGHT TRAINING SCHEDULE (Shore Commands)

Basic Conditioning Program

<u>Week</u>	<u>Exercise Mode</u>	<u>Frequency</u>	<u>Intensity</u>	<u>Duration</u>
1 - 4	Run	3 days/week	70% of MHR*	1.0 mile
	CWT	3 days/week	60% 1 RM**	2 circuits 15 sec/15 sec work/rest cycle
5 - 8	Run	3 days/week	70% of MHR	1.5 miles
	CWT	3 days/week	60% 1RM	2 circuits 15 sec/15 sec work/rest cycle
9 - 12	Run	3 days/week	70% of MHR	2.0 miles
	CWT	3 days/week	60% 1RM	2 circuits 15 sec/15 sec work/rest cycle

Advanced Conditioning Program

<u>Week</u>	<u>Exercise Mode</u>	<u>Frequency</u>	<u>Intensity</u>	<u>Duration</u>
13 - 16	Run	3 days/week	70% of MHR	2.5 miles
	CWT	2 days/week	60% 1RM	2 circuits 30 sec/15 sec work/rest cycle
17 - 20	Run	3 days/week	70% of MHR	3.0 miles
	CWT	2 days/week	60% 1RM	2 circuits 30 sec/15 sec work/rest cycle

<weeks, cont. next page>

* Maximum Heart Rate

** 1 Repetition Maximum

<u>Week</u>	<u>Exercise Mode</u>	<u>Frequency</u>	<u>Intensity</u>	<u>Duration</u>
21 -24	Run	3 days/week	70% of MHR	3.0 miles
	CWT	2 days/week	60% 1RM	3 circuits 30 sec/15 sec work/rest cycle

1. It is recommended that circuit weight training exercises be performed prior to running exercises on alternate days of the week during the basic conditioning program.
2. It is recommended that during the advanced conditioning program, running exercises be performed on separate days from circuit weight training.
3. Instruction for determining 1 repetition maximum strength for each of the exercises involving weights are listed in Appendix C.

APPENDIX A

APPENDIX A



DEPARTMENT OF THE NAVY
USS GEORGE PHILIP (FFG-12)
FLEET POST OFFICE
SAN FRANCISCO, CALIFORNIA 94678

IN REPLY REFER TO:
USS GPINST 6100.1A
FFG-12/FDH:ay

10 APR 1984

USS GEORGE PHILIP (FFG-12) INSTRUCTION 6100.1A

Subj: Physical Fitness Program

Ref: (a) SECNAVINST 6100.1A
(b) OPNAVINST 6100.1B

Encl: (1) Division Test Sheet
(2) SPARTEN Manual

1. Purpose. To implement a health and physical readiness program for those personnel who cannot meet the minimum prescribed weight and physical fitness standards as set forth in references (a) and (b). To promulgate policies and procedures for the administration of an annual physical fitness test and to set forth guidelines for a shipboard Scientific Program of Aerobic and Resistance Training Exercise (SPARTEN).

2. Cancellation. USS GEORGE PHILIP INST 6100.1

3. Background. All personnel in the naval service must be in a state of physical fitness that will permit them to perform their duties for prolonged periods of time under adverse conditions. In addition, their appearance must reflect pride in themselves, their ship and their country.

4. Responsibility.

a. The Commanding Officer is responsible for:

(1) Appointing a Command Physical Fitness Coordinator in writing and ensuring completion of Command Physical Fitness Coordinator training.

(2) Scheduling and administering physical readiness tests to all personnel.

(3) Documenting outstanding performance in physical readiness tests or failure to show progress in meeting prescribed standards, in regular fitness or evaluation reports, except in medically limiting circumstances.

(4) Maintaining local records of individual test results which will be forwarded upon transfer to the new command.

(5) Granting and documenting individual waivers when medically necessary, as determined through pre-test examinations.

(6) Monitoring the progress of personnel who have failed to meet minimum standards. Personnel who fail to meet minimum standards will be placed in a mandatory conditioning program (SPARTEN) and administrative action as required by references (a) and (b) will be initiated.

10 APR 1984

(7) Encouraging and stimulating regular participation in conditioning activities to achieve and maintain satisfactory, or higher levels of physical fitness.

(8) Referring for assistance those who fall below prescribed standards to remedial training and level II assistance, as appropriate.

b. The Executive Officer is responsible to the Commanding Officer for ensuring the implementation of a physical fitness test on an annual basis.

c. The Command Physical Fitness Coordinator is responsible for:

(1) Advising the Commanding Officer of all health and physical readiness program matters.

(2) Advising the internal chain of command of all health and physical readiness matters; particularly with regard to individuals who need assistance in meeting minimum standards.

(3) Ensuring proper supervision of physical readiness tests including organized warm-up and cool-down exercises.

(4) Counseling individuals who need assistance in meeting minimum standards and supervising the mandatory conditioning program (SPARTEN).

(5) Maintaining test results and fitness records.

(6) Preparing documentation of command test results for higher authority.

(7) Maintaining updated resources for the use of all personnel.

d. Division Officers are responsible for:

(1) Providing leadership to stimulate and promote increased levels of health and physical fitness.

(2) Ensuring that each member of the division participates in the physical fitness test.

(3) Monitoring test results and informing the chain of command of unsatisfactory performance.

(4) Ensuring that remedial action is initiated for those failing to meet minimum standards.

e. The Medical Department Representative is responsible for:

(1) Reviewing the health status of each individual over age 40 prior to testing and those with indications of existing medical conditions which might interfere with their ability to complete the test requirements safely.

(2) Recommending waivers for personnel with medically limiting conditions. These individuals will then be placed in a physical fitness program consistent with their limitations.

(3) Working closely with the Command Physical Fitness Coordinator and monitoring the progress of those individuals who do not meet the minimum 22% body fat requirement.

(4) Assisting the Command Physical Fitness Coordinator in educating individuals on the proper warm-up and cool-down techniques to be used prior to participating in any athletic event.

f. Each individual is responsible for:

(1) Achieving and maintaining a fitness level equal to, or above, the prescribed minimum standards.

(2) Taking the physical readiness test when scheduled unless excused by proper medical authority.

(3) Utilizing all resources available to develop a personal weight control and physical fitness program.

5. Minimum Physical Performance Standards.

a. Grading criteria for the exercises required by reference (b) are summarized below:

	Under 30	30-34	35-39	40-44	45-49	50 & Older
<u>OUTSTANDING</u>						
1.5 mi RUN	9:45	10:00	10:30	11:00	11:30	12:00
RUN IN PLACE *	350	325	300	300	280	280
SIT UPS	100	90	85	80	80	80
SIT REACH	+2.0	+2.0	+1.5	+1.5	+1.0	+1.0
PERCENT FAT	14	14	14	14	14	14
<u>EXCELLENT</u>						
1.5 mi RUN	10:45	11:00	11:30	12:00	12:30	13:00
RUN IN PLACE *	350	325	300	300	280	280
SIT UPS	75	68	64	60	60	60
SIT REACH	+1.0	0	0	0	-0.5	-0.5
PERCENT FAT	16	16	16	16	16	16
<u>GOOD</u>						
1.5 mi RUN	13:00	14:00	14:30	15:00	15:30	16:00
RUN IN PLACE *	350	325	300	300	280	280
SIT UPS	50	45	43	40	40	40
SIT REACH	0	-1.0	-1.0	-1.0	-1.0	-1.0
PERCENT FAT	18	18	18	18	18	18
<u>SATISFACTORY</u>						
1.5 mi RUN	14:30	15:30	16:00	16:30	17:00	17:30
RUN IN PLACE *	310	280	260	260	240	240
SIT UPS	36	34	32	30	30	30
SIT REACH	-1.0	-1.5	-1.5	-1.5	-2.0	-2.0
PERCENT FAT	20	20	20	20	20	20

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MINIMUM STANDARD

1.5 mi RUN	15:00	16:00	16:30	17:00	17:30	18:00
RUN IN PLACE *	280	250	230	230	210	210
SIT UPS	33	31	29	27	27	27
SIT REACH	-1.5	-2.0	-2.0	-2.0	-2.5	-2.5
PERCENT FAT	22	22	22	22	22	22

*For personnel assigned to afloat or other units where circumstances do not lend themselves to timed distance performance.

b. Any person in reasonable shape should be able to pass the minimum required standards with ease. To promote increased physical fitness, the following GEORGE PHILIP goals are set forth. These goals include a measurement of upper body strength as well as more demanding requirements for the basic exercises.

Under 30 30-34 35-39 40-44 45 & Older

GEORGE PHILIP GOAL

1.5 mi RUN	13:45	14:45	15:15	16:15	16:15
SIT-UPS	43	40	38	35	35
SIT REACH	-1.5	-2.0	-2.0	-2.0	-2.5
% BODY FAT	19	19	19	19	19
PUSH-UPS	15	15	15	15	15
PULL-UPS	5	5	5	5	5

6. Procedures.

a. Each department will be assigned a specific date and time on which to administer the test.

b. The Command Physical Fitness Coordinator will conduct warm-up exercises utilizing basic calisthenics to stretch all basic muscle groups.

c. Sit Reaches and Sit-ups will be done in pairs, in groups of ten. Each group will be monitored by an LCPO/CPO or division officer.

d. The 1½ mile run will be timed by the CPFC in groups of ten.

e. Individual grades will be recorded using enclosure (1). If prescribed minimum standards are not met, individuals shall be retested at intervals not to exceed 30 days and will be placed on a mandatory SPARTEN conditioning program under command supervision until minimum standards are met.

f. If positive results are not met within 60 days of testing, officer fitness reports and enlisted evaluations will be documented in accordance with reference (b).

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7. SPARTEN Program. The command will offer each individual the opportunity to participate on a voluntary basis in a supervised conditioning program. This program will be run in accordance with the guidelines set forth in enclosure (2) and tailored to meet the ship's needs as follows:

- a. The program will be run on a quarterly basis.
- b. Individuals wishing to participate on a voluntary basis must sign up prior to the beginning of each quarter.
- c. Muster will be taken and attendance records will be kept by the CPFC.
- d. Individuals wishing to join the program in mid-session must receive permission from the Command Physical Fitness Coordinator.
- e. All individuals placed on the mandatory conditioning program must attend. Failure to attend without prior permission of the CPFC will constitute an offense against the Uniform Code of Military Justice (UCMJ).

f. Times

(a) SPARTEN program will meet three (3) times a week.

INPORT

Mon/Wed/Fri at 1115 and 1530

*AT SEA

Mon/Wed/Fri at 1115 and 1630

*Times may be modified in accordance with the ship's schedule.

8. Awards.

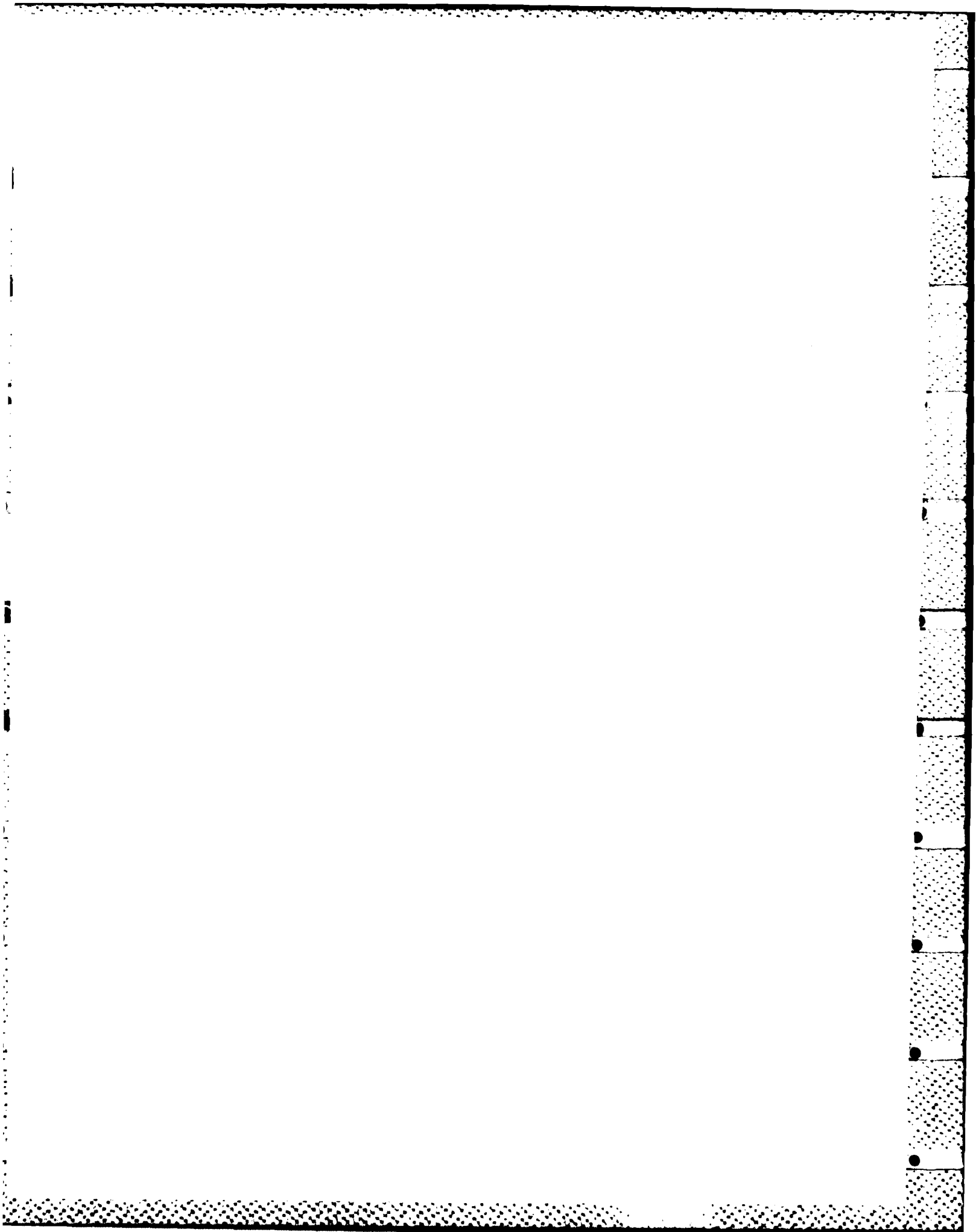
a. A GEORGE PHILIP SPARTEN award will be given to each individual who participates in at least 75% of the SPARTEN sessions in a given quarter. The Commanding Officer will award each of these individuals a sports medal for his achievement and a letter will be included in the member's service record.

b. The Commanding Officer will also sponsor a special GEORGE PHILIP fitness test consisting of push-ups and sit-ups. These exercises are to be performed as above, but there will be no time limit. Winners will be decided on the basis of numbers of exercises completed and will have their names placed on the ship's Iron Man plaque.

c. The Commanding Officer will award the division having the highest scores for the annual physical readiness test the "CAPTAIN'S CUP" trophy to be displayed on the Enlisted Dining Facility (EDF).


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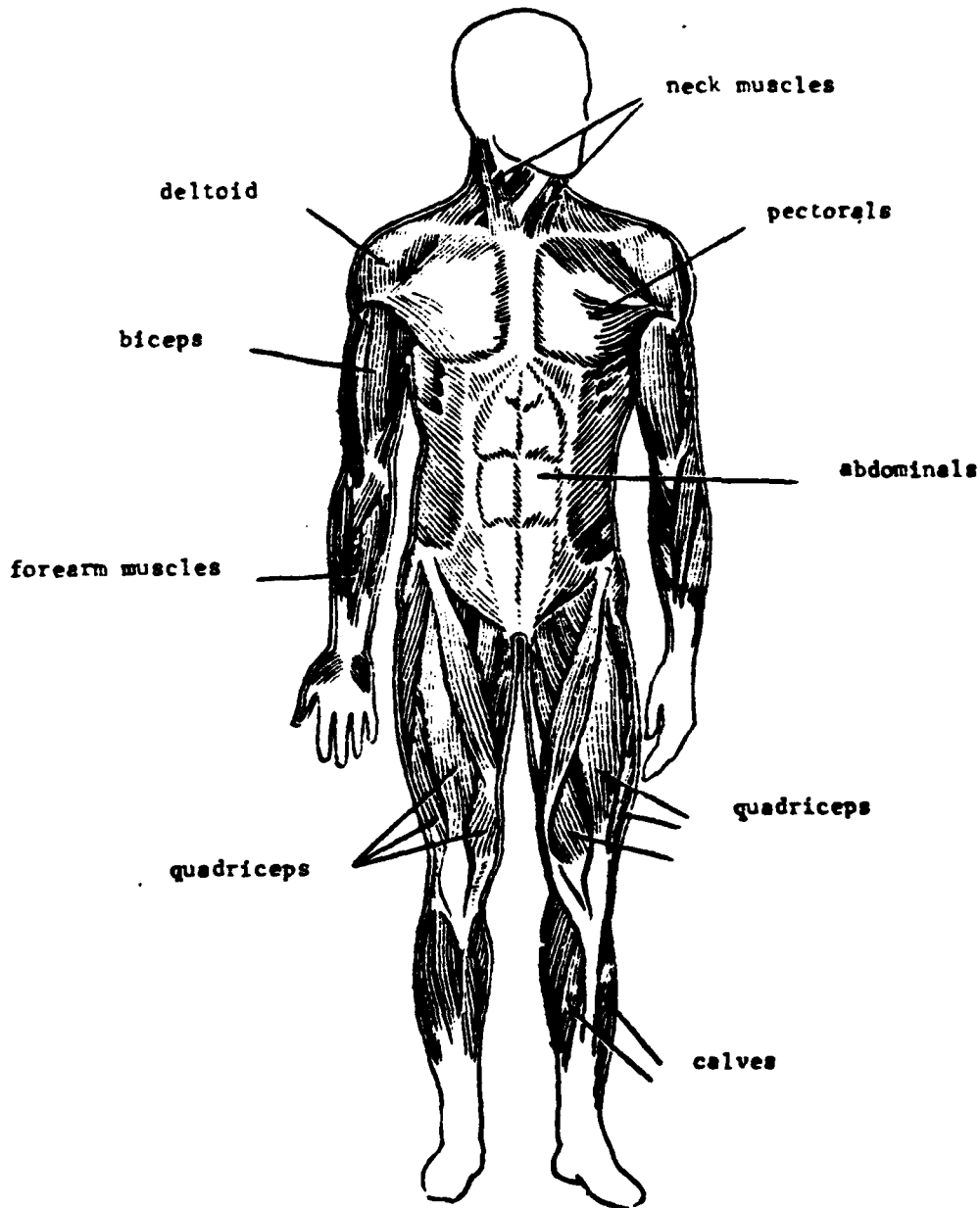


APPENDIX B

APPENDIX B

LOCATION OF MAJOR MUSCLE GROUPS

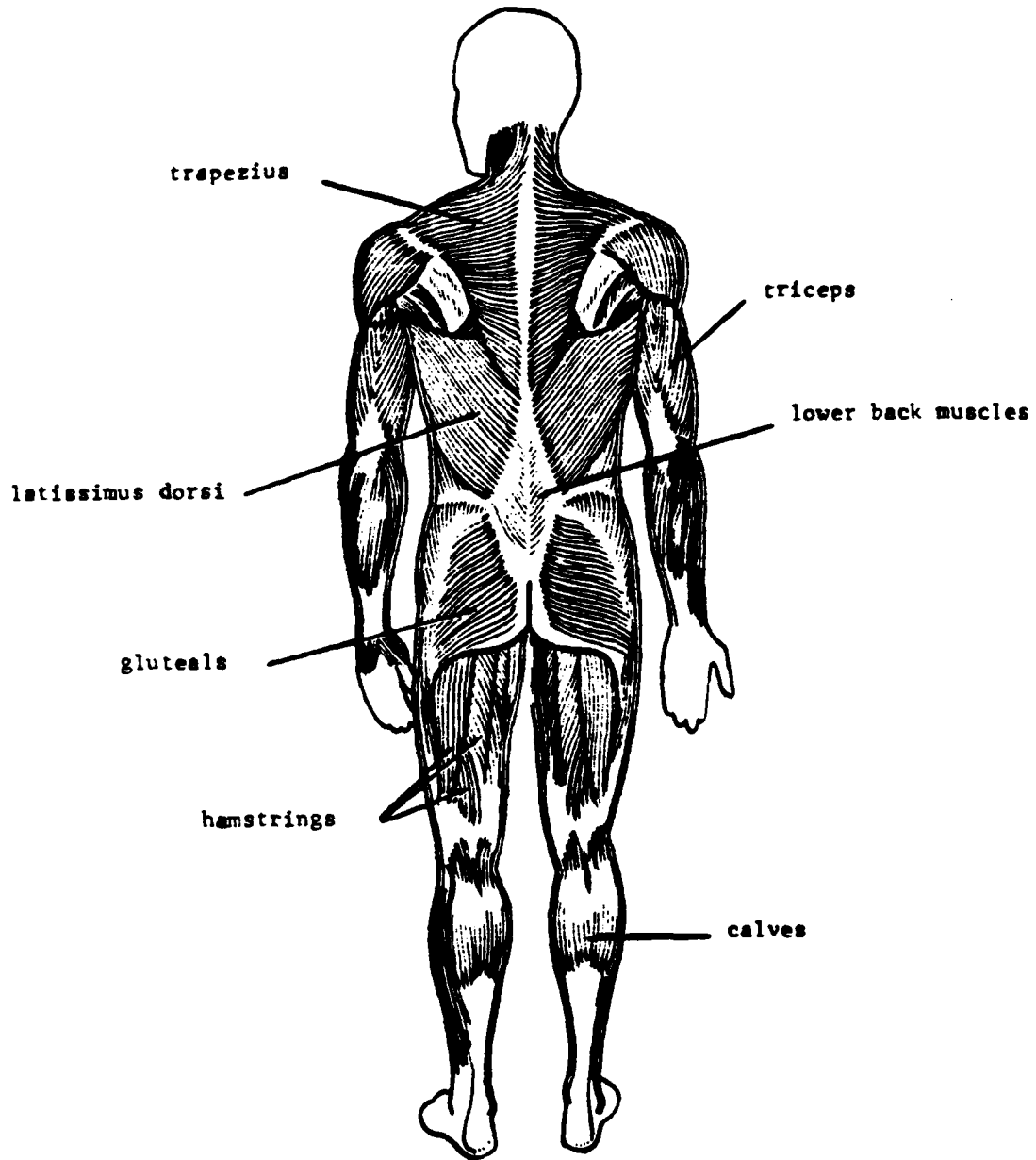
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APPENDIX B

LOCATION OF MAJOR MUSCLE GROUPS

(Posterior)



APPENDIX C

APPENDIX C

DYNAMIC STRENGTH TEST INSTRUCTIONS

1. Instruct subject on proper technique involved in lifting weight. Subject should not hold breath, but should exhale whenever exerting force against the weight.
2. Start each subject at designated weight values, increase by 1 weight plate until one repetition maximum is attained.

	<u>Male</u>	<u>Female</u>
Shoulder Press	100 lbs.	40 lbs.
Bench Press	120 lbs.	40 lbs.
Knee Extension	100 lbs.	50 lbs.
Arm Curl	60 lbs.	20 lbs.
Lat-pulldown	120 lbs.	60 lbs.
Leg Press	260 lbs.	140 lbs.

Shoulder Press

Position. Instruct subject to sit facing machine, shoulders touching handles, back erect, feet inside rung of stool. Make necessary adjustment of the handle height so that they are level with the subject's shoulders.

Action. Exhale, extend arms to full extension.

Bench Press

Position. Instruct subject to lie with back flat on bench, feet on floor, and grip bar slightly outside of shoulder width. The bar should be on a straight line with the nipple.

Action. Exhale while extending arms to full extension raising weight overhead.

Knee Extension

Position. Instruct subject to sit erect with back of knees at end of bench. Feet should be placed under lower rollers. Keep arms at their sides, gripping under the seat to help maintain erect body position. Prohibit backward lean.

Action. Extend both legs evenly to full extension.

Arm Curl

Position. Instruct subject to stand erect, body braced backward. Bar should be gripped at shoulder width. Elbows should be kept tight to the side of the body at all times, but not braced in front of the body. Prohibit backward lean and forward motion of elbows.

Action. In one motion subject curls bar in an arc to chest.

Lat-pulldown

Position. Instruct subject to face machine, kneel directly under bar with knees placed shoulder width apart, back erect, hips forward, wide grip on bar at handles. Make any necessary adjustments to bar to allow subject to reach bar from kneeling position. Subject's arms must be fully extended before each repetition. If weight on the machine exceeds the subject's body weight, it is acceptable to hold the subject down by placing two hands on the shoulders.

Action. Pull bar down to touch the back of the neck.

Leg Press

Position. Instruct subject to sit erect with lower back against the back of the seat, legs flexed with feet against pedals and grasping handles. Adjust the seat to create a 90 degree angle at the knee joint. The balls of the feet should be planted on the crease in the pedal.

Action. Exhale while extending legs to full extension.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) (U) Based on data collected from several Navy male and female populations a SPARTEN (Scientific Program of Aerobic and Resistance Training Exercise in the Navy) physical training system was developed. The comprehensive exercise format was specifically designed to enhance the health and job performance of Navy men and women. Contents include a general description of all stretching and circuit weight training exercises as well as instruction on proper breathing and weight lifting techniques. In addition, basic and		

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advanced conditioning programs tailored for both ship and shore installations are provided.

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