

Department of the Army
Pamphlet 350-21

SCHOOLS

FAMILY FITNESS HANDBOOK

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Not applicable.

Headquarters
Department of the Army
Washington, DC
1 November 1984

UNCLASSIFIED

SUMMARY of CHANGE

DA PAM 350-21
FAMILY FITNESS HANDBOOK

Not applicable.

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THE WHITE HOUSE

June 1984

The well-balanced family is essential in keeping America strong. Families should strive for a lifestyle of fitness that includes physical activity, good nutrition, freedom from substance abuse and doing things together.

Fitness plays an important role in my life, as well as the President's, and we are convinced it is important to the health and vitality of the nation.

I encourage efforts that strengthen the family, especially our military families. Together I hope that your family will use and enjoy the program in the Family Fitness Manual.

Sincerely,

Clancy Regan



“This manual has been developed in cooperation with the President’s Council on Physical Fitness and Sports. Today, Americans of all ages are responding to the message that exercise, good nutrition and other efforts directed toward risk factor reduction are important, daily concerns. Although employers and society as a whole have responsibilities to help, it will be a personal commitment on each of our parts, to make it work.

Get your family and friends to join you in your program today. We can all benefit!”

Your Family Fitness

Recipe Card



Degrees: Moderate to Intense

How Long: Lifetime

Mix together:

**SLEEP
BALANCED DIET
WORK**

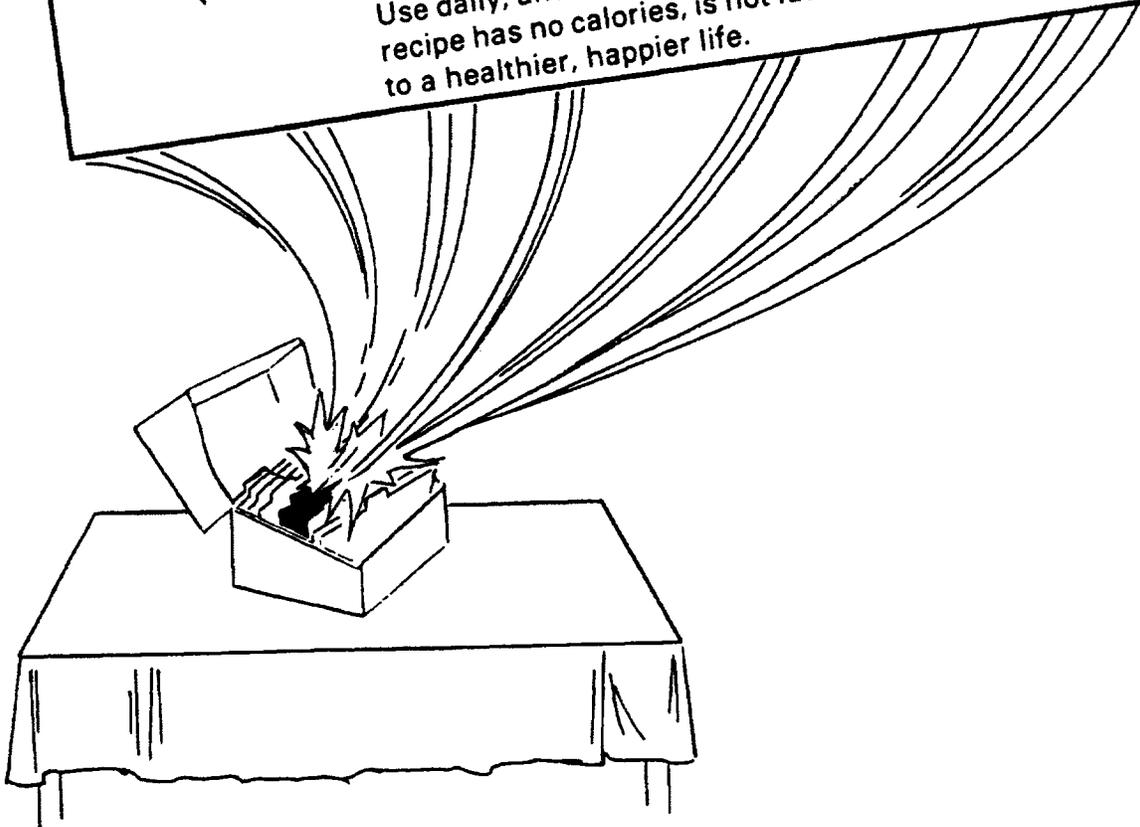
Spices needed:

**EXERCISE
RECREATION**

Frost with a generous amount of:

RELAXATION

Use daily, and serve to each family member. This recipe has no calories, is not fattening, and leads to a healthier, happier life.



preface

You are important! You are important to yourself, your family, the Army, and the nation!

This handbook is designed for you! It is not an exercise book, although it has exercises. It is not a diet book, although it will show you how to lose weight. It is not a cookbook, although it will give you some nutritional meals. It is not a drug abuse book, although it will show you signs and symptoms of drug abuse. **Rather, this is a handbook for you and your whole family.**

This handbook is valuable. Its worth can be measured only if you use it! You are as valuable to the Army as its soldiers. You provide the reason soldiers must be prepared to fight. You are as much a part of the Army as its soldiers. The Army takes care of its own, but the Army **needs you** to help take care of yourself and your families.

The publications listed below are cited in this handbook as references:

- **Exercise and Your Heart** (National Heart, Lung, and Blood Institute, Baltimore, MD, 1981).
- **Food Scorecard** (Center for Science in the Public Interest, Washington, DC, 1980).
- **"Tips for Runners"** (Canadian Podiatric Sports Medicine Academy, Toronto, Ontario, Canada).

This handbook applies to the Active Army, the Army National Guard, and the US Army Reserve.

FAMILY FITNESS QUESTIONNAIRE

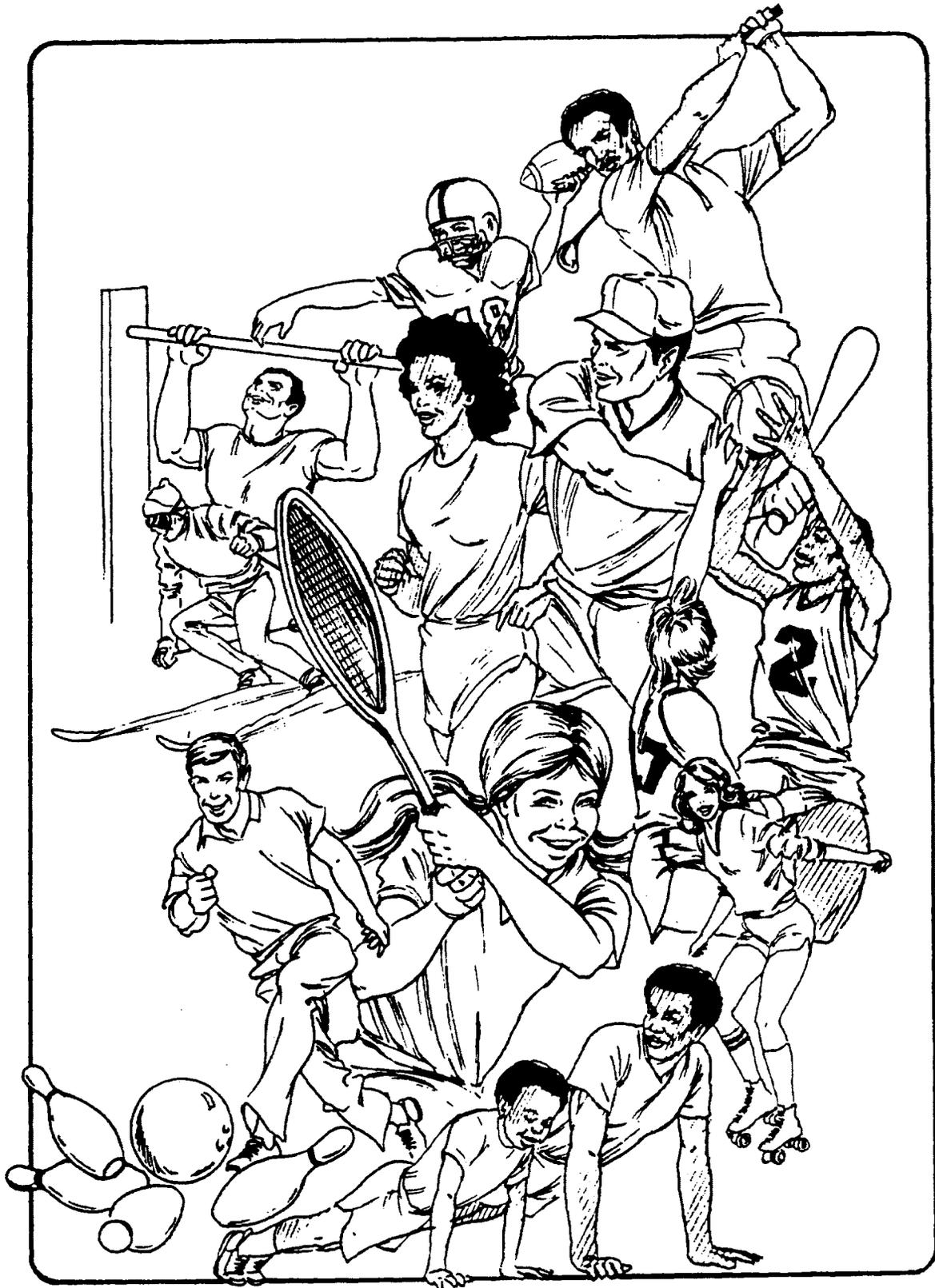
Please answer the following questions individually. Your response can mean the beginning of a healthier and happier family. The choice is yours! Do it now before it's too late! (The references shown in parentheses contain details about the items.)

GIVE YOURSELF A PLUS (+) OR MINUS (-) FOR EACH QUESTION.

1. If you participate in an aerobic activity (one that develops the heart, lungs, and blood vessels) such as running, bicycling, or swimming at least 25-30 minutes a day, give yourself a plus (chapter 3). + -
2. If you participate in a sport that promotes physical fitness, give yourself a plus (chapters 3/4). + -
3. If you do strength-building and flexibility-developing exercises at least every other day, give yourself a plus (chapter 3). + -
4. If you and your family watch less than 8 hours of television per week, give yourself a plus (chapters 3/4). + -
5. If you sit down with your family once a day for a meal, give yourself a plus (chapter 8). + -
6. If you regularly discuss and make decisions as a family, give yourself a plus (chapter 8). + -
7. If you participate together as a family in a recreational activity, give yourself a plus (chapter 4). + -
8. If you are or have recently been on a crash diet, give yourself a minus. (If not, give yourself a plus.) (See chapter 5.) + -
9. If you have a good idea as to what type of clothing and equipment is essential to wear when exercising, give yourself a plus (chapter 6). + -
10. If you are knowledgeable about the signs and symptoms of drug abuse, give yourself a plus (chapter 9). + -
11. If you do not know what precautions to take when exercising in the heat and cold, give yourself a minus (appendix B). + -
12. If you do not have an understanding of how to deal with sprains and injuries and their prevention, give yourself a minus (appendix B). + -
13. If you have had your blood pressure taken during the past year and it is in the satisfactory range, give yourself a plus. (If it was high and you are following your physician's advice on medication and diet, give yourself a plus.) (See chapters 1/2.) + -

- | | | |
|--|---|---|
| 14. If you can pinch less than 1 inch of fat around your waist, give yourself a plus (chapter 5). | + | - |
| 15. If you can stand in front of a mirror in a bathing suit and jump up and down and nothing jiggles that isn't supposed to, give yourself a plus (chapter 5). | + | - |
| 16. If you are realistic in setting your personal goals, give yourself a plus (chapter 3). | + | - |
| 17. If you avoid taking your work and your work-related problems home with you, give yourself a plus (chapter 8). | + | - |
| 18. If you have a hobby or recreational activity which you enjoy, give yourself a plus (chapter 4). | + | - |
| 19. If you do not smoke, give yourself a plus (chapter 9). | + | - |
| 20. If you do not drink alcohol in excess of two drinks within any 24-hour period, give yourself a plus (chapter 9). | + | - |
| 21. If you do not abuse drugs, give yourself a plus (chapter 9). | + | - |
| 22. If your intake of fat and sugar is minimal, give yourself a plus (chapter 5). | + | - |
| 23. If you know what your blood cholesterol level is, give yourself a plus (chapters 1/2). | + | - |
| 24. If you regularly consume adequate amounts of starches and fiber at each meal, give yourself a plus (chapter 5). | + | - |
| 25. If you avoid both eating salty foods and adding salt to your food, give yourself a plus (chapter 5). | + | - |

SCORING: If you and each family member were able to complete this questionnaire without giving yourselves a single minus, congratulations! By all means, pass this handbook on to a family who needs it! If you answered in the negative (-) to any of the above questions, ensure that you read the particular chapter or appendix concerning those questions. Chapters and appendixes are listed at the end of each question. Refer to the table of contents for the specific pages.



SCHOOLS

FAMILY FITNESS HANDBOOK

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

History. Not applicable.

Summary. Not applicable.

Applicability. This handbook applies to the Active Army, the Army National Guard, and the US Army Reserve.

Proponent and exception authority. The proponent of this handbook is the US Army Soldier Support Center.

Impact on New Manning System. This pamphlet does not contain information that affects the New Manning System.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Commander, US Army Soldier Support Institute,

ATTN: ATSG-PF, Fort Benjamin Harrison, IN 46216-5690

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Contents (Listed by paragraph and page number)

Chapter 1

WHY BE FIT?, page 1

FITNESS AND THE FAMILY • 1-1, page 1

WHAT IS FITNESS? • 1-2, page 1

Chapter 2

FAMILY ASSESSMENT, page 3

ASSESSMENT PROCESS • 2-1, page 3

RECORDING YOUR FAMILY'S ASSESSMENTS • 2-2, page 7

ASSESSMENT EVALUATION • 2-3, page 7

Chapter 3

DESIGNING YOUR OWN FITNESS PROGRAM, page 9

BEFORE YOU START • 3-1, page 9

SIX-POINT PROGRAM DESIGN • 3-2, page 11

DEVELOPING MUSCULAR FITNESS • 3-3, page 18

EXERCISING YOUR HEART AND LUNGS • 3-4, page 24

Contents—Continued

DETERMINING YOUR TARGET HEART RATE • 3–5, *page 25*

INDIVIDUAL EXERCISE PROGRAMS • 3–6, *page 27*

STRENGTH TRAINING • 3–7, *page 27*

Chapter 4

SPORTS/ACTIVITIES FOR YOUR FAMILY, *page 28*

POPULAR EXERCISES AND RECREATIONAL ACTIVITIES • 4–1, *page 28*

ACTIVITIES FOR THE WHOLE FAMILY • 4–2, *page 29*

ACTIVITIES FOR FAMILY AND NEIGHBORS • 4–3, *page 35*

ACTIVITIES JUST FOR FAMILY FUN • 4–4, *page 37*

PURCHASING SPORTING GOODS • 4–5, *page 40*

Chapter 5

NUTRITION AND YOU, *page 41*

WHY NUTRITION? • 5–1, *page 41*

THE SIX ESSENTIAL NUTRIENTS • 5–2, *page 42*

BASICS OF NUTRITION • 5–3, *page 45*

SAMPLE MENU • 5–4, *page 53*

NUTRITION AND HUMAN PERFORMANCE • 5–5, *page 54*

SPORTS AND CALORIES • 5–6, *page 56*

HOW CAN I LOSE WEIGHT? • 5–7, *page 57*

Chapter 6

DRESSING RIGHT FOR THE ACTIVE LIFE, *page 67*

COMFORT AND EXERCISE • 6–1, *page 67*

TIPS FOR BUYING ATHLETIC SHOES • 6–2, *page 67*

DRESSING FOR EXERCISE IN WARM WEATHER • 6–3, *page 70*

DRESSING FOR EXERCISE IN COLD WEATHER • 6–4, *page 71*

Chapter 7

SPECIAL CONSIDERATIONS FOR WOMEN, *page 73*

PHYSIOLOGICAL DIFFERENCES BETWEEN FEMALES AND MALES. • 7–1, *page 73*

MENSTRUATION PREGNANCY AND EXERCISE • 7–2, *page 75*

Chapter 8

DON'T LET STRESS GET YOU DOWN, *page 78*

STRESS DEFINITION AND CAUSES. • 8–1, *page 78*

STRESS RECOGNITION • 8–2, *page 79*

STRESS—GOOD OR BAD? • 8–3, *page 79*

STRESS AND PHYSICAL FITNESS • 8–4, *page 80*

KEEP THE FAITH—SPIRITUALLY • 8–5, *page 81*

Chapter 9

SUBSTANCE ABUSE, *page 82*

CAUSES OF SUBSTANCE ABUSE • 9–1, *page 82*

CHILDREN AND SUBSTANCE ABUSE • 9–2, *page 83*

IS THERE A PROBLEM? • 9–3, *page 84*

DEALING WITH SUBSTANCE ABUSE • 9–4, *page 85*

Appendixes

A. ACTIVITIES AND SENIOR CITIZEN FITNESS, *page 88*

B. FIRST AID AND PREVENTION FOR ATHLETIC AND ENVIRONMENTAL INJURIES, *page 91*

C. SAMPLE EXERCISE PROGRAMS, *page 96*

D. THE SEVEN DIETARY GOALS, *page 101*

Contents—Continued

- E. SO YOU HAVE OBESITY—EXTRA POUNDS HARM MORE THAN JUST YOUR APPEARANCE, *page 103*
- F. SAMPLE OF A LOW-CALORIE MENU, *page 104*
- G. GUIDE TO FAT IN COMMON FOODS, *page 106*
- H. FAT CONTENT IN FOODS, *page 109*
- I. CALORIE COUNT, *page 111*
- J. 24-HOUR NUTRITION PROFILE, *page 113*
- K. STRETCHING THE FOOD DOLLAR WITH SHOPPING STRATEGIES, *page 114*
- L. READING FOOD LABELS, *page 115*
- M. EXERCISES DURING PREGNANCY, *page 118*
- N. ALCOHOL BEHAVIOR QUIZ, *page 123*
- O. INFORMATIONAL RESOURCES, *page 125*

Table List

- Table 1–1: EFFECTS OF PROPER EXERCISE, *page 1*
- Table 1–2: FICTION VERSUS FACT, *page 2*
- Table 1–3: FITNESS PRECAUTIONS, *page 3*
- Table 3–1: SIX-POINT PROGRAM DESIGN, *page 11*
- Table 3–2: HEART AND LUNG EXERCISES, *page 25*
- Table 3–3: HEART RATE CHART, *page 26*
- Table 4–1: TOP 12 FAVORITE SPORTS, *page 29*
- Table 4–2: SAMPLE 7–DAY EXERCISE PLAN, *page 29*
- Table 5–1: SUGAR SOURCES, *page 43*
- Table 5–2: MINIMUM DAILY SERVINGS, *page 45*
- Table 5–3: DAIRY PRODUCTS, *page 46*
- Table 5–4: MEAT AND PROTEIN GROUP, *page 48*
- Table 5–5: VITAMIN C AND MINERAL SOURCES, *page 49*
- Table 5–6: VITAMIN A SOURCES, *page 50*
- Table 5–7: FRUIT AND VEGETABLE GROUPS, *page 50*
- Table 5–8: SALAD DRESSINGS, *page 51*
- Table 5–9: BREAD AND CEREAL GROUP, *page 52*
- Table 5–10: VEGETABLE OILS AND FATS, *page 52*
- Table 5–11: NUTRITION MYTHS OF PHYSICAL PERFORMANCE, *page 55*
- Table 5–12: SPORTS AND CALORIES, *page 56*
- Table 5–13: WEIGHT REDUCTION TEST, *page 58*
- Table 5–14: BREAKFAST CEREALS³, *page 63*
- Table 6–1: FITNESS ATTIRE QUIZ, *page 67*
- Table 6–2: FABRICS FOR FITNESS, *page 73*
- Table 7–1: EXERCISE QUIZ, *page 76*
- Table A–1: EXERCISE PROGRAM, *page 89*
- Table A–2: INTEREST SURVEY, *page 89*
- Table B–1: HYPOTHERMIA, *page 95*
- Table C–1: A SAMPLE WALKING PROGRAM⁵, *page 97*
- Table C–2: A SAMPLE JOGGING PROGRAM⁶, *page 97*
- Table C–3: FEMALES/MALES TIME AND DISTANCE CHART, *page 100*
- Table D–1: ALCOHOL AND CALORIES, *page 102*
- Table F–1: SAMPLE OF A LOW-CALORIE MENU, *page 105*
- Table G–1: GUIDE TO FAT IN COMMON FOODS, *page 106*
- Table H–1: FAT CONTENT IN FOODS, *page 109*
- Table I–1: CALORIE COUNT, *page 111*

Contents—Continued

Table J-1: NUTRITION PROFILE, *page 113*

Figure List

- Figure 1-1: Fitness, *page 2*
- Figure 2-1: Determining Your Resting Heart Rate - 1, *page 4*
- Figure 2-2: Determining Your Resting Heart Rate - 2, *page 4*
- Figure 2-3: Flexibility Assessment, *page 5*
- Figure 2-4: Sit-Up Assessment, *page 5*
- Figure 2-5: Push-Up Assessment, *page 6*
- Figure 2-6: Jog-In-Place Assessment, *page 7*
- Figure 2-7: Assessment Evaluation, *page 8*
- Figure 2-8: Sit-Up, Push-Up, Jog-in-Place, *page 9*
- Figure 3-1: Exercise Moderately, *page 10*
- Figure 3-2: Toe Pull, *page 11*
- Figure 3-3: Toe Pull Variation, *page 11*
- Figure 3-4: Seated Toe Touch, *page 12*
- Figure 3-5: Seated Toe Touch Variation, *page 12*
- Figure 3-6: Standing Toe Touch, *page 12*
- Figure 3-7: Standing Toe Touch Variation, *page 13*
- Figure 3-8: Wall Stretch, *page 13*
- Figure 3-9: Trunk Twist, *page 13*
- Figure 3-10: Shoulder Circle, *page 14*
- Figure 3-11: Doorway Stretch, *page 14*
- Figure 3-12: Lower Back, Stretch, *page 15*
- Figure 3-13: Cobra Stretch, *page 15*
- Figure 3-14: Lower Back Stretch, *page 15*
- Figure 3-15: Trunk Twister, *page 16*
- Figure 3-16: Hamstring Stretch, *page 16*
- Figure 3-17: Hamstring Stretch Variation, *page 16*
- Figure 3-18: Foot and Ankle Stretch, *page 17*
- Figure 3-19: Warm-Up Segment, *page 17*
- Figure 3-20: Activity Segment, *page 18*
- Figure 3-21: Cool-Down Segment, *page 18*
- Figure 3-22: Rope Skipping, *page 19*
- Figure 3-23: Rope Skipping Variation, *page 19*
- Figure 3-24: Push-Ups, *page 20*
- Figure 3-25: Push-Ups Variation, *page 20*
- Figure 3-26: Bent-Knee Sit-Ups, *page 20*
- Figure 3-27: Bent-Knee Sit-Ups Variation, *page 21*
- Figure 3-28: Bench Stepping, *page 21*
- Figure 3-29: Chest and Shoulder Developer, *page 22*
- Figure 3-30: Chest and Shoulder Developer Variation 1, *page 22*
- Figure 3-31: Chest and Shoulder Developer Variation 2, *page 22*
- Figure 3-32: Chest and Shoulder Stretcher, *page 23*
- Figure 3-33: Standing Leg Kicks, *page 23*
- Figure 3-34: Knee-to-Nose Leg Kicks, *page 24*
- Figure 3-35: Sitting Tucks, *page 24*
- Figure 3-36: Taking Pulse from the Neck, *page 27*
- Figure 3-37: Taking Pulse from the Wrist, *page 27*
- Figure 3-38: Strength Training, *page 28*
- Figure 4-1: Badminton, *page 30*
- Figure 4-2: Softball, *page 30*
- Figure 4-3: Dodge Ball, *page 31*
- Figure 4-4: Kick Ball, *page 31*

Contents—Continued

- Figure 4–5: Roller Skating, *page 32*
- Figure 4–6: Tennis, *page 32*
- Figure 4–7: Snow Skiing, *page 33*
- Figure 4–8: Waterskiing, *page 33*
- Figure 4–9: Hiking/Backpacking, *page 34*
- Figure 4–10: Rock Climbing, *page 34*
- Figure 4–11: Canoeing, *page 35*
- Figure 4–12: Volleyball, *page 36*
- Figure 4–13: Soccer, *page 36*
- Figure 4–14: Lawn Darts, *page 37*
- Figure 4–15: Croquet, *page 37*
- Figure 4–16: Frisbee, *page 38*
- Figure 4–17: Horseshoes, *page 39*
- Figure 4–18: Table Tennis/Ping-Pong, *page 39*
- Figure 4–19: Golf, *page 40*
- Figure 4–20: Purchasing Sporting Goods, *page 40*
- Figure 5–1: Snack Foods, *page 41*
- Figure 5–2: Protein-Containing Foods, *page 42*
- Figure 5–3: Fat-Containing Foods, *page 42*
- Figure 5–4: Sugar-Containing Foods, *page 43*
- Figure 5–5: Starch-Containing Foods, *page 44*
- Figure 5–6: Fiber-Containing Foods, *page 44*
- Figure 5–7: Minerals, *page 45*
- Figure 5–8: Vitamins, *page 45*
- Figure 5–9: Milk And Dairy Products, *page 46*
- Figure 5–10: Milk And Dairy Products, *page 47*
- Figure 5–11: Meat And Protein-Rich Foods, *page 47*
- Figure 5–12: Citrus Fruits Or Substitutes, *page 49*
- Figure 5–13: Dark Green Or Deep Yellow Vegetables, *page 49*
- Figure 5–14: Other Fruits and Vegetables, *page 50*
- Figure 5–15: Carbohydrate-Containing Foods, *page 51*
- Figure 5–16: Vegetable Oils and Fats, *page 52*
- Figure 5–17: Sample Menu, *page 53*
- Figure 5–18: Vegetables for Health, *page 54*
- Figure 5–19: Fruits and Vegetables are the Basics, *page 55*
- Figure 5–20: Fruits and Vegetables are for Breakfast and Any Time, *page 55*
- Figure 5–21: Losing Weight, *page 57*
- Figure 5–22: A Dietary Balance is Needed, *page 58*
- Figure 5–23: Weight Loss Pattern, *page 60*
- Figure 5–24: Calories VS Activity, *page 61*
- Figure 5–25: Breakfast, *page 62*
- Figure 5–26: Quick Breakfast Examples, *page 62*
- Figure 5–27: Poor Snacks, *page 64*
- Figure 5–28: Nutritious Snacks, *page 65*
- Figure 5–29: Eat Vegetables And Drink Lots Of Water, *page 66*
- Figure 5–30: Shopping List, *page 66*
- Figure 6–1: Running Shoes, *page 68*
- Figure 6–2: Racquetball (Court) Shoe, *page 69*
- Figure 6–3: Tennis Shoe, *page 70*
- Figure 6–4: Loose-Fitting White Or Light-Colored Clothing, *page 71*
- Figure 6–5: Dressing in Warm Layers for Cold Weather, *page 72*
- Figure 7–1: Special Considerations For Women, *page 74*
- Figure 7–2: Women’s Aerobic Work Output Is Lower Than men, *page 75*
- Figure 7–3: Being active does not increase chances of miscarriage, *page 77*
- Figure 8–1: Stressors, *page 78*

Contents—Continued

- Figure 8–2: Stress And The Family, *page 80*
Figure 8–3: Physical Activity Reduces Stress, *page 81*
Figure 8–4: Keep The Faith—Spiritually, *page 82*
Figure 9–1: Substance Abuse, *page 83*
Figure 9–2: Children And Substance Abuse, *page 84*
Figure 9–3: Is There A Problem?, *page 85*
Figure 9–4: Smoking Cessation, *page 86*
Figure A–1: Senior Citizen Fitness, *page 88*
Figure B–1: Common Athletic Injuries, *page 91*
Figure C–1: Jogging, *page 96*
Figure C–2: Samples Of Family Aerobics Program, *page 99*
Figure D–1: A Balanced Diet, *page 101*
Figure E–1: Obesity, *page 103*
Figure F–1: A Low-Calorie Menu includes Healthy Foods, *page 104*
Figure H–1: Fat-Containing Foods, *page 110*
Figure K–1: Shopping Strategies, *page 114*
Figure L–1: Reading Food Labels, *page 115*
Figure L–2: Label Chart, *page 116*
Figure M–1: Pelvic Tilt, *page 118*
Figure M–2: Pelvic Tilt While Standing, *page 118*
Figure M–3: Partial Sit-Up, *page 119*
Figure M–4: Modified Partial Sit-Up, *page 119*
Figure M–5: Hamstring Stretch-1, *page 119*
Figure M–6: Hamstring Stretch-2, *page 120*
Figure M–7: Angry Cat, *page 120*
Figure M–8: Adductor Stretch, *page 120*
Figure M–9: Lift “Objects” Carefully!, *page 122*
Figure N–1: Alcohol Behavior, *page 124*

Glossary

Chapter 1

WHY BE FIT?

1-1. FITNESS AND THE FAMILY

a. The more active you and your family are, the healthier the life-style you will lead. Positive life-style changes can be achieved if you implement a sound fitness program. See table 1-1.

Table 1-1
EFFECTS OF PROPER EXERCISE

DECREASE		INCREASE
X	Body Fat	
X	Stress, Tension, Depression	
X	Resting Heart Rate	
X	Blood Pressure	
X	Chance of Heart Attack	
	Strength	X
	Respiratory Efficiency	X
X	Chance of Back Pain	
	Vitality & Feeling of Well-Being	X
	Efficiency of the Heart	X
	Muscular Efficiency	X
X	Blood Cholesterol Levels	

b. In addition, an improved level of fitness will—

- Help you look younger.
- Help you be slimmer.
- Add life to your years and probably years to your life.
- Improve your performance in work and play.
- Make you like yourself more; that is, provide a more positive self-image.

1-2. WHAT IS FITNESS?

Fitness is the ability to perform physically demanding activities, including daily life activities (work or recreation), for an extended period of time. The four basic components of physical fitness are cardiorespiratory fitness (heart and lungs), muscular fitness, flexibility, and body composition (fat versus muscle).

a. *CARDIORESPIRATORY FITNESS.* This is concerned with the condition and function of your heart, lungs, and blood vessels. The more exercise you do, the more your body requires additional oxygen and nutrition; the additional oxygen and nutrition in the body bring about positive changes in the cardiorespiratory system.

b. *MUSCULAR FITNESS.* This category is divided into muscular strength and muscular endurance. Muscular strength relates to the maximum amount of force exerted (how much weight you can lift at one time). Muscular endurance concerns how long a muscle or group of muscles can continuously function (how many times you can lift a smaller weight). Muscular fitness is a combination of muscular strength and endurance.

c. *FLEXIBILITY FITNESS.* Flexibility fitness deals with the ability to move joints through their entire (normal) range of motion. Flexibility enables you to touch your toes or raise your arms over your head or reach behind your back with both hands and touch. Stretching before and after exercising increases flexibility and prepares the body for heavier work.

d. *BODY COMPOSITION.* Body composition deals with body fat. Look at yourself, your family members, and those around you. Everyone is built differently. Some of this difference is in body fat. Body fat is reserve energy stored for future needs and is maintained by everyone. Too much body fat can lead to diseases, such as diabetes, arthritis, and heart and blood vessel ailments.

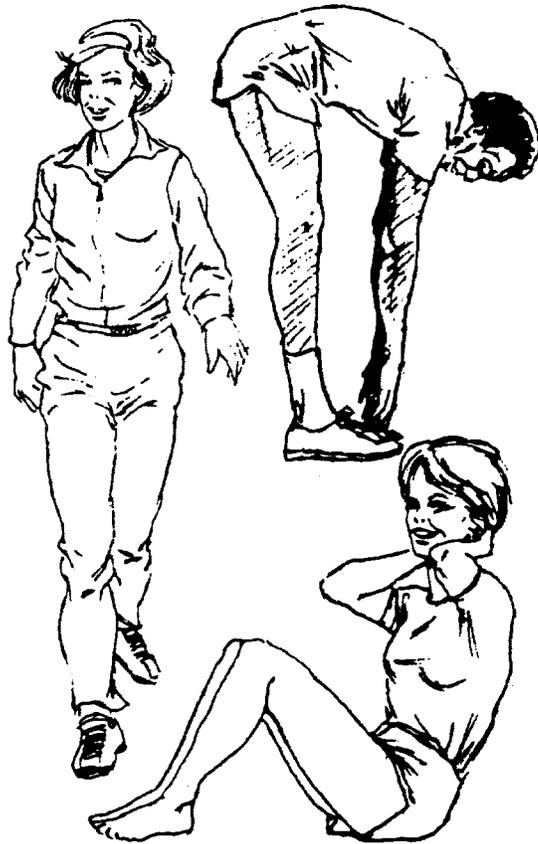


Figure 1-1. Fitness

e. FITNESS FICTION VERSUS FACT. Sometimes trying to decide what to believe regarding fitness can be quite confusing. Therefore, before we go too much further, let's clear up a few misconceptions, shown in table 1-2.

Table 1-2
FICTION VERSUS FACT

FICTION	FACT
1. Exercise without pain will not produce a gain.	Wrong (and risky). Exercising until there is severe pain means you aren't listening to your body's natural warning system.
2. Growing older means you need to do less.	Wrong. Middle-aged and older people benefit from regular exercise just as younger people do. The important thing to remember is that you should develop an exercise program that suits your own fitness level and needs.
3. Eat large amounts of meat for added energy.	Wrong. Carbohydrates are preferred. But be careful - extra energy will be stored as fat.
4. Get extra energy prior to a workout by eating sugar.	Wrong. Sugar taken before a strenuous workout could produce an undesirable reaction. There is a good possibility that the sugar will retain fluids in your stomach during workouts, when these fluids are needed by the muscles.
5. Eat extra amounts of salt before working out.	Wrong. Most individuals already consume too much salt in their regular diet. Eating salt before exercising can create a drying effect and produce nausea and muscular cramping.
6. Drinking fluids immediately before and during exercise leads to cramping.	Wrong. When you are thirsty, you should drink something, preferably water. Usually by the time you are thirsty, you are already too low on fluids. Body fluids lost during exercise need to be replaced, or dehydration (lack of water) and undue heart strain may occur.

**Table 1-2
FICTION VERSUS FACT—Continued**

FICTION	FACT
7. Sleep extra hours one night to make up for hours lost on a previous night.	Wrong. actually, sleeping more than 9 hours can be bad for the adult body's energy level. The heart rate and metabolism (converting food to energy) become lower, and circulation becomes sluggish. This may cause an over-whelming feeling of exhaustion that wouldn't normally occur with 6 to 9 hours of rest.

f. FITNESS PRECAUTIONS ASSESSMENT.

(1) Before you and your family can make a safe assessment about your present physical condition, you should take the test about fitness precautions, shown in table 1-3 below.

**Table 1-3
FITNESS PRECAUTIONS**

	YES	NO
1. Has a doctor told you that you have a heart condition or a heart murmur or that you have had a heart attack?	<input type="checkbox"/>	<input type="checkbox"/>
2. Do you have frequent pressure or pain in the middle or left side of your chest area, in your left arm or shoulder, or in your neck during or just after exercise?	<input type="checkbox"/>	<input type="checkbox"/>
3. Do you often feel faint or have spells of severe dizziness or fainting spells?	<input type="checkbox"/>	<input type="checkbox"/>
4. Do you become breathless with mild exertion?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has a doctor told you that your blood pressure is too high or that it is not under control? (If you don't know whether or not your blood pressure is normal, get it checked.)	<input type="checkbox"/>	<input type="checkbox"/>
6. Has your doctor said you have joint or bone problems, such as arthritis?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are you 40 years of age or over and not accustomed to exercising?	<input type="checkbox"/>	<input type="checkbox"/>
8. Do you have a medical condition, such as asthma or diabetes, not mentioned in the test which you feel needs special attention in an exercise program?	<input type="checkbox"/>	<input type="checkbox"/>

(2) **If you answered yes to one or more of these questions, make an appointment with your doctor before starting an exercise program.** If you have a problem, your doctor can still help design a program that will help you achieve physical fitness.

(3) If you answered no to each question, that's great! You are now ready to move to chapter 2 and take a fitness assessment. This assessment is the framework around which you can build a safe, progressive program.

Chapter 2 FAMILY ASSESSMENT

2-1. ASSESSMENT PROCESS

The assessment process will identify your current cardiorespiratory, muscular, and flexibility fitness. These three elements serve as the cornerstone of any fitness program. Your entire family can assess one another in the home without any complicated equipment. It will require only 15 minutes of your valuable time! Have a pencil and some paper handy to record your findings.

If the results are not spectacular, there is no reason to be discouraged. This is merely an evaluation so that you know where to begin a fitness program.

a. DETERMINING YOUR RESTING HEART RATE.

(1) To find your heart rate when resting, take your pulse while you are inactive and relaxed. Place the tip of your third finger lightly over one of the blood vessels on your neck (carotid arteries) located to the left or right of your Adam's apple. See figure 2-1.



Figure 2-1. Determining Your Resting Heart Rate - 1

(2) Another convenient pulse spot is the inside of your wrist (radial artery) just below the base of your thumb (or place your hand over your heart). See figure 2-2.



Figure 2-2. Determining Your Resting Heart Rate - 2

(3) Count your pulse for 15 seconds and multiply by 4. This will tell you your resting heart rate. Record your resting heart rate on a sheet of paper; save this paper because you will need it later in this chapter.

b. FLEXIBILITY ASSESSMENT.

(1) This assessment is **not** a timed event. The only required piece of equipment is a ruler. To start the event, you should stand erect. **Now with the knees locked**, slowly bend forward at the waist; try to touch your fingers to your toes. See figure 2-3. Repeat this exercise five times, recording the beat effort. If you can touch past your toes, measure the distance between your fingertips and your toes. Place a plus (+) before the measurement when recording the result.

(2) If you can't touch your toes, measure the difference in distance between fingers and toes. Place a minus (-) when recording the result. (You can also accomplish the assessment by sitting on the floor. To begin, keep your legs straight and the feet pointed straight up; then slowly attempt to touch your fingers to your toes. Measure and record as you would for the standing position.)

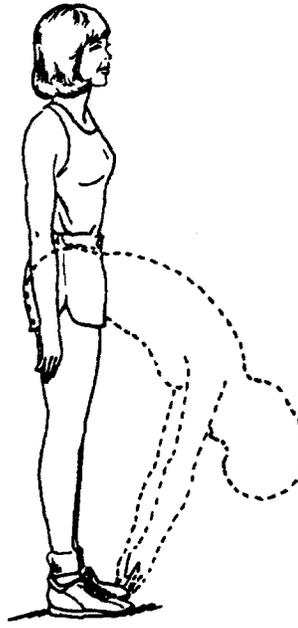


Figure 2-3. Flexibility Assessment

(3) Listed below are some precautions for doing this exercise.

- Be careful not to bounce; if you do, you may pull a muscle.
- Use a flat surface.
- This is not a timed assessment, so take it easy.
- Do some warm-up exercises, such as jumping jacks, before beginning. (See chapter 3 for more information.)
- If anyone has or previously had back problems, be very cautious.
- Unlock the knees before coming to the upright position.

c. SIT-UP ASSESSMENT.

(1) This assessment lasts 1 minute. Start the sit-up by lying flat on your back. Bend the knees at approximately a 90-degree angle and be sure that your heels are in contact with the ground (the feet do not have to be flat on the ground). Have someone hold your ankles. Interlock the fingers behind your neck and touch the ground with the back of the hands. Begin by raising the upper body (head and torso) forward to the vertical position. The base of the neck must at least reach the vertical position. After reaching the vertical position, lower your upper body to the ground until your upper back has touched the ground. See figure 2-4. This is one sit-up. Do as many as you can in 1 minute. You can rest in the up or down position at any time. After completing this assessment, record the number of sit-ups.



Figure 2-4. Sit-Up Assessment

(2) Listed below are some precautions for doing this exercise.

- Use caution if you have or have had back problems.
- Although you are being timed, start at a safe pace.
- If there are any signs of discomfort, stop immediately.
- Breathe out as you sit up and breathe in as you lie down.

d. PUSH-UP ASSESSMENT.

(1) This should be timed for 1 minute. Start the push-up in the front leaning rest position while placing the hands where they are comfortable. To begin, start the push-up by bending the elbows and lowering the entire body until the tops of the upper arms (with shoulders) and lower back are parallel to the ground. Return to the starting position by locking the elbows. See figure 2-5. This is one push-up. Rest only in the starting position. If the body is not straight or if the elbows are not completely locked, the push-up does not count. After completing this assessment, record your results.

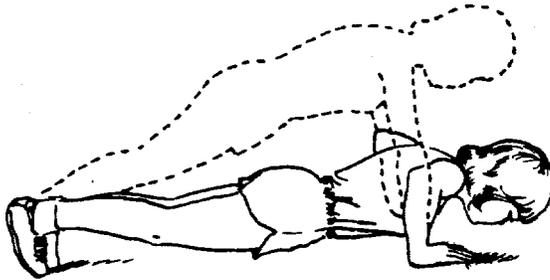


Figure 2-5. Push-Up Assessment

(2) Listed below are some precautions for doing this exercise.

- Though you are being timed, start at a safe pace.
- If there are any signs of excessive discomfort, stop immediately.
- Don't hold your breath.

e. JOG-IN-PLACE ASSESSMENT.

(1) This assessment also takes 1 minute. Begin jogging in place, using the arms and movement of the legs in a natural manner. Don't try to overemphasize any normal action; this will lead to undue soreness, even after a short period of exertion. The feet should hit the floor in a toe-to-heel strike. The movement should be smooth through out the exercise. Try to maintain a steady rhythm while jogging in place. Failure to relax will cause your strength to be used unnaturally, both in assessment and in future fitness sessions involving jogging. See figure 2-6.

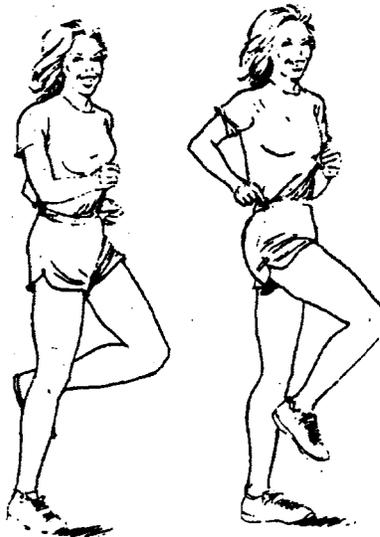


Figure 2-6. Jog-In-Place Assessment

(2) Listed below are some precautions for doing this exercise.

- Be sure that the assessment is done on a flat surface.
- Keep your body in an upright position.
- Although you are being timed, begin at a safe pace.
- If there are any signs of undue discomfort, especially in the chest area, stop immediately.
- Wear some sort of athletic clothing and shoes when doing the assessment.

(3) Upon completion of the 1-minute assessment, immediately check your pulse rate and record this rate under your resting heart rate; then wait 1 minute and check your pulse rate again and record this figure. Your paper should look like the following example:

Resting heart rate (RHR)	83
Heart rate after exercise (HRA)	150
Heart rate after 1 minute of rest (HR)	90

Don't lose this paper. The next chapter will show you what these figures mean and how to use them.

2-2. RECORDING YOUR FAMILY'S ASSESSMENTS

After you have recorded your different heart rates, you are ready to record your family members' efforts. Using Mom's record on the next page as an example, record each family member's scores in the same manner. Repeat this assessment at the end of 1 month, 3 months, 6 months, and 1 year. Use your findings as a family record of positive performance.

2-3. ASSESSMENT EVALUATION

a. After you have recorded your initial scores on your personal charts, ask yourself, "Where do I want to go with this program?" Individually (and perhaps as a family), establish some goals. Reasonable goals are the key to a successful fitness program.

b. Make an honest evaluation of your present state of fitness. This is the first step on the fitness path. If you have not done any exercise and you feel that your scores on the assessment test were too low, don't be discouraged. The whole idea is to see where you are going, not where you've been.

c. Your assessment test covered only the events concerning flexibility, push-ups, sit ups, and jogging in place. This should serve as the basis of your fitness program. Try to do some beneficial activities or exercises other than what has been mentioned. Whether it is weight training, circuit training or other strength endurance activities, a program of assessment can be designed and a sensible exercise program established.

INDIVIDUAL RECORD						
Name _____						
	FLEXIBILITY ASSESSMENT	SIT-UP ASSESSMENT	PUSH-UP ASSESSMENT	JOGGING ASSESSMENT		
				RHR	HRA	HR (1 Min)
MOM'S Initial Scores	-6 inches	15	10	83	150	90
Initial Scores	_____	_____	_____	_____	_____	_____
1 Month	_____	_____	_____	_____	_____	_____
3 Months	_____	_____	_____	_____	_____	_____
6 Months	_____	_____	_____	_____	_____	_____
1 Year	_____	_____	_____	_____	_____	_____
RHR = resting heart rate HRA = heart rate after exercise HR (1 min) = heart rate after 1 minute of rest						

Figure 2-7. Assessment Evaluation

d. Some readers of this handbook may be involved in a program of daily exercise in which they have exerted their cardiorespiratory system at least three times a week for 25 to 30 minutes. This advanced stage of exercise is great, but as stated before, even this group must use caution in a fitness program.

e. As a general rule children and seniors should start out doing a very mild form of exercise and then proceed to a more advanced level of exercise. Appendix A provides more discussion about seniors' fitness. Defining moderation is an individual matter. Here is some guidance for you and your family. Depending on your fitness effort in the assessment phase, your fitness level, and your age, a good activity program should give you a good workout, not work you out. For example, if your spouse could do four push-ups in the test, then your spouse shouldn't try to do this every day in the program. The beginning program should start at about 60 percent of capacity. See how it influences your spouse's other activities. If it's too much, simply reduce the amount by one effort. Do this for every member of your family; include the sit-up, push-up, jog-in-place, and flexibility assessments. Establish a schedule that will enhance your fitness improvement, ensuring at the same time that you keep your attitude in the positive mold. Don't turn a positive program into a negative one.

f. You are now ready to design an actual exercise program. Keep a few thoughts in mind before moving on. Take it easy and enjoy it. Don't overexert and don't injure yourself. Time will take care of your improvement. You will be surprised at your progress if periodic reassessments are completed. The important point is to keep on going and improve while enjoying a healthier life-style. Now let's design that program of life-style enhancement. Good luck!

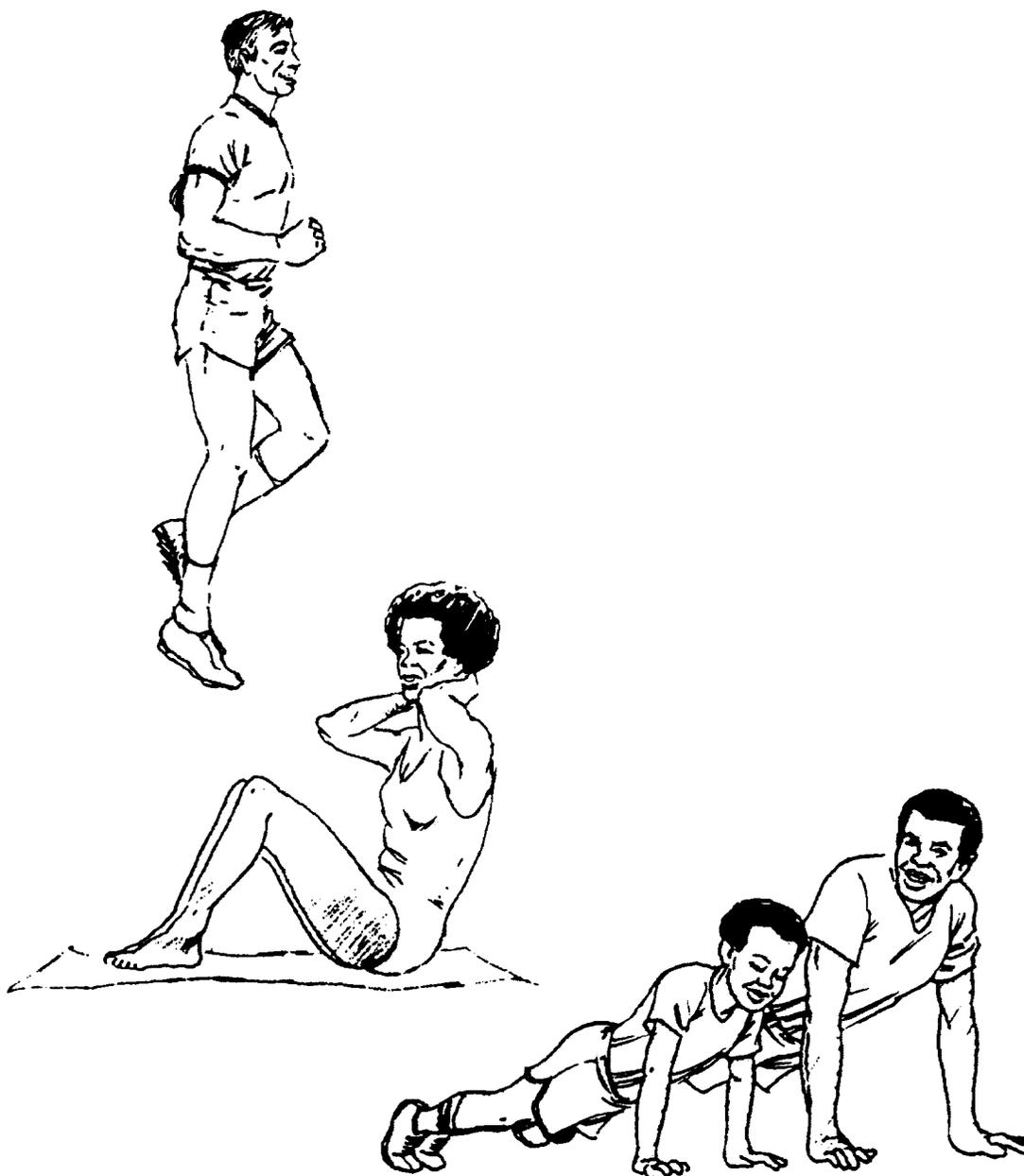


Figure 2-8. Sit-Up, Push-Up, Jog-in-Place

Chapter 3 DESIGNING YOUR OWN FITNESS PROGRAM

3-1. BEFORE YOU START

Listed below are some general suggestions for the overall program.

- Make sure that each family member is mentally prepared to participate.
- Be sure to include what's fun for you. Don't follow fads.
- Go slowly and easily. In the beginning do small amounts; then you can gradually increase.
- Exercise moderately; soreness and pain are not required for fitness, but some muscular soreness should be expected, especially early in the program.

- Variety is the spice of exercising.
- The best way to exercise is to follow a routine, including basic warm-up, activity, cool-down, and flexibility and stretching period.



Figure 3-1. Exercise Moderately

a. THE EXERCISE PROGRAM.

(1) Flexibility may be the key to preventing injuries and attaining better performance. Time is necessary to increase your specific degree of flexibility. Each joint of the body (for example, shoulders, knees, elbows, hips) has its own degree of flexibility. An exercise program must develop each to the maximum. The importance of flexibility lies in its relationship to health and the body's capacity to function efficiently.

(2) The best method of increasing flexibility is to use static stretching (sometimes called passive stretching). This is gradually stretching a muscle and then holding it at greater than resting length for a short time. For example, when touching your toes, instead of bouncing down, you should easily slide your hands down the front of your legs **SLOWLY** and **GRADUALLY**. Then hold this stretched position for several seconds before **SLOWLY** straightening up.

(3) Doing flexibility exercises will help prevent or reduce low back pain. Millions of Americans suffer from chronic low back pain primarily because of inactivity, which has created weak muscles and poor flexibility. Exercises that help to reduce low back pain caused by inactivity start with paragraph 3-2(a).

NOTE: Back pain can be associated with more serious problems, such as arthritis, kidney disorders, or spinal defects. These problems require prompt medical attention.

b. GUIDELINES FOR EXERCISING. Listed below are some general guidelines to follow when exercising.

- Practice regularly.
- Perform stretching exercises for each muscle group and joint in which you wish to increase or maintain flexibility.
- You should do each stretching exercise, holding it for at least 10 seconds, five separate times.

■ Don't forget to breathe throughout the exercise. Holding your breath puts undue strain on your body.

3-2. SIX-POINT PROGRAM DESIGN

The following pages outline a six-point program design. This six-point program is the basis for any exercise program.

Table 3-1
SIX-POINT PROGRAM DESIGN

TYPE OF ACTIVITY	TIME
Flexibility and stretching	5+ minutes
Warm-Up	5 minutes
Activity (Run-Swim-Bicycle)	25-30 minutes
Cool-Down	5 minutes
Flexibility and Stretching	5 minutes
Muscular Strength	10-15 minutes

a. FLEXIBILITY AND STRETCHING SEGMENT

(1) Highly trained athletes spend an average of 10-15 minutes before each workout or competition developing and maintaining their level of flexibility. You and your family should spend approximately 5 minutes before the warm-up part of your workout and 5 minutes after the cool-down segment on flexibility exercises.

(2) Some examples of exercises that produce, increase, and maintain flexibility are pictured and described on the following four pages. You must be sure to choose one exercise for each muscle group and every joint in which you wish to increase or maintain flexibility.

(3) *Toe Pull (for groin and thighs)*. Sit on the floor with bottoms of the feet together. Pull on toes while pressing legs down with elbows. Hold position for 10 seconds and then repeat.

Variation: Lean forward and try to touch head to feet or floor.



Figure 3-2. Toe Pull

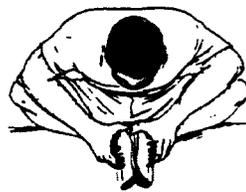


Figure 3-3. Toe Pull Variation

(4) *Seated Toe Touch (for back and hamstrings)*. Sit on floor with back erect and toes pointed forward. Slowly slide hands down legs until you feel stretch; hold position and slowly pull until head approaches legs. Relax. Draw toes back and slowly attempt to touch toes. Hold position for 10 seconds and then repeat.
Variation: Try toe touch with legs apart.

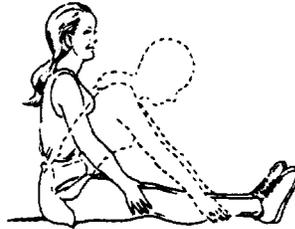


Figure 3-4. Seated Toe Touch

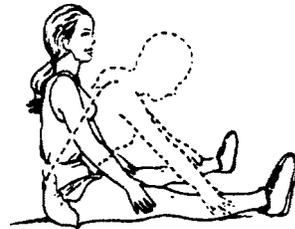


Figure 3-5. Seated Toe Touch Variation

(5) *Standing Toe Touch (for back and legs)*. Stand with, back erect and legs straight. Slowly bend over and reach as far as possible. Hold position for 10 seconds and then repeat.
Variation: Grasp back of ankles and pull until head approaches knees.

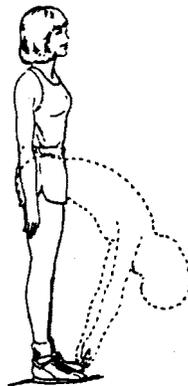


Figure 3-6. Standing Toe Touch



Figure 3-7. Standing Toe Touch Variation

(6) *Wall Stretch (for Achilles tendon)*. Stand 3 feet from wall, tree, pole, or person. Keep feet slightly apart. Put both hands on wall. With heels on ground, lean forward slowly and feel stretch in calves. Hold position for 10 seconds and then repeat.

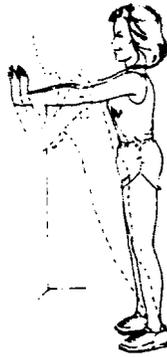


Figure 3-8. Wall Stretch

(7) *Trunk Twist (for upper back and sides of waist)*. Stand upright with your feet comfortably spaced and your arms extended sideward, palms down (shoulder height and parallel to the floor). Turn your body slowly to the left, using full range of motion. Repeat, turning your body to the right.

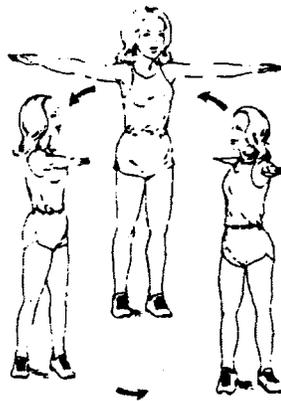


Figure 3-9. Trunk Twist

(8) *Shoulder Circle* (for chest, upper back, and shoulder muscles). Stand upright with your feet slightly separated. Put your left hand on your left hip and your right hand at your side. Without moving your body from side to side, slowly rotate your right arm at the shoulder in a forward, upward, rearward, downward circular motion. Repeat, using left arm.



Figure 3-10. Shoulder Circle

(9) *Doorway Stretch* (for chest and upper shoulder muscles). Stand in a doorway with feet together and grasp the doorjamb above the head with each hand. Lean slowly forward through the doorway until stretch is felt. Hold position for 10 seconds. Repeat, each time stretching a little further.

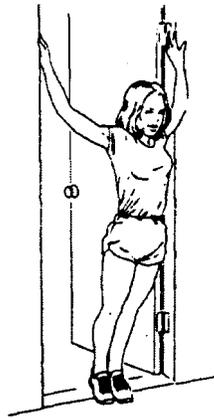


Figure 3-11. Doorway Stretch

(10) *Lower Back, Stretch* (for lower back muscles). Lie flat on your back with knees bent and your feet flat on the floor. Pull in your stomach and slowly draw both knees up toward your chest. Grasp your knees and slowly draw them into a tight tuck position by pulling your legs toward your chin. Hold position for 10 seconds and slowly return to starting position. Repeat.

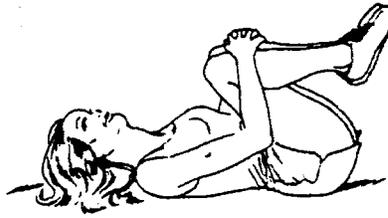


Figure 3-12. Lower Back, Stretch

(11) *Cobra Stretch (for upper back muscles)*. Lie facedown on the floor with the hands (palms down) on the floor under your shoulders. Slowly extend the arms fully to raise the shoulders and upper back. Keep the pelvis and legs on the floor. Bring your head up and look toward the ceiling. Hold position for 10 seconds and then repeat.

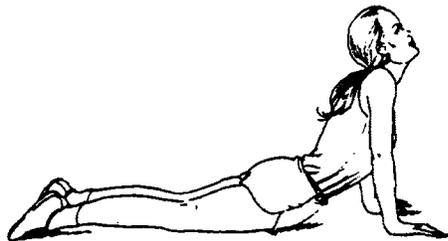


Figure 3-13. Cobra Stretch

(12) *Lower Back Stretch (for lower back muscles)*. Sit in a chair with feet about 24" apart. Clasp both hands behind your head. Slowly bend forward with the arms, shoulders, and elbows between your knees. Attempt to touch your elbows to the floor. DO NOT BOUNCE! Stretch until discomfort is felt in the lower back. Hold position for 10 seconds and then repeat.



Figure 3-14. Lower Back Stretch

(13) *Trunk Twister (for waist and lower back)*. Sit on the floor with legs crossed. Slowly twist your body to the right and reach to touch the floor behind your back with both hands. Hold position for 10 seconds and then repeat for the left side.



Figure 3-15. Trunk Twister

(14) *Hamstring Stretch (for hamstrings and lower back)*. Stand with one leg crossed in front of the other and with the feet close together. The front leg will hold the rear leg back and straight. Slowly bend over and attempt to place the hands on the floor. Hold position for 10 seconds and then repeat.
Variation: Grasp back of ankles and pull until head approaches knees.

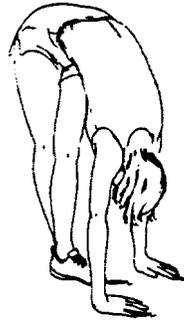


Figure 3-16. Hamstring Stretch



Figure 3-17. Hamstring Stretch Variation

(15) *Foot and Ankle Stretch*. Sit on your feet with toes and ankles stretched backward. Balance with both hands on the floor just behind the hips. Focus your eyes on the ceiling and slowly raise your knees slightly from the floor. Hold position for 10 seconds and then repeat.

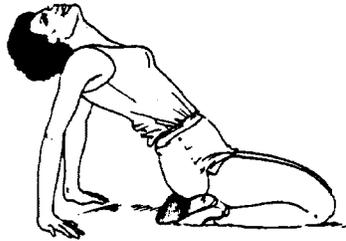


Figure 3-18. Foot and Ankle Stretch

b. WARM-UP SEGMENT. The warm-up segment is used as a preventive measure against injury. Your body is given a chance to get ready to do more strenuous activity. Warming up also serves as a period of mental preparation for the exercise period. The warm-up period follows the flexibility period and should equal 5 minutes. The warm-up increases your heart rate. Exercises that can be used to warm up are jogging in place, jumping rope, or riding a stationary bicycle. See figure 3-19.

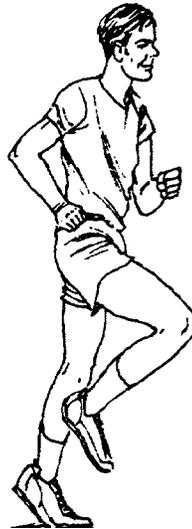


Figure 3-19. Warm-Up Segment

c. ACTIVITY SEGMENT. The activity segment provides the best physical conditioning portion of the workout period. The body has been properly prepared by flexibility and warm-up exercises and is now ready for harder exercise. See figure 3-20.



Figure 3-20. Activity Segment

d. COOL-DOWN SEGMENT. The cool-down segment is a readjustment period. Immediately after exercising, your body needs time to readjust. This simply involves slow jogging or walking for 5 minutes followed by 5 minutes of flexibility and stretching. See figure 3-21. Failure to cool down can result in dizziness, nausea, or even fainting. The flexibility and stretching exercises will minimize soreness and stiffness the next day.



Figure 3-21. Cool-Down Segment

e. MUSCULAR STRENGTH SEGMENT. To increase the fitness of your muscles, you must stress them (work them harder than normally). Stress causes muscles to adapt by gaining endurance and becoming stronger. Improving muscular strength is a valuable asset to many everyday activities, and it provides a foundation for successful participation in sports and other activities.

3-3. DEVELOPING MUSCULAR FITNESS

a. We develop muscular fitness by participating in a well-planned and faithfully executed training program. Here are a few guidelines to keep in mind.

- Don't get discouraged. It takes time (at least a month) for you to start seeing noticeable results.
- Generally, three training sessions per week with weights produce significant strength gains in about 1 month.
- Keep a written record of the exercises you do, the number of repetitions you do, and the frequency of your workouts each week. This record will help you monitor your progress and serve as a motivational tool.

b. Below are exercises that you can do without weights. You should do these exercises at least three times per week.

(1) *Rope Skipping (cardiorespiratory system and legs)*. Stand with feet close together; your weight should be centered on the balls of your feet, your legs should be relaxed but firm, and your arms should be relaxed at your sides with rope handles held in each hand. Start by jumping up and down; be sure to push off with your toes and not let your feet rise higher than 1 to 1 1/2 inches from the ground. While you push off with your toes, the rope will be coming from behind your body, over your head, and down under your feet shortly after the push-off. Jumping twice per rope turn is a good starting point; it makes approximately 80 rope turns per minute.

Variation: Jump with one foot, alternating to the opposite foot on the next jump. Many variations of steps are possible. You may also increase the number of rope turns per minute.

Duration: Work up to 25–30 minutes three times per week.



Figure 3–22. Rope Skipping



Figure 3–23. Rope Skipping Variation

(2) *Push-Ups (back of arms, chest, and shoulder muscles)*. Start in a front-leaning rest position, supporting your body with your hands and toes. Bend your elbows until the chest touches the floor. Keep your body flat and rigid. Return to starting position.

Variation: Support your body with your hands and knees. As you gain strength, try one-arm push-ups. You can do this by placing one arm behind your back.

Duration: Work up to 10 push-ups 3 times per week.

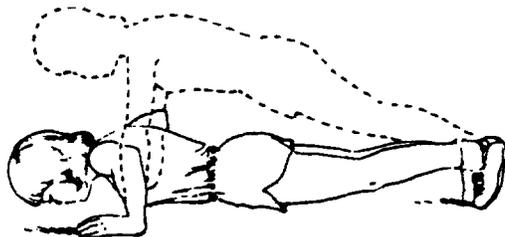


Figure 3-24. Push-Ups

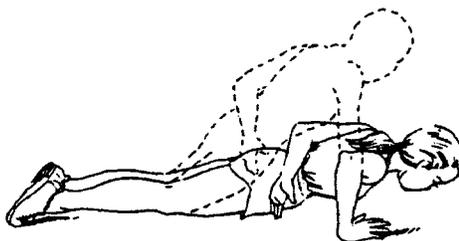


Figure 3-25. Push-Ups Variation

(3) *Bent-Knee Sit-Ups (abdominal muscles)*. Start by lying on your back, hands locked behind your head, knees slightly bent, and feet flat on the floor. Curl your back and raise your upper body until your elbow touches your knees. Slowly return to starting position. Your hands should remain locked behind your head. Be careful not to pull on your head with your hands. Let your stomach muscles do the work.

Variation: Raise your upper body to a semi vertical position and hold for 5-10 seconds. Return to starting position.

Duration: Work up to 15 sit-ups 3 times per week.

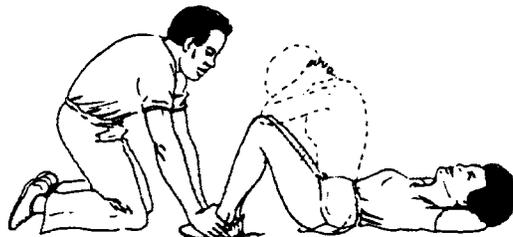


Figure 3-26. Bent-Knee Sit-Ups

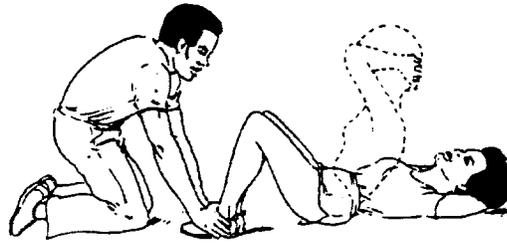


Figure 3-27. Bent-Knee Sit-Ups Variation

(4) *Bench Stepping* (leg muscles and cardiorespiratory system). Place a bench, chair, or another stationary object that is 16-18 inches high in front of you. Using a watch to time yourself, step up on the object with your right foot and then your left foot and straighten both knees. Now step down with your right foot and then your left, again straightening the knees. Repeat without resting.

Duration: Work up to 3 minutes without stopping.

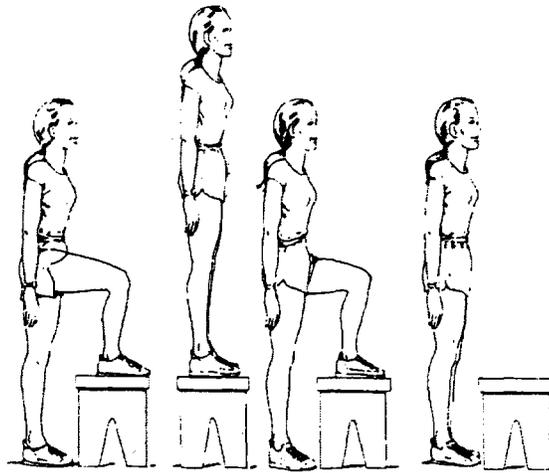


Figure 3-28. Bench Stepping

(5) *Chest And Shoulder Developer* (strengthening of anterior chest and shoulder muscles). Lie on your back with your legs extended (if possible, use a bench, such as a piano bench). Hold a book or a 1-pound dumbbell in each hand at your sides. Be sure to keep your arms straight throughout the exercise. Starting with your arms straight, raise them slowly to a vertical position and lower slowly to starting position.

Variation 1: Raise arms to vertical position; slowly lower arms out to sides at shoulder level. Slowly raise arms back to vertical position.

Variation 2: Raise arms to vertical position; slowly lower both arms back over your head. Slowly return to vertical position.

Duration: Work up to performing 10 repetitions of each exercise 3 times per week.

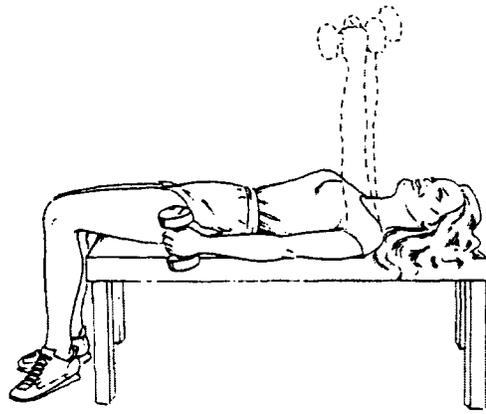


Figure 3-29. Chest and Shoulder Developer

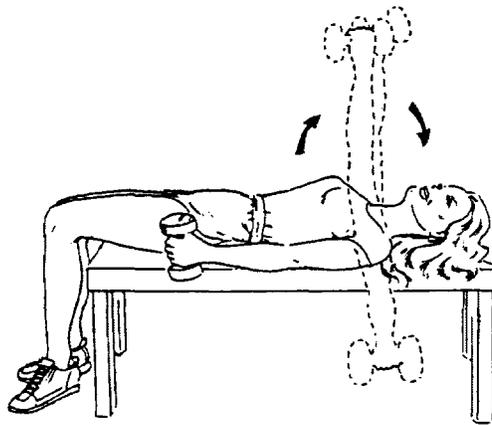


Figure 3-30. Chest and Shoulder Developer Variation 1

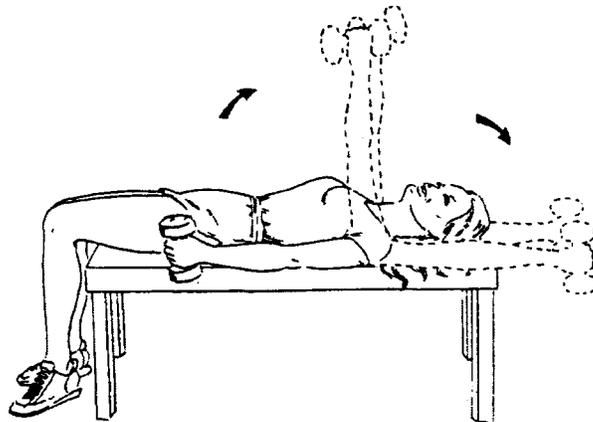


Figure 3-31. Chest and Shoulder Developer Variation 2

(6) *Chest And Shoulder Stretcher (strengthening of chest and shoulder muscles)*. Stand straight with feet shoulder width apart. Place a long object like a rolling pin behind your back, holding onto each end. Now bend forward from the hips, keeping your back straight and your head up. Make your arms parallel to each other and raise them upward as high as you can. Hold this position for 3–5 seconds; then lower your arms and repeat. Duration: Work up to 10 repetitions 3 times per week.

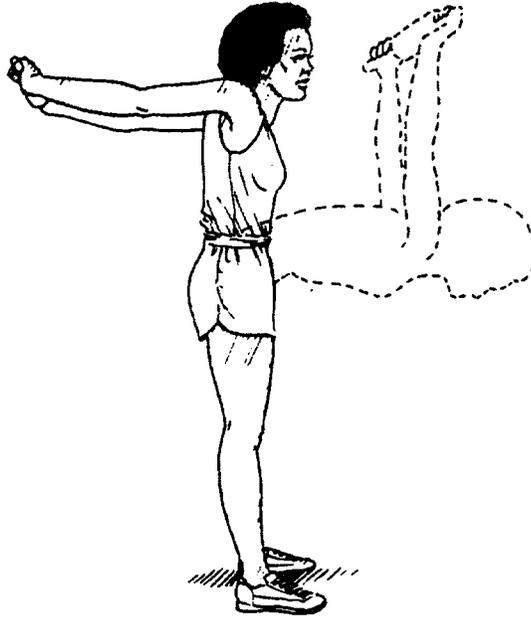


Figure 3–32. Chest and Shoulder Stretcher

(7) *Standing Leg Kicks (slimming of waistline, firming of leg muscles)*. Stand straight with arms at sides. Raise left arm straight to shoulder height, palm down. Keeping right leg straight, kick forward and upward to touch your hand. Your hips will rotate slightly. Complete five repetitions on one leg and repeat the same procedure for the other leg. Duration: Work up to three sets of five repetitions for each leg.

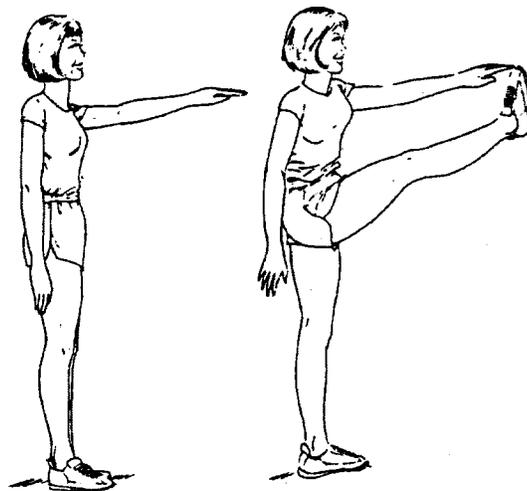


Figure 3–33. Standing Leg Kicks

(8) *Knee-To-Nose Leg Kicks* (tightening of buttocks muscles and stretching of back muscles). Start on the floor with hands and knees supporting your weight. As you bring your left knee to your nose, drop your head down and look at your knee. Now slowly lift your head and look upward while straightening your leg back and upward and as high as possible. Complete five repetitions on one leg and repeat the same procedure for the other leg.
Duration: Work up to three sets of five repetitions for each leg.

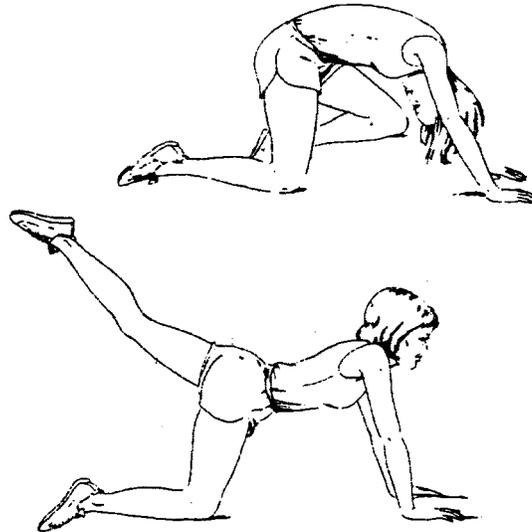


Figure 3-34. Knee-to-Nose Leg Kicks

(9) *Sitting Tucks* (strengthening of thigh and hip muscles). Start by sitting on the floor. Place your hands on the floor near your hips. Tuck your knees toward your chest with heels slightly off the floor. Now extend your legs straight out, keeping your feet and legs off the floor, and return to the tuck position.
Duration: Work up to 3 sets of 10 repetitions.

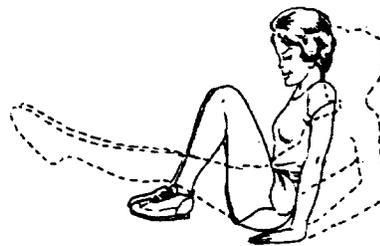


Figure 3-35. Sitting Tucks

3-4. EXERCISING YOUR HEART AND LUNGS

Aerobic exercises are best because they stimulate and tax the cardiorespiratory system (the heart and lungs), and thereby improve the body's use of oxygen. These types of exercises should be—

- BRISK - raising heart and breathing rates.
- SUSTAINED - done at least 25-30 minutes without interruption.
- REGULAR - repeated three to four times per week.

Table 3-2 will give you an idea of what activities affect your heart and lungs.

**Table 3–2
HEART AND LUNG EXERCISES**

A Conditions Heart and Lungs	B Can Condition Heart and Lungs	C Does Not Condition Heart and Lungs (Mostly Recreational)
Cross-country skiing Jogging Jumping rope Stationary bicycling Running in place Hiking (uphill) Rowing Ice hockey Soccer Speed walking Aerobic dance	Bicycling Downhill skiing Basketball Calisthenics Field Hockey Handball Racquetball Squash Swimming Tennis (Singles) Walking	Baseball Bowling Football Golf (on foot or by cart) Softball Volleyball

a. **COLUMN A:** These exercises are naturally very vigorous. If they are done for at least 25 minutes three to four times a week, they will condition your cardiorespiratory system, use many calories, and give you many other benefits associated with total fitness.

b. **COLUMN B:** These activities are moderately vigorous but can be excellent conditioners if done briskly for at least 30 minutes three to four times a week.

c. **COLUMN C:** These activities by nature are not vigorous or sustained. They still have certain benefits; they can be enjoyable, help improve coordination and muscle tone, and help relieve tension. However, they neither condition the cardiorespiratory system nor burn off many calories.¹

3–5. DETERMINING YOUR TARGET HEART RATE

a. How should you pace your physical exertion? Build up slowly. If you’ve been inactive for a long while, it will take time to get into shape. No matter where you begin, you will be able to build up your exercise time or pace as your body becomes adapted to your program.

b. Keeping track of your heart rate lets you know how hard you should be exercising. Your maximum heart rate reserve is the fastest your heart can beat. Exercise done above 75 percent of the maximum heart rate reserve may be too strenuous unless you are in excellent physical condition. Exercise done below 60 percent gives your heart and lungs little conditioning.

c. Therefore, the best activity level for starting a program is 60–75 percent of the maximum heart rate reserve. This 60–75 percent range is called your **TARGET HEART RATE**.

d. When you begin your exercise program, aim for the lower part of your target zone (60 percent) during the first few months. As you get into better shape, gradually build up to the higher part of your target zone (75 percent). After 6 months or more of regular exercise, you can exercise up to 85 percent of your maximum heart rate if you wish. However, you do not have to exercise that intensely to stay in good condition. The important thing is that your heart rate after exercise which you recorded in the previous chapter, gradually becomes lower as you become more physically fit. This means that when your HRA becomes lower, your body is taking less time to recover from activities.

e. To find your target heart rate, look at table 3–3 and find the age category closest to your age; read across the line. For example, if you are 30, your target rate is between 114 and 142 beats per minute. If you are 43, the closest age on the chart is 45; the target rate is 105 and 131 beats per minute.

CAUTION: A few high blood pressure medicines lower the maximum heart rate and thus the target heart rate. If you are taking high blood pressure medication, call your physician to find out if your exercise program needs to be adjusted.

Table 3-3
HEART RATE CHART

Age	Target Rate (60-75%)	Average Maximum Heart Rate (100%)
20 years	120-150 beats per min	200
25 years	117-146 beats per min	195
30 years	114-142 beats per min	190
35 years	111-138 beats per min	185
40 years	108-135 beats per min	180
45 years	105-131 beats per min	175
50 years	102-127 beats per min	170
55 years	99-123 beats per min	165
60 years	96-120 beats per min	160
65 years	93-116 beats per min	155
70 years	90-113 beats per min	150

min = minute

Notes:

Your maximum heart rate is usually 220 minus age for males and 225 minus age for females. The above figures are averages and should be used as general guidelines.

f. To see if you are within your target heart rate, take your pulse immediately after you stop exercising by doing the following:

- When you stop exercising, quickly place the tip of your third finger lightly over one of the blood vessels in your neck (carotid arteries) located to the left or right of your Adam's apple. See figure 3-36.
- Another convenient pulse spot is the inside of your wrist (radial) just below the base of your thumb (or place your hand over your heart). See figure 3-37.
- Count your pulse for 15 seconds and multiply by 4.
- If your pulse is below your target rate, exercise a little harder the next time. If it is above your target rate, exercise a little more easily. If it falls within the target rate, you're doing fine.
- Once you're exercising within your target rate, you should check your post-exercise pulse at least once each week during the first 3 months and periodically thereafter.²

¹ Adapted from Exercise and Your Heart, National Heart, Lung and Blood Institute, Baltimore, MD, 1981.

² Reprinted from Exercise and Your Heart, National Heart, Lung and Blood Institute, Baltimore, MD, 1981.



Figure 3-36. Taking Pulse from the Neck

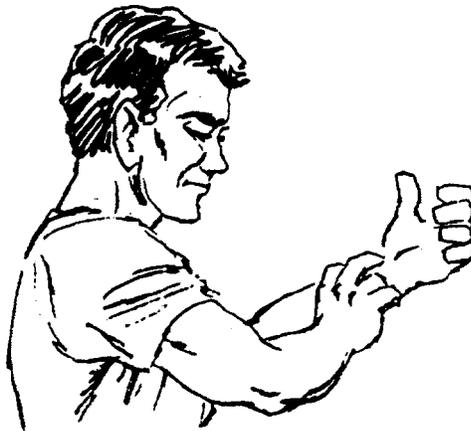


Figure 3-37. Taking Pulse from the Wrist

3-6. INDIVIDUAL EXERCISE PROGRAMS

a. Now that each family member has a good idea of how to design an exercise program, please turn to appendix C for some samples of exercise programs you can readily adapt to your own fitness situation.

b. Before we completely close out this chapter, there is another area you and your family might want to consider when designing fitness or exercise program. That area involves strength training. Strength (weight) training can be easily made a part of individual fitness programs, or it can be used as a totally separate activity. Read on to find out what strength training really is.

3-7. STRENGTH TRAINING

a. *WEIGHT TRAINING*

(1) Milo of Croton, a great Greek wrestler, was one of the first weight lifters in recorded history. The story has often been told of how Milo as a youth carried a young bull and walked with it on his shoulders. He continued this practice daily until the bull was fully grown. Milo's principle of gradually increasing the weight he trained with is the same one followed today to increase strength and muscular endurance.



Figure 3-38. Strength Training

(2) The subject of strength training for many people brings to mind “hulking men” straining over huge barbells in a gymnasium with an odor that is somewhat less than pleasant. This picture couldn’t be further from the truth. Today millions of men, women, and children are becoming conscious of the many benefits that go along with strength training.

(3) Health spas and weight training centers are springing up all over the country. The advances made over the last several years in strength training equipment make it possible to get a safe workout for all major muscle groups in a short period of time. Thirty minutes three times a week is all that’s needed to build a stronger, healthier you,

(4) The time and effort required to strengthen your muscles will be well spent. The additional strength will make you less susceptible to injury, help you look and feel better, and improve performance in your favorite sports activities.

(5) Get the family involved. The fear some women have of developing huge muscles is unfounded. In general, women lack sufficient hormones to develop muscles like a man’s. In fact, more women are currently involved in weight or resistance training than men are. A woman can develop a beautiful figure more easily than a man can develop large muscles.

b. CHILDREN AND WEIGHT TRAINING. Since the bones, tendons, and ligaments are still growing and developing, it is generally agreed that children who have not reached puberty should not lift heavy weights.

Studies have shown that children who perform weight training exercises with relatively light weights and do high repetitions (15–25) benefit from the experience.

c. HOW TO START. If anyone in the family is considering some strength training, listed below are some general guidelines to follow.

- Keep a personal log of all your training sessions. Include your weight and body measurements in this log and check them at least once a month.
- Always stretch and warm up before a workout.
- Decide how much time you will spend and stick to it. There are always excuses for skipping a workout.
- Train; don’t strain. Maximum lifts are for Olympic lifters.
- Exercise all major muscle groups. Don’t concentrate on just your arms or upper body. Work toward developing the whole body (symmetry).
- For best results try to include an aerobic activity like jogging or swimming in your fitness program.
- You can get help with your weight training program at post gyms and local health spas and by talking to local athletic directors.

Chapter 4 SPORTS/ACTIVITIES FOR YOUR FAMILY

4-1. POPULAR EXERCISES AND RECREATIONAL ACTIVITIES

a. Whether you’re young or old, male or female, there is a sport or recreational activity for you! You may be interested in knowing what the most popular activities are. Here are the top 12 favorites.

**Table 4-1
TOP 12 FAVORITE SPORTS**

FAVORITE SPORTS

1. Jogging/running/walking	5. Tennis	9. Basketball
2. Swimming	6. Softball*	10. Ice skating
3. Bicycling	7. Table tennis*	11. Waterskiing
4. Bowling*	8. Roller skating	12. Golf*

Notes:

* The starred (*) activities are purely recreational; they provide a variety of activity but little or no exercise benefit.

b. If none of these activities strike your fancy, don't be discouraged; there are dozens more. When does it start becoming fun?

- When you feel good about yourself!
- When you improve your sport!
- When people compliment you on the "new you"!

c. Variety is necessary to prevent boredom. Mix exercise with recreation. Study table 4-2 below. It is not necessary to do everything every day as shown.

**Table 4-2
SAMPLE 7-DAY EXERCISE PLAN**

DAY OF WEEK	AEROBIC ACT	RECREATIONAL ACT	STRENGTH ACT
Monday	Jogging	Softball	-
Tuesday	-	Racquetball	Strength Exercises
Wednesday	Jogging	Bowling	-
Thursday	-	Swimming	Strength Exercises
Friday	Jogging	Table Tennis	-
Saturday	-	-	Strength Exercises
Sunday	Brisk walk	-	-

4-2. ACTIVITIES FOR THE WHOLE FAMILY

Some sports are great for family participation, and others are not! If your goal is toning muscles or achieving overall physical fitness, a sport like soccer is much better than archery. If you're overweight, billiards, snow mobilizing, or riding a golf cart won't do the job. This section will give you a good idea of the many types of sports and recreational activities available.

The following sports are ideal for family participation, and if you're fortunate enough to have a yard around your home, you're well on your way.

a. *BADMINTON (Recreation).*

(1) This is an excellent game for two to four players. It involves hitting a shuttlecock (usually called a "birdie") over a net with a racquet.

(2) Kits containing everything you need-badminton racquets, shuttlecocks, net, poles, and rules for play cost between \$9 and \$30. If you like top quality, your best bet is to buy the component parts separately. Steel racquets are generally more durable, especially if small children are going to play. Nylon nets last longer than cotton ones. Keeping the net tight between the supporting poles is always a problem. If you want a first-class job that will last for years, get two lengths of 1 1/2" or 2" conduit from an electrical supply store and two 18" pieces of slightly larger conduit. Set the short lengths in concrete flush with the ground; then insert the longer ones into the shorter ones, and you will have an excellent setup for badminton and volleyball.



Figure 4-1. Badminton

b. *SOFTBALL (Recreation)*. Find a field, put down some bases, get the gang together, and have a go at it. There are only three items of equipment needed to play this game: a softball, a softball glove, and a bat. There are some things you need to know, however, when buying these items. Softball gloves have larger pockets than baseball gloves and come in different sizes. Softball gloves are priced from \$10 to \$100 or more, but you can play, without a glove if you use a large sponge ball. (When ordering a glove, remember, if you throw with your right hand, order a right-hander's glove; this glove will fit on the left hand.) Bats can be wood or aluminum and cost from \$6 to \$25. There are many different kinds of softballs, such as leather, sponge rubber, restricted flight, and extra large. If small children are playing, the sponge ball is probably best.



Figure 4-2. Softball

c. *DODGE BALL (Recreation)*. All you have to do to play this game is to make some boundaries in your yard and use a beach ball or any large, soft ball. One player starts with the ball outside the boundaries and must hit another player. The one who gets hit then gets the ball and the right to “boff” someone else after getting outside the boundary. All players must stay within the boundaries except to retrieve the ball. The winner is the one who gets hit the fewest times during the game. This game has plenty of running in it, and children love it.



Figure 4-3. Dodge Ball

d. *KICK BALL (Recreation)*. This game is played just like baseball or softball except that you use a play ground type ball. The ball costs between \$4 and \$12. The more expensive ones have multi layer construction and are almost indestructible.



Figure 4-4. Kick Ball

e. *ROLLER SKATING/ICE SKATING (Exercise and Recreation)*. You may take a few bumps and bruises when you get started, but it won't be long before you're gliding along and enjoying yourself. Make sure that your skates fit snugly and support your ankles; be sure to lace them all the way up. If there is any doubt about the strength of the ice on a lake or pond, don't chance it. Most roller rinks rent skates for a nominal fee, and a few places rent ice skates. Purchase prices for new ice or roller skates range from \$6 to more than \$100.



Figure 4-5. Roller Skating

f. *TENNIS (Exercise and Recreation)*. Most Army posts and surrounding communities have tennis courts that can be used free of charge. You will need tennis racquets and balls. (Some installations have this equipment for use free of charge.) Some sporting goods stores will allow you to play with a racquet before you purchase it. Women use the same racquets that men use; however, they come with different-sized grips and in various weights to fit players' particular needs. Racquets are made of wood, aluminum, fiberglass, and graphite. A racquet can cost from \$8 to \$120, and balls cost approximately \$3 for a can of three.



Figure 4-6. Tennis

g. *SNOW SKIING (Exercise and Recreation)*. This is great outdoor fun if you live in the right part of the country, and it is good for all ages. Ski boots, bindings, and skis and poles can be expensive, so try before you buy. Ski resorts rent all of the equipment you need. If you want to try downhill skiing, take ski lessons. Then make sure you start on beginning slopes; other slopes can be dangerous for a novice. You can cross-country ski wherever there is snow. Cross-country skiing is one of the best aerobic conditioners available.



Figure 4-7. Snow Skiing

h. *WATERSKIING (Recreation)*. If your family likes boating, if everyone can swim, and if you have access to a good motorboat, give this sport a try. Make sure your legs are in shape and be ready for some high-speed excitement. Water skis cost between \$50 and \$200. Good skiers may want to try slalom skiing, which is done on one special ski. Advanced skiers enjoy the maneuverability and freedom on this type of water ski; however, the slalom ski is slightly more expensive than regular skis.



Figure 4-8. Waterskiing

i. *HIKING/BACKPACKING (Exercise and Recreation)*. Hiking/backpacking allows you and your family to explore the wilderness in state parks, in national forests, at military posts, or at other places that look interesting. It also allows you to learn to identify trees, plants, wildlife, and birds. You can even take along a picnic lunch. If you get serious and want hiking boots, strong leather ones with soft shanks are best. Wool socks with synthetic liners will keep your feet dry and warm. For carrying a heavy load, a frame pack is the best. The frame distributes the load and takes the strain away from your lower back. Boots may cost from \$30 to \$200, and socks may cost from \$3 to \$6. Backpacks may cost from \$4 to \$50; those with frame packs cost between \$50 and \$175.



Figure 4-9. Hiking/Backpacking

j. *ROCK CLIMBING (Exercise)*. What's up there? If you would like to know, take along someone with experience if the climb looks at all dangerous. Remember safety first. Climbing shoes should have three-quarter or full stiff shanks with less bend than hiking boots.



Figure 4-10. Rock Climbing

k. *CANOEING (Exercise and Recreation)*. There are some excellent lakes and rivers to explore in almost every state and in many places overseas. Be sure you know how to swim. Start out on calm water and learn to maneuver the canoe. Later you may want to advance to the more exciting white-water canoeing. Canoes can be rented for 4-hour trips or for periods up to several days. Renters supply life jackets and will drop you off and pick you up when you're finished. Do you want to own a canoe? Canoes come in several designs and materials. The keel runs along the bottom of the canoe from end to end. A canoe with no keel or with a shoe keel is best for rivers and white water. The flatter bottom lets the canoe ride higher in the water and hit fewer obstacles. On lakes a canoe with a keel holds your course and cuts through the water. Aluminum, fiberglass, and wood keels all have advantages and disadvantages. Canoes cost from \$300 to \$800, so do some research before buying.



Figure 4-11. Canoeing

4-3. ACTIVITIES FOR FAMILY AND NEIGHBORS

Unless you have a really large family, you probably won't have enough people to play some of these games; therefore, round up the neighbors. You may want to make a regular weekly time for play, such as Tuesday night volleyball at your house or Saturday morning kick ball at the park.

a. *VOLLEYBALL (Recreation)*.

(1) This game is normally played with two teams of six players each. However, you need not have six players. Use your own imagination. For example, if you have only four people try two on a side and modify the number of hits to four hits per side.

(2) If you like volleyball, it pays to buy durable equipment. The same posts described for badminton can be used. The best nets are made of nylon and have cable running through the top and bottom. A good net sells for about \$16 to \$30. A rubber ball is the cheapest, but it may sting the arms and fingers. Most people enjoy playing with a soft leather ball. It is more expensive but will last a long time if used just for volleyball. The cost of the ball is \$3 to \$6 for rubber or \$10 to \$25 for leather.



Figure 4-12. Volleyball

b. SOCCER (Exercise and Recreation). This game is a great physical conditioner. The object is to kick the ball into a goal area. Players may not use their hands and are almost constantly running. Ideally you should have a goal area that is surrounded on three sides by a net, but you may use a football field or make up your own goal areas. A soccer ball is all the equipment you really need. This may be rubber, synthetic leather, or real hand-sewn leather, which is considered the top of the line. A ball may cost from \$5 to \$65.



Figure 4-13. Soccer

4-4. ACTIVITIES JUST FOR FAMILY FUN

Here are some sports that won't necessarily make you more fit, but they will give you and your family a time to share and build close relationships.

a. *LAWN DARTS (Recreation)*. This is a game consisting of large plastic feathers and metal-tipped darts thrown into a plastic hoop across the yard. The game is relatively inexpensive (\$448 per set) and provides both exercise and fun. Caution: Make sure that all players keep their eyes on the darts while they are airborne because they can be dangerous.

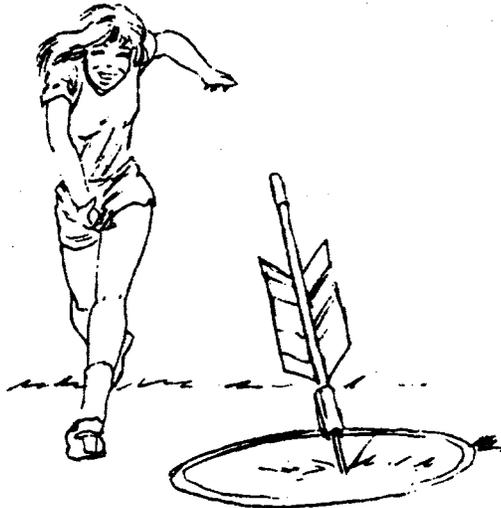


Figure 4-14. Lawn Darts

b. *CROQUET (Recreation)*. Croquet is an excellent yard game for the whole family. It consists of hitting a ball with a mallet through a series of small wickets or arches. Kits containing everything you need cost from \$15 to \$150 or more. Mallets and balls made of hard maple last for years.



Figure 4-15. Croquet

c. *FRISBEE (Exercise and Recreation)*. A Frisbee is a flying saucer-type plastic disc used for all sorts of games. Generally, frisbees are simply thrown from one person to another; however, frisbee baseball, football, and golf are just some of the more advanced games that are played. Frisbees cost from \$1 to \$10.



Figure 4-16. Frisbee

d. *HORSESHOES (Recreation)*. You can play horseshoes with two to four players, or you can practice all by yourself. Horseshoes are available in rubber or steel and the stakes driven into the ground can be wood or steel pipe. Rubber horseshoes are safer for children but don't last as long as the Steel ones. Sets—including shoes, posts, and rules—cost from \$5 to \$30. Tournament horseshoes cost as much as \$40 for four shoes if you decide to go the expert route.



Figure 4-17. Horseshoes

e. TABLE TENNIS/PING-PONG (Recreation). This game is played indoors or outdoors. To play indoors, you will need 3 feet on each side of the table and 6-8 feet beyond each end. The table is 4' × 8', so you can make your own from a sheet of 3/4" smooth plywood. Tables cost from \$50 to \$300; a table tennis/Ping Pong set, including a net, four paddles, balls, and rules of the game, sells for \$5 to \$25. Seamless balls have truer bounces; paddles may be covered with rubber, foam, cork, or sandpaper, depending on your preference.

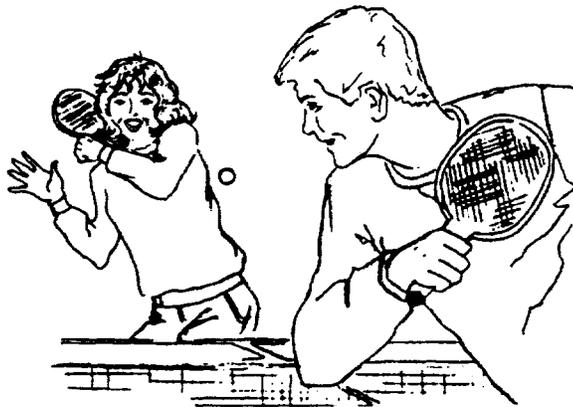


Figure 4-18. Table Tennis/Ping-Pong

f. GOLF (Recreation).

(1) This game is difficult to master but can be enjoyed for a lifetime. It's fun to walk along different golf courses and enjoy the scenery and at the same time meet the challenge each hole has to offer. Since golf equipment can be quite expensive, it is best to borrow or rent clubs for the first few times. Most golf courses have rental clubs and will allow you to play in tennis shoes. Check the regulations at local courses before venturing out. If you know nothing about the game, a quick lesson on holding and using the clubs, along with some golf etiquette (rules), is in order. When learning, try to play at a time when the course is not crowded. One good shot can get you hooked on this game.

(2) There is one last item to consider before leaving the subject of sports/activities for your family. This involves deciding what type of sports equipment, if any is necessary for the activity you or a family member would like to pursue.

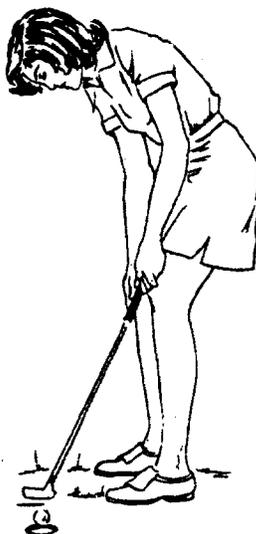


Figure 4-19. Golf

4-5. PURCHASING SPORTING GOODS

a. Depending on the sport with which you become involved, you will probably need some type of equipment. Sports and athletic supplies are big business today. Spend wisely, and you can find good merchandise that will meet the needs of your family at a reasonable cost.

b. There is a great difference in the prices of most sporting goods. The cheapest is usually not a very good buy. The most expensive should be purchased only by the sports enthusiast with a high skill level. Sporting goods priced in the middle range are usually durable and well suited to the average player. Consider who will use the equipment. For example, a small child will not learn to catch well with a very large softball glove.

c. When you first decide to try a sport, rent or borrow equipment. This will give you a chance to try the game and evaluate your needs. Get advice from friends or experts who participate in the same sport. The want ads offer some great buys on excellent sporting goods. Many Army installations lend equipment free of charge.

d. When you decide to buy, check prices in the post, exchange (PX) and with several reliable dealers. The prices for the items may vary considerably, depending on the suppliers.



Figure 4-20. Purchasing Sporting Goods

Chapter 5 NUTRITION AND YOU

5-1. WHY NUTRITION?

a. So far this handbook has concentrated on exercise and sports activities. But these represent only a fraction of developing a healthy life-style. Equally important to an overall total fitness program is a sound nutrition program. Many experts believe that good nutrition is more important than exercise.

b. The next time you go shopping at the grocery store or commissary, do an informal survey. Look for the following:

- Is the person ahead of you in the checkout line overweight?
- What kind of food is that person buying?
- Have you or members of your family had a weight problem?
- Look at your cart! Do you see many snack foods (potato chips, nuts, candy bars, soda pop, and cookies)?

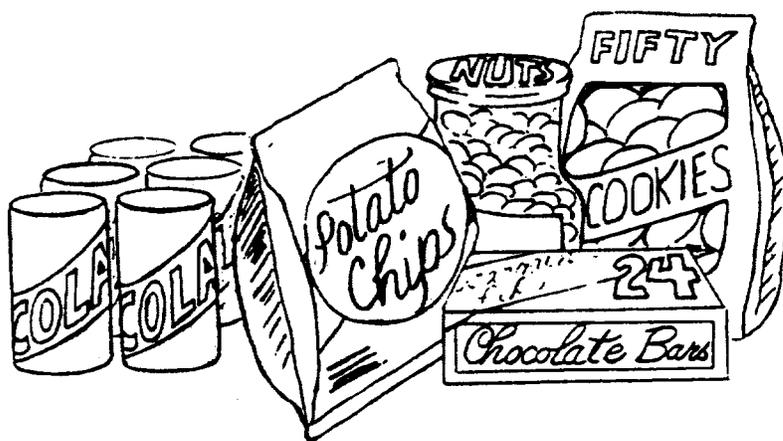


Figure 5-1. Snack Foods

c. Overweight problems are generally easy to identify, but there are other problems associated with food that are not so easy to recognize. For instance, did you know the following facts?

- Foods with a high fat content (like bacon and sausage) can contribute to coronary heart disease.
- Foods with a high salt content (like hot dogs and pickles) should not be eaten by those with high blood pressure.
- Foods with a high sugar content (like sugar-coated breakfast cereals) contribute to the high incidence of dental cavities in American youth.
- Additives such as MSG (monosodium glutamate) can cause headaches.
- An overdose of certain vitamins can be dangerous.
- Diets low in fiber can lead to many gastrointestinal problems, some of which are very serious. (Fiber is found in fresh fruit, vegetables, and whole grain products.)
- Regardless of your age, you need calcium. (Most dairy products are high in calcium.)
- The major cause of anemia (a decreased ability of blood to carry oxygen) in young females is a lack of iron in the diet. (Liver, red meat, and dried fruit are high in iron.)

d. This list can go on and on and on! Our purpose is not to scare you but to impress upon you the importance of a well-balanced diet. You don't have to stop eating hamburgers, hot dogs, French fries, potato chips, ice cream, candy, or fast food, but you do have to use common sense. There are many foods that look and taste good, are inexpensive and convenient, and can satisfy your hunger pains.

e. Nutrition is you. It's what you eat and how your body uses it to live, to grow, to keep healthy, and to get the energy for work and play. You hold the key to good nutrition.

5-2. THE SIX ESSENTIAL NUTRIENTS

Nutrients are in everything you eat and drink. They can be beneficial or harmful, depending on how MUCH or what kind you eat. The six essential nutrients (proteins, fats, carbohydrates, minerals, vitamins, and water) are described below.

a. *PROTEINS*. Proteins come from meat, fish, dairy products, poultry, eggs, dried peas and beans, grains, and cereals. Their primary function is repairing and building tissue.



Figure 5-2. Protein-Containing Foods

b. *FATS*. Fats are primarily a source of food energy (calories). There are two kinds of fats: saturated and polyunsaturated. The typical American diet has far too much fat, especially saturated fat, which tends to increase blood cholesterol levels and appears to be a leading contributor to the development of atherosclerosis (hardening or clogging of the heart arteries).

(1) *Saturated Fats*. Saturated fats are usually of animal origin. (They are the visible fat seen in meat as well as the invisible butterfat in whole milk.) They also include vegetable fats which, have been hardened or partially hardened. These fats are found in shortenings (all vegetable shortening), certain margarines, and food made with or cooked in these fats.



Figure 5-3. Fat-Containing Foods

(2) *Polyunsaturated Fats*. Polyunsaturated fats are of plant origin. The essential fatty acids needed can be obtained entirely from the polyunsaturated oils. They are thought to help lower blood cholesterol. If you have to cook with fat, use a polyunsaturated oil (corn oil, safflower oil, sunflower seed oil, cottonseed oil, or soy oil).

c. *CARBOHYDRATES*. Carbohydrates are the principal source of energy for the brain and nervous system. The three main kinds of carbohydrates are sugars, starches, and fiber.

Table 5-1
SUGAR SOURCES

SUGAR SOURCES

Soda Pop	Pancake Syrup	Ice Cream
Candy	Jams	Jell-O
Sugar-coated Cereal	Pie	Cookies
Fruit Drinks	Cakes	Catsup
	Jellies	
	Fruit Punch	

(1) *Sugars*. Sugars are found naturally in milk and fruit. The sugars found in milk and fruit are surrounded with additional essential nutrients. Table sugar, brown sugar, syrup, and honey are all concentrated sources of sugar. Concentrated sugars are high in calories and low in nutrients. Table 5-1 shows some highly concentrated sources of sugar.

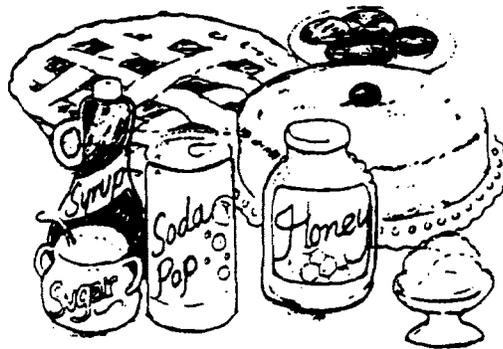


Figure 5-4. Sugar-Containing Foods

(2) *Starches*. Starches should be the principal source of energy and the basic staple of the daily diet. Chief food sources are cereals and cereal products, root crops (potatoes and yams), legumes (pinto beans, navy beans, kidney beans), and starchy vegetables (corn, green peas). Starch-containing foods provide many essential nutrients in addition to calories.

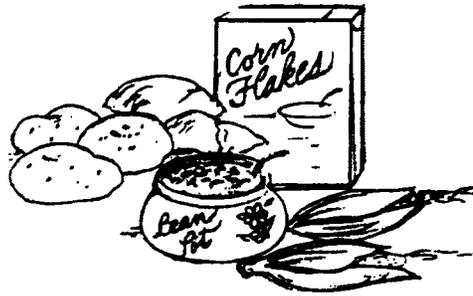


Figure 5-5. Starch-Containing Foods

(3) *Fiber*. Fiber is a form of carbohydrate, which is not digested by your body. The average American diet is low in fiber. Low fiber intake is associated with bowel problems. Increasing the consumption of many types of complex carbohydrates and fruits can help to increase the intake of fiber. Figure 5-6 shows some examples of fiber.



EXCELLENT SOURCES OF FIBER

VEGETABLES		FRUITS	CEREAL
Baked Beans	Kidney Beans	Fresh Fruit with Peels	100% Bran Cereals
Beet Greens	Lima Beans	Berries	Bran Flakes
Black Beans	Pinto Beans	Prunes	Whole Grain Flour
Broccoli	Peas	NUTS	Whole Wheat Bread
Brussels Sprouts	Parsnips		Brazil Nuts
Winter Squash			Coconut
			Sunflower Seeds (Unsalted)
			Roasted Soybeans
			Rye Bread

Figure 5-6. Fiber-Containing Foods

d. MINERALS. Minerals help build blood, bones, and teeth and aid vital body functions, including those of nerves and muscles. A few of the more common minerals found in our diet are calcium, phosphorus, iron, sodium, potassium, fluorine, and iodine. There are nearly 30 in all; others have yet to be discovered.

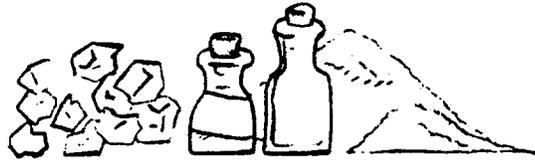


Figure 5-7. Minerals

e. *VITAMINS*. Vitamins are essential for proper use of food and healthy functioning of the body. Overuse of B vitamins does nothing for you. Excessive amounts of the fat-soluble vitamins A, D, and K are stored in body tissue and can be dangerous.

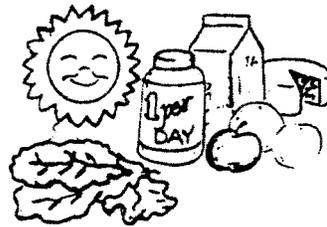


Figure 5-8. Vitamins

f. *WATER*. Water cools the body by evaporation through the skin (perspiration). It is the main component of the blood, and it also transports waste products to the kidneys for elimination.

5-3. BASICS OF NUTRITION

a. INTRODUCTION.

(1) There are millions of Americans who practice the ritual of skipping one or two meals a day and attempt to provide all their nutrition in one large feeding. Calories consumed over and above what the body can use produce body fat. It is much more difficult to ensure an adequately balanced diet on one meal alone. (See appendix D.)

(2) Food alone cannot make you healthy; but good eating habits, based on moderation and variety, can improve your health.

(3) Each of the seven food groups shown in table 5-2 will be discussed individually, including identification of specific food items, recommended serving size, major nutrients provided, and comments of special interest.

Table 5-2
MINIMUM DAILY SERVINGS

SEVEN FOOD GROUPS	CHILDREN UNDER 9	CHILDREN 9-TEENS	ADULTS	PREGNANCY	LACTATION
1. Milk & Dairy Products	3 servings	4 servings	2 servings	4 servings	5 servings
2. Meat & Protein-Rich Foods	2 servings	2 servings	2 servings	2 servings	2 servings
3. Citrus Fruits or Substitutes	1 serving	1 serving	1 serving	1 serving	1 serving
4. Dark Green or Deep Yellow Vegetables	1 serving	1 serving	1 serving	1 serving	1 serving
5. Other Fruits and Vegetables	2 servings	2 servings	2 servings	2 servings	2 servings
6. Bread and Cereal	4 servings	4 servings	4 servings	4 servings	4 servings
7. Vegetable Oils and Fats	3 servings	3 servings	3 servings	3 servings	3 servings

b. MILK AND DAIRY PRODUCTS.

(1) The foods in this group are important sources of protein; minerals, such as calcium and phosphorus; and vitamins, such as riboflavin and vitamins A and D.

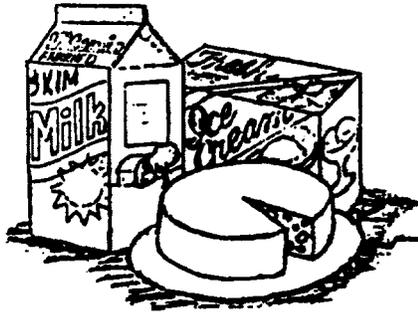


Figure 5-9. Milk And Dairy Products

Table 5-3
DAIRY PRODUCTS

RODUCT	CALORIES
1 cup whole milk	160 calories
1 cup low-fat milk (2%)	125 calories
1 cup skim milk	90 calories
1/2 cup evaporated milk	145 calories
1/3 cup powdered nonfat dry milk	90 calories
1 cup chocolate low-fat milk	125 calories
1 cup buttermilk made from whole milk	160 calories
1 1/2 cup ice cream	420 calories
1 1/2 cup cottage cheese	360 calories

(2) Listed (table 5-3) are a few dairy products which represent one serving from the milk and dairy group. The calcium content of each food is the same, but the foods differ in calorie content.

(3) The following are hints and comments concerning milk and dairy products:

- Whole milk, ice cream, and cheddar cheese provide saturated fat, cholesterol, and calories, which many people do not need.
- Low-fat and skim milk products contain fewer calories, less saturated fat, and less cholesterol but still contain the protein, minerals, and most of the vitamins found in whole milk products.
- In cooking, substitute nonfat dry milk or skim milk for whole milk, and each is cheaper than whole milk.
- If you do not drink milk, try cooking with skim milk in soups, gravies, and puddings.
- Plain yogurt can substitute for sour cream and is more nutritious.
- Try low-fat dairy desserts like ice milk or frozen yogurt. Serve moderate portions; all foods have calories, and even these low-fat desserts contain sugar.
- Fruit-flavored yogurt has added sugar. Plain yogurt can be mixed with fresh fruit or canned fruit (without added sugar) for more nutrition and fewer calories.
- If you drink whole milk but don't like skim milk, try low-fat 2% milk. This will reduce fat intake.
- Nonfat dry milk, fortified with vitamins A and D, is the least expensive form of milk.

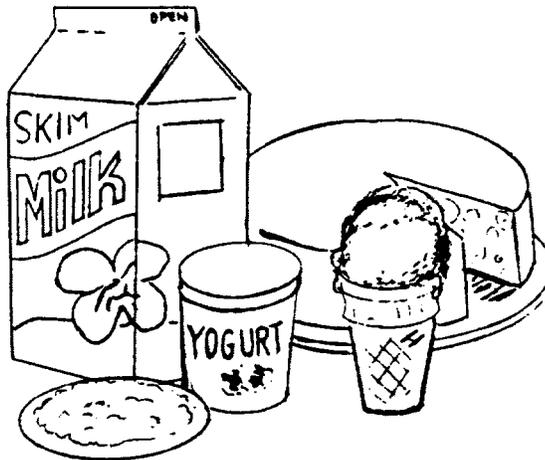


Figure 5-10. Milk And Dairy Products

b. MEAT AND PROTEIN-RICH FOODS.

(1) Listed (table 5-4) are a few foods which represent one serving from the meat group.

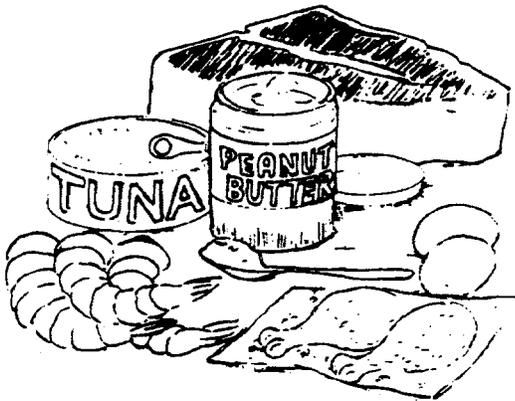


Figure 5-11. Meat And Protein-Rich Foods

(2) The following are hints and comments concerning the meat group.

- Beef and pork are higher in saturated fat and calories; they are also expensive.
- You can reduce your intake of saturated fat, cholesterol, and calories by substituting poultry and seafood for beef and pork.
- Remove the skin from poultry before cooking (poultry skin is about 17 percent fat).
- Use water-packed tuna, or place oil-packed tuna in a strainer and rinse off the oil. (This will reduce the fat content and calories.)
- Try broiling, baking, or poaching fish and poultry.
- Season with lemon juice, vegetable juice, herbs, wine, and hot sauce in place of butter, cream, and shortening.
- If you do eat beef and pork, be selective and choose the leanest meat possible; keep the serving size moderate.
- Trim off any visible fat before and after cooking.
- When cooking try, to broil or bake on a rack.
- If you are boiling stewing meats, prepare them ahead of time, refrigerate, and remove the hardened fat that accumulates on top.
- US Department of Agriculture (USDA) Prime and USDA Choice: These are Government meat-grading standards. They are not based on the amount of protein, vitamins, and minerals in the meat. They are based, however, partly on

fat content. Believe it or not, **the more fat in the meat, the higher the grade.** COMPARE:

USDA Prime: This is considered by many to be the high-priced grade. It's higher in fat and calories and costs the most.

USDA Choice: Choice beef has a moderately high amount of fat, although less than USDA Prime. It also costs less than Prime but is still more expensive than USDA Standard.

USDA Standard: Some supermarkets feature a store brand of lean beef. USDA Standard is Government inspected for wholesomeness. It has less fat than either Choice or Prime.

■ Why buy lean beef? Lean beef actually contains a bit more protein, vitamins, and minerals per pound than the more expensive grades. However, not all cuts of beef need a lot of fat to please your taste buds. Round steak and lean sirloin are good examples. You won't miss the fat, and you'll save calories and money!

■ Ground beef: The USDA has set standards only for regular ground beef at less than 30 percent. Ground beef has approximately the following amounts of fat:

- Regular.....28 percent.
- Lean.....23 percent.
- Extra Lean.....18 percent.

■ The fat level may vary slightly because of different state laws. You can remove fat by broiling or by breaking up, cooking, and draining the meat.

■ Eggs, shrimp, and organ meats (liver, heart, gizzard) are high in cholesterol. They are perfectly all right in moderate use fried liver really adds to calories.

■ Avoid gravies and fried foods whenever possible. If gravy is served separately from the meat, omit it. If the meat has been fried in batter, remove the crust and eat only the meat. Gravy made from thickened and seasoned juices derived from cooked meat is all right, but make sure the fat is skimmed first.

■ Compare the fat in poultry, fish, and meat.

Here is an abbreviated list of high-fat meat:

■ Beef: Brisket corned beef, ground beef (more than 20 percent fat), hamburger (commercial), rib roast, club and rib steak.

■ Lamb: Breast.

■ Pork: Spareribs, loin (back ribs), pork (ground), country-style ham, deviled ham, Boston butt, blade cuts, shoulders.

■ Veal: Breast.

■ Poultry: Capon, duck (domestic), goose.

■ Cold cuts.

■ Frankfurters (one frankfurter has the equivalent of nearly 3 teaspoons of animal fat).

Table 5-4
MEAT AND PROTEIN GROUP

PROTEIN GROUP	
1/2 cup tuna	4 tablespoons peanut butter
10 small shrimp	2-3 ounces of cooked beef, lamb, pork, liver, chicken, turkey, fish
2 eggs	

c. CITRUS FRUITS OR SUBSTITUTES.

(1) The foods in this group are important sources of vitamin C. Vitamin C is needed every day to build and repair tissue and provide resistance to infection.

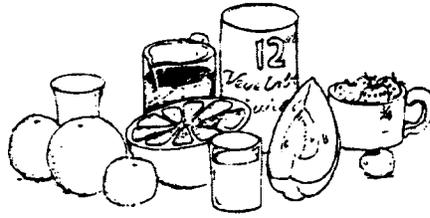


Figure 5-12. Citrus Fruits Or Substitutes

(2) Listed (table 5-5) are a few fruits which provide the minimum daily amount of vitamin C and other required minerals.

**Table 5-5
VITAMIN C AND MINERAL SOURCES**

VITAMIN C AND MINERAL SOURCES		
1 small orange	1/2 cup grapefruit juice	1 small tangerine
1/2 cup orange juice	1/4 small canteloupe	1 cup tomato juice
1/2 grapefruit	3/4 cup strawberries	12 ounces vegetable juice cocktail

d. DARK GREEN OR DEEP YELLOW VEGETABLES. The foods in this group are important sources of vitamin A (needed for normal growth, good vision, and resistance to infection). Listed (table 5-6), are a few vegetables and fruits. Half a cup of one of these is needed daily.

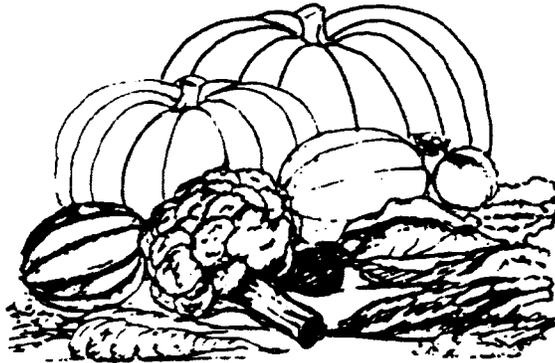


Figure 5-13. Dark Green Or Deep Yellow Vegetables

**Table 5-6
VITAMIN A SOURCES**

VEGETABLES	GREENS	LETTUCE	FRUITS
Broccoli	Beet Greens	Leaf	Apricots
Carrots	Chard	Romaine	Cantaloupe
Pumpkin	Collard Greens		Peaches
Sweet Potato	Dandelion Greens		
Tomatoes	Kale		
Watercress	Mustard Greens		
Winter Squash	Spinach		
	Turnip Greens		

e. OTHER FRUITS AND VEGETABLES.

(1) The foods in this group are important sources of fiber, minerals, vitamins, and carbohydrates.



Figure 5-14. Other Fruits and Vegetables

(2) Listed (table 5-7), are a few fruits and vegetables which represent two servings daily from the other fruits and vegetables group. Serving size is 1/2 cup canned, fresh, or frozen fruit or vegetable.

**Table 5-7
FRUIT AND VEGETABLE GROUPS**

FRUIT AND VEGETABLE GROUPS		
FRUITS		
Apples	Dates(2)	Peach
Applesauce	Figs(1)	Pear
Apricots	Grapes	Pineapple
Banana	Honeydew Melon	Plums
Berries	Mango	Raisins (2 level tablespoons)
Cherries	Papaya	Prunes (2 medium)
		Watermelon
VEGETABLES		
Asparagus	Cucumber	Radishes
Beets	Eggplant	Sauerkraut
Brussels Sprouts	Green Peas	String Beans
Cabbage	Mushrooms	Summer Squash
Cauliflower	Okra	Turnips
Celery	Onions	

(3) The following are hints and comments concerning fruit and vegetable groups:

- Fruits and vegetables are generally low in fat unless fat is added in cooking or seasoning.
- Salad dressings are a source of added fat calories.
- In restaurants ask for your salad dressing “on the side” and add it to your salad as needed.
- French frying vegetables greatly increases the calories.
- Order a baked potato more frequently than French fries. A plain medium-sized baked potato has 75 calories. When the same potato is French fried, it has 300 calories. Be careful of adding butter and sour cream; both are saturated.
- Fruits and vegetables, raw or cooked, are good fillers to help round out a meal or use as a snack.
- Some canned fruits have extra, added sugar. Be sure to read the label. If extra sugar has been added, you can save calories by draining the fruit.
- Plain iceberg lettuce is not a good source of nutrients. Try some darker green raw vegetables, such as spinach, for increased nutrients.
- Canned or fresh: Which is better for you? The nutritive value of fruits and vegetables which have been frozen or canned is usually not significantly changed. Most of these frozen and canned items are processed within hours of harvesting. Almost all of the canning industry uses high technology methods to maximize nutrient retention. However, some nutrients are destroyed while the fruit is stored, shipped, and displayed in the market.

Table 5-8
SALAD DRESSINGS

Type	Calories in 1 Tablespoon (Tbsp)
Mayonnaise	101
French	66
Thousand Island	80
Blue Cheese	76

(4) A good procedure for heating canned vegetables and retaining the vitamins is to drain off the liquid, then heat and boil down the liquid, and then add the vegetables.

f. BREAD AND CEREAL.

(1) The foods in this group are important sources of carbohydrates, iron, and vitamins. Whole grain products also contain large amounts of fiber.



Figure 5-15. Carbohydrate-Containing Foods

(2) Listed (table 5-9), are a few foods which represent four servings daily from the bread and cereal group.

(3) The following are hints and comments concerning the bread and cereal group:

- Whole grain bread has more fiber.
- Many starchy foods, such as plain breads and rolls, noodles, rice, pasta, and cereals, are low in fat and sugar.
- Many cereals are high in sugar content.
- “Natural” or “granola” cereals have a higher fat (saturated fat, usually from coconut oil) and, caloric content than other cereals. You can check the fat Content by reading the label.
- Some bread products, such as biscuits, croissants, pancakes, and waffles, are higher in fat and calories. Some have

even more calories added in the form of sugar. Doughnuts, coffee cake, sweet rolls, and Danish pastry are excellent examples of products with a high sugar content.

■ English muffins, bagels, and whole wheat toast are good substitutes for high-fat breakfast products.

■ If you want pancakes, waffles, or other baked goods, have them as a special treat at home. Substitute liquid corn (vegetable) oil for melted shortening in the recipe. Top with fruit instead of syrup.

**Table 5-9
BREAD AND CEREAL GROUP**

CARBOHYDRATE-CONTAINING FOODS

5 saltine crackers	1/2 cup mashed potatoes*	1/2 cup cooked cereal
1/4 cup baked beans	1/4 cup sweet potatoes*	3/4 cup rice
1/3 cup corn*	1/2 hamburger roll or hot dog bun	1/2 cup pasta - spaghetti, macaroni, noodles
1 small potato* (2 1/2" diameter)	1 slice bread - white, whole wheat, rye, raisin	

Notes:

* Because of their high starch content, these vegetables are placed in this group.

g. VEGETABLE OILS AND FATS

(1) The foods in this group are important for transporting fat-soluble vitamins and providing essential fatty acid.



Figure 5-16. Vegetable Oils and Fats

(1) Listed (table 5-10), are some fats which represent three servings daily from the vegetable oils and fats group.

**Table 5-10
VEGETABLE OILS AND FATS**

TYPE OF FAT	SERVING SIZE
POLYUNSATURATED FATS	
Margarine, soft, tub, or stick (first ingredient liquid oil)	1 teaspoon
Oil (corn, cottonseed, safflower, soy, sunflower seed, olive)	1 teaspoon
Walnuts	6 small
SATURATED FATS	
Margarine, hard regular stick (first ingredient hydrogenated oil)	1 teaspoon
Butter	1 teaspoon
Bacon, crisp	1 slice
Mayonnaise	1 teaspoon
Cream cheese	1 tablespoon
Dressings for salad	1 tablespoon
MONOUNSATURATED FATS (Neutral Fats)*	
Peanuts, Virginia	10 whole
Peanut oil	1 teaspoon
Peanut oil	1 teaspoon
Avocado	4"
Olives	5 small
Olive oil	1 teaspoon
Almonds	10 whole

Table 5-10
VEGETABLE OILS AND FATS—Continued

TYPE OF FAT	SERVING SIZE
Pecans	2 large whole

Notes:

* These neither raise nor lower your cholesterol level.

5-4. SAMPLE MENU

The sample menu below is meant to illustrate how all the food groups just discussed are put together to meet the needs of an entire family. Portions may be adjusted to meet caloric and nutrient needs of each age group.

 <i>Menu</i> 	
BREAKFAST	
Milk	1 cup skim milk
Citrus fruit	4 ounces orange juice
Meat equivalent	2 tablespoons peanut butter (fat included)
Bread and cereal	2 slices whole wheat toast
LUNCH	
Milk	1 cup skim milk
Meat	2 ounces cooked ground beef patty
Bread and cereal	1 whole hamburger bun
Vegetable	Carrot sticks
AFTERNOON SNACK	
Fruit	1 fresh apple
DINNER	
Milk	1 cup skim milk
Meat	1 breast of chicken (3 ounces)
Bread and cereal	1/2 cup mashed potatoes
Vegetable	1/2 cup broccoli or tossed lettuce salad
Fat	1 teaspoon soft margarine
Low-calorie Italian dressing	4 tablespoons
EVENING SNACK	
Fruit	1 fresh banana
	
TOTAL CALORIES 1,475	

Figure 5-17. Sample Menu

5-5. NUTRITION AND HUMAN PERFORMANCE

A sound diet is a critical ingredient in producing maximum fitness. (See the myths and facts in table 5-11, page 55.) The keys to physical fitness and improved performance include—

- Nutrition.
- Exercise and hard work.
- Natural talent and acquired skills.
- Motivation.

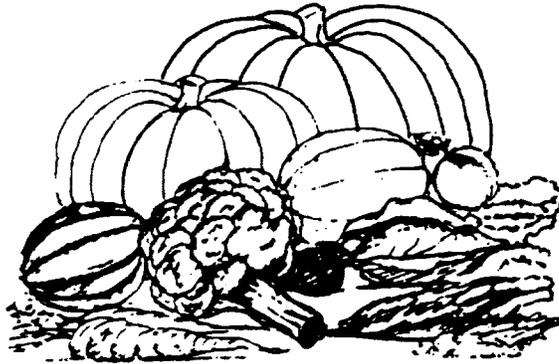


Figure 5-18. Vegetables for Health

a. COMPETITION AND PRECOMPETITION GUIDELINES. Follow the guidelines below when competing or getting ready to compete.

- Avoid massive intakes of food before competition.
- Eat high-carbohydrate meals (about 500 calories) 3 to 4 hours before events; minimize fat and protein.
- Drink unsweetened juices up to 1 hour before competition.
- Do not restrict water intake before or during competition; drink all you need for fluid replacement.

b. THE KEY TO BETTER PERFORMANCE IS GOOD NUTRITION! Follow the guidelines below to practice good nutrition.

- Keep food intake regular; do not miss meals.
- Forget the fads; get back to basics.
- Select meals from the seven food groups; pick foods that you enjoy.
- Use carbohydrates as quick, efficient primary energy sources; carbohydrates digest faster than protein or fat and leave the stomach sooner. Choose carbohydrates from the grain and fruit-vegetable groups.
- Eat enough to maintain body weight avoid sporadic weight changes.



Figure 5-19. Fruits and Vegetables are the Basics

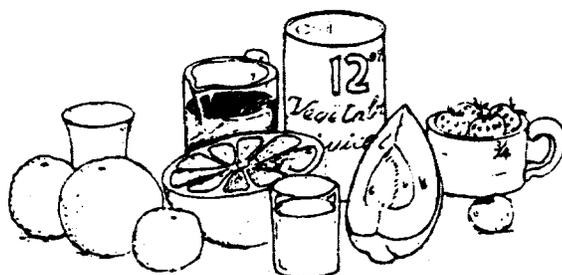


Figure 5-20. Fruits and Vegetables are for Breakfast and Any Time

Table 5-11
NUTRITION MYTHS OF PHYSICAL PERFORMANCE

MYTH	FACT
Vitamin and mineral supplements or special dietary foods aid body building and improve physical performance	<ol style="list-style-type: none"> 1. Indiscriminate use of dietary supplements or special foods may create unnecessary handicaps or health problems. 2. Excessive protein (when used for energy) is expensive and not as efficient as carbohydrates and (when water intake has been impaired) may cause kidney or liver disorders. 3. The human body excretes excess of most water-soluble vitamins.
Drinking water during an event or practice causes cramps, upsets an athlete's stomach, and slows down the individual. Supplementary salt is necessary.	<ol style="list-style-type: none"> 1. No physiological evidence supports this myth. 2. Water is the most important nutrient for physically active person; DO NOT RESTRICT IT! 3. Water is the experts' choice for fluid replacement. 4. Very serious dehydration, heatstroke, organ damage, and possible death may result if water is withheld. 5. Extra salt intake does more harm than good, and salt tablets may irritate the stomach lining; sweat contains relatively little salt. Nutritionally balanced diets contain enough salt to replace whatever the body loses.

Table 5-11
NUTRITION MYTHS OF PHYSICAL PERFORMANCE—Continued

MYTH	FACT
Eating steak and eggs the night before an event enhances performance.	<ol style="list-style-type: none"> 1. The effect is purely psychological. 2. Pregame meals should not interfere with the physical and psychological stresses that accompany performance. 3. A nutritionally balanced diet based on the seven food groups, with adequate calories to meet energy needs, satisfies all requirements. 4. High-protein meals eaten the night before or on the day of the athletic event contribute little to energy production and performance that day. 5. Protein intake should be spread throughout the day. Most Americans get two to three times the recommended amount of protein daily.
Milk before an athletic event causes cotton mouth, cuts speed and wind, and causes stomach upset due to curdling.	<ol style="list-style-type: none"> 1. Cotton mouth appears to be caused by emotional stress and fluid loss. 2. Studies show that there is no decline in performance when the diet includes milk. 3. Milk curdling, a natural and necessary part of digestion, does not cause stomach upset.

5-6. SPORTS AND CALORIES

a. This information may help you decide where your family should begin. The hardest part is getting started. Make up your mind that there must be some activity that your family can get involved in that will be enjoyable, good exercise for everyone.

b. Keep in mind that these figures could be higher or lower depending on how hard you play and/or what your skill level is. Table 5-12 gives an indication of calories used by various activities.

Table 5-12
SPORTS AND CALORIES

ACTIVITY	CALORIES USED PER MINUTE
Archery	5
Badminton	5-10
Basketball	6-9
Billiard	2
Canoeing	3-7
Cycling	5-12
Modern Dance	4-7
Square Dance	8
Golf (walking)	3-5
Handball/Racquetball	10
Horseshoes	4
Ping-Pong	5-7
Rope Skipping	10-15
Rowing	5-15
Running/Jogging	
12-min mile	10
8-min mile	15
6-min mile	20
5-min mile	25
Skating (roller or ice)	5-15
Skiing	8-16
Soccer	9
Tennis	7-11
Volleyball	3-8
Walking	
Downhill 2.5 MPH	3-5
Uphill 3.5 MPH	8-15
Road or field 3.5 MPH	5-7
Waterskiing	8
Cross-country Skiing	11
Swimming	1

MPH = miles per hour

5-7. HOW CAN I LOSE WEIGHT?

a. OVERVIEW.

(1) The object of this section is to supply you with the information necessary to better understand what body fat loss is and what to expect during this loss. The motivation to control your weight is still up to you. You alone have the final say on how effective your weight control program will be.

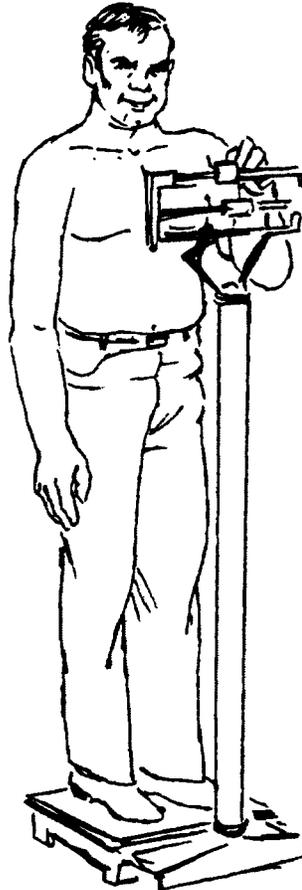


Figure 5-21. Losing Weight

(2) Generally defined, obesity means excessive body fat. Obesity has many suspected origins; listed below are a few of these.

- Heredity.
- Endocrine imbalance.
- Damage to hypothalamus gland.
- Nature of diet.
- Psychological trauma.
- Social customs.
- Physical inactivity.



Figure 5-22. A Dietary Balance is Needed

(3) Most obesity is developed through excessive food intake and low activity level. The overwhelming majority of overweight Americans fall into this category.

(4) Glandular obesity may involve a disturbance in the functioning of one or more of the ductless glands (either the thyroid or the pituitary). It is estimated that glandular dysfunction contributes to less than 2 percent of the overweight population.

(5) People who are fat, with all other things being equal, are apt to die earlier than their lean counterparts.

(6) If you want to learn more about obesity, see appendix E.

(7) To lose weight, you must take in fewer calories than you burn. The ideal weight reduction program recommends selecting foods containing fewer calories and increasing your activity. Sections 5-7b, 5-7c, and table 5-13 show some things to keep in mind when selecting a weight reduction program.

b. SELECTING A WEIGHT REDUCTION PROGRAM.

1. Be sure that the program contains adequate protein. This will help prevent your body from breaking down its own muscles and vital organs to get the much needed protein.
2. A good reducing program should provide over half its calories from carbohydrate sources (bread, cereal, fruit, vegetables, milk).
3. A small amount of fat is necessary for everyone. A reducing program should get no more than 30 percent of its calories from fat. In a 1,500-calorie program, this would represent 50 grams.
4. A program should encourage the use of fresh fruits and vegetables to help meet individual requirements for vitamins and minerals. Avoid programs that promote supplements in lieu of the food source.
5. Avoid programs that are too rigid; they do not provide a variety of nutritional information. They are best known for their failure rate.
6. A program should be something you enjoy, feel comfortable with, and can live with for the rest of your life. Weight control is a lifelong endeavor.

Table 5-13
WEIGHT REDUCTION TEST

	TRUE	FALSE
1. Bananas, bread, potatoes, and pasta are foods that have a high fat content.	T	F
2. Grapefruit and other acidic fruits help the body burn off fat.	T	F
3. Carbohydrates are fattening and should be avoided.	T	F
4. A high-protein diet is good for weight reduction	T	F
5. Exercise increases the appetite.	T	F
6. Skipping meals helps you reduce weight.	T	F
7. The stomach shrinks during dieting.	T	F
8. Carbohydrates are more fattening than protein.	T	F

c. *ANSWERS TO QUIZ.*

1. **FALSE**— All four foods are classified as carbohydrates. Bananas and potatoes contain virtually no fat. The fat level in bread, potatoes, and pasta depends greatly on what else is in the recipe.
2. **FALSE**— Grapefruit does not help the body to burn off fat, nor does any other food. It is low in calories and is a good source of vitamin C.
3. **FALSE**— It is recommended that 50 to 60 percent of the day's total calories come from unrefined carbohydrates, such as whole grain breads, brown rice, potatoes, fresh vegetables, and fruits. This is true even for a person adhering to a weight reduction program.
4. **FALSE**— A high-protein diet does not cause fat loss any more rapidly than the traditional low-calorie diet. Remember, weight loss is a simple matter of taking in fewer calories than you burn. Following a reduced-calorie mixed diet ensures a better balanced intake.
5. **FALSE**— Extended, moderately intense aerobic exercise actually helps to decrease the appetite and is a great way to burn off stored body fat.
6. **FALSE**— It is not a good way to reduce. It generally results in overeating and a lot of daytime snacking that is overlooked. There is better adherence to weight reduction program by individuals who eat three or more meals which have been divided into small portions.
7. **FALSE**— The sensation of fullness with small feedings can be attributed to one's adjustment to eating less and the physiological process of reduced gastric secretions. The stomach does not shrink in size.
8. **FALSE**— Protein and carbohydrates contain 4 calories per gram. Any calories above an individual's requirement result in fat storage. Most protein foods are accompanied by naturally occurring fat, such as animal products. These greatly increase the calories per serving from protein foods. We can stop blaming breads, potatoes, and pastas for our weight problems.

d. *CALORIE-REDUCING IDEAS.*

(1) A realistic weekly weight loss rate is 1/2 to 2 pounds per week. It may not sound fast enough for some people, but if body fat is being lost, that's a tremendous accomplishment. Bathroom scales don't always give an accurate picture of what might be happening during a weight reduction period. Factors like retention of water in the body, food in the stomach, water lost in perspiration, and many other physiological responses can make your body weight (as measured on a bathroom scale) vary from day to day. For this reason you should weigh yourself at the same time of day only once a week.

(2) Figure 5-23 shows what to expect when you start a weight reduction program. The broken line represents a projected weight loss of 1 pound per week; the solid line represents what your actual pattern of weight loss would probably look like.

(3) The amount of body fat that you have is the best indicator of what your ideal weight should be. The percentage of fat should be approximately 15 percent for males and 20 percent for females. Most people do not have the means to measure their percentage of body fat. A simple test that you can perform at home is the mirror test. Stand naked in front of a mirror and give yourself a good visual test. Do you see any extra rolls around your waist? Are your muscles visible in the chest, abdomen, thighs, or arms? Be honest!

(4) Some people have the impression that it is natural to grow fatter as you get older. The fact is that as a person grows older, the metabolism and physical activity often decrease faster than appetite (figure 5-24). Food consumption often remains the same, but activity generally decreases. This results in a gradual increase in body weight or, more specifically, body fat. Eating 100 calories more than you need each day would add up to almost 10 pounds a year. A sample low calorie menu is shown in appendix F. Appendixes G, H, and I provide further guidance for planning family menus. Using these guidelines, you should have no problem in maintaining your ideal food consumption along with your previously established exercise program.

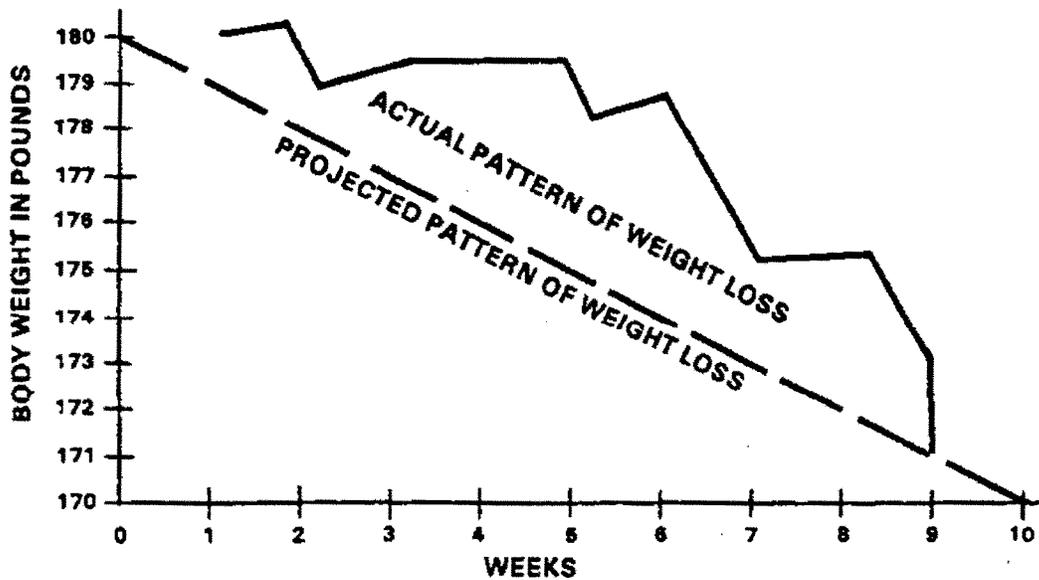


Figure 5-23. Weight Loss Pattern

e. HINTS IN A NUTSHELL.

(1) *TRY NOT TO BE FOOD CENTERED.* Make sure that food has not become your primary source of enjoyment and satisfaction; get involved in sports or start a new hobby.

(2) *SET ACHIEVABLE GOALS.* Unsuccessful dieters often fail because they set overly ambitious goals for themselves. A goal to lose 30 pounds in 3 weeks is unreasonable and hardly possible. Losing 1/2 to 2 pounds per week is a safe and reasonable goal. Keep records of your weight, but don't be discouraged if you don't lose every week. Water sometimes replaces fat in the tissues, but this situation eventually corrects itself.

(3) *EAT SLOWLY—DON'T "PIGOUT."* Slow down and savor flavors. Take pleasure in mealtime even if you are eating only half of what you normally eat. Slowly drinking a large glass of water during a meal often cuts the total caloric load by as much as 20 percent.

(4) *AVOID FAD DIETS.* There is no rapid way that is safe and sure. A safe caloric level for a medically unsupervised diet program for males is 1,500 calories; it is 1,200 calories for females. Young menstruating females should take a supplemental source of iron. Pregnant females should follow a weight reduction program only if they are under medical supervision.

(5) *CONTROL PORTIONS.* There isn't a single food that can't, beaten occasionally in small amounts.

(6) *CONTROL ALCOHOL.* No matter what wishful thinkers say, alcohol calories do count. Beer contains about 150 calories per 12-ounce can. Wine contains 100–160 calories per half cup, depending on sweetness. Hard liquor contains 80–100 calories per ounce. Mixed drinks with added fruit juices have additional calories.

(7) *DRINK LOTS OF WATER.* Do not be concerned about the amount of water that you drink; the more, the better. It may cause you to weigh more, but it in no way affects your percentage of body fat. Remember that muscle weight is greater than fat weight per unit of measure. This means that if you increase your muscle size and decrease your fat content simultaneously, you may actually gain in total body weight. Don't let that worry you, either, because your percentage of body fat is decreasing.

(8) *DON'T SKIP MEALS.* People who skip breakfast or lunch tend, to overcompensate later in the day. Meals need to be regular and planned to prevent eating too much.

(9) *SHOP WISELY.* Buy foods only when your stomach is full; avoid buying snack foods for future use.

(10) *EAT ONLY WHEN YOU'RE HUNGRY.* Learn to distinguish between true and false hunger. If you think you're hungry, go for a walk, do some work around the house, or catch up on your correspondence. An absorbing activity can divert your mind from eating.

(11) *DON'T GIVE UP.* If you slip and fall back into bad eating habits, don't throw in the towel. Forgive yourself and try again.

(12) *GO AHEAD.* Don't swear off your favorite food; eat small amounts of it.

(13) *EAT OUT IF YOU WISH.* Don't avoid restaurants. Learn to select the foods you want. Even a "pot luck" meal

need not be a problem. Take a dish that you may eat, and choose that for your meal. For instance, take shrimp and lettuce salad with a separate container of dressing and a bowl of fresh fruit instead of a rich dessert.

(14) *EAT VEGETABLES*. Raw vegetables are good snack foods, which you can eat whenever you want. They are high in nutrients and low in calories.

(15) *CUT DOWN OR CUT OUT*. If you adjust your eating habits, the potential for weight loss is great. Eliminating a nonessential food from your diet or substituting one with fewer calories can really make a difference in the long run.

(16) *INCREASE YOUR DAILY ACTIVITY*. Walk whenever possible. Exercise tones muscles, improves circulation, and helps you lose fat.

(17) *AVOID DISTRACTIONS AT THE TABLE*. Don't read a book, magazine, or newspaper and don't watch television. Concentrate only on the food you're eating.

(18) *DON'T THINK YOU HAVE TO CLEAN YOUR PLATE*. If you've piled the food on too high, save some for leftovers at another meal or use the garbage disposal (it doesn't care about calories).

(19) *LOOK AT YOURSELF IN THE MIRROR ONCE A DAY*. However, weigh yourself only once every week. Women should measure both waist and hips with a tape measure once a month. It indicates progress, as the inches disappear, even if the weight doesn't change.

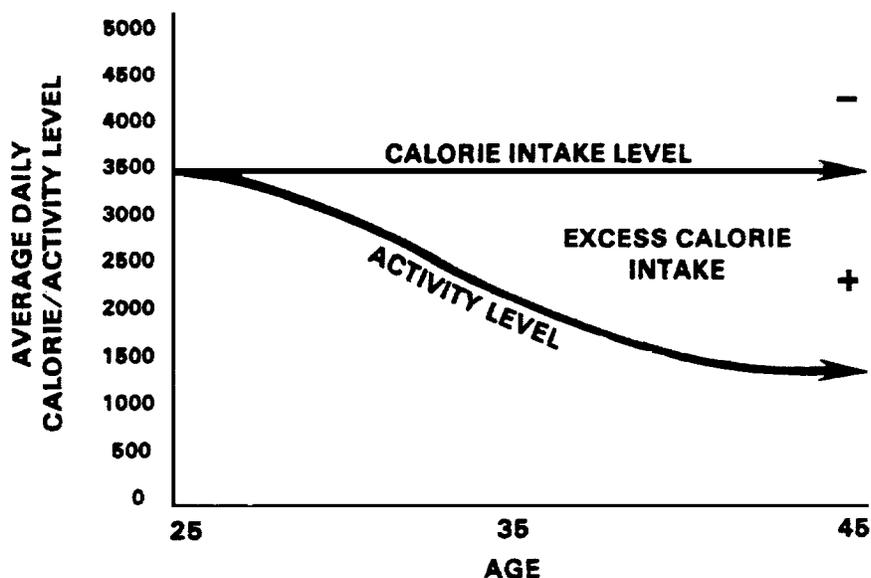


Figure 5-24. Calories VS Activity

f. BREAKFAST—TOP PRIORITY.

(1) Breakfast provides a good start to a fresh day. It has been 10 to 12 hours since your last meal, and your body needs a new supply of food. Breakfast provides important energy to begin the day's activities for adults as well as for children! Children have a greater energy requirement than adults. A child who has a good breakfast performs better in school because concentration and alertness last longer. The same is true for adults. If you work in an office, breakfast improves your performance. If your job is physical, whether housework or outdoor labor, breakfast gives you the energy necessary for hard work. You can expect greater physical and mental performance when you start the day with a good breakfast.

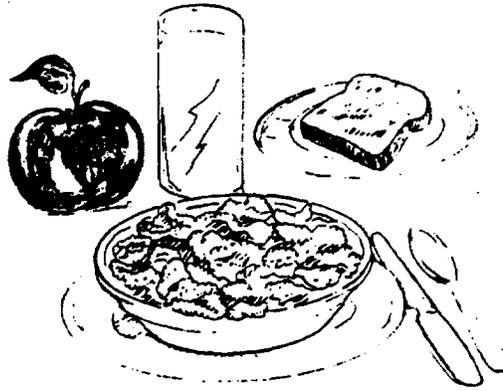


Figure 5-25. Breakfast

(2) What is a good breakfast? A good breakfast is one that—

- Gives energy for work and play.
- Gives nutrients for growth and health.
- Tastes good.

(3) Here are some signs of a no-breakfast person;

- The hands are shaking by midmorning.
- There is evidence of crankiness and headaches.
- There is evidence of sleepiness and sluggishness.
- There is a lack of ability to concentrate.

(4) If breakfast is rushed, some quick breakfast ideas are in figure 5-26. Table 5-14 shows sugar/salt content in cereals.

- | | | |
|---|---|---|
| <p>1. Orange juice
Peanut butter/jelly sandwich
Low-fat/skim milk</p> | <p>4. Frozen waffle with applesauce
Low-fat/skim milk</p> | <p>7. Peach slices on cottage cheese
Toast
Cocoa made with low-fat or skim milk</p> |
| <p>2. Pineapple chunks
Cinnamon toast
Low-fat/skim milk</p> | <p>5. Apple juice
Whole grain cereal
Banana
Low-fat/skim milk</p> | <p>8. Tomato juice
Cheese toasted on an English muffin
Canned plums</p> |
| <p>3. Grapefruit juice
Boiled egg (done night before)
Toast
Low-fat/skim milk</p> | <p>6. Grapefruit half
Hot oatmeal
Raisins
Low-fat/skim milk</p> | <p>9. Apple
Tuna sandwich
Low-fat/skim milk</p> |

Figure 5-26. Quick Breakfast Examples

Table 5-14
BREAKFAST CEREALS³

PERCENTAGE OF SUGAR/SALT BY
WEIGHT

Wheat germ*	0
Oatmeal*	0
Farina*	0
Wheatena*	0
Puffed wheat or rice*	0
Shredded Wheat*	1
Cheerios	3
Wheat-Rice-Corn-Chex*	4
Kix	5
Corn Flakes	5
Special K	5
Grapenuts	7
Rice Krispies	8
Wheaties; Total*	8
Concentrate*	9
Product 19	10
40% Bran Flakes*	13
Life	16
All Bran*	19
100% Bran	21
Quaker 100% Natural Cereal	21
Frosted Mini-Wheats	26
C.W. Post	29
Raisin Bran	30
Golden Grahams	30
Cocoa Puffs	33
Trix	36
Honey Comb	37
Alpha Bits	38
Count Chocula	40
Crazy Cow	40
Sugar Frosted Flakes	41
Lucky Charms	42
Cocoa-Fruity Pebbles	43
Cookie Crisp, vanilla	44
Frankenberry	44
Super Sugar Crisp	46
Fruit Loops	48
Apple Jacks	55
Sugar Smacks	56
(Avoid sugar-coated cereals.)	

Notes:

* Indicates low sugar, whole grain cereals.

³ Reprinted from Food Scorecard, which is available from the Center for Science in the Public Interest, 1755 S Street, NW, Washington, DC 20009. Copyright 1980.

g. SNACK TIME SUGGESTIONS.

(1) Eating between meals is not in itself bad for you. Unfortunately, between-meal snacks generally consist of calories, not good nutrition. Poor snacks are those that provide empty calories (calories with little else in the way of nutritional value). Soda pop candy fruit pies, pastries, cookies, marshmallows, potato chips, and caramel corn are good examples of food with little nutritional value but many calories.

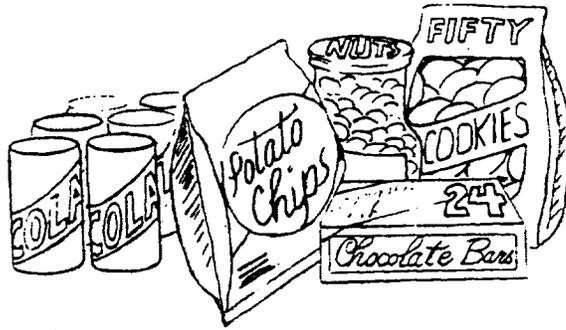


Figure 5-27. Poor Snacks

(2) Good foods for snacks are those that provide essential nutrients along with energy. Try making the following snacks available instead of sugary desserts or high fat, nonnutritive foods:

- Fresh fruit.
- Unsweetened fruit juices.
- Dried fruits (apricots, peaches, prunes, raisins).
- Canned fruit with syrup removed.
- Homemade milkshakes.
 - Blended fresh or frozen strawberries and milk.
 - Blended fresh bananas, yogurt, and milk.
- Low-fat cottage cheese with fresh fruit or drained canned fruit.
- Homemade fruit punch (any combination of unsweetened fruit juice with slices of fresh fruit).
- Raw vegetables.
 - Broccoli.
 - Cauliflower.
 - Carrots.
 - Cucumbers.
 - Green peppers.
 - Tomatoes
- Tomato and vegetable juices.
- Whole grain crackers with cheese or peanut butter.
- Unsalted nuts.
- Graham crackers.
- Steam-popped popcorn (plain or lightly seasoned).
- Hard-boiled eggs.
- Tuna salad on whole grain crackers.
- Cheese strips.
- Cookies made with whole wheat flour and-reduced sugar.
- Bran muffins.

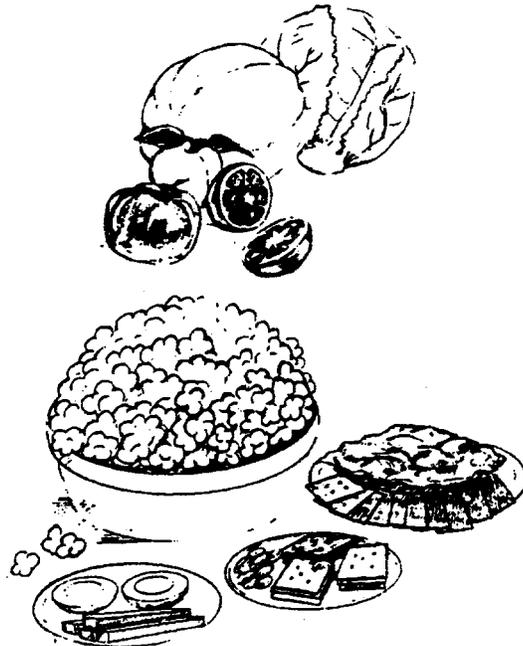
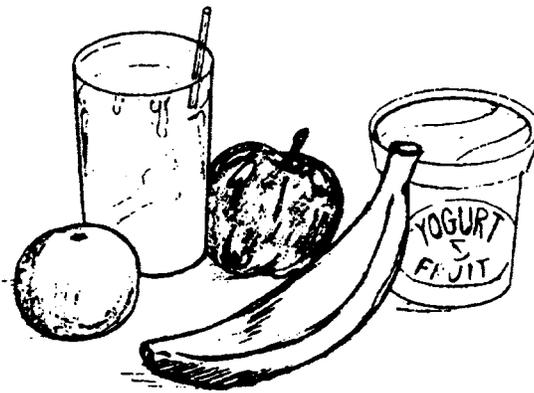


Figure 5-28. Nutritious Snacks

h. MAKE SNACKS COUNT! GOOD SNACKING! Before reading the last part of this chapter, turn to appendix J and try the 24-hour nutritional profile. The results may surprise you!



Figure 5-29. Eat Vegetables And Drink Lots Of Water

i. SHOPPING FOR YOUR DIETARY NEEDS. We have now reached the point where it's time to shop for needed items. How should your family go about shopping? Are there particular techniques you should know? Yes! When shopping for food items, you should follow a particular method and/or planning scheme. A few shopping strategies are discussed in appendixes K and L.



Figure 5-30. Shopping List

Chapter 6 DRESSING RIGHT FOR THE ACTIVE LIFE

6-1. COMFORT AND EXERCISE

a. Personal comfort and well-being are most important when you select exercise apparel. You will avoid injury, progress faster, and enjoy your fitness program more if you are properly dressed.

b. Take the following quiz in table 6-1 and see how good you and your family are at choosing the right fitness attire.

c. In this short quiz answering yes to any question reveals that you need to read on and find out what clothing is best for exercising. Let's start at the feet and work our way up.

Table 6-1
FITNESS ATTIRE QUIZ

	YES	NO
1. Do you wear one type of athletic shoes for all sports?	<input type="checkbox"/>	<input type="checkbox"/>
2. When exercising, do you wear a heavy sweat suit or rubberized/plastic suit to sweat more?	<input type="checkbox"/>	<input type="checkbox"/>
3. Do you wear as many pieces of clothing as you possibly can to stay warm during winter activities?	<input type="checkbox"/>	<input type="checkbox"/>
4. Goose down is the best cold weather defense.	<input type="checkbox"/>	<input type="checkbox"/>
5. Most body heat is lost through the hands and feet.	<input type="checkbox"/>	<input type="checkbox"/>
6. Warm-ups (made with waterproof material) are best for exercising in winter and summer.	<input type="checkbox"/>	<input type="checkbox"/>
7. Cotton and synthetics are good insulators of body heat.	<input type="checkbox"/>	<input type="checkbox"/>
8. Layering your clothing is not as important as thickness of the clothing.	<input type="checkbox"/>	<input type="checkbox"/>
9. After shoes have gotten wet, place them in front of a heater to dry them better.	<input type="checkbox"/>	<input type="checkbox"/>
10. It's best to buy new athletic shoes early in the day before your feet become swollen and tired.	<input type="checkbox"/>	<input type="checkbox"/>

6-2. TIPS FOR BUYING ATHLETIC SHOES

a. ATHLETIC SHOES.

(1) Here are some general things (see figure 6-1) to remember when you buy a pair of athletic shoes:

- Always use the right shoes for the right sport because shoes are designed for specific functions. For example, you should not play tennis while wearing running shoes.
- Always stand and have both feet measured (wear athletic socks). One foot is generally larger than the other.
- It is preferable to buy your shoes late in the afternoon. This is when your feet are most swollen and, therefore, most nearly match their actual size during athletic activity.
- Running shoes should be strongest in the areas of cushioning, support, and stability while still being flexible, soft, and lightweight.

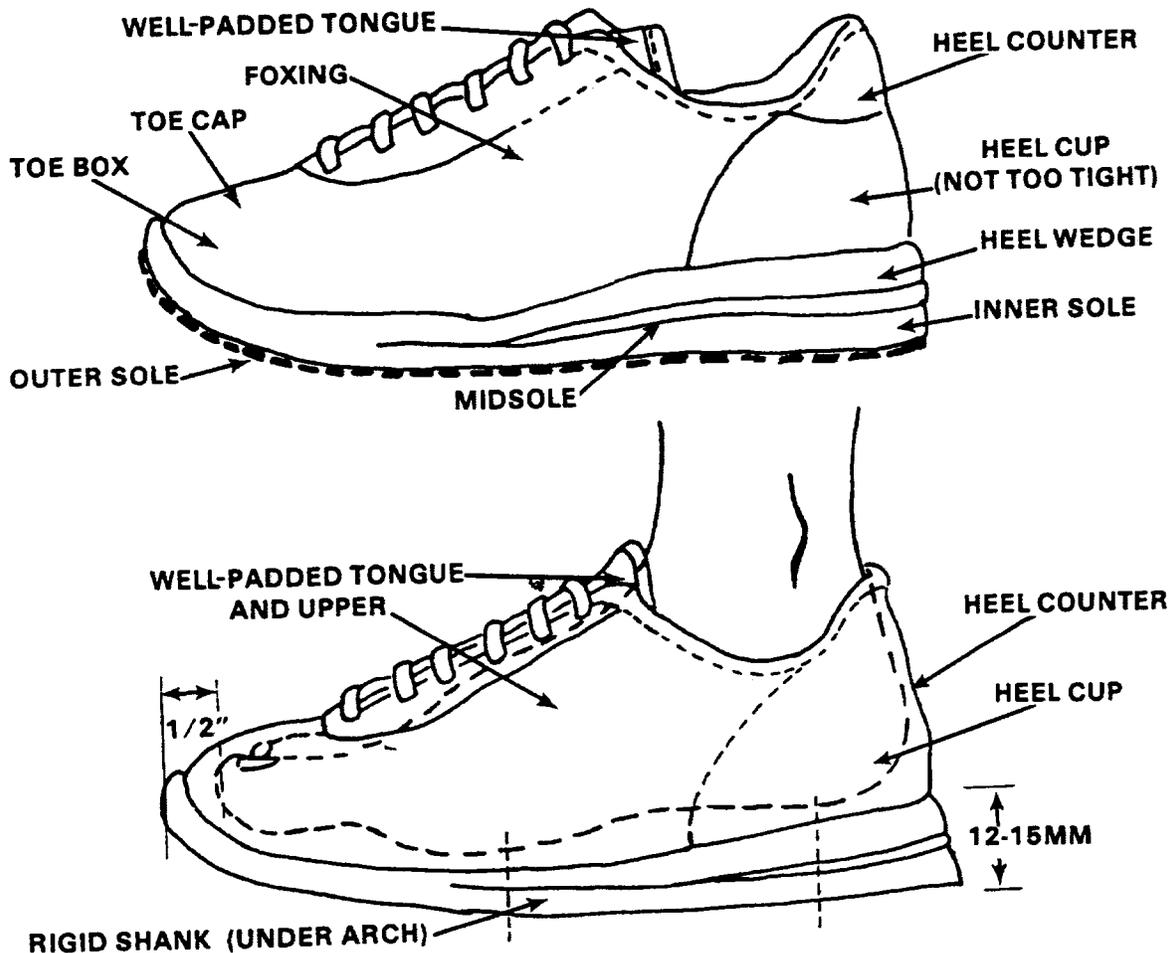


Figure 6-1. Running Shoes

(2) Listed below are some specific considerations for buying athletic shoes.

- The sole of each shoe should be durable on the outside with a moderately soft layer in the midsole. The midsole should offer enough flexibility at the ball of the foot (not the arch) to be bent easily by hand. When you push off toward the next step, if the flexibility is not available at the ball, the Achilles tendon and calf muscles may become overstressed.
- There should be adequate cushioning beneath the ball of each foot. The insole should be firm yet offer enough shock absorption. When you run, much pressure is exerted in this area, especially when you sprint.
- There should be a good heel cup to hold in the heel, but it should not be too tight.
- The heel counter of the shoe should be firm for support, and well padded so that the heel of the foot is stabilized. If the heel counter is not firm, it can allow too much side-to-side motion, which may lead to injuries. (Try squeezing the heel counter to check stability.)
- The heel should have good shock absorption qualities to reduce the impact at heel strike. This lessens strain to the tendons, muscles, and other structures above the foot. A slightly elevated heel (about 12–15 millimeters) lessens strain to the backs of the legs.
- The toe box should offer room for the toes to wiggle, but the front of the foot should not slide from side to side because blisters may result. The toes should not touch the end of the shoes because the feet will swell with activity and the pressure will increase. Allow about 1/2" from the longest toe to the tip of the shoe.
- The tongue and upper (the part of the shoe above the sole) should be well padded and should be fastened to stay in place while you run.
- Heel width should be carefully considered. Runners in training land on their heels and need a wide, stable platform.

Slightly flared heels add extra cushioning at heel strike; however, if they are too wide, normal shock absorption is not allowed, and excessive stress may occur in the legs and knees.

■ The shank area (under the arch of the shoe) needs to be rigid and lie flush with the ground. The shank must not buckle at foot contact, or heel and arch injuries may result. Try bending the shoe in this area. If it flexes too easily, it may not offer enough support.

b. *BUYING COURT SHOES.* In addition to the above factors, look for the features below when buying court shoes.

(1) *Racquetball (see figure 6-2):*

■ Look for reinforcement at the toe for protection during foot drag.

■ Soles should allow minimum slippage (gum rubber is recommended, depending on the surfaces – polished versus painted).

■ There should be some heel elevation, as more time is spent off the heels. This will lessen strain to the back of the leg and the Achilles tendon.

■ Look for a shoe, which has a long throat to ensure greater control by the laces.

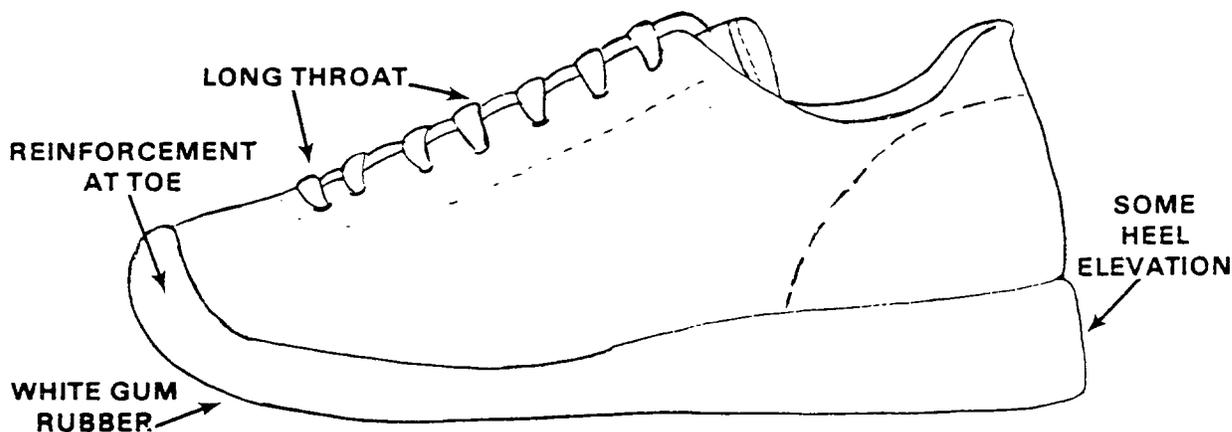


Figure 6-2. Racquetball (Court) Shoe

(2) *Tennis (see figure 6-3):*

■ Look for reinforcement at the toe for foot drag.

■ The sole at the ball of the foot should be well padded because this is where most pressure is exerted.

■ The sides of the shoe should be sturdy for stability during continual side-to-side motions.

■ The heel should be well cushioned to absorb jarring forces that take place at heel contact.

■ The toe box of the shoe should allow ample room as well as some cushioning at tips.

■ Look for a shoe, which has a long throat to ensure greater control by the laces.

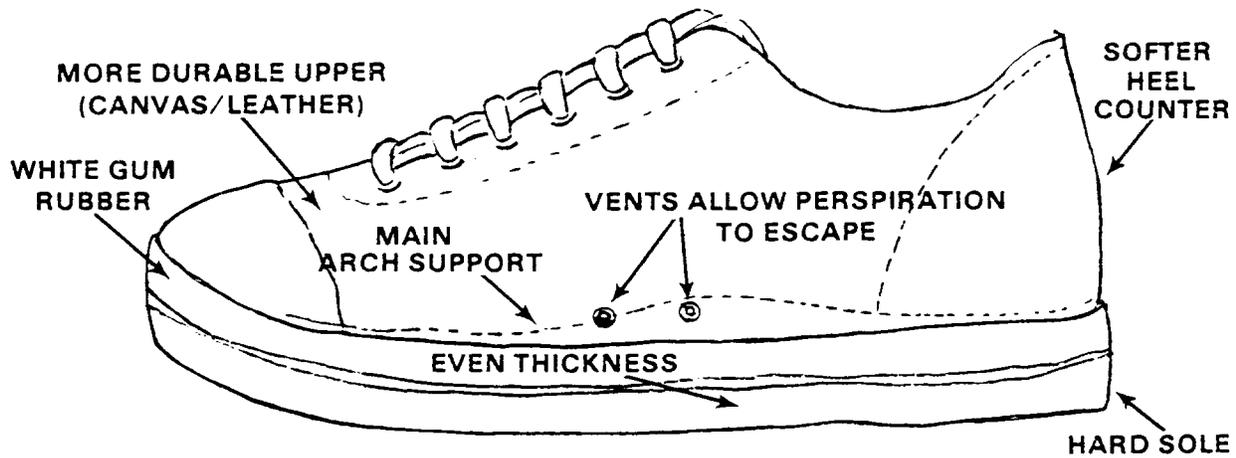


Figure 6-3. Tennis Shoe

c. TIPS ON SHOE CARE. Don't wear wet shoes when training. Let them air dry; a heater causes them to stiffen or shrink. Use powder in your shoes to absorb moisture, lessen friction, and prevent fungus infection. New shoes should be "broken in" before you compete in them, so wear them a few days first. Running shoes are excellent for walking and everyday use. However, be sure to use a separate pair for running so that a rapid breakdown of the shoes does not occur.⁴

6-3. DRESSING FOR EXERCISE IN WARM WEATHER

a. When exercising in the heat, wear as little as possible, as shown in figure 6-4. Dress in white or light-colored clothing of lightweight material. **UNDER NO CIRCUMSTANCES SHOULD YOU WEAR RUBBERIZED OR PLASTIC PANTS AND JACKETS TO SWEAT OFF POUNDS!** These rubberized/ plastic suits cause only water loss, not fat loss. Heat is held in by these suits and can cause serious problems. You should expose as much of your skin as possible to allow maximum evaporation of perspiration. This helps to cool the body and prevent heat-related injuries.

b. On humid days you may want to carry a washcloth and wipe off the perspiration (sweat) to help cool your body.

⁴ Adapted from "Tips for Runners", Canadian Podiatric Sports Medicine Academy, Toronto, Ontario, Canada.

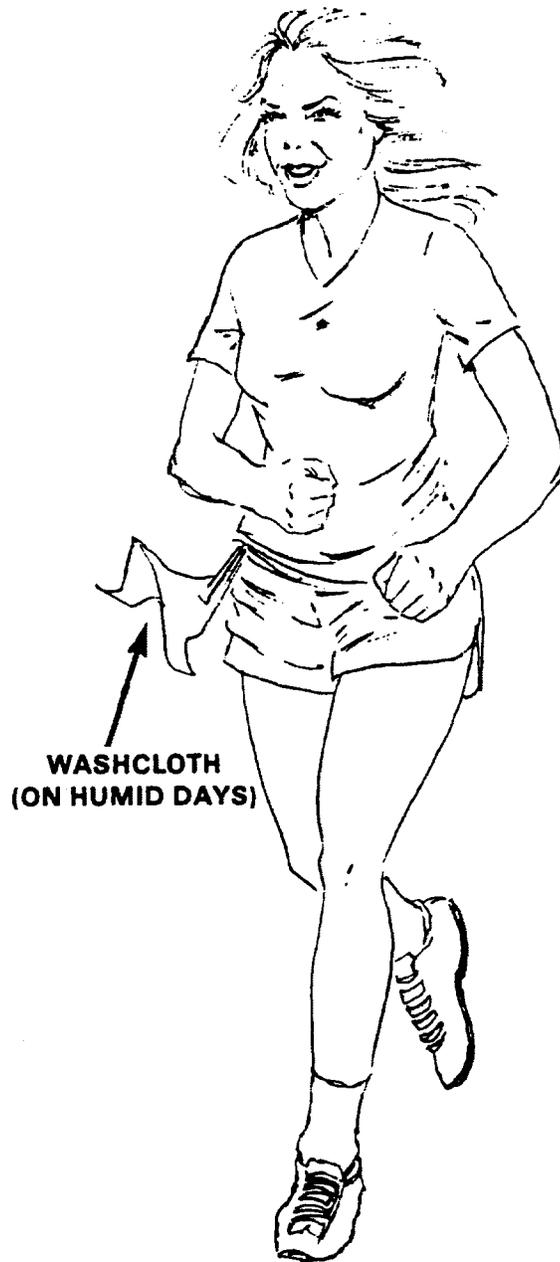


Figure 6-4. Loose-Fitting White Or Light-Colored Clothing

6-4. DRESSING FOR EXERCISE IN COLD WEATHER

a. A common tendency is to overdress. Clothing for cold weather is designed to afford protection, insulation, and ventilation. Protect yourself by covering as large an area of the body as possible. Insulation will take effect by trapping air which, has been warmed by the body and holding it near the skin to prevent loss of heat from the body. Ventilate by allowing a two-way exchange of air through the various layers of clothing. This exchange of air prevents overheating and excessive perspiring and at the same time protects against chilling of the body. Clothing soaked with perspiration should be removed because the ability to retain heat and insulate the body will greatly decrease. The amount of clothing and the way in which it is worn should leave your body slightly cool rather than hot. Clothing should also be loose enough to allow movement and exercise of the hands, feet, and other parts of the body to maintain proper circulation. See figure 6-5.

**40% HEAT LOSS THROUGH HEAD
AND NECK WHEN UNCOVERED**

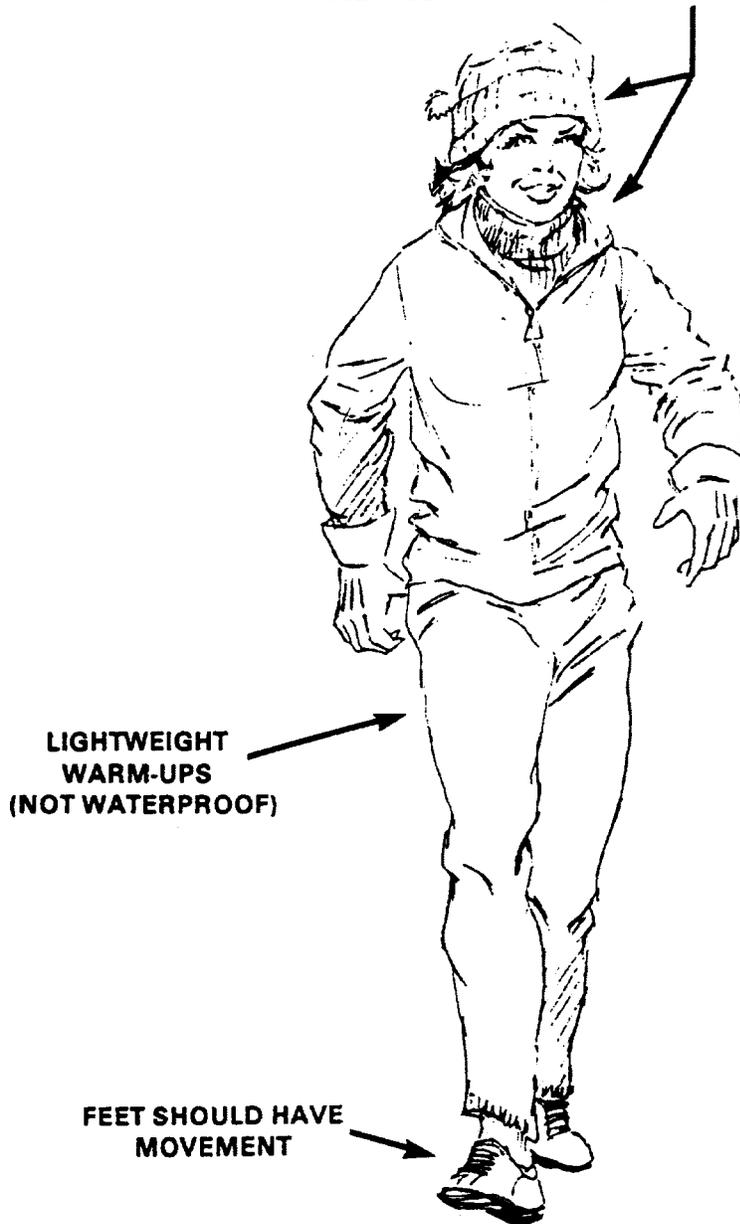


Figure 6-5. Dressing in Warm Layers for Cold Weather

b. Goose down is not the best cold weather defense, and it fails as an insulator when it becomes wet. Synthetics and cotton also furnish very little insulation once they become wet. The three best known materials, listed in order of effectiveness in retaining your body's heat, are polypropylene, a fabric consisting of a blend of acrylic and vinyl, and wool. These fabrics retain a larger percentage of body warmth and little if any moisture, including perspiration. Other fabrics like cotton tend to release body heat very quickly and remain damp.

c. The way to get the most out of your clothing is to choose dark-colored materials which absorb heat and to layer your clothing. This allows pockets of warm air to form between the layers. Keep in mind that you should wear one layer less of clothing than you would if outside but not exercising. Start by putting on a pair of long underwear. On top of that, place a shirt or sweater and finish with a pair of lightweight warm-ups. If you know you aren't going to get caught in the rain, a down parka is all right. Otherwise, your outer garment should be insulated with a synthetic fiber.

Do not use warm-ups made of waterproof material; they tend to keep perspiration from evaporating and can dangerously trap heat.

d. The biggest advantage to layering your clothing for cold weather is that you are at liberty to shed a layer if you become too warm.

e. Research has proved that 40 percent or more of your body's heat is lost through your head and neck; therefore, protect yourself with a hat and a turtleneck or scarf. Even a towel wrapped around your neck will do in a pinch. Don't forget to adequately cover your feet and hands. Mittens or socks afford more warmth and protection than gloves. Finally, keep in mind that when you exercise energetically, you build up the amount of body heat necessary to compensate for the cold.

f. Remember, too, there are advantages and disadvantages of different types of fabrics for clothing. Table 6-2 should help you select the appropriate clothing.

**Table 6-2
FABRICS FOR FITNESS**

FABRIC	ADVANTAGES	DISADVANTAGES
Acrylic	Resists abrasion well Resembles wool; warm for its weight Holds color well Resists mildew, moths, chemicals, sunlight	Becomes weak when wet Accumulates static electricity Tends to ball up
Cotton	Is strong, comfortable, absorbent Absorbs dye well, especially if mercerized Does not build static electricity	Wrinkles in use; requires ironing unless wrinkle-resistant finish is used Fabrics shrink unless treated, especially knits Is affected by mildew and sunlight
Nylon	Is strong and elastic and resists abrasion Is lustrous and dyes well Resists wrinkles, moths, and mildew	Fades in sunlight May ball up Melts under high heat May be clammy and uncomfortable in warm, humid weather
Polyester	Is strong and resists wrinkles, abrasion, stretching, and shrinking Resists mildew and moths	May ball up Attracts lint May be clammy and uncomfortable in warm, humid weather
Wool	Is strong and resilient Is warm even when wet Holds color well	Shrinks Attracts moths unless treated

Chapter 7 SPECIAL CONSIDERATIONS FOR WOMEN

7-1. PHYSIOLOGICAL DIFFERENCES BETWEEN FEMALES AND MALES.

Due in large part to the smaller amount of blood pumped during each heartbeat, women's performance potential, particularly in aerobic exercise, is lower than that of men. They can go as far but not as fast.

Women adapt to training just as men do; therefore, improvement can be expected to be equal.

In relation to body size, almost identical leg strength (70 percent) is seen in both men and women. Women are slightly stronger when their leg strength is expressed in relation to lean body mass.

Men and women are not and never have been physiologically equal. Therefore, individuals, regardless of sex, should set the goal of striving for a life-style that will maximize their capabilities. As a matter of fact, no two people are physically alike. That's why we have Olympic athletes. Even among these peak performers, only one gets the gold medal!

Lifting weights can develop bulky muscles. The male hormone testosterone is basically responsible for the hypertrophy (enlargement of the muscles) commonly seen in body builders. Women increase their strength and definition but require little increase in bulk.



Figure 7-1. Special Considerations For Women

a. MUSCLE AND BONE STRUCTURAL DIFFERENCE.

(1) A woman's arm strength is approximately 50 percent of a man's. A woman's leg strength is approximately 70 percent of a man's. A woman's trunk strength is approximately 60 percent of a man's. Less muscle composition equals less ability to apply force. This can hamper activities, which require strength, power, speed, or endurance.

(2) Generally, the average man is 30 to 40 percent stronger than the average woman. Men have more red blood cells; therefore, they have a greater oxygen-carrying capacity. Women need about twice as much iron as men do.

b. HEART AND LUNGS.

(1) Because of most women's small body size and smaller heart size, the amount of blood pumped to their bodies during each heartbeat (called the stroke volume) is also less.

(2) When women are tested for their ability to work aerobically at maximum capacity, their ability to use oxygen on the basis of body weight is on the average 20 percent lower than that of males. As a result their aerobic work output is comparably lower.

c. Glands The different hormones, females manufacture decrease, their ability to develop muscular bulk.



Figure 7-2. Women's Aerobic Work Output Is Lower Than men

7-2. MENSTRUATION PREGNANCY AND EXERCISE

a. SHOULD WOMEN EXERCISE?

(1) Two areas of concern in considering exercise programs for women are menstrual cycles and pregnancy. Should they exercise? Take the quiz in table 7-1 and then read on to find out.

(2) How well did you do? If you answered yes to any of these statements, you have been misled.

(3) Research on menstruation indicates that women who exercise experience no more problems with the cycle than those who do not exercise.

(4) The younger and leaner female is less likely to be affected by menstrual problems. Rather than causing difficulty during menstruation, regular exercise may make menstruation easier and more regular.

(5) A woman's complete work, load and coordination are more difficult during the 2 days before menstruation. Some women may have irregular or nonexistent menstrual periods during continuously difficult exercise, such as long-distance running. However, the menstruation usually becomes regular when the intense activity stops.

Table 7-1
EXERCISE QUIZ

	YES	NO
1. Women who exercise experience more problems with the cycle than those who do not exercise.	<input type="checkbox"/>	<input type="checkbox"/>
2. Exercise causes more premature births and longer labor.	<input type="checkbox"/>	<input type="checkbox"/>
3. Childbirth is harder for women who exercise because of the tightness of the muscles.	<input type="checkbox"/>	<input type="checkbox"/>
4. The more active a woman is, the greater the chance of miscarriage.	<input type="checkbox"/>	<input type="checkbox"/>
5. Exercising during pregnancy is not advisable.	<input type="checkbox"/>	<input type="checkbox"/>

b. HOW EXERCISE HELPS DURING PREGNANCY

(1) Active women generally have fewer backaches and other complications during pregnancy than inactive ones. They also have fewer premature births, shorter labor, and about half the incidence of caesarian sections. Women can increase their capacity to work during pregnancy if they continue to exercise. They tolerate the stresses of childbirth better with the extra energy and strength that regular exercise provides. Strong abdominal muscles, elastic pelvic floor muscles (vagina), and strong cardiorespiratory endurance make childbirth easier.



Figure 7-3. Being active does not increase chances of miscarriage

(2) Being active **does not** increase chances of having a miscarriage. In most cases an imperfection of the fetus is the cause.

(3) Tests have shown that when a woman exercises at 80 percent of the maximum heart rate, the fetus's heart rate doesn't speed up much. It stays within its normal range.

(4) Here is a general rule to follow during pregnancy: If you've been doing something athletic, continue to do it as long as you're comfortable and you have no complications. If you have the energy and it doesn't hurt, go ahead and do it! During the final 4 months, don't accelerate your program of exercise. Avoid exercising so strenuously that you raise your body temperature above 103° Fahrenheit (F). Take adequate precautions when exercising in heat or humidity. After delivery take it easy and be sure that you are in good shape before you undertake anything strenuous. It is suggested that you **consult a physician before participating in any exercise program.**

(5) During pregnancy the growth of the baby, as well as rising hormone levels in the blood, produces many changes in the body. Stretched muscles and softened ligaments are just two of the changes a woman may experience. These changes primarily affect the spine, abdomen and pelvic floor muscles.

(6) Two basic areas of concern for a woman during pregnancy are appearance and function. Improved posture

makes appearance more acceptable. The exercises in appendix M that are suggested for general strengthening, flexibility, and improved bodily function burn calories and prevent excessive weight gain.

(7) Remember, your bodily function improves as you strengthen and increase control of the muscles of your abdomen and pelvic floor. Control of these muscles helps support your spine and prevent lower back pain.

c. TIPS FOR EXERCISE. Listed below are some tips to remember when you start to exercise.

- Start slowly to warm up.
- Do not overdo it.
- Exercise regularly.
- Decrease your exercise if you become breathless, tired, or dizzy.
- Do not hold your breath during exercise.
- Do all exercises slowly and completely.

Chapter 8 DON'T LET STRESS GET YOU DOWN

8-1. STRESS DEFINITION AND CAUSES.

a. Are you tired of your friends or the people you work with? Are you suspicious of people? Do minor problems throw you into a frenzy? If so, watch your "pressure gauge." Too much pressure can spoil your life and your health.

b. Stress is the reaction of the body to any demand made upon it. Stressors are the situations, which cause stress. Any and every situation you encounter may cause stress. Look at figure 8-1.



Figure 8-1. Stressors

8-2. STRESS RECOGNITION

a. We all have stress, but its intensity and duration vary greatly depending on the events that trigger it and on the way individuals manage their own feelings.

b. No matter what happens, most people experience hurt, anger, guilt, envy, fear, sadness, joy, and love. Your feelings indicate how you are reacting to your surroundings.

c. Nothing influences your life as much as the way you feel. So whenever possible, you should try to identify your moods. Take time to notice how often you are really happy with yourself.

d. When stress increases, the body starts preparing for action. Changes occur: the heart beats faster, breathing becomes more rapid, and adrenaline is dumped into the bloodstream. These and other changes are the old “fight or flight” mechanism taking over for your protection. If you were put behind a screen and your bodily functions were monitored (whether you became very happy, sad, or scared), the observer could not tell which feelings you were experiencing; your physical reactions would be the same for each situation.

e. A good basic guide to determine when you need help in managing your stress is to ask yourself, “Do my feelings get in the way of doing my best work or my ability to love and be loved?” If the answer is yes, the extent to which feelings interfere is the extent to which they need to be managed. Let your discomfort with yourself be your guide.

8-3. STRESS—GOOD OR BAD?

Your attitude determines if stress is good or bad. The situation that is not stressful to you may be to someone else. This is a result of what you interpret to be threatening to you, and this changes with the situation.

As you dress in the morning, you usually do not think about tying your shoes. In this situation it is obvious that stress is not present. Now place yourself in a burning building, where you must put on and tie your shoes before you can escape. Stress now occurs, and that simple act becomes hard.

a. PERSONAL STRESS.

(1) As previously stated, stress causes the body, to become ready for action. What you do next determines if stress is good or bad for you. Think back to the last time, you were happy and remember what your actions were. Most likely you became engaged in some activity; when you are happy and feel good, you tend to be active.

(2) Now think back to the last time, you were sad or angry and remember what your actions were. The most likely reaction to either feeling is inactivity.

(3) When the body is ready for action, it needs an outlet for the emotion and energy present. Happy people are usually outgoing and active. This activity expends the energy and relieves emotions, which have accumulated. But anger or sadness tends to make people withdraw, focusing their energy and emotion inward; this is a little like running a car engine at full throttle with the car in gear and the emergency brake on. Your body is prepared for action, but you do not do anything, and all that energy must be used. Repeated situations involving unused or “bottled” energy can cause ulcers, burnout, or breakdowns.

b. *DEGREES OF STRESS.* Your attitude and your perception of the situation determine to what degree the situation becomes stressful. Remember, the occurrence that may be handled without any problem most of the time may be extremely stressful when the right conditions prevail. Also, stress seems to be addictive; it builds up. If you normally handle problems as they arise, then you may not be stressed. When you allow problems to pile up, however, you may become stressed by normally small occurrences. A broken shoelace is not bad unless it occurs when you are late and is the third or fourth thing to happen to you.

c. STRESS AND THE FAMILY.

(1) Some evening you and your family should sit down at the kitchen table and start brainstorming, as shown in figure 8-2. Make a list of all the stressful events in your lives. Write everything down; what does not seem stressful to you may be stressful to someone else.

(2) Then each member should select three events that were listed; as a family, rank these events in the order of their importance.

(3) Once the order has been established, set aside the minor ones. Then ask yourselves, “How will we know when we have minimized our stress?” While you have the family talking, make a family program chart, listing the three most stressful events. On this chart answer the following questions for each event:

- What will be done to remedy this problem?
- Who will do it?
- By what date will our objective of minimizing stressful events be accomplished?

(4) Decide how often to have a short family meeting. When you do meet, the first question should be, “Are we keeping pace with our goals?” The purpose of these meetings is to motivate one another to continue the direction.

(5) This type of activity can offer some positive interactions among family members. Most of us wish to learn and

talk about ourselves; perhaps at times each of us would like to be the best member of the family or even gain approval from our own parents. At other times, however, we show angry reactions toward others. Families do not talk or share ideas or problems often enough. Asking others to describe what is causing them Personal stress helps reduce that stress.



Figure 8-2. Stress And The Family

8-4. STRESS AND PHYSICAL FITNESS

a. Mental stress can show on us physically. Think about this: An emotionally “uptight” person may often appear physically tight and rigid. One who is psychologically vulnerable is likely to present a body which reflects that reality; that is, the shoulders are slumped, and the head is lowered.

b. People who are unfit have many physical and mental problems. When you are unfit, you have aches and pains; various parts of the body may also malfunction. If you are unfit, you avoid exercise because it is too hard. If you do not exercise, you become more unfit and find it even harder to exercise. This is a vicious cycle which helps to add to your own stress levels. Being unfit probably is an indication that you are inactive and your feelings are directed inward.

c. Studies have shown that physical activity reduces stress. Each time you work out, you can reduce stress instead of letting it build up.

d. If you exercise, you use pent-up energy and are more outgoing than if you direct all your energy and emotion inward.

e. You have not become the person you are overnight. Your beliefs have been developed over a period of time. You have a deep-seated need to preserve the ideas about yourself, and you would probably like to improve your self-image.

f. When you develop a more positive self-image, you will feel more able to handle stressful situations.

g. Not all stress is negative. If you look back on your life and think of the negative things that have occurred, you will probably discover that most of them turned out to be positive, since you learned from them. People who build themselves up perform better. Positive thoughts are not destructive to your mind and body; negative thoughts promote illness.

h. Since the body adapts to the level of activity demanded of it, you will have more energy and accomplish more at your job if you exercise.

i. The key, as in all preventive programs, is early detection and intervention before stress levels can lead to stress-related diseases, such as alcoholism and emotional disorders

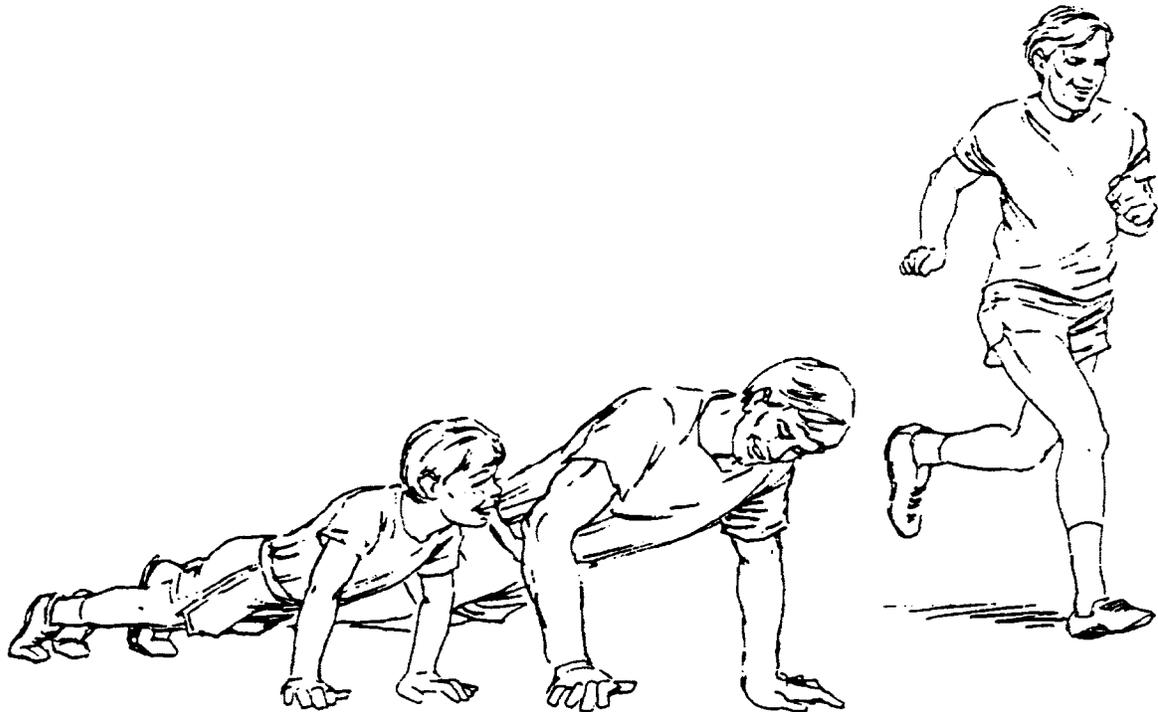


Figure 8-3. Physical Activity Reduces Stress

8-5. KEEP THE FAITH—SPIRITUALLY

a. The emotional component of health often affects the physical component. Strain, stress, and tension inside and outside the home lead us to seek help from others to maintain our total health.

b. Spiritual faith creates for us a strength, a hope, and a power that give us the courage to cope with many of the major difficulties that strike at family life. The family with faith is a family with strength.

c. In times of serious illness and other periods in our lives when tragedy occurs, our family and faith are important. Faith gives us patience in long illness and suffering, courage to face the unknown, and confidence in our care and treatment.

d. The home should be a place where we can relax, discover how to get along with one another, learn to care, and find peace from the pressure of life. Within the family everyone should learn about spiritual health; right and wrong; the importance of honesty, self-respect, and hard work; and other traditional values. The family should provide support when crises strike and rejoice together when things go well.

e. The peace and harmony of society rest on the spiritual health of the family. The family is too important to our needs ever to be abandoned, for it is in intimate family relationships that meanings are found, human values are nourished, and personal worth is affirmed.

f. Do not deny yourself the spontaneity and joy in life that, come from disciplining your body, performing physical activities, and being healthy. Once you take the first step toward fitness, your life will never be the same. The first thing you will notice is a better self-image.

g. Your health and your total well being depend much more on what you do or don't do for yourself than on what health professionals can do for you. Of the variables that affect your health, only heredity cannot be controlled by exercise and diet. So if you want to live a happier, healthier life, the choice is yours.



Figure 8-4. Keep The Faith—Spiritually

Chapter 9 SUBSTANCE ABUSE

9-1. CAUSES OF SUBSTANCE ABUSE

a. We live in an alcohol-/drug-using society. People look to these substances to cure all sorts of problems-physical, mental, and social. Young people brought up with television have been told that pills reduce anxiety and tension, provide buffers for everyday living, and often perform near miracles.

b. The first step in substance-abuse prevention is to understand the environment in which the abuse has spread, the effects people seek from that abuse, the alternatives needed, and the practical place for medicine and drugs in society.

c. The reasons for substance abuse among the young are varied and frequently complex. Peer influence, desire for kicks, escape from feeling of inferiority, relief from routine lives, and ease of pain caused by adolescent problems are some of the reasons young people turn to drugs.



Figure 9-1. Substance Abuse

9-2. CHILDREN AND SUBSTANCE ABUSE

The major emphasis in substance-abuse prevention /education for children should begin when they are very young. Being good role models and demonstrating sound mental and physical health habits is a good beginning. Other things you can do include the following:

- Become aware that some everyday items may be harmful if used improperly.
- Be able to identify foods as substances which, the body must have to stay healthy.
- Develop critical thinking to make decisions after learning the facts.
- Become aware that television and radio commercials are intended to sell products rather than give reliable advice about healthful practices. Recognize some ways in which advertising may be misleading.



Figure 9–2. Children And Substance Abuse

9–3. IS THERE A PROBLEM?

a. Instead of looking for the substances or their symptoms, look for the following changes in individuals:

- Are they keeping peculiar hours?
- Has their work (school or job) suddenly gone bad?
- Have they lost weight?
- Has their dress changed from casually sloppy to downright dirty?
- Are they often vague and withdrawn?

b. Remember, people do need their privacy, so don't jump to conclusions that will make them immediate suspects.

c. Should you realize that one of your family members is abusing one of these substances, take action! Don't feel you are hurting the person. You are not! You are saying, "I love you; can I help you?"

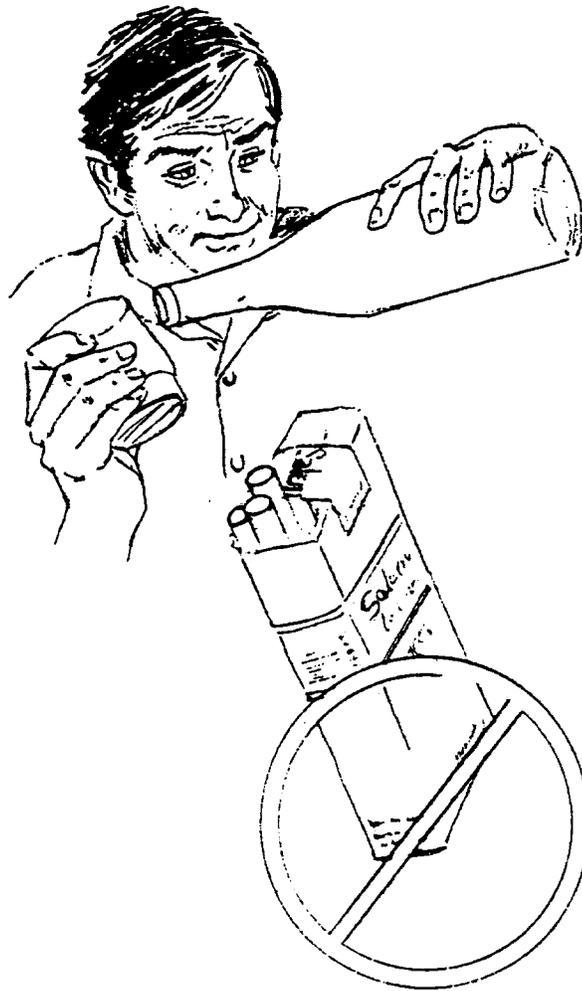


Figure 9-3. Is There A Problem?

9-4. DEALING WITH SUBSTANCE ABUSE

Listed below are suggestions about dealing with family members who have problems with either drugs or alcohol.

- Never try to deal with them while they're under the influence.
- Never cover up or make excuses for them.
- Don't make an issue about seeking treatment.
- Discuss your circumstances with someone other than your spouse.
- Encourage new interests for your family,
- Don't accept guilt for their behavior.
- Establish a positive home environment.
- Make a personal commitment to improve your life and environment.
- Be patient and live one day at a time.

a. SOCIAL DRINKING. The individual who has made the personal decision to drink can find a number of ways to meet the demands of social drinking while avoiding drunkenness.

- Know your limit.
- Eat while you drink.
- Don't drink fast. Sip for enjoyment; don't gulp for effect.
- Accept a drink only when you really want it.
- Cultivate taste. Choose quality rather than quantity.

- Skip a drink now and then.
- When dining out, if you must drive home, have your drinks with dinner, not afterward.
- Beware of unfamiliar drinks.
- Don't drink to relax when what you really need is a change of pace or some sleep.

If you are curious about the behaviors common to problem drinkers, turn to appendix N and take the short quiz.

b. *WHERE DO I GO FOR HELP?* Contact your local alcohol and drug control center. It has counselors and information available to you and your family. The organizations listed in appendix O can help you.

c. *TOBACCO.*

(1) Tobacco is another substance that is greatly abused and is considered a great health danger. Aside from the cancer-related risks, smoking can cause eye, nose, and throat irritation. It also increases the chance of a heart attack.

(2) Most people fail to realize that nicotine, which is found in cigarettes, is a deadly poison. When less than a drop is injected into the bloodstream, it is fatal. When taken in as cigarette smoke, it increases the heart rate and blood pressure by its effect on the nervous system and adrenal glands. Nicotine also dulls the appetite.

(3) Tar, like nicotine, is another harmful byproduct of tobacco. Tar is the residue formed when gases and particles of tobacco smoke condense. Medical research has shown that tar applied to the skin of mice causes both cancerous and non-cancerous tumors. Therefore, tar could be the principal cause of smoking-related cancers. Chemical properties in tobacco have been found to affect the body in the following ways:

- They can cause sudden heart attack deaths in which the heart rhythm goes wildly out of control, causing the heart to vibrate rather than contract.
- They stimulate the nervous and glandular systems, causing a release of fatty acids which eventually cause atherosclerosis.
- They constrict the capillaries and arteries, lowering body temperatures; when body temperatures are lowered, circulatory deficiencies, gangrene, blood clotting, and the need for amputation may appear.
- They speed up the rate of internal blood clotting, make clots harder, and increase the likelihood of heart attacks, strokes, and pulmonary embolisms.

(4) Studies have indicated that there is direct relationship between children's respiratory illnesses and parental smoking.

(5) All family members must be aware of the dangers associated with smoking. And they must learn how to break the smoking habit. If you decide to do so, you need to be aware of the many changes your body will undergo.

(6) How long will it be until your system gets back to normal? It will take about 10 years for your system to become normal again, assuming that you do not smoke during that period.



Figure 9-4. Smoking Cessation

d. SMOKING CESSATION.

(1) “After all my efforts, if I find I can’t quit smoking, how can I reduce the hazards?” Do not smoke the entire cigarette. Try to take fewer puffs on each cigarette. Try not to inhale the smoke. Cut back on the number of cigarettes you smoke per day, per week, per month, and per year.

(2) The smoking habit can be broken through a simple plan of action. First, cut down on the amount of smoking. By cutting down at a moderate pace, you eventually can quit and, through strong self-discipline, not start again. Second, get rid of such reminders as matches, lighters, ashtrays, and cigarette boxes. Avoid places where you put your cigarette packs.

(3) A good way to break the smoking habit is simply to change the routine. Don’t smoke after meals or while reading, talking on the phone, drinking coffee, playing cards, or relaxing. One helpful technique is to avoid places where the desire to smoke is extremely strong or places where you usually smoke, such as bars or parties.

(4) Drink plenty of water or juices; exercise; tell a close friend and ask for encouragement each day of the next week; try to avoid very stressful situations; take longer to eat your meals; keep substitutes like carrots, pickles, sunflower seeds, apples, celery, sugarless gum, and peaches handy; or light a candle or some incense.

(5) Finally, you may want to look for a group that can help you stop smoking. This group will assist you by using various techniques and providing moral support and positive reinforcement.

Appendix A ACTIVITIES AND SENIOR CITIZEN FITNESS

A-1. THE AGING PROCESS

a. Aging is a natural process that involves your heart, blood vessels, bones, lungs, and other organs. Your body also becomes more vulnerable to health problems. If you do not have an exercise and diet program, you deny yourself the opportunity to enhance the quality of your life.

b. The purpose of senior citizen fitness activities is to—

- Improve cardiorespiratory endurance.
- Lower percentage of body fat.
- Improve flexibility.
- Increase muscular strength and endurance.
- Slow the aging process.
- Decrease susceptibility to illness.
- Provide enjoyable recreational activities.

CAUTION: Before starting an exercise program, check with your doctor!

c. No matter what our ages, we all have a little of the child within us. An exercise program **must** offer fun and socialization as well as health benefits.

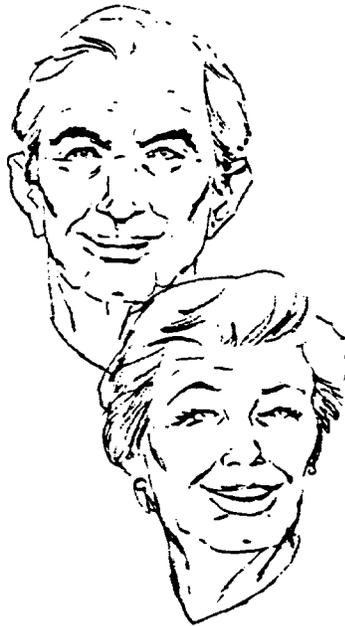


Figure A-1. Senior Citizen Fitness

A-2. CERTAIN CHANGES TAKE PLACE AS WE AGE

a. Certain changes occur in your body as you age; listed below are some of them.

- Strength and endurance decrease.
- Body fat increases after age 30 at the rate of 3 percent for each decade.
- Bone density declines because body calcium decreases.
- The motion in your joints becomes limited.

b. These facts alone may motivate a few people to get involved in an exercise program. It should be fun!

c. The nice part about starting an exercise program is that you choose the activities that interest you. Table A-1 shows some activities to consider (depending on age and physical condition).

**Table A-1
EXERCISE PROGRAM**

ACTIVITIES

Bowling	Gardening	Shuffleboard
Light woodworking	Hiking (cross-country)	Cycling
Fishing (standing)	Hunting	Canoeing
Croquet	Fitness trail	Horseshoes
Washing the car	Stationary bicycling	Sailing a small boat
Archery	Volleyball	Fly fishing
Badminton	Square dancing	Raking leaves
Tennis	Walking	Table tennis
Mowing lawn (walking)	Jogging	Golf (no cart)
	Swimming	

d. Here are some other exercises for you to try.

- Carry your trash to the road instead of pulling it on a cart.
- Start a garden. Don't use a tiller; use a shovel instead. Weed your garden at least every other day.
- Engage in yard work. Plant flowers or do some weeding and fertilizing.
- Don't use a dryer to dry your clothes, wasting energy; use some physical energy and hang your laundry outside to air dry. It's cheaper.
- Try to walk up and down stairs at twice a day.
- Try cleaning out your garage every 3-4 months.
- Do some form of exercise for every half hour of television that you watch. (This does not include eating.)
- Go to an indoor shopping center and walk around.
- Remember to progress slowly.

A-3. INTEREST SURVEY

To help you make some decisions, the following interest survey has been devised. It may give you some new and interesting activities to try.

**Table A-2
INTEREST SURVEY**

ACTIVITY	HAVE DONE BEFORE	WANT TO LEARN	NOT INTERESTED
ARTS AND CRAFTS			
Ceramics			
Leatherwork			
Painting			
Knitting			
Other			
SPORTS AND GAMES			
Group Exercise			
Bowling			
Horseshoes			
Card Games			
Other			
MUSIC			

Table A-2
INTEREST SURVEY—Continued

ACTIVITY	HAVE DONE BEFORE	WANT TO LEARN	NOT INTERESTED
Choral			
Instrument			
Listening			
Other			
OTHER INTERESTS			
Discussion Groups			
Slides			
Movies			
Records			
Animals			
Church			
Bible study			
Television			
Radio			
DANCE			
Square Dance			
Social Dance			
Other			
DRAMA			
Readings			
Plays			
Other			
OUTDOOR ACTIVITIES			
Gardening			
Walking			
Riding in Auto			
Bird Watching			
Other			
LITERARY ACTIVITIES			
Newspaper			
Books			
Creative Writing			
Poetry			
Other			
HOBBIES			
Collections			
Other			
SERVICE			
Projects for Others			
Projects for the Home			
Community Activities			
ADDITIONAL INTERESTS AND/OR COMMENTS: _____			

Appendix B

FIRST AID AND PREVENTION FOR ATHLETIC AND ENVIRONMENTAL INJURIES

The best medicine for injuries is prevention. Listed below are some effective ways for you and your family to avoid injuries.

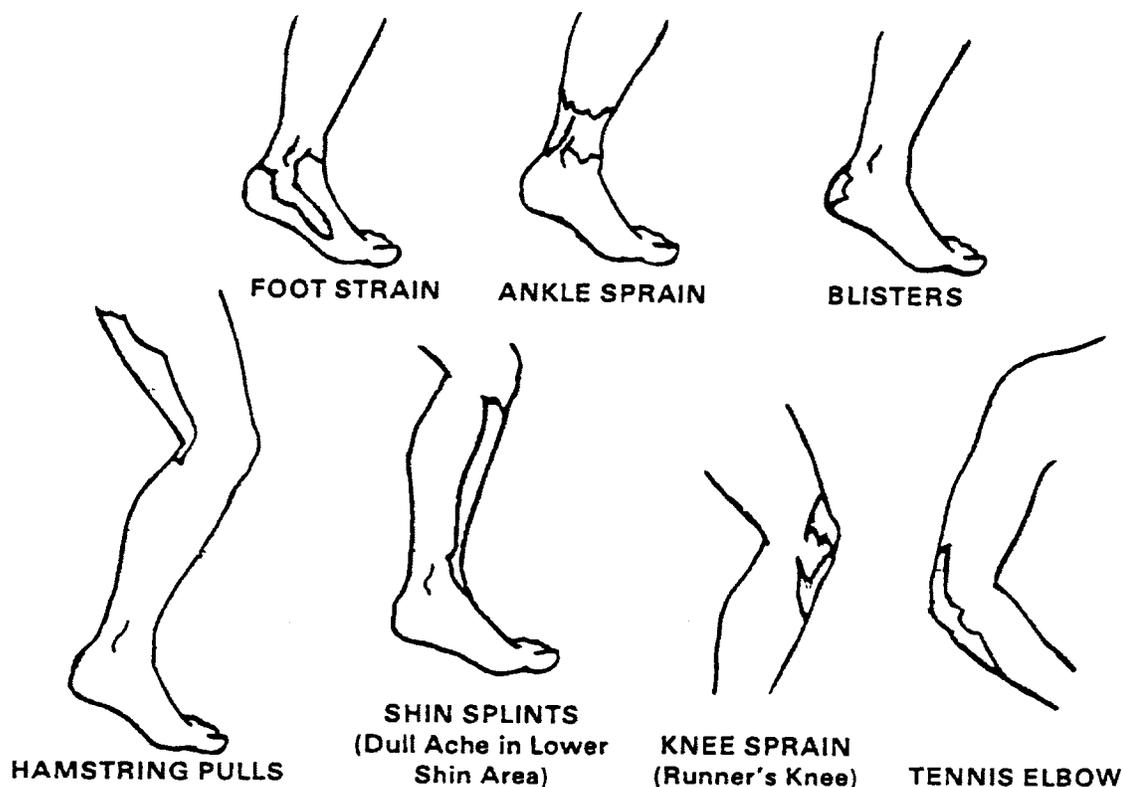


Figure B-1. Common Athletic Injuries

B-1. COMMON ATHLETIC INJURIES

a. BLISTERS.

(1) Prevention:

—Make sure that your shoes fit properly. Test shoes by standing with full body weight on your toes. Check to see that there is only little room past the big toe and across the top of the shoe, that the ball of your foot fits into the width of the shoe, and that your heel doesn't slip.

—Wear two pairs of socks (a thin pair of cotton socks under a pair of woolen socks).

—If a burn or hot spot begins to develop, apply a lubricant, such as petroleum jelly, to help prevent heat buildup and eliminate further reddening of the skin.

—Use cotton between the toes, but use only small amounts so that shoes do not become too tight.

(2) Early Care:

—If the blister is not broken, put alcohol and a bandage over it to prevent its breaking.

—If the blister is broken, wash the area with soap and water, carefully trim the top away, and apply 70 percent alcohol. Bandage to avoid infection.

—Infection is the greatest danger with blisters. If swelling, unusual pain, and red streaks appear, seek medical

attention; infection may be spreading.

b. ANKLE SPRAIN.

(1) *Prevention:*

- Gradually strengthen the leg and foot through a long-term training program.
- Stretch at least 5 minutes before participating in physical activity.
- Make sure that the width and length of shoes provide sufficient room for your feet. When the shoe is placed on a flat surface, the back of the shoe should be perpendicular to the surface.
- Avoid doing physical activities on rough, irregular surfaces.

(2) *Early Care:*

- Place the ankle in ice for the first 30 minutes after an injury.
- Dry thoroughly and wrap the ankle with an elastic bandage to help compress the area and prevent swelling. Don't restrict circulation.
- Apply ice packs over the bandage and elevate the ankle to avoid further swelling.
- Have a physician check for a fracture.
- Continue ice packs for 24 hours (20 minutes every 2 hours); try not to place any weight on the ankle.

c. SHIN SPLINTS (Dull Ache in Lower Shin Area).

(1) *Prevention:*

- Avoid running and jumping on hard surfaces. Try to find soft grass or some other pliable surface.
- Strengthen the shin muscles and develop greater ankle flexibility.
- Avoid sudden stops.
- Wear shoes with flexible toe areas and thick heels or heel lifts; these often prevent the problem.

(2) *Early Care:*

- Massage the painful area with ice, using a circular motion.
- Apply a compression bandage to both the foreleg and the ankle.
- See a physician if the problem persists for a long time.

d. GENERAL MUSCLE PULLS, STRAINS, SORENESS, AND BRUISES.

(1) *Prevention:*

- Develop/maintain proper long-term conditioning for specific stresses.
- Warm up thoroughly before the activity.
- Wear protective equipment and padding that fit well.
- Avoid sudden starts and stops, jerky muscular movements, and bouncing exercises.

(2) *Early Care:*

- Place ice on the injured part for the first 30 minutes.
- Dry thoroughly and wrap with an elastic bandage to compress the area and prevent swelling. Don't restrict circulation.
- Elevate the injured part and apply ice packs to avoid further swelling.
- Seek medical advice and continue ice packs for 24 hours (20 minutes every 2 hours) to avoid further swelling and pain.
- Avoid placing pressure on the injured area.

e. FOOT STRAINS

(1) *Prevention:*

- Wear shoes with good arch support, a heel height close to an inch plus, and thick flexible soles for shock absorption.
- Run with the feet in balance, heels striking-first.

—Run barefoot on soft surfaces slowly for short distances; gradually increasing speed and distance helps prevent further injury.

(2) *Early Care:*

- Use the same general care described for muscle pulls.
- Use heel pads for elevation.
- Use corrective supports if needed.

f. *KNEE SPRAIN (Runner's Knee).*

(1) *Prevention:*

- Wear properly fitted shoes.
- Avoid stressful knee exercises, such as full squats, duck walks, and sitting in positions that cause undue pressure on the knees.
- Do physical activities on level ground. Do not exercise more than half the time in one direction on a track, beach, confined area.
- Avoid running downhill; walk down.
- Use knee pads when playing volleyball, basketball, and other floor games.

(2) *Early Care:*

- Use the same general care with ice as that described for muscle pulls.
- Immobilize the knee joint and keep weight off it as much possible.

g. *MUSCLE CRAMP.*

(1) *Prevention:*

- Rest at first sign of fatigue.
- Loosen clothing if circulation is restricted.
- Pad the affected area if participating in contact sports.

(2) *Early Care:*

- Rest.
- Knead the cramped area with firm pressure.
- Slowly stretch out the affected muscle, hold it extended for a few seconds, and then relax.
- Use moist heat to relax the muscle and help restore circulation.

h. *HAMSTRING PULLS.*

(1) *Prevention:*

- Always do warm-ups and stretching exercises before participating in any physical activity.
- Take short breaks or slowdown if fatigue occurs.

(2) *Early Care:*

- Use the same general care with ice as that described for muscle pulls.
- Gradually stretch the muscle to reduce spasms if the pain and tenderness are minimal.

i. *TENNIS ELBOW.*

(1) *Prevention:*

- Keep the arm covered with shirt and/or jacket until arm is warm.
- Hold the racquet with moderate tension until the arm are stronger.
- Avoid a tightly strung racquet in early conditioning.
- In a pregame warm-up use gentle, rhythmic actions to release muscular tension.

- When serving, use lower tosses so that the shoulder does not have to stretch excessively to contact the ball.
- Strengthen the forearm by squeezing the tennis ball or by doing wrist curls with a weighted object.

(2) *Early Care:*

- Use the same general care with ice as that described for muscle pulls.
- Use a sling to immobilize and rest the elbow. Be sure the sling is at a right angle to the body.

B-2. ENVIRONMENTAL INJURIES

a. HEAT CRAMPS, HEAT STRESS, AND HEAT EXHAUSTION.

(1) Heat Cramps are caused from hard work in the heat. Heavy sweating is associated with heat cramps. Symptoms include muscular twitching or cramping and muscular spasms in the arms, legs, and abdomen.

(2) Heat stress may follow or occur in conjunction with heat cramps. It is caused by the adjustments made in the circulatory system, especially the blood vessels close to the skin, to keep body temperature down.

(3) Symptoms include fatigue, pale skin, blurred vision, low blood pressure, and dizziness. Heat stress left untreated can progress to heat exhaustion.

(4) Heat exhaustion occurs when heat stress is left untreated. It is caused by prolonged, sweating with inadequate fluid replacement. Symptoms are excessive thirst; fatigue; lack of coordination; increased sweating; cool, wet skin; and abnormally high temperature.

(5) For all of these heat injuries, the person should be moved immediately to a cool place and given plenty of water. Work should not be resumed until all symptoms have stopped; in case of heat exhaustion, medical attention is necessary.

b. HEATSTROKE.

(1) Heatstroke is a medical emergency because it is life threatening. The cause of heatstroke is a breakdown in the body's mechanism for cooling itself. The symptoms may include cessation of perspiration; hot, dry skin; high temperature (above 105° F); rapid pulse; rapid breathing; coma; and seizures.

(2) The treatment of heatstroke is to cool the body by moving the person to a cooler place; sponge the victim with cool water; apply ice to the armpits, groin, and back of the neck; and seek medical attention as soon as possible. Do not immerse the victim in cold water because this may cause shock.

NOTE: Prevention is the key word with heat injuries; be sure to get plenty of fluids and recognize the symptoms of these injuries.

c. FROSTNIP. Frostnip generally involves the tips of the toes, fingers, ears, nose, chin, and cheeks. It is caused by, exposure to high wind speeds and low temperatures. The main symptom is sudden whitening of the affected areas. Frostnip is painless. Early treatment is to warm the affected area by applying firm, steady pressure with a warm hand; blowing with hot breath; holding against the body; or immersing in warm water. The area should not be rubbed. As the skin thaws, it becomes red and begins to tingle. Protection from further damage is a must.

d. FROSTBITE. There are two types of frostbite: superficial and deep. Superficial frostbite is the freezing of the skin and the tissues just below the skin. It is characterized by a white, waxy look and firmness of the skin, although the tissue below is soft. The area should be slowly re-warmed as described for Frostnip. As the affected area thaws out, it becomes numb, then bluish or purple, and blisters may form. The area should be treated as if it were burned. Cover the area with a dry sterile dressing and protect it from the cold. The victim should be, seen by a doctor for further treatment. Deep frostbite should not be treated in the home. The patient should be taken immediately to a medical facility. Deep frostbite is freezing of the skin, muscle, and possibly the bone. This usually involves the tissues of the hands and feet. They look pale and feel frozen to the touch. During transportation to the medical facility, the patient should be kept as dry and as warm as possible. Cover frostbitten areas with a dry sterile dressing.

e. HYPOTHERMIA.

(1) Hypothermia is the gradual cooling of the center of the body. This may occur at temperatures above as well as below freezing. It usually occurs in wet, windy weather. When the body temperature drops below 95° F, the body becomes incapable of rewarming itself because of failure in the system that regulates body temperature. The symptoms vary as the body temperature falls and the condition becomes more severe (see figure B-2). The first symptom noted is severe shivering. As the temperature continues to drop, the victim becomes uncoordinated, is unable to speak properly, and has difficulty completing small tasks.

(2) If the temperature drops more, these symptoms become severe and can lead to coma and even death.

(3) Hypothermia is a medical emergency that requires treatment at a medical facility. The basic principles of first aid are to prevent further heat loss, move the victim to a warm place, cover with blankets, and seek medical attention

as soon as possible. All wet clothing should be removed and replaced with dry clothing. If the victim is conscious, administer warm liquids (no alcohol).

(4) Have you ever worried that your lungs could freeze if you breathe in cold, cold air? The answer is NO. Current medical information shows that the air you breathe in is sufficiently warmed before reaching your windpipe and lungs. However, if you are asthmatic, have a mild heart condition, or just simply find the cold air painful, you might try wearing a lightweight scarf or mask over your nose and mouth.

Table B-1
HYPOTHERMIA

Body Temperature	98°F – 95°F	94°F – 85°F	84°F – 78°F
Degree of Hypothermia	Mild	Moderate	Severe
Symptoms	Shivering	Loss of Coordination	Coma-Death
Level of Consciousness	Withdrawn	Confused/Sleepy	Irrational/Unconscious

Appendix C SAMPLE EXERCISE PROGRAMS

C-1. EXERCISE PROGRAMS.

a. There are many ways to begin an exercise program. Two examples, a walking and a jogging program, are shown in tables C-1 and C-2. These activities are easy ways for most people to get regular exercise because they do not require special facilities or equipment other than good, comfortable shoes. If walking or jogging does not meet your needs, look for other exercise programs, such as swimming, bicycling, cross-country skiing, or aerobic dance.



Figure C-1. Jogging

**Table C-1
A SAMPLE WALKING PROGRAM⁵**

	WARM-UP	TARGET RATE (EXERCISING)	COOL-DOWN	TOTAL TIME
Week 1				
Session A	Walk slowly for 5 min	Walk briskly for 5 min	Walk slowly for 5 min	15 min
Session B	Repeat above pattern			
Session C	Repeat above pattern			
Continue with at least three exercise sessions during each week of the program.				
Week 2	Walk slowly 5 min	Walk briskly 7 min	Walk slowly 5 min	17 min
Week 3	Walk slowly 5 min	Walk briskly 9 min	Walk slowly 5 min	19 min
Week 4	Walk slowly 5 min	Walk briskly 11 min	Walk slowly 5 min	21 min
Week 5	Walk slowly 5 min	Walk briskly 13 min	Walk slowly 5 min	23 min
Week 6	Walk slowly 5 min	Walk briskly 15 min	Walk slowly 5 min	25 min
Week 7	Walk slowly 5 min	Walk briskly 18 min	Walk slowly 5 min	28 min
Week 8	Walk slowly 5 min	Walk briskly 20 min	Walk slowly 5 min	30 min
Week 9	Walk slowly 5 min	Walk briskly 23 min	Walk slowly 5 min	33 min
Week 10	Walk slowly 5 min	Walk briskly 26 min	Walk slowly 5 min	36 min
Week 11	Walk slowly 5 min	Walk briskly 28 min	Walk slowly 5 min	38 min
Week 12	Walk slowly 5 min	Walk briskly 30 min	Walk slowly 5 min	40 min

min = minutes

Notes:

⁵ Reprinted from Exercise and Your Heart, National Heart, Lung and Blood Institute, Baltimore, MD, 1981.

b. Check your heart rate periodically to see if you are exercising within your target heart rate. As you become fit, try exercising within the upper range of your target heart rate. See table 3-3 if you don't know how to figure your target heart rate. Remember, your goal is to obtain the benefits you are seeking and to enjoy the activity.

**Table C-2
A SAMPLE JOGGING PROGRAM⁶**

	WARM-UP	TARGET RATE (EXERCISING)	COOL-DOWN	TOTAL TIME
Week 1				
Session A	Stretch and limber up 5 min	Then walk 10 min; try not to stop	Then walk slowly for 3 min and stretch for 2 min	20 min
Session B	Repeat above pattern			
Session C	Repeat above pattern			
Continue with at least three exercise sessions during each week of the program.				
Week 2	Stretch and limber up 5 min	Walk 5 min; jog 1 min; walk 5 min; jog 1 min	Walk slowly 3 min; stretch 2 min	22 min
Week 3	Stretch and limber up 5 min	Walk 5 min; jog 3 min; walk 5 min; jog 3 min	Walk slowly 3 min; stretch 2 min	26 min
Week 4	Stretch and limber up 5 min	Walk 4 min; jog 5 min; walk 4 min; jog 5 min	Walk slowly 3 min; stretch 2 min	28 min
Week 5	Stretch and limber up 5 min	Walk 4 min; jog 5 min; walk 4 min; jog 5 min	Walk slowly 3 min; stretch 2 min	28 min
Week 6	Stretch and limber up 5 min	Walk 4 min; jog 6 min; walk 4 min; jog 6 min	Walk slowly 3 min; stretch 2 min	30 min
Week 7	Stretch and limber up 5 min	Walk 4 min; jog 7 min; walk 4 min; jog 7 min	Walk slowly 3 min; stretch 2 min	32 min
Week 8	Stretch and limber up 5 min	Walk 4 min; jog 8 min; walk 4 min; jog 8 min	Walk slowly 3 min; stretch 2 min	34 min
Week 9	Stretch and limber up 5 min	Walk 4 min; jog 9 min; walk 4 min; jog 9 min	Walk slowly 3 min; stretch 2 min	36 min
Week 10	Stretch and limber up 5 min	Walk 4 min; jog 13 min	Walk slowly 3 min; stretch 2 min	27 min
Week 11	Stretch and limber up 5 min	Walk 4 min; jog 15 min	Walk slowly 3 min; stretch 2 min	29 min
Week 12	Stretch and limber up 5 min	Walk 4 min; jog 17 min	Walk slowly 3 min; stretch 2 min	31 min
Week 13	Stretch and limber up 5 min	Walk 4 min; jog slowly 2 min; jog 17 min	Walk slowly 3 min; stretch 2 min	33 min

Table C-2
A SAMPLE JOGGING PROGRAM⁶—Continued

	WARM-UP	TARGET RATE (EXERCISING)	COOL-DOWN	TOTAL TIME
Week 14	Stretch and limber up 5 min	Walk 4 min; jog slowly 2 min; jog 17 min	Walk slowly 3 min; stretch 2 min	33 min
Week 15	Stretch and limber up 5 min	Jog slowly 3 min; jog 17 min	Walk slowly 3 min; stretch 2 min	30 min

Notes:

⁶ Reprinted from *Exercise and Your Heart*, National Heart, Lung and Blood Institute, Baltimore, MD, 1981.

c. Check your heart rate periodically to see if you are exercising within your target heart rate. As you become fit, try exercising within the upper range of your target heart rate. Remember your goal is to obtain the benefits you are seeking and to enjoy the activity.

C-2. A SAMPLE FAMILY AEROBICS PROGRAM

a. There are many ways for you and your family to begin an aerobic exercise program. The following aerobic plan is an easy way for most of you to get regular exercise as a family or as individuals. It does not require special equipment or facilities other than good, comfortable jogging shoes. If jogging does not meet your needs or desires, try a walking program or look for other exercise programs in pamphlets and books on aerobic exercise. Section II of appendix O is a good place to find more information.

b. The times and distances in table C-3 are designed to place you and your family on a safe and sane program for aerobic fitness. As with any set of guidelines, you may make adjustments to fit your needs. These adjustments should not be drastic. Injury prevention is the key. Remember 25–30 minutes of aerobic exercise every other day will give you maximum benefit.

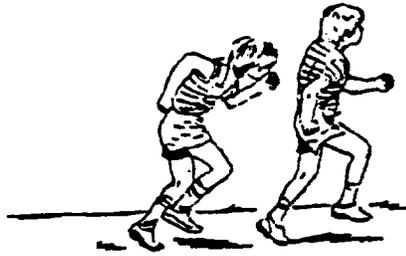


Figure C-2. Samples Of Family Aerobics Program

**Table C-3
FEMALES/MALES TIME AND DISTANCE CHART**

	AGE	DISTANCE	(SNAIL) VERY POOR	(TURTLE) POOR	(GROUNDHOG) FAIR	(RABBIT) GOOD	(GREYHOUND) EXCELLENT	(CHEETAH) SUPERIOR
FEMALES	6-7	1/4 mile	3 min 8 sec	2 min 38 sec	2 min 38 sec	2 min 22 sec	2 min 7 sec	1 min 52 sec
	8-9	1/2 mile	6 min 3 sec	5 min 35 sec	5 min 8 sec	4 min 40 sec	4 min 13 sec	3 min 45 sec
	10-11	3/4 mile	9 min 35 sec	8 min 42 sec	7 min 50 sec	6 min 58 sec	6 min 6 sec	5 min 13 sec
	12-13	1 mile	12 min 6 sec	11 min 11 sec	10 min 16 sec	9 min 20 sec	8 min 25 sec	7 min 30 sec
	14-16	2 miles	26 min	23 min 45 sec	20 min 45 sec	19 min 15 sec	16 min 15 sec	14 min sec
	17-20	2 miles	25 min	22 min	19 min 30 sec	18 min 30 sec	15 min 30 sec	13 min
	21-29	2 miles	24 min	21 min 25 sec	18 min 20 sec	17 min 40 sec	14 min 35 sec	12 min
	30-39	2 miles	27 min	24 min 25 sec	21 min 25 sec	20 min 35 sec	17 min 35 sec	15 min
	40-49	2 miles	28 min	25 min 45 sec	22 min 40 sec	21 min 20 sec	18 min 15 sec	16 min
	50-59	2 miles	30 min	27 min 30 sec	25 min	24 min	21 min 30 sec	18 min
MALES	6-7	1/4 mile	2 min 59 sec	2 min 44 sec	2 min 29 sec	2 min 13 sec	1 min 58 sec	1 min 43 sec
	8-9	1/2 mile	5 min 39 sec	5 min 11 sec	4 min 44 sec	4 min 16 sec	3 min 49 sec	3 min 21 sec
	10-11	3/4 mile	8 min 47 sec	7 min 54 sec	7 min 2 sec	6 min 10 sec	5 min 18 sec	4 min 25 sec
	12-13	1 mile	10 min 33 sec	9 min 35 sec	8 min 43 sec	7 min 47 sec	6 min 55 sec	5 min 57 sec
	14-16	2 miles	23 min	20 min 30 sec	17 min 50 sec	16 min 10 sec	13 min 30 sec	11 min
	17-20	2 miles	22 min 30 sec	20 min 5 sec	17 min 5 sec	15 min 55 sec	12 min 55 sec	10 min 30 sec
	21-29	2 miles	22 min	19 min 20 sec	16 min 35 sec	15 min 25 sec	12 min 40 sec	10 min
	30-39	2 miles	24 min	21 min 30 sec	18 min 55 sec	17 min 5 sec	14 min 30 sec	12 min
	40-49	2 miles	25 min sec	22 min 45 sec	20 min 30 sec	17 min 30 sec	15 min 15 sec	13 min
	50-59	2 miles	27 min	25 min	22 min 15 sec	19 min 45 sec	17 min	15 min

sec = seconds

c. Check your heart rate periodically to see if you are exercising within your target heart rate. As you become fitter, try exercising within the upper range of your target heart rate. Remember, your goal is to obtain the benefits you and your family are seeking and to enjoy the activity.

Appendix D THE SEVEN DIETARY GOALS

D-1. THE SEVEN DIETARY GOALS.

These seven goals have been established by a national nutrition council as the things a person should strive for.

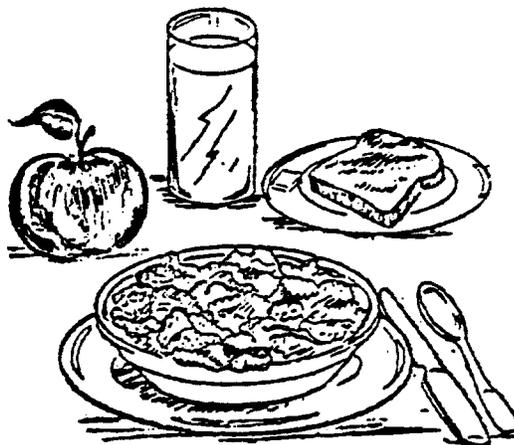


Figure D-1. A Balanced Diet

- a. Eat a variety of foods.* Start the day with a good breakfast. Select foods each day from the major food groups.
- b. Maintain your ideal body weight.* Don't skip breakfast or lunch and avoid overeating at dinner. Avoid keeping high-calorie, low-nutrient snacks around the house. Limit the size of your food portions. Prepare only the amount of food needed for each meal.
- c. Avoid foods with too much fat, saturated fat, and cholesterol.* Refer to appendix F. High-fat diets are linked to increased blood cholesterol and contribute significantly to overweight; both of these are important factors in the development of heart disease.
- d. Eat foods with adequate starch and fiber.* Increasing your intake of starchy foods can also mean more fiber. Foods high in fiber act as nature's laxative, reduce the risk of constipation, and improve regularity. Buy whole grain breads rather than white flour breads. Choose whole grain or bran breakfast cereals.

Eat at least two servings of raw or lightly steamed vegetables per day.
 Eat whole fruits more often than you drink fruit juice.
 Eat at least two servings of fruit a day.
 Eat potatoes and apples with their skins.

e. Avoid too much sugar. Sweets and sugar are high in calories; they provide little food value and can contribute to making you fat. The major hazard is tooth decay.

A 12-ounce can of soda = 10 teaspoons of sugar. An 8-ounce carton of low-fat, fruit-flavored yogurt = 8 teaspoons of sugar.

f. Avoid too much sodium. Too much sodium is hazardous for persons who have a risk of high blood pressure. The major source of sodium is salt. Most people consume several times the amount actually needed. Even during exercise on a hot day, most people do not require additional salt intake. Many foods that do not taste salty, such as meat, milk, and some vegetables, contain natural sodium. When consumed in normal amounts, these foods can meet almost everyone's needs. Here are some suggestions on seasonings that enhance the flavor of your dishes:

MEATS: Bay leaf, basil, chili powder, bell pepper, thyme, oregano, pepper, mushrooms, onion, lemon juice, garlic powder.

POULTRY: Bay-leaf, thyme, paprika, onion powder, garlic powder, fresh onion, curry powder, sage, ginger, lemon juice, fresh mushrooms.

FISH: Lemon juice, bay leaf, dry mustard, mushrooms, paprika, ginger, tomato, fennel, sesame seed, fresh parsley, allspice, dill seed or weed.

POTATOES: Unsalted butter, fresh onion, chives, pepper, paprika, parsley, curry, dill seed or weed.

VEGETABLES: Vinegar, dry mustard, slivered unsalted nuts, ill seed, fresh green pepper, fresh onion, fresh tomato.

EGGS: Curry, dry-mustard, fresh onion, green pepper, mushrooms, dry chives.

D-2. If you drink alcohol, do so in moderation.

This means only one or two drinks daily. Alcohol is high in calories and low in food value. See table D-1. Avoid alcohol if you are pregnant.

**Table D-1
ALCOHOL AND CALORIES**

ALCOHOLIC BEVERAGE	CALORIES	FOOD VALUE EQUIVALENT IN JELLY BEANS
Beer (12 oz)	150	23
Beer "low calorie" (12 oz)	96	15
Daiquiri, 1 cocktail glass	122	18
Highball (8 oz)	166	25
Martini (3 oz)	237	36
Burgundy wine (4 oz)	180	27
Rose wine (4 oz)	144	15
Sauterne wine (4 oz)	96	22

oz = ounces

Appendix E SO YOU HAVE OBESITY—EXTRA POUNDS HARM MORE THAN JUST YOUR APPEARANCE

E-1. BABY FAT

Too much baby fat is not healthy. Childhood is a critical period, for it is during this period that people develop the number of fat cells that stay with them all their lives.



Figure E-1. Obesity

E-2. BLOOD PRESSURE

An obese person runs a greater risk of developing high blood pressure (hypertension) than a person who is not obese.

E-3. ADIPOSE TISSUE

Adipose tissue is composed of fat cells that are located throughout the body. These cells become larger and larger as a person consumes extra calories. The reverse is true as one loses weight. A person can't get rid of fat cells but can reduce in size with good weight reduction.

E-4. ATHEROSCLEROSIS

Commonly called hardening of the arteries, atherosclerosis is caused by a buildup of fatty substances in the arterial walls. Being obese almost guarantees that this fatty buildup will occur more rapidly than it does in people who are not obese.

E-5. DIABETES

Approximately 80 percent of adults who become diabetics are overweight. Overweight people are more likely to contract diabetes than those who are not overweight.

**Appendix F
SAMPLE OF A LOW-CALORIE MENU**

The following table shows a sample of a low-calorie menu.

- Food Group 1** Milk and Dairy Products
- Food Group 2** Meat
- Food Group 3** Dark Green or Deep Yellow Vegetables
- Food Group 4** Citrus Fruits or Substitutes
- Food Group 5** Other Fruits and Vegetables
- Food Group 6** Bread and Cereal
- Food Group 7** Vegetable Oils and Fats



1,200 Calories		1,500 Calories	
Group 1	2 servings	3	servings
2	2 servings (4 oz total)	2	servings (6 oz)
3	1/2 cup	1	cup
4	1 serving	2	servings
5	2 servings	3	servings
6	4 servings	4	servings
7	4 teaspoons	6	teaspoons

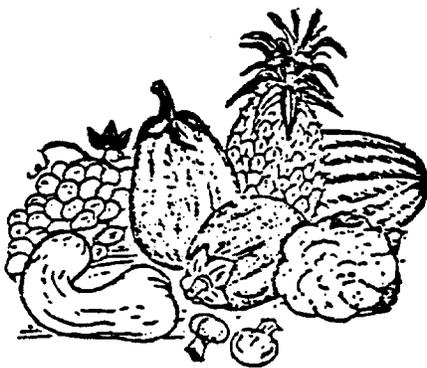
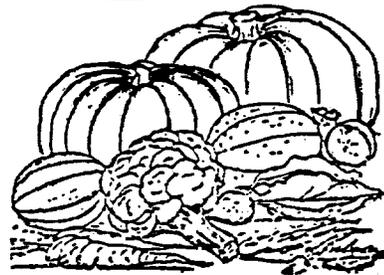


Figure F-1. A Low-Calorie Menu includes Healthy Foods

**Table F-1
SAMPLE OF A LOW-CALORIE MENU**

1,200 CALORIES		1,500 CALORIES
	BREAKFAST	
Orange Juice (4oz) 1 egg scrambled 1 slice whole wheat toast 1 tsb margarine for toast 1 tsb margarine to scramble egg Skim milk (8 oz) tsp = teaspoon(s)		1 small orange 1 slice toast 2 tbsp. peanut (meat exchange and 2 serving fat) Skim milk (8 oz)
	LUNCH	
1/4 cup tuna 1 tbsp mayonnaise for tuna salad. 2 slices whole wheat bread Unlimited raw vegetables Diet soda		Beef patty (2oz) 1 hamburger roll Tossed mixed vegetable salad 1/4 cup low-calorie Italian dressing Plain iced tea
	AFTERNOON SNACK	
1 small apple		Plain iced tea or diet soda
	SUPPER	
1 chicken thigh (2 oz) 1/2 cup cooked broccoli Skim milk (8 oz)		1 chicken thigh (2 oz) 1/2 cup mashed potatoes 1/2 cup cooked broccoli 1/2 cup sliced, drained peaches Skim milk (8 oz)
	EVENING SNACK	
Non-caloric soft drink		Raw vegetable sticks

Appendix G GUIDE TO FAT IN COMMON FOODS

The following table shows the percentage of fat in common foods.

**Table G-1
GUIDE TO FAT IN COMMON FOODS**

	LOW IN FAT (Less than 15% of calories come from fat)	MEDIUM IN FAT (15%-30% of calories come from fat)	HIGH IN FAT (30%- 50% of calories come from fat)	VERY HIGH IN FAT (Over 50% of calories come from fat)
Vegetables and Fruits	Fruits Plain vegetables (no ad- ded salt or fat) Pure juices Pickles Sauerkraut		French fries Hash browns	Avocados Coconut Olives
Prepared, canned, or frozen vegetables may contain salt or fat.				
Breads and Cereals	Grains and flour Barely Rice Bulgur Rye Corn Wheat Most breads *Most breakfast cereals Corn tortillas Grits Matzoh Noodles and pasta Popcorn (air popped) Rye wafers	Corn bread Flour tortillas Oatmeal Soft rolls and buns Plain crackers	Biscuits and muffins Granola cereals Popcorn(popped in oil) Taco shells Snack crackers	Snack chips
Most prepared products contain some added sodium from salt, baking powder, and baking soda. salted crackers and chips are especially high in sodium.				
Dairy Products	Nonfat (skim) milk Nonfat dry milk Dry-curd cottage cheese *Sherbet	Buttermilk Plain low-fat yogurt *Ice milk Low-fat cottage cheese	Low-fat milk (2%) Whole milk •Creamed cottage cheese	Butter Cream and sour cream Half and Half *Ice cream Nondairy creamer Nondairy whipped topping Most cheeses: Brie Mozzarella Cheddar Neufchatel Cream cheese Ricotta Swiss Gruyere Monterey Jack • American • Parmesan • Blue • Romano •Feta •Processed cheese prod- ucts
Protein-Rich Foods	Beans and nuts Dried beans and peas Chestnuts Water chestnuts		Soybeans	Tofu Nuts and seeds Peanuts and peanut butter
•Packaged nuts and seeds may contain added salt.				

Table G-1
GUIDE TO FAT IN COMMON FOODS—Continued

	LOW IN FAT (Less than 15% of calories come from fat)	MEDIUM IN FAT (15%-30% of calories come from fat)	HIGH IN FAT (30%- 50% of calories come from fat)	VERY HIGH IN FAT (Over 50% of calories come from fat)
Protein-Rich Foods —Continued	Seafood Cod Abalone Flounder Crayfish Haddock Octopus Halibut Scallops Perch @Shrimp Sea bass Squid Sole Turtle Tuna in water	Bass Clams Catfish crab Smelt Lobster Sturgeon @Mussels Fresh tuna Oysters	Albacore Carp Salmon Tuna, drained of oil	Anchovies Herring Mackerel Sardines Shad Trout Tuna in oil Eel
•Canned, dried, or pickled fish often contains large amounts of added salt.				
Protein-Rich Foods —Continued	Poultry Egg whites Meats	Light meat of chicken and turkey (without skin) Completely trimmed: Beef round Veal (loin, round, or shoulder) Dried chipped beef @Liver Tripe	Light meat of chicken and turkey (with skin) Dark meat of chicken and turkey (with skin) Duck and goose (without skin) Completely trimmed meats: Beef or Veal Lamb Fresh ham or picnic Cured ham or picnic @Kidneys @Heart	Dark meat of chicken and turkey Duck and goose(with skin) @Egg yolks @whole eggs Partially trimmed meats: Beef or Veal Cured pork Lamb Completely trimmed meats: Fresh pork loin Boston butt Ground beef Spareribs Veal cutlet Bacon Canadian Bacon Cold cuts Corned beef Hot dogs Sausage Salt pork @Brains @Tongue
Beverages	Water, juices Coffee(black) Nonfat (skim) milk *Soft drinks Beer, liquor, wine(moder- ation advised)	Buttermilk	Low-fat(2%) milk Whole milk	
Prepared Foods	•Spaghetti with tomato sauce	*Milk shakes	•Beans and franks •Beef stew •Burrito •Cheeseburger •Egg rolls •Fried pork rinds •Fish sticks •Fish sandwich •French fries •Frozen dinners •Hamburger •Lasagna •Macaroni and cheese •Pizza •Pot pies •Spaghetti with meat •Tacos •Tamales •Tostadas	•Chili con carne Fried chicken •Hot dogs •Onion rings •Potato chips •Snack chips

**Table G-1
GUIDE TO FAT IN COMMON FOODS—Continued**

	LOW IN FAT (Less than 15% of calories come from fat)	MEDIUM IN FAT (15%-30% of calories come from fat)	HIGH IN FAT (30%- 50% of calories come from fat)	VERY HIGH IN FAT (Over 50% of calories come from fat)
Many prepared foods contain large amounts of added salt.				
Condiments	Spices Horseradish Hot sauce Vinegar •Salt •Seasoned salt •Salted spices •Monosodium glutamate •Catsup •Chili sauce •Soy sauce •Pickles and relish			Mayonaise Salad dressings
•Many prepared seasonings and sauces contain large amounts of added salt.				
Soups	•Bouillon •Broth •Consomme	•Most soups	•Cream soups •Bean soups	•Cheddar cheese soup •New England clam chowder
•Most prepared soups contain large amounts of added salt.				
Sweets	*Sugar *Syrup *Honey *Jam *Jelly *Molasses *Angel food cake *Fig burs *Raisin bisquit cookies *Most hard candy *Mints *Marshnellows *Gelatin desserts	*Caramel *Fudge *Ice milk *Pudding	*Most— *Cakes *Cookies *Doughnuts *Pastries *Pies *Candy bars *Custars	*Chocolate(all types) *Ice cream
Fats and Oils				100% of calories come from fat.
		Choose More Often: Polyunsaturated fats Liquid oils: Corn Safflower Soybean Sunflower Soft margarine	Liquid oils: Olive Peanut Stick margarine Shortening fat in chicken, fish, most nuts.	Choose less Often: Saturated fats Butter Lard Coconut oil Palm oil Fat in beef, lamb, potrk Fat in dairy products
Notes: * high sodium content * high sugar content @ high cholesterol content				

Appendix H

FAT CONTENT IN FOODS

The following table indicates grams of fat in common foods.

Table H-1	
FAT CONTENT IN FOODS	
FOOD ITEM	SATURATED FAT CONTENT
Butter (1 pat)	5 gm
Low-fat milk (2%), 8 oz	5 gm
Whole milk (3.2-3.5%), 8 oz	10 gm
Bologna (1 slice = 1 oz)	5 gm
Hot dog (1)	10 gm
Polish sausage (3 oz)	21 gm
Salami (3 oz)	33 gm
Canned laucheon meat (3 oz)	17 gm
Vienna sausage (3 oz)	18 gm
Spareribs (3 medium ribs)	19 gm
Pork sausage, cooked (2 links)	17 gm
Country ham, cured butt, cooked (3 1/2 oz)	28 gm
Bacon, broiled, crisp (3 slices)	13 gm
Hamburger, medium fat, cooked (1/4 pound raw)	15 gm
Rib steak, cooked (3 oz)	16 gm
Deviled meat, canned (3 oz)	12 gm
T-bone steak, broiled (3 oz)	15 gm

gm = grams

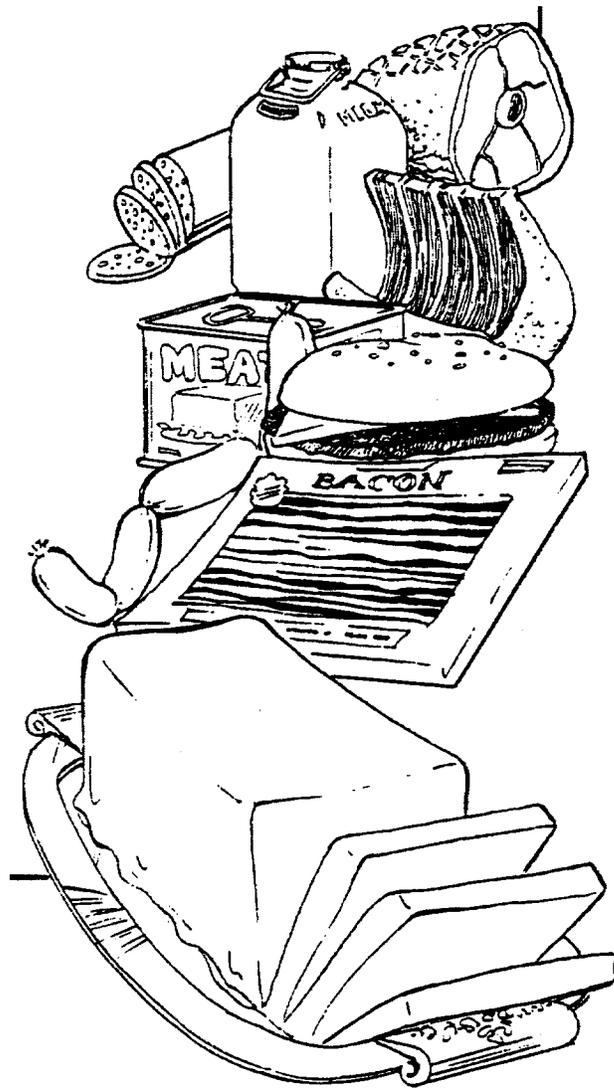


Figure H-1. Fat-Containing Foods

Appendix I CALORIE COUNT

The following table shows the calorie count in common foods.

**Table I-1
CALORIE COUNT**

ITEM	SERVING SIZE	CALORIES
DAIRY PRODUCTS		
Milk: Whole	8 oz	160
Low fat, 2%	8 oz	125
Skim	8 oz	90
Low-fat chocolate, 2%	8 oz	160
Yogurt: Fruit flavor	8 oz	260
Plain, 2%	8 oz	125
Ice cream, 10% fat	8 oz	255
Ice milk	8 oz	200
Cheese, processed or aged	1 oz	110
MEAT GROUP		
Beef: pot roast	3 oz	245
steak	3 oz	330
Hamburger: 85% lean	3 oz	185
75% lean	3 oz	245
Veal roast	3 oz	230
Lamb roast	3 oz	304
Pork: roast	3 oz	310
chop	3 oz	343
bacon, cooked	3 oz	540
bologna	3 oz	255
Chicken: broiled (no skin)	3 oz	115
fried	3 oz	171
Turkey: light(no skin)	3 oz	150
dark(no skin)	3 oz	175
Fish: baked	3 oz	130
fried	3 oz	190
Eggs: hard boiled	1 large	80
fried	1 large	100
Peanuts, roasted	3 oz	524
FRUITS		
Apples, raw	medium	70
Apple juice	8 oz	120
Applesauce	8 oz	230
Bananas, raw	medium	85
Fruit cocktail, heavy syrup	1/2 cup	95
Fruit cocktail, syrup removed	1/2 cup	40
Orange, raw	medium	65
Orange juice, unsweetened	1/2 cup	45
Peaches, raw	medium	40
Peaches, heavy syrup	1/2 cup	100
Pineapple, tidbits	1/2 cup	95
Pineapple juice	1/2 cup	70
Prune juice	1/2 cup	100
Raisins	1/2 cup	240
Watermelon (4" x 8")	1 wedge	115
VEGETABLES		
Cooked vegetables without seasoning	1/2 cup	20-30
Starchy vegetables		
Corn, whole kernel	1/2 cup	70
cream style	1/2 cup	105
Peas, green	1/2 cup	65
Potatoes, baked or boiled	1/2 cup	70
hash browns	1/2 cup	175
mashed	1/2 cup	100
sweet potatoes, canned	1/2 cup	140
BREAD AND CEREAL PRODUCTS		
Bread, all varieties	1 slice	80
Crackers, saltine	6	65
Doughnuts, cake style	1	165

**Table I-1
CALORIE COUNT—Continued**

ITEM	SERVING SIZE	CALORIES
Pancakes, 4" diameter	1	60
Hamburger or frankfurter roll	1	120
Cereals: nonsugar coated, ready to eat	1 oz	80
Pasta, noodle, macaroni, and spaghetti	1/2 cup	70
FATS AND OILS		
Butter	1 tsp	45
Margarine	1 tsp	45
Cooking oil	1 tsp	45
Salad dressings:		
Blue cheese	1 tbsp	75
Italian	1 tbsp	65
French	1 tbsp	65
Thousand island	1 tbsp	80
MISCELLANEOUS ITEMS		
Cookie, chocolate chip sandwich	1	50
Gelatin	1	50
Pie, apple (9")	1/2 cup	70
Soft drink, cola	3 1/2" section	300
	12 oz	160

Appendix J
24-HOUR NUTRITION PROFILE

Identify the nutrition principles that best reflect your dietary intake over the past 24 hours. Add up the point values and check our points against the nutrition profile in table J-1.

- 2 points** Met the serving recommendations for each of the seven food groups.
- 2 points** Used whole grain breads and/or cereals.
- 2 points** Used only low-fat or nonfat dairy products.
- 2 points** Did not eat fried foods.
- 2 points** Did not eat processed, cured, or canned foods.
- 2 points** Ate breakfast.
- 2 points** Ate meals at regular intervals (three per day).
- 1-3 points** Omitted red meat (beef, pork, veal, lamb). (Add a point for each meal without red meat.)
- 2 points** Had fewer than two alcoholic drinks.
- 2 points** Had fewer than two caffeinated drinks.
- 2 points** Did not add salt at the table.
- 2 points** Did not add sugar to food.

Table J-1
NUTRITION PROFILE

POINTS	PROFILE
22-25 points	FIT TO WIN
18-21 points	FIT TO FIGHT
14-17 points	FIGHTING A LOSING BATTLE
10-13 points	STRUGGLING TO SURVIVE
0-10 points	REST IN PEACE

Appendix K STRETCHING THE FOOD DOLLAR WITH SHOPPING STRATEGIES

If you're trying to buy food that is good for the family and trying to stay within a budget, you must plan ahead. Go prepared with a shopping list, coupons, and a pocket calculator. Try to use some of these shopping strategies.

- Check newspaper ads for foods on sale.
- Eat before shopping.
- Avoid placing high-calorie foods that are low in nutrition on your shopping list.
- Use discount coupons only if they are for things you need.
- When your children go shopping with you, make the trip a learning experience for them.
- Use unit pricing to choose from various brands and sizes.
- Buy in quantity only if you serve the food often and can store it properly; otherwise, you don't save money.
- Remember that the brand that costs least is often just as good as the most expensive one for everyday use.
- Stick to your shopping list. Impulse buying does not balance your budget.
- Pass up displays at checkout stations. These items are often purchased on impulse rather than from necessity.
- Read ingredient labels for content (for example, salt, sugar).

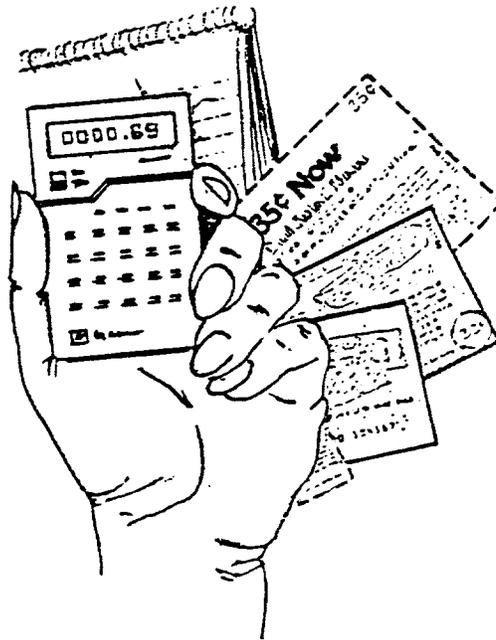


Figure K-1. Shopping Strategies

Appendix L READING FOOD LABELS

L-1. LABEL READING INDICATES NUTRIENT VALUES

a. Some people look at the back of a product and feel that it takes a “doctor of labelology” to interpret all of the manufacturer’s information. Actually, the label serves as the window of the package. It gives a written description, which provides valuable information if understood. Label reading should be practiced by everyone who buys groceries. By comparing the nutritive values of various brands of foods, you can get more nutrition for your food dollar. In addition, nutrition labeling enables you to select food for special diets, such as low salt or low fat, and allows you to count calories effectively.



Figure L-1. Reading Food Labels

b. Nutrition labeling acknowledges the shopper’s right to know about the nutritional quality of foods.

L-2. READING INGREDIENTS ON LABELS

The ingredients listed on a label are your best clues to food quality. They are listed by weight with the one present in the largest quantity mentioned first. The following example compares the quality of bread with regard to fiber.

WHEAT BREAD

Bleached enriched flour, barley malt, water, vegetable/animal shortening, salt, wheat gluten, soy flour.

WHOLE WHEAT BREAD

Whole wheat flour, water, corn syrup, wheat gluten, yeast, molasses, partially hydrogenated soybean oil, honey, wheat bran, salt, raisin juice.

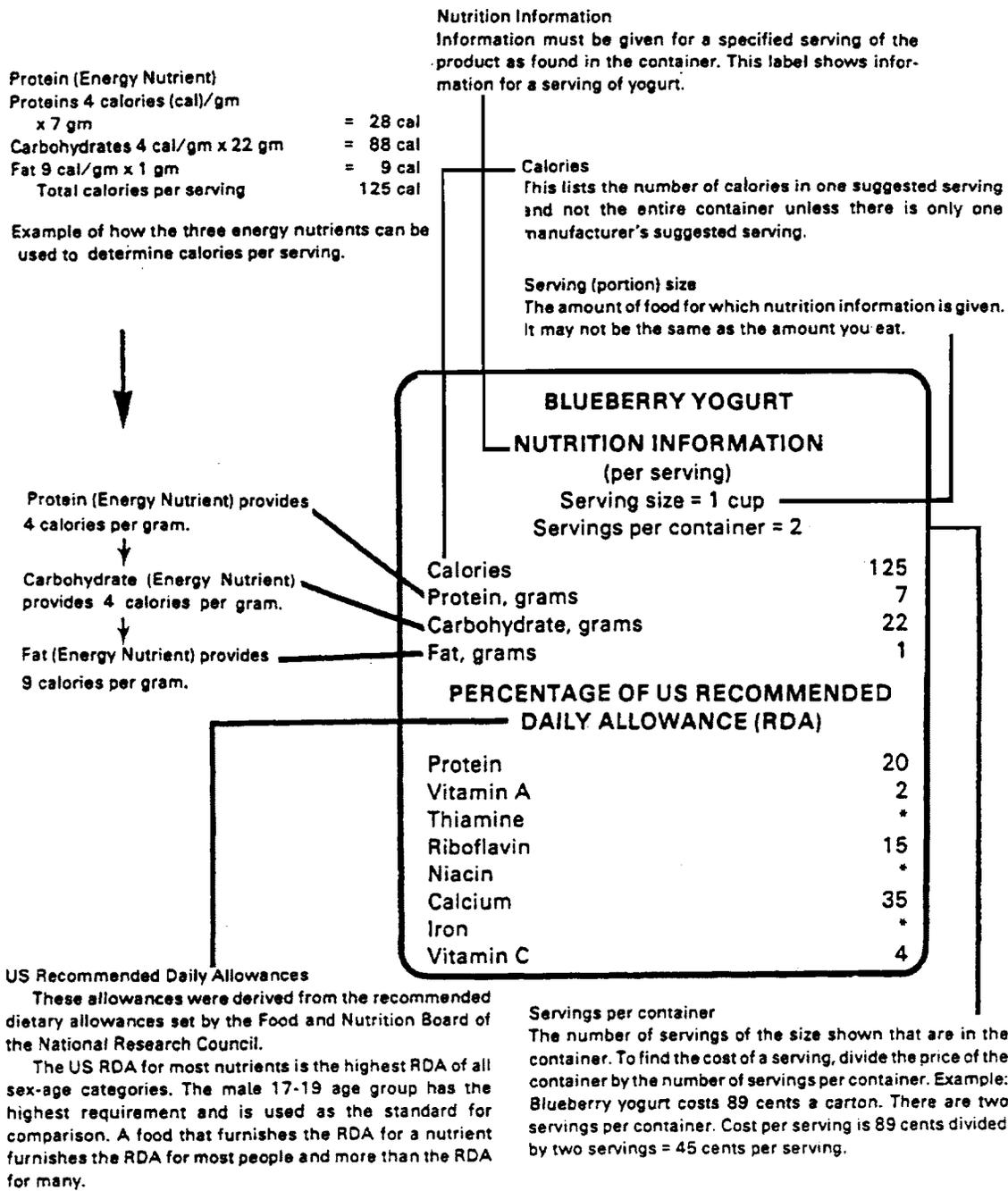


Figure L-2. Label Chart

c. For more fiber buy breads, cereals, and crackers that list whole wheat or other whole grain flour as the first ingredient.

d. Avoid foods that list fat as a major ingredient or note that it provides the largest proportion of calories in the nutritional information per serving section.

e. Below is an example of how the three energy nutrients can be used to determine calories per serving.

(1) *ENERGY UNIT FORMULAS*

Proteins 4 calories (cal)/gram × 7 grams = 28 Cal
 Carbohydrates 4 cal/gram × 22 grams = 88 Cal

Fat 9 cal/gram \times 1 gram = 9 Cal
Total calories per serving = 125 Cal

- (2) *PROTEIN*. Protein is an energy nutrient that provides 4 calories per gram.
- (3) *CARBOHYDRATE*. Carbohydrate is an energy nutrient that provides 4 calories per gram.
- (4) *FAT*. Fat is an energy nutrient that provides 9 calories per gram.
- (5) *CALORIES*. This lists the number of calories in one suggested serving, not in the entire container, unless there is only one manufacturer's suggested serving.
- (6) *NUTRITION INFORMATION*. Information must be given for a specified serving of the product as found in the container. This label shows the nutrition information for a serving of yogurt.
- (7) *SERVING (PORTION) SIZE*. This is the amount of food for which nutrition information is given. It may not be the same as the amount you eat.
- (8) *US RECOMMENDED DAILY ALLOWANCE (RDA)*.
 - (1) The RDAs were derived from the recommended dietary allowances set by the Food and Nutrition Board of the National Research Council.
 - (2) The US RDA for most nutrients is the highest RDA of all sex-age categories. The male 17–19 age group has the highest requirement and is used as the standard for comparison. A food that furnishes the RDA for a nutrient meets the RDA for the majority of the population.
- (9) *SERVINGS PER CONTAINER*. This tells the number of servings of the size shown that are in the container. To find the cost of a serving, divide the price for the container by the number of servings per container. Example: Blueberry yogurt is 89 cents a carton. There are two servings per container. Cost per serving is 89 cents divided by two servings: 45 cents per serving.

Appendix M EXERCISES DURING PREGNANCY

M-1. CONSULT A DOCTOR FIRST

The exercises described in this appendix should be used during pregnancy only after a doctor has been consulted.

M-2. SPECIFIC EXERCISES FOR PREGNANCY

a. Pelvic Tilt. Tighten your abdominal and buttocks muscles and flatten your back against the floor. You should feel your pelvis roll upward. Avoid PUSHING with your feet. DO NOT draw your shoulders forward. Breathe normally with chest muscles as you perform the exercise. You may also do this exercise by standing and trying to flatten your back against the wall. Practice this position while standing, sitting, and working.

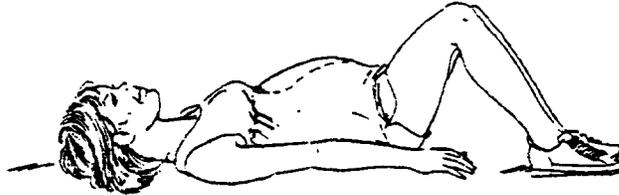


Figure M-1. Pelvic Tilt

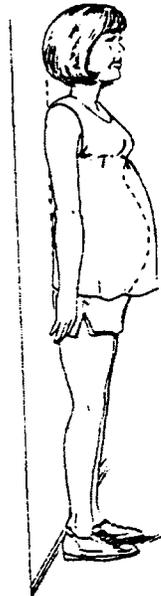


Figure M-2. Pelvic Tilt While Standing

b. Partial Sit-Up. Repeat pelvic tilt and hold. Bring your chin to your chest and curl forward until your shoulder blades clear the floor. Reach toward your knees with both hands. Hold this position 5 seconds, and then uncurl slowly. Attempt to keep your back curled and your feet flat on the floor. (It is not necessary to come to a full sitting position as shown. Come up as far as is comfortable. Do NOT pull yourself up with your hands. Do NOT jerk up. Do NOT keep your back straight; do a roll instead.)

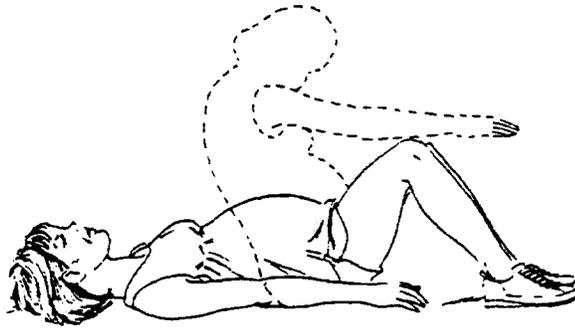


Figure M-3. Partial Sit-Up

c. *Modified Partial Sit-Up*. TEST: Lying on the floor in the position described above, curl up and feel the distance between your abdominal muscles at your navel. If there is a large lump or distance greater than one, finger width, modify the exercise as shown. Overlap your hands on your stomach, curling your fingertips into the stomach muscles. Pull your hands together, pulling the muscles toward the center of your body. Repeat pelvic tilt exercise and hold. Curl head forward (holding onto abdominal muscles) just enough to clear shoulder blades. DO NOT RELEASE; hold onto abdominal muscles. Hold position for 5 seconds and then uncurl.

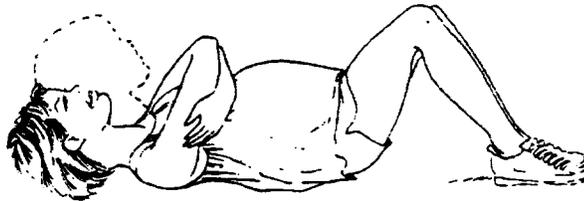


Figure M-4. Modified Partial Sit-Up

d. *Hamstring Stretch*. Lie on your back on a firm surface. Bend one knee toward your chest. Grasp the back of that thigh with both hands just below the knee. Without lowering your thigh, straighten your knee as far as you can. When you cannot straighten it any more, slowly begin to lower your thigh as you continue to straighten your knee. You will feel a stretch behind your knee which, will increase if you pull your toes toward your shin. Your goal is to straighten your knee completely while your leg is straight up in the air. Repeat this exercise slowly for several minutes; then alternate legs.

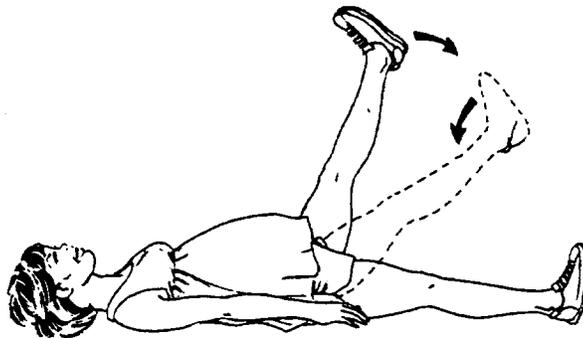


Figure M-5. Hamstring Stretch-1

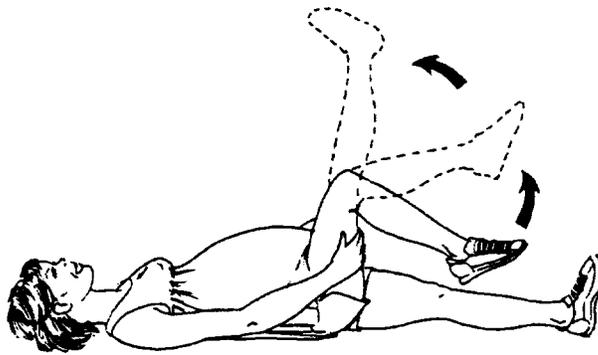


Figure M-6. Hamstring Stretch-2

e. Angry Cat. Knee on hands and knees. Do NOT allow your back to “sag.” Drop your head while gently arching your back as pictured. Return to starting position SLOWLY.

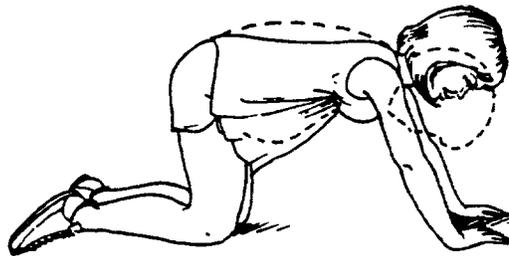


Figure M-7. Angry Cat

f. Adductor Stretch. Sit on the floor with the soles of your feet together and your hands on your knees. Take a deep breath; as you exhale, slowly push your knees down toward the floor. As the exercise becomes easier, bring your heels closer to you.



Figure M-8. Adductor Stretch

g. Breathing Exercises.

(1) *Abdominal.* Place your hands on your abdomen just below your ribs. Breathe slowly and deeply, relaxing your chest and allowing your abdomen to rise into your hands. Blow the air out slowly through your lips as though you were blowing out a candle.

(2) *Panting.* Open your mouth and breathe with short, quick breaths with your upper chest, just like a puppy that is panting. Placing your tongue on the roof of your mouth keeps your mouth from drying out.

(3) *Pushing.* THIS IS NOT AS EASY AS IT SEEMS. The labor and delivery staff will tell you when to start pushing. Wait for a contraction of your uterus to start; then take a deep breath, draw both knees to your armpits with your hands and raise your head. Push as though you were having a bowel movement, pulling on your knees. (Do not waste energy blowing out air or making noise.) HOLD! Do keep your eyes open and relax your face; energy needed elsewhere is wasted in grimacing.

g. Posture.

1. Standing.

- Gently tuck chin into neck.
- Push shoulders back comfortably.
- Tuck your seat under you with your tummy pulled in (for example, pelvic tilt).
- Bend knees slightly.
- Shift weight slightly toward balls of feet.
- Try to find something to place one foot on (for example, footstool, several books, a low drawer pulled out, opened cupboards). This will relieve pressure on the lower back.

2. Sitting.

- Do not cross your legs; this is hard on circulation.
- Place feet flat on floor or on a stool with a slight bend in your knees.
- Place a pillow at your lower back for support.

3. Sleeping.

- Sleep on your side with as many pillows as needed for comfort.
- Place pillows between top and bottom legs, under your tummy, even under your breasts.
- Sleep on your back only with a pillow under your knees.

4. Driving.

- Pull the seat comfortably forward to help bend the knees.
- Use your seat belt; place the belt under your tummy.
- Do not plan long drives without frequent rest stops.

5. Picking Up Objects.

- Always perform solid pelvic tilt before trying to lift any object.
- Bend at the knees and use the large thigh muscles to lift.
- Draw the object lifted close to your body as you rise to a standing position.
- When lifting with one hand, try to place the other hand on your knee or on a stable object, such as a chair.



Figure M-9. Lift "Objects" Carefully!

Appendix N

ALCOHOL BEHAVIOR QUIZ

N-1. ALCOHOL BEHAVIOR QUIZ—QUESTIONS

a. The following quiz should be of some help.

(1) The difference between problem drinkers and alcoholics is that—

- a. There's no difference.
- b. All alcoholics are problem drinkers, not vice versa.
- c. All problem drinkers are alcoholics, not vice versa.
- d. Neither group can stop drinking once they start.

(2) A person who is a social drinker may—

- a. Have a cocktail before dinner and a highball before bedtime.
- b. Drink a quart of "booze" a day for 10 years, manage to support a family, and constantly fight with spouse.
- c. Go out every Friday night, get drunk, and look for a fight.
- d. Both a and c.

(3) A problem drinker—

- a. Is often late for work.
- b. Sneaks drinks several times a week.
- c. Frequently gets drunk.
- d. All of the above.
- e. May not show any signs.

(4) People probably become alcoholics because—

- a. They are bored.
- b. They have had an unhappy childhood.
- c. They have emotional problems as adults.
- d. Both b and c.
- e. Both a and c.
- f. None of the above

(5) Which of the following is not true of American drinking practices?

- a. Most Americans drink.
- b. Most adults and teenagers who drink do so in moderation.
- c. Alcohol is used in some religious ceremonies.
- d. Nearly half of all drinkers become alcoholics or problem drinkers.

(6) Which of the following is the greatest single influence on why people drink, abuse alcohol, or abstain from the use of alcohol?

- a. Religious reasons.
- b. Their parents attitude toward alcohol and the use of alcohol.
- c. Their knowledge of the harm alcohol can do.
- d. Their finances.

(7) A problem drinker generally—

- a. Gets careless about personal appearance.
- b. Has financial problems.
- c. Has a lot of self-confidence.
- d. Both a and c.
- e. Both a and b.
- f. Both b and c.

(8) If you decide to drink—

- a. Know your limit.
- b. Eat while you drink.
- c. Sip; don't "guzzle."

- d. Choose quality rather than quantity.
- e. All of the above.
- f. Only a and b.

(9) When dining out—

- a. Have your drinks with dinner, not afterward.
- b. Skip a drink now and then.
- c. Beware of unfamiliar drinks.
- d. All of the above.
- e. None of the above.

b. The answers to the quiz follow the illustration below.



Figure N-1. Alcohol Behavior

N-2. ALCOHOL BEHAVIOR QUIZ—ANSWERS

1-b; 2-a; 3-e; 4-d; 5-d; 6-b; 7-e; 8-e; 9-d

Appendix O

INFORMATIONAL RESOURCES

Section I

Federal Health Information Clearinghouses and Information

O-1. AGING

National Clearinghouse on Aging
330 Independence Avenue, SW
Washington, DC 20201
(202) 245-2158

Provides access to information and referral services that assist the older American in obtaining services.

Information Office
National Institute on Aging
Bldg. 31, Room 5C 35
Bethesda, MD 20205

O-2. ALCOHOL, DRUGS, TOBACCO

Al-Anon
P.O. Box 182
Madison Square Road
New York, New York 10017

Alcoholics Anonymous
Box 459, Grand Central P. O.
New York, New York 10017

Alcoholism and Drug Abuse Information
1330 New Hampshire Avenue, NW
Washington, DC 20006

American Automobile Association
Pennsylvania Avenue and 17th Street, NW
Washington, DC 20006

American Businessmen's Research Foundation

Elmhurst, Illinois 60126

American Cancer Society
521 West 57th Street
New York, New York 10019

American Dental Association
Bureau of Dental Health Education
222 East Superior Street
Chicago, Illinois 60611

American Heart Association
Inquiries Section

44 East 23d Street
New York, New York 10010

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Red Cross
411 East Seventh Street
Bloomington, Indiana 47401

American School Health Association
107 South Dopeyster Street
Kent, Ohio 44240

American Social Health Association
1790 Broadway
New York, Now York 10019

Association of Casualty and Surety Co.
Accident Prevention Department
Publications Division
60 John Street
New York, New York 10038

Bureau of Customs
US Treasury Department
Washington, DC 20220

Bureau of Narcotics and Dangerous Drugs
Department of Justice
Washington, DC 20537

Channing L. Bete Co., Inc.
45 Federal Street
Greenfield, Massachusetts 01301

Heart Information Center
National Heart Institute
US Public Health Service
Bethesda, Maryland 20014

Hoosier Heartland Heart Association
534 1/2 Jackson Street
Columbus, Indiana 47201

Licensed Beverage Industries, Inc.
485 Lexington Avenue
New York, New York 10017

Manufacturers Chemists Association
1825 Connecticut Avenue
Washington, DC 20009

Narcotics Anonymous
Box 2000
Lexington, Kentucky 40501

National Alcoholic Beverage
Control Association, Inc.
5454 Wisconsin Avenue
Washington, DC 20015

National Association for Retail Druggists
1 East Wacker Drive
Chicago, Illinois 60601

National Clearinghouse of
Smoking and Health
4040 North Fairfax Drive
Arlington, Virginia 12203

National Congress of Parents and Teachers
700 North Rush Street
Chicago, Illinois 60611

National Coordinating Council on Drug Abuse
Education and Information
1211 Connecticut Avenue, NW
Washington, DC 20036

National Council on Alcoholism
New York Academy of Medicine
Two East 103d Street
New York, New York 10029

National Education Association
1201 1 6th Street, NW
Washington, DC 20036

National Health Council
1790 Broadway
New York, New York 10019

National Institute of Mental Health
Public Information Branch
5454 Wisconsin Avenue
Chevy Chase, Maryland 20015

National Institutes of Health
Department of HEW
US Public Health Service
Bethesda, Maryland 20014

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

National Interagency Council on Smoking and Health
8600 Wisconsin Avenue
Bethesda, Maryland 20014

Pharmaceutical Manufacturers Association
1155 15th Street, NW
Washington, DC 20005

Public Affairs Pamphlets
381 Park Avenue South
New York, New York 10016

Public Health Service
US Department of HEW
Washington, DC 20025

United States Department of Health,
Education, and Welfare
Washington, DC 20025

United States Government Printing Office
Superintendent of Documents
Washington, DC 20025

United States Office of Education
Department of HEW
Washington, DC 20025

World Health Organization
Office of Public Information
1501 New Hampshire Avenue, NW
Washington, DC 20037

O-3. CONSUMER EDUCATION

Consumer Education Resource Network (CERN)
1555 Wilson Boulevard, Suite 600
Rosslyn, VA 22209
(703) 522-4616; (800) 336-0222

Provides reference and referral service's to consumer educators, serves as a depository of information and materials, and conducts training and technical assistance.

O-4. CONSUMER INFORMATION

Consumer Information Center

Pueblo, CO 81009
(303) 566-1794

Distributes consumer publications on topics such as children, food and nutrition, health, exercise, and weight control. The Consumer Information Catalog is available free from the center and must be used to identify publications being requested.

O-5. FAMILY PLANNING

National Clearinghouse for Family Planning Information

P.O. Box 2225
Rockville, MD 20852
(301) 881-9400

Collects family planning materials, makes referrals to other information centers, and distributes and produces materials. Primary audience is federally funded family planning clinics.

O-6. FOOD AND DRUG

Food and Drug Administration (FDA) Office for Consumer Communications

5600 Fishers Lane, Room 15B-32 (HFE-88)
Rockville., MD 20857
(301) 443-3170

Answers consumer inquiries for the FDA and serves as a clearinghouse for its consumer publications.

O-7. FOOD AND NUTRITION

Food and Nutrition Information Center (FNIC)

National Agricultural Library Building, Room 304
Beltsville, MD 20705
(301) 344-3719

Serves the information needs of persons interested in human nutrition, food service management, and food technology. Acquires and tends books, journal articles, and audiovisual materials dealing with these areas of concern.

O-8. HEALTH INFORMATION

National Health Information

Clearinghouse (NHIC)
P.O.Box1133

Washington, DC 20013-1133
(703) 522-2590 (in VA); (800) 336-4797

Helps the public locate health information through identification of health information resources and an inquiry and referral system. Health questions are referred to appropriate health resources, which, in turn, respond directly to inquiries.

O-9. HEALTH PROMOTION AND EDUCATION

Center for Health Promotion and Education (CHPE)

1300 Clifton Road, Building 14
Atlanta, GA 30333
(404) 329-3235

Provides leadership and program direction for the prevention of disease, disability, premature death, and undesirable and unnecessary health problems through health education. This agency was formerly called the Bureau of Health Education.

O-10. HIGH BLOOD PRESSURE

High Blood Pressure Information Center
120-80 National Institutes of Health
Bethesda, MD 20205
(703) 558-4827

Provides information on the detection, diagnosis, and management of high blood pressure to consumers and health professionals.

O-11. INJURIES

National Injury Information Clearinghouse
5401 Westbard Avenue, Room 525
Washington, DC 20207
(301) 492-6424

Collects and disseminates injury data and information relating to the causes and prevention of death, injury, and illness associated with consumer products. Requests of a general nature are referred to the Consumer Product Safety Commission's Communications Office.

O-12. MENTAL HEALTH

National Clearinghouse for Mental
Health Information
Public Inquiries Section
5600 Fishers Lane, Room 11 A-21
Rockville, MD 20857
(301) 443-4513

Acquires and abstracts the world's mental health literature, answers inquiries from the public, and provides computer searches for the scientific and academic communities.

O-13. PHYSICAL FITNESS

a.

President's Council on Physical Fitness and Sports
and Sports
Washington, DC 20201
(202) 755-7479

Conducts a public service advertising program and cooperates With governmental and private groups to promote the development of physical fitness leadership, facilities, and programs. Produces informational materials on exercise; school physical education programs; sports; and physical fitness for youth, adults, and the elderly.

b.

American Hiking Society
1701 18th Street NW
Washington, DC 20009

Has information on and works mutually with community groups to promote Volksmarches.

c.

American Historical Trails Office
Box 810
Washington, DC 20044

Provides brochures on historical trails and also supplies medals and brochures at a nominal fee.

O-14. SMOKING

Office on Smoking and Health Technical Information Center
5600 Fishers Lane, Room 158
Rockville, MD 20857
(301) 443-1690

Offers bibliographic and reference service to researchers and others and publishes and distributes a number of titles in the field of smoking.

O-15. SUDDEN INFANT DEATH SYNDROME (SIDS)

Sudden Infant Death Syndrome Clearinghouse
1555 Wilson Boulevard, Suits 600
Rosslyn, VA 22209
(703) 522-0870

Provides information on SIDS to health professionals and consumers.

O-16. SURGICAL OPINION

National Second Surgical opinion Program
330 Independence Avenue SW
Washington, DC 20201
(202) 245-1845; (800) 638-6833; (800) 492-6603 (in MD)

Provides information for people who are faced with the possibility of nonemergency surgery. Sponsors a toll-free number to assist the public in locating a surgeon or, other specialist.

This list was prepared by:

National Health Information Clearinghouse (NHIC)
P.O. Box 1133
Washington, DC 20013-1133

A service of:

Office of Health Information, Health Promotion, and Physical Fitness and Sports Medicine

Office of Disease Prevention and Health Promotion

Public Health Service

US Department of Health and Human Services

Section II

Suggested Consumer Health Information Resources

O-17. RESOURCES

Canadian Pediatric Sports Medicine Academy. "Tips for Runners." Toronto, Ontario, Canada,

Center for Science in the Public Interest. "Breakfast Cereals." **Food Scorecard**. Washington, DC, 1980.

National Heart, Lung, and Blood Institute. **Exercise and Your Heart**. Baltimore, MD, 1981.

Bunker, Linda; Johnson, Cardine; and Parker, Jane. **Motivating Kids Through Play** West Point, New York: Leisure Press, 1982.

Darden, Dr. Ellington. **Especially for Women**. West Point, New York: Leisure Press, 1983.

Hirst, Cynthia and Micaelis, Elaine. **Retarded Kids Need To Play**. West Point, New York: Leisure Press, 1983.

Miller, Dr. David. **The Well-Being —Good Health Handbook**. West Point, New York: Leisure Press, 1983.

Parker, Barbara. **Sit Down and Shape Up: An Exercise and Fitness Handbook for Mature Adults**. West Point, New York: Leisure Press, 1983.

Pearl, Bill. **Keys to the Inner Universe—Encyclopedia on Weight Training**. Washington, DC: Library of Congress, 1979.

Riley, Daniel. **Maximum Muscular Fitness: Strength Training Without Equipment**. West Point, New York: Leisure Press, 1982.

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Glossary

Section I Abbreviations

Cal
calorie(s)

CNS
central nervous system

etc
and so forth

F
Fahrenheit

gm
gram

HR (min)
heart rate after resting 1 minute

HRA
heart rate after exercise

LB
pound

Min
minute

MPH
miles per hour

MSG
monosodium glutamate

oz
ounce(s)

PX
post exchange

RDA
recommended daily allowance

RHR
resting heart rate

Tbsp
tablespoon

Tsp
teaspoon

USDA
US Department Of Agriculture

Section II

Terms

This section contains no entries.

Section III

Special Abbreviations and Terms

This section contains no entries.

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