

Fitness!

Karen S. Mazzeo • Lauren M. Mangili



FIFTH EDITION

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Fitness!, Fifth Edition

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Library of Congress Control Number: 2011942959

Student Edition:

ISBN-13: 978-0-8400-4809-7

ISBN-10: 0-8400-4809-2

Wadsworth20 Davis Drive
Belmont, CA 94002-3098
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Dedication

*To the man who is at the very center of my life and is my soulmate—Sir Richard.
Thank you for supporting this writing, my teaching, private consulting with athletes,
and campus ministering to the collegians. Your sacrifices make all that I do possible!*

Love you dearly~ Karen

*Every day is a gift, and every day I give thanks. I am thankful for all the gifts I have been given—a loving, supportive family
and caring friends who help make my dreams possible! Lauren*

Acknowledgments

Special appreciation to the following individuals who have shared their time and superior talents in this endeavor:

Jordan Albertson	Shannon Elderon	Laura Pople
Aileen Berg	Maryam Farooq	Liana Sarkisian
Lisa Bowe	Alexis Fernandez	Kevin Schmidt
Richard Bowers, Ph.D	Jeffrey L. Hall	Jonathan Sigalet
Eric Carver	Katelynne Hall	Mark Shook
Kristina Chiapella	Lara C. Houk	Mary Sisson
Greg Christopher	Colleen Hughbanks	Karyn Smith
Catherine M. Clawson	Ryan A.S. Jones	Shane Sockrider
Yolanda Cossio	Tammy Kime-Sheets, R.D., M.Ed.	David M. Solway
Douglas S. DeSilvio	Joey Mangili	Andrew J. Stalter
Elizabeth DeSilvio	Tony Mangili	Ben Thompson
Mark S. DeSilvio, DPM	Richard A. Mazzeo	Melissa West
Monica Doyle	Deaudre Perry	Adam Zwyer

Appreciation to the following for granting permission to use copyrighted materials:

Kenneth Cooper, M.D., M.P.H., and Bantam/Doubleday/Dell
National Center for Nutrition and Dietetics of the American Dietetics Association
Oregon Dairy Council
Werner W. K. Hoeger, Ph.D., and Wadsworth, Cengage Learning
Tammy Kime-Sheets, M.Ed., R.D.

U.S. Department of Agriculture and U.S. Department of Health and Human Services, *Dietary Guidelines for Americans*, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010. www.dietaryguidelines.gov

A special thank you goes to the following for equipment, clothing, or research:

- SPRI™ Products, Inc., 1769 Northwind Blvd., Libertyville, IL 60048 (800) 222-7774 www.SPRI.com, and Adam Zwyer, Director of Marketing and Operations for Strength Cord Braided Tubing, Xertubes®, Xerball®, Elite Exercise Ball®, Exercise Bar®, Dual Grip Xerball®, Slanted Risers and Agility Ladders.
- NIKE, Team Sports Division, P.O. Box 4242, Beaverton, OR 97976 (800) 806-6453 <http://www.nike.com> for fitness apparel.
- Power Systems, 5700 Casey Dr., Knoxville, TN 37909 (800)321-6975 www.power-systems.com and staff for medicine balls, jump ropes, and stability balls.
- Walk4Life, Inc.™ and Eric Carver, Regional Sales Manager, 12137 Rhea Drive, Unit B, Plainfield, IL 60585 (888) 422-1806 www.walk4life.com for Elite W4L™ pedometers and Walk4Life™ tee shirts.
- Doug Jackson, M.Ed., CSCS, ACE, 13242 W. Broward Blvd., Plantation, FL 33325 www.personalfitnessadvantage.com for research.
- Cardio Mixes Fitness Products, P.O. Box 801176, Acworth, GA 30101 (866) 322-6868 <http://www.cardiomixes.com> for music CD's.
- Muscle Mixes Music, P.O. Box 533967, Orlando, FL 32853 (800) 526-4937 www.musclemixes.com for music CD's.

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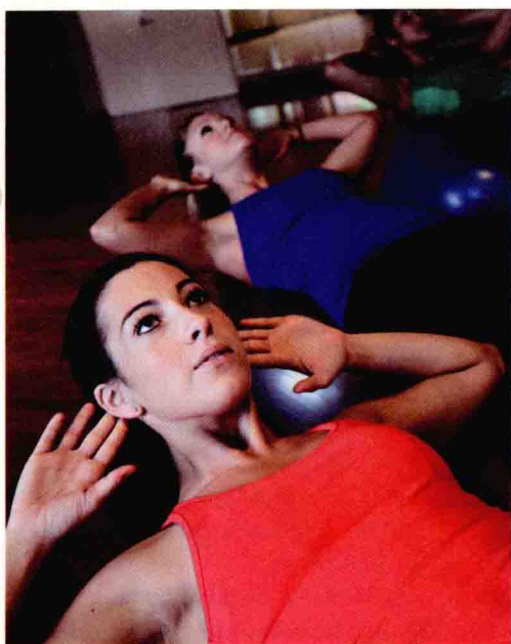


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Ryan A.S. Jones

Introduction

F*itness! Fifth Edition* is a **total** fitness textbook and a great resource for your lifelong fitness journey. Whether you are a novice to fitness, or a person preparing to become a fitness professional choosing to help others to become fit, this textbook has been developed for you, to fit your needs. Its design is to be both an educational fitness resource for understanding all the latest facts, research, and techniques, and a personalized workbook to immediately *apply* what you are learning to yourself.

Fitness! provides the opportunity for change to happen. You are able to directly experience the conversion process with a renewed commitment to lifetime fitness. This conversion process happens as you are writing your information and plans into the textbook, recording details frequently, and monitoring your progress. You are able to remove the information from the text (at the perforations) for your instructor/personal trainer's review and evaluation. "Know thyself" is a quote that you are able to master at the completion of this fitness course. It has been three-hole punched to facilitate inserting it, if you choose, into a fitness notebook or a personalized journal in order to

contain assessments removed during the process of your class sessions.

The Fifth Edition explains the principles and techniques involved in programs promoting aerobic conditioning (also known as cardiovascular fitness), strength training (that more fully develops your lean weight), and flexibility exercise (that keeps you moving about with ease). Additionally, it features basic yoga movement, used here as a transitional activity for the final program segment, promoting total relaxation training. *Fitness! Fifth Edition* can help you to structure a very powerful **mental** training program that will work for you, for the rest of your life. Begin to realize now that fitness is a choice, and positive choices can lead to positive changes in record time!

Fitness! Fifth Edition provides the latest research using easy to understand descriptions for both the novice *and* for the exercise science majors in training to become future fitness professionals. Novice fitness enthusiasts will be the *type of client* that the future professionals will have, so you will all be able to understand how to develop and design a complete program for yourself and/or for your future clients. Well over 300 photographs and illustrations are here to clarify the points being

made. The **Fifth Edition** features all of the photography now in vibrant *color*. It provides full details on using mechanized tools and personal training equipment to keep you motivated, supporting you as you work toward your goals. In addition, opportunities are present to **apply** what you are learning by completing the Goal-Setting Challenges, plus monitoring and self-evaluating by completing the Exercises at the conclusion of each chapter.

To provide an informed basis from which to begin making your physical fitness choices, two forms, entitled, "Student Information Profile" and "Student Physical Activity Readiness," Questionnaire (PAR-Q) are provided at the conclusion of the Introduction. The student is directed to fill out these forms and submit them to the instructor for review *prior to* the first actual workout session. As mentioned, the pages of this text have been perforated to ease this page-removal, book-keeping process. Additionally, your instructor will provide a hold harmless document declaring the risk you are assuming that is also to be signed and dated, and submitted. All of this medical background documentation ensures that each student's readiness to begin a workout program has been identified.

Chapter 1, Aerobic Exercise: The Way to Fitness gets you started thinking "fitness" by providing the definitions, principles, objectives, physical activity guidelines, and assessment skills for monitoring your cardio-respiratory intensity. New to the *Fifth Edition* are various pieces of the most popular fitness equipment you can consider incorporating into your program. Using a heart rate monitor allows you to immediately see how your body is responding to exercise, instead of relying solely upon self-monitoring your pulse. The *aerobic* fitness activities mentioned here—aerobic dance (also called

aerobics), step training (which uses a 4"–12" step bench), and fitness walking (performed at a pace equal to 14–20 minutes per mile)—are three very popular methods of achieving and maintaining your cardiovascular physical fitness. Each type of aerobic fitness activity has a complete chapter devoted to the details of that particular mode of aerobic exercise. Concluding Chapter 1 are the U.S. Federal Government's latest standards entitled, *Physical Activity Guidelines for Americans*.

Chapter 2, Motivation and Goal Setting, includes a discussion on the mental training portion of a fitness class, motivation, and its three *main* component parts, plus suggestions on how to empower yourself if you are not motivated to do something. You are given the opportunity to improve your motivation by understanding how you perceive, store, and retrieve images through eye-accessing cues, and by updating your self-talk to include positive, *present-tense* thinking. Both of these elements are key to your long-range improvement in attitude and motivation concerning fitness. To succeed physically, it is important to prepare mentally. Concluding Chapter 2 is an Exercise to record your time priorities in order to understand your use of this resource, and follows with four steps for setting powerful SMART goals. You are referred back to these four steps (in Chapter 2) at the conclusion of each chapter of the text, where ideas for goals to set and methods to monitor their progress are offered.

All physical fitness programs must be built upon a foundation of Safety First, plus efficiency and comfort. Chapter 3 provides information on common injuries and tips to prevent injury such as how to select the proper shoes, monitor fluid intake consumption, and unique products to use to ease the pain of injury from overuse.

Chapter 4, Posture and Alignment, continues the safety theme by presenting body positions to use in conjunction with exercise, since proper postural alignment (good positioning, especially of the spine and joints) underlies all physical movement. This chapter, therefore, marks the point at which your participatory fitness program *must begin*. At the end of the chapter you are given the opportunity to both pre- and post-assess your posture and alignment by detecting and correcting problems on Exercise 4.1.

Chapter 5, Fitness Testing, establishes where you are today through procedures (see Exercises 5.1–5.3) that enable you to label your starting point as ‘physically fit’ or ‘lacking physical fitness and in need of an interval program’ in order to safely begin. You are then able to establish specific goals and have a measured standard against which to continuously monitor your progress. You are encouraged to keep a Fitness Journal throughout the course, using the sample form that is provided at the conclusion of Chapter 5 to guide the recording process.

After good posture techniques have been established, you are ready to begin your active workout program. Within a workout hour, there are four program segments. Chapter 6, Warm-Up, details the principles and techniques involved in the first program segment preceding other forms of exercise. The warm-up consists of dynamic exercises (which means using space) and static stretching (which means remaining in one space to execute movement) to prepare you for more vigorous exercise. The purpose is to gradually increase blood to the working muscles and to safely prepare the joints and muscles for movement. It is also a time to practice less intense versions of movements that will be performed later in the workout. The *new* visual

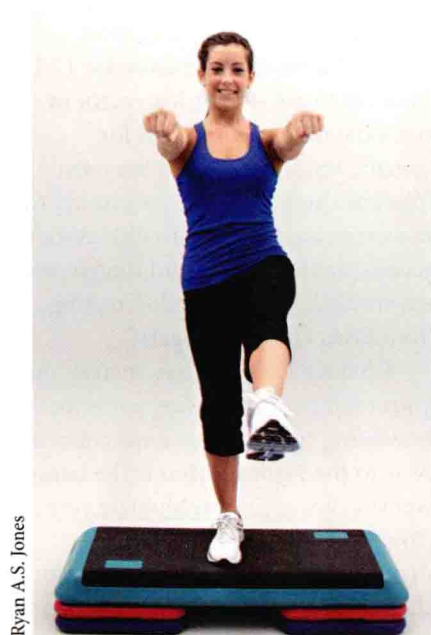
summary at the end of the chapter is an easy-to-use guide of suggested stretches to perform.

Chapters 7, 8, and 9 respectively, present three cardiovascular training program options: **aerobics** (including various aerobic conditioning forms such as the traditional moves taken from various forms of dance, to the *new* boot-camp moves, kick-box variations, jump-rope possibilities, and sports conditioning using an agility ladder), **step training**, and **fitness walking** (also called “paced walking or power walking”).

Chapter 7, Aerobics, covers the principles of building, sustaining, then lowering heart-rate intensity through the kinds of impact (and other criteria) used. A wealth of basic aerobics steps, arm movements, and patterns are presented, and how to apply creative variation to these techniques. You have the opportunity to create your own aerobics routine at the conclusion of the chapter.

Chapter 8 presents Step (bench) Training principles and basic techniques for safe, efficient, and varied movement. Included are the directional approaches, steps, patterns, and variations, concluding with the opportunity to create your own patterns on an empty bench visual, found in Exercise 8.1 “Creating Your Own Step Training Combinations.” A summary of all step movement is provided at the chapter’s end to help with your creativity in designing your own routines.

The exercise movements in Chapters 6, 7, and 8 are all photographed using a “mirrored” method. A movement described and visualized as using the *left* foot/arm/side of the body is actually the *right* foot/arm/side of the model (see Figure I.1). Therefore, you do not have to reverse your thinking to perform in the direction of what is pictured and what you perform. You simply perform the movement on



Ryan A.S. Jones

FIGURE I.1 Mirrored Method of Photography

Cues: Step up L, kick R leg forward

the *same side of the body* as you see it photographed and described.

Chapter 9 presents the third aerobic option, Fitness Walking (also entitled paced walking or power walking). This chapter has been significantly expanded to encourage the use of a high-quality pedometer like the model shown. It can measure one's total activity time, steps taken in a day, and then accurately count those steps with the ability to enter your stride length and calculate the calories you are burning. The pedometer also provides a clock that displays the time of day. Complete details on how to add this motivational tool to your exercise program are provided, along with a *new* 22-day monitoring assessment, Exercise 9.1, to track your progress. Pedometer use that monitors steps taken, activity time, and calories burned gives the needed motivation many people need to stay on track. Directions for using the currently popular elliptical/cross trainer equipment conclude the chapter. With so many aerobic possibilities from which to choose, lifetime adherence to cardiovascular exercise becomes more of a reality for participants in the course.

Chapter 10 targets the third program segment, Strength Training. The principles and techniques use a *variety* of resistance—your body weight as the resistance, hand-held weights, quality resistance tubing (both regular and the new braided tubing), bands, medicine balls, and stability balls. The research included here helps you to understand the importance of developing more lean weight in order to further “build the furnace” with which to “burn the extra calories” one consumes. New to the **Fifth Edition** is a chart detailing how exercises are organized by major muscle groups—legs, back, chest, shoulders, arms, and abdominals/core. This allows you to *easily* select your choice of exercises for a complete, total body, muscle

conditioning workout. Concluding the chapter are two forms for recording your strength training. The first form lists all of the exercises presented in the chapter to record your progress. The second form allows you to select your program of exercises to monitor and record.

Chapter 11 completes the four key program segments with the principles and techniques used for the Cool-Down and Flexibility Training. A 12-position yoga routine provides transitional exercise movement from the intense workout state to the relaxation state, where mental training techniques are employed while resting on the floor. This completes your workout session.

The principles of Stress Management and Relaxation are presented in Chapter 12, including a collage of fascinating visuals that clarifies the point about how important it is to relax the joints of the body while performing for best results to follow. A variety of relaxation techniques are then presented. These become the revitalizing touch needed in all physical fitness programs. You are invited to rank-order your most stressful areas of life in Exercise 12.1, in order to assist your instructor or personal trainer with ideas for specific lessons you need the most. You are also given the opportunity to construct an individualized relaxation technique through a I and II Step process entitled, Exercise 12.2 “Creating Your Own Guided Imagery.”

Chapter 13, Nutrition, focuses on your food plan and eating patterns, answering current nutritional concerns. New to the **Fifth Edition** is the latest website, www.ChooseMyPlate.com, complete with the latest icon **MyPlate**, providing recognition for the *Dietary Guidelines for Americans, 2010*. This website and publication were developed by specialists in the fields of nutrition and exercise, and promoted by the U.S. Department of

Agriculture. It is an individualized eating system that you can easily access via the Internet. The *Dietary Guidelines* focus on two main concepts—maintaining a calorie balance (to encourage weight management) and selecting foods and beverages that are nutrient-dense (to provide the most nutrition for the fewest calories, again for weight management, but also for healthy growth, repair, bodily processes, and energy needs). To this comprehensive nutritional information, the **Fifth Edition** adds the specifics for nutrient-dense eating, fluid replacement, nutritional patterns fueling athletic performances, and selected highpoints to consider from the *Dietary Guidelines for Americans, 2010*. Eating behavior problems and the “ABC’s” of possible solutions are given. An assessment monitoring your food and beverage intake for several days establishes an awareness of your consumption. Accurate goal setting can then follow.

The discussion of positive weight management in Chapter 14 includes assessment of body composition using the three-site skinfold technique

or the Body Mass Index (BMI), and an understanding of the weight-wellness mindset. Completing Exercise 14.4 provides insight to the possible **barriers** you are not aware of that you have in place that need to be removed before you can establish a lifetime mindset that is healthy. A mental training tool using the Control Panel with One Large Dial (see Exercise 14.6 A Powerful Eating Strategy) provides a creative strategy (using quantified internal cues) to avoid the problem eating extremes of starving or stuffing oneself.

This chapter concludes with the “10 Rules for Successful Weight Loss.” These principles have been found to be some of the most crucial guidelines for those people serious about successful fat weight loss and then **keeping it off**. They require you to consciously *make the best choices* all day, every day.

The text closes with **Websites!** you can access and Fitness Resources you can contact if you need more details on a topic or product that has been presented here. It is now time to begin your commitment to **Fitness!**

STUDENT INFORMATION PROFILE

Please fill in the following information, remove from the textbook, and give to your instructor:

Name _____ Sex: Male / Female

Address _____ Phone _____

Email Address _____ Level: F/So/J/S/Grad/Other

Recommended Ideal Weight _____ Actual Weight _____ Height _____ Age _____

Student I.D. No. _____

Rate Your Pre-course Fitness Level: SUPERIOR/ EXCELLENT/ GOOD/ FAIR/ POOR/ VERY POOR

Previous class or instruction in course content: _____

Sports in which you participate weekly: _____

Reason(s) for taking this course: _____

Did anyone recommend this course or instructor? _____ If so, whom? _____

Physical limitations: _____

Activity that you would especially like instructor to cover: _____

Heart rates: Resting _____ Training Zone _____ - _____

List any drug you take (that may alter your heart rate): _____

Do you desire to: (circle) Gain lean weight / Lose fat weight / Stay same weight

Do you smoke cigarettes or chew tobacco? _____ If so, number of either per day: _____

Indicate your alcohol consumption: Never/Daily/Other _____

List your interest in music, favorite song, favorite artist: _____

Other interests: _____

If you have specific limitations: I have my physician's written permission to participate.

Physician's name and phone number: _____

I have read and understand the responsibilities for participants and the instructor.

Signature _____

Date _____

STUDENT PHYSICAL ACTIVITY READINESS QUESTIONNAIRE (PAR-Q)

Name _____ Email address _____

Address _____

Phone (Home) _____ (Cell) _____

Age _____ Height _____ Weight _____ Sex: Male / Female

This questionnaire is part of the necessary pre-screening for fitness testing and participation in exercise. If you respond "Yes" to any question, your instructor will want to talk to you further.

	YES	NO
1. Has your physician ever said that you have heart trouble?	_____	_____
2. Do you frequently have pain in your chest or heart, especially when exercising?	_____	_____
3. Do you often feel faint or have spells of severe dizziness? More so with exercise?	_____	_____
4. Has your physician ever told you that you have high blood pressure?	_____	_____
5. Have you ever been told that you have a heart murmur?	_____	_____
6. Has a physician ever told you that you have a bone or joint problem, such as arthritis, that has been aggravated by exercise or might be made worse by exercise?	_____	_____
7. Do you have diabetes mellitus?	_____	_____
8. Are you over age 35 and unaccustomed to vigorous exercise?	_____	_____
9. Are you taking any medications or other drugs that might alter your response to exercise?	_____	_____
10. Are you pregnant?	_____	_____
11. Do you smoke cigarettes or chew tobacco?	_____	_____
12. Have you had surgery recently, are you obese, or do you have special limitations?	_____	_____
13. Do you have an at-risk cholesterol reading?	_____	_____
14. Do you have an abnormal resting ECG?	_____	_____
15. Do you have any family history of coronary disease before or by age 50?	_____	_____
16. Is there a good physical reason not mentioned here why you should not follow an activity program?	_____	_____

If you answered YES to any question, please provide a brief explanation on the next page.

I have answered the above questions to the best of my knowledge.

Signature _____

Date _____

STUDENT PHYSICAL ACTIVITY READINESS QUESTIONNAIRE (PAR-Q)

My brief explanation for any "YES" response to the Student PAR-Q on the reverse side:

Signature _____

Date _____

NOTES

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Aerobic Exercise: The Way to Fitness

Jeffrey L. Hall

"We've engineered activity out of everyday life."¹ This comment was made by one of the top fitness-research professionals today. Does this describe you? If so, it is time to take charge. You have the power to change and become the best you can be!

Fitness is one of life's positive choices. Making the decision to engage in the physical fitness activities that follow—aerobics, step training, fitness walking, strength and endurance training, and flexibility training—is the important first initiative toward achieving a meaningful, active, and healthy lifestyle. Incorporating a variety of physical activity into your life regularly provides the foundation and basis for a long life of quality rather than just existing and "putting in time" in life.

However, if true fitness is the goal you seek, the "use it or lose it" philosophy is a core belief that you must accept. This text will provide you with the knowledge base from which to "use it" wisely—safely, efficiently, timely. Knowledge is not power, though. The *application* of knowledge is power, and the all-important

application of knowledge rests on your shoulders, in your hands, and through your feet. It must be triggered by your mind and spirit, and fueled by your will. Ideas to facilitate this triggering and fueling will be given throughout the text so you will develop the mental training to go along with the physical conditioning.

A Commitment to Fitness

Achieving physical fitness requires a commitment and dedication to personal excellence. Shortcuts are few, but pleasurable alternatives are many. Once you have achieved physical fitness, you must maintain your fitness for a lifetime. Fitness is a journey—a continual process—not just one destination.

The total physical fitness journey requires:

- making a commitment to fitness
- seeking valid information
- establishing your starting points
- setting reasonable and challenging goals
- monitoring your daily progress
- making self-disciplined choices continually

Write a personal commitment to fitness at the onset of this course as described at the end of the chapter, Goal-Setting Challenge, #3. Maintaining fitness is a lot easier than achieving it initially. You also will discover that the less physically fit you are, the longer you will take to become fit.

The learning process begins by first understanding the basics, which requires a common language that communicates the essentials of achieving fitness. The process of learning and engaging in fitness, and then achieving and maintaining fitness for a lifetime is powerful and rewarding.

The five basic elements of physical fitness are:

1. *Aerobic fitness* (cardiovascular and respiratory)
2. *Flexibility* (ability to bend and stretch)
3. *Muscular strength and muscular endurance* (thickening muscle fiber mass to enable individuals to endure a heavier workload)
4. *Good posture* (holding body in proper alignment for safety and efficiency)
5. *Body composition* (maintaining proper fat-to-lean weight ratio).

Definitions

Total physical fitness is a positive state of well-being bringing about sufficient strength and energy to participate in a full, active lifestyle. According to the American Medical Association, *physical fitness* is “the general capacity to adapt favorably to physical effort. Individuals are physically fit when they are able to meet both the usual and unusual demands of daily life, safely and effectively without undue stress or exhaustion.”

The term *aerobic* means *promoting the supply and use of oxygen*. All body cells require oxygen to exist. The body's demand for oxygen increases when engaging in vigorous activity that produces specific beneficial changes in the body. Working out aerobically can refer to any exercise mode as long as certain basic criteria are met.

Within the last two decades, the exercise mode of *aerobic dance*, generalized then to the term *aerobic exercise dance*, has evolved into the currently preferred term *aerobics*. These terms are used interchangeably. *Aerobic* is an adjective, and *aerobics* is the noun denoting a mode of activity.

Healthy Lifestyle Choices

Factors that enhance the ability to perform well during physical conditioning workouts include eating nutritionally, maintaining proper body weight, relaxing, and getting adequate sleep. The positive effects and benefits of exercise require a balance in *biochemical functioning*—energy intake, energy expenditure, and energy rejuvenation. These factors are introduced here and are expanded in later chapters.

Eating

To provide the fuel needed to produce the energy required for all aerobic exercise and to ensure proper body regulatory functions, growth, and repair, participants should eat a well-balanced diet. This diet provides all the nutrients needed to stay well, to be able to perform well, and to maintain proper weight.

Regarding how much to eat and the time of day for eating, food intake should generally follow a 25–50–25 rule: 25% of intake for breakfast, 50% for lunch, and 25% for the evening meal. Incidentally, weight control is