

Fitness for College and Life



SECOND EDITION

William E. Prentice
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Fitness for College and Life

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PREFACE

PHYSICALLY FIT

During the past decade this term has taken on a new meaning. In many respects, physical fitness has become a way of American life. We eat, sleep, go to school or work, and exercise. The term *physical fitness* appears on television and radio and in magazines, books, and newspapers. The concept of the attractive, healthy, physically fit person is used to sell food and drug products, clothing, sports equipment, and memberships to health and fitness clubs. In essence, it is almost impossible to go through an entire day without being exposed to something that involves physical fitness.

This national preoccupation with fitness has affected every segment of our society. People of all ages and backgrounds have decided to take responsibility for their own physical and, in some cases, mental well-being by becoming physically active. Perhaps nowhere is this obsession with physical activity more evident than on college or university campuses, which on any given day are crowded with people jogging, walking, or bicycling. The gymnasiums and playing fields are likely even more crowded. In many cases these college students are establishing patterns of living that may well affect their long-term health and leisure pursuits.

Because of the tremendous number of people who are involved in some type of physical activity, there are a host of self-proclaimed fitness "experts" who tend to disseminate a wealth of misinformation regarding strength training, improvement of cardiorespiratory endurance and flexibility, weight control, nutrition, and injury and stress management. Although it is true that there are many different approaches that will ultimately lead to physical fitness, there are certain principles and guidelines that tend to make the pursuit of physical fitness much safer and more effective.

The second edition of *Fitness for College and Life* is designed to provide a comprehensive, contemporary text for use in classes that are aimed at acquainting college students and adults in general with the nature and scope of fitness, and to establish lifelong patterns of fitness. It provides the individual with important facts and the scientific foundations for engaging in a sound physical fitness program. It describes the component parts and basic principles that should be known and followed if one wants to become physically fit for college and life. It also outlines exercises, activities, resources, and assessment instruments that can be utilized in developing a well-rounded physical fitness program.

INPUT FROM THE MARKETPLACE

Extensive market research was used prior to revising this text. College professors who are teaching courses concerned with fitness, wellness, and exercise physiology were contacted in an attempt to determine the answers to such questions as, What additional material should be included? What health information has the greatest practical value for students interested in developing and maintaining a fitness plan? What material in the first edition should be deleted? Following careful consideration, these suggestions have been incorporated in the second edition of this text. This market research was done in order to make sure the subject content was accurate, practical, and relevant to today's college students and adults in general. The following are features of the text:

Health-Related Physical Fitness

In keeping with the wellness trend today and an emphasis on all aspects of healthful living, this text, in addition to stressing performance or motor skill-related fitness, also includes discussions and implications for health-related physical fitness. This aspect of physical fitness concerns the development of qualities necessary to function efficiently and maintain a healthy life-style. Each of the components of health-related fitness, cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition is examined in detail in the text.

Comprehensive and Systematic Coverage

In writing this text, we have attempted to blend theory with practical application by providing a general discussion of the various fitness-related topics followed by assessments, worksheets, and specific activities to which the theory can be applied.

This text covers the essential elements of fitness for the college student and adults in general. First, it introduces the reader to the meaning of fitness and its value and popularity in today's world. It then discusses the various other aspects of healthful living as part of the wellness approach to health and fitness. From here it sets forth basic principles that should be adhered to for fitness: cardiorespiratory endurance, muscular strength and endurance, flexibility, body composition, weight management, and nutrition. Because the management of stress is an important aspect of any fitness program, this subject is also discussed with suggestions as to how one can successfully cope with stress. Finally, a series of lifetime fitness activities suitable for one's own fitness program are described together with a discussion of resources that are available on college campuses to assist the student.

Based on Scientific Theory

To the extent possible, this text discusses various concepts, principles, and theories that are supported by scientific research, factual evidence, and sound logic. These have been drawn from disciplines such as exercise

physiology, nutrition, athletic training, biomechanics, and physical therapy. It is important for anyone involved in a physical activity program to have at least a basic understanding of why it is more efficient to make use of a specific technique to maximize results. This text then deals not only with practical application but also with the theory to support it.

Timely and Practical Material

As the first chapter of this book points out, a “fitness boom” exists in this country. People of all ages are realizing the values of being physically fit. Therefore they are interested in finding the right formulas, activities, and procedures for achieving health and fitness. College students are no exception. They are realizing that being physically fit can contribute to their success in college, getting a job, and the achievement of their educational and life goals. This text provides essential and contemporary information for achieving the goal of optimal physical fitness for college and life. It is timely and practical for today’s young person attending college and desiring to make the most of his or her life.

The text is concerned with the health-related components of physical fitness with which adults should be concerned, such as cardiorespiratory endurance, strength, flexibility, and body composition, as well as the activities and training programs essential to the optimal development of these components.

In light of the importance given to stress management, a chapter is also devoted to this subject. The nature and scope of stress management is presented, with particular attention being given to the impact stress has on the physiologic functioning of the human body. The roles of physical activity and relaxation techniques are then discussed as means of alleviating stress.

Because nutrition plays an important role in achieving physical fitness, this subject is also included together with three appendices that consist of the nutritive values of various types of foods, and food exchange lists.

Readable and Interesting

The subject of fitness is presented in a lively, readable style at the college student’s level of understanding. Fitness is a fascinating subject, and we have tried to communicate our enthusiasm for it. Worksheets, techniques for assessing specific fitness components, and suggestions for specific training are provided in the text so that the student can easily apply what is being discussed.

NEW TO THIS EDITION

Wellness

Chapter 2, *A Wellness Approach to Health and Fitness*, is new to this edition. The term *wellness* is a popular word in today’s health vocabulary. It emphasizes all aspects of healthful living: mental, physical, emotional, social, and spiritual health.

While all these aspects of wellness coincide with one another, each is a single entity. Being physically fit is critical to a healthful style of living and is as important for total well-being as are social, emotional, mental, or spiritual stability. However, fitness can impact on each of these dimensions in either a positive or negative manner. The bottom line in the wellness approach is a balance in the emphasis on each of the dimensions.

This book will emphasize the fitness aspect of the wellness model, in particular the various components of fitness that are health related and that can potentially facilitate a healthy life-style.

Health Objectives of the Nation

The surgeon general, in the publications *Healthy People* and *Objectives for the Nation*, outlined the health goals the nation should achieve by the year 1990. Exercise and fitness are identified as one of the 15 priority areas in which changes in the habits of people would have a positive influence on their health. This new section in Chapter 1 outlines how a national commitment to exercise and fitness can achieve the nation's goals through life-style management.

Exercise and Aging

College students not only are interested in being fit during campus years but also think ahead to after graduation and taking a job that will probably involve little activity. Therefore a concerted effort is made during the college years to establish patterns of exercise and healthful living that will ultimately become permanent fixtures in their style of living.

To help the student understand the need for a life-long fitness plan, discussions of the physiologic changes and performance capabilities that take place over the years and the role of exercise and sound health habits in maintaining fitness along the age continuum are integrated throughout the text.

Walking—A Lifetime Fitness Activity

A walking program has been added to Chapter 11, *Selected Lifetime Fitness Activities*. Walking is an activity for everyone. It is included because it is convenient, inexpensive, and a healthy form of activity that contributes to one's health and physical fitness. Physiologically, it improves muscle and skeletal strength; keeps blood vessels, heart, and lungs in good shape; and strengthens leg and other muscles of the body. It is the number one exercise activity in the nation and has the support of fitness experts. The text includes a sample 13-week walking program for beginners.

Menstruation, Pregnancy, and Physical Activity

The approach taken toward participation in physical activities during menstruation and pregnancy has changed markedly during recent years.

These changes and the role of physical activity as part of one's routine are discussed in the text to show how exercise can contribute to healthful living during these periods in a woman's life. Suggested exercises are provided.

The Consumer in the Health and Fitness Market

The consumer of products related to health and fitness has become a target of an advertising blitz emanating from all areas of the media. Foods, vitamins, exercise equipment, and fitness centers all try to seduce the consumer. Guidelines for purchasing health and fitness products are set forth for those individuals who wish to contribute the most to their fitness plan and, in particular, for those people who are considering joining a health or fitness club.

Expanded Coverage of Nutrition

Because nutrition plays such an important role in achieving physical fitness, the second edition has been greatly expanded and updated. New information on vegetarian diets, calcium supplementation, and food exchange lists (in Appendix D) are also included.

Self-Assessments

Market research showed that the self-assessment activities in the first edition were well received. Each chapter includes a self-assessment activity. These consist of laboratory inventories, exercises, and worksheets. By using these instruments, students can check to see how they rate in the fitness and wellness activities provided. In addition, the text has been perforated to allow easy removal of these activities.

PEDAGOGICAL AIDS

The aids this text utilizes to facilitate its use by students and instructors include the following:

Key Terms: Each chapter begins with the most important terms for students to become familiar with while reading the chapter.

Objectives: Listed at the beginning of each chapter, these introduce students to the points that will be highlighted. Accomplishing the objectives indicates fulfilling the chapter's intent.

Figures, Tables, Photographs: Essential points in each chapter are illustrated with clear visual materials.

Summary: Each chapter has a summary outlining and reinforcing the major points covered.

References: Expanded lists of the most up-to-date documentation are provided at the end of each chapter for the student who wishes to read further on the subject being discussed.

Suggested Readings: Provided with annotations, these present additional resources for further information.

Appendices: These include a table on the nutritive value of foods, a supplementary table on the nutritive value of fast foods, an energy expenditure table, food exchange lists, and resources to assist students with preparing a fitness program.

Glossary: As a convenient reference, a comprehensive glossary has been included at the end of the text. The helpful cross-reference feature provides the page number where each term is first described.

SUPPLEMENTS

Instructor's Manual

An Instructor's Manual containing over 300 test items is also available. It provides suggestions on how to utilize the text to its fullest potential. The manual includes chapter overviews, learning objectives, key terms, a topical teaching outline, key teaching points, and a test bank of true-false, multiple-choice, and discussion questions for each chapter. Extensive lists of additional readings and annotated media and software resources are included. For convenience, directories of addresses and telephone numbers are also provided.

Additional inventories and assessments are provided that can be used to help students further evaluate their overall physical fitness.

Over 50 transparency masters conclude the manual and include 10 charts not found in the text. Perforated for easy removal, these have been included to help explain more difficult concepts and to facilitate classroom and laboratory instruction.

Probably the most valuable information for the instructor will be two instructional plans outlining suggested activities that can be utilized in a 10-week (four sessions a week) and a 14-week (three sessions a week) college class pattern. Activities will include such things as lectures, physical activities, testing, and demonstrations. Instructors will be able to use the instructional plans as outlined for their classes, or they can adapt them in a way that will better fit into their own pattern of instruction.

Fitness Profile Software

The Fitness Profile Software allows your students to evaluate and apply their knowledge of the health-related components of physical fitness as well as other factors that impact upon one's total fitness. It is available to adopters of the text.

ACKNOWLEDGMENTS

If you have never been involved in the production of a textbook, it is difficult to understand the magnitude of such an undertaking. Dozens of persons have been involved with this project from its inception and all have contributed in their own way, but a few deserve special thanks.

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William E. Prentice

Charles A. Bucher

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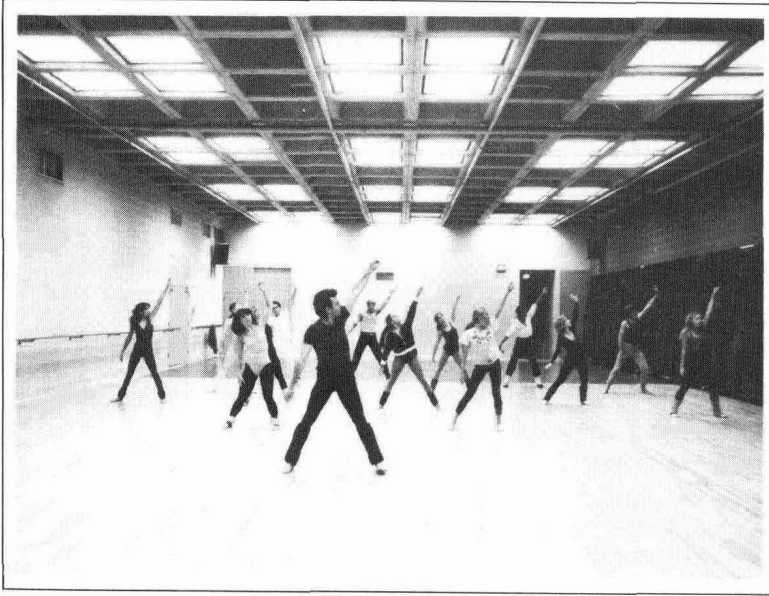
THE FITNESS BOOM

Key Terms

fitness	motor skill-related fitness
physical fitness	health-related fitness

After completing this chapter you will be able to

- ♦ Describe the nature and scope of the fitness boom.
- ♦ Define the terms *fitness*, *physical fitness*, *health-related fitness*, and *motor skill-related fitness*.
- ♦ Describe some of the misconceptions about physical fitness
- ♦ Explain the role of physical activity in achieving an optimal state of physical fitness.
- ♦ List the component parts of physical fitness.
- ♦ Describe the relation of the body systems to fitness.
- ♦ Explain why an optimal state of physical fitness is important to college students.
- ♦ Discuss the 1990 health objectives for the nation.



Aerobic dancing.

Enthusiasm for exercise and fitness in the United States is at an unprecedented level with millions of people spending countless hours and billions of dollars on sport and exercise. Men and women of all ages are participating in exercise and fitness programs to an extent never witnessed before in this country. The fitness boom, initially perceived by some as a fad or a short-lived phenomenon, has grown for over a decade, becoming what many experts say is a historically significant national trend. In 1984 it was estimated that 59% of adults exercised daily.⁵ This percentage is an increase of 12% from 1982 and more than double the figure for 1961. Exercise and fitness have become part of American life.

In 1986, *Sports Illustrated*⁸ commissioned Lieberman Research Inc. of New York to do an exhaustive study exploring sport, fitness, and the American life-style. One part of the study indicated the role that sports and physical activities play in the health and fitness of Americans 18 years of age and older. According to this scientific survey 7 out of 10 adults in America participate in sport or fitness activities. They get into action 53.2 times a year or about once a week. About four times a week 1 out of 10 persons is involved. Such participation in physical activity is engaged in most by the young, the better educated, and those in the higher income brackets. About 4 in every 10 senior citizens are active in such exercise pursuits.

Geographically, the study shows that persons who live in the western part of the country are more physically active than those who live in other sections of

the nation. After the West the most active inhabitants are in the Midwest, South, and Northeast, in that order.

The sports and activities that have the greatest number of participants are swimming (most popular), bicycling, fishing, jogging, calisthenics/aerobics, exercise machine usage, baseball/softball, bowling, hiking/backpacking, pool/billiards, and squash/racquetball. Men engage in a wider range of sports and fitness activities than do women, but women engage more in calisthenics/aerobics than men do.

One half of the Americans surveyed feel they are in "excellent" or "good" physical condition. The rest of the population say they are in "fair" or "poor" physical condition. Again, age and education influence the way Americans rate themselves. Those in the 18- to 34-year age bracket rate themselves higher than those 50 years of age and over do, and of those who did not graduate from high school most feel they are in "fair or poor" condition.

One out of every two Americans feels he or she is overweight, and only 1 out of every 12 feels he or she is underweight. The rest say they are satisfied with what the scales indicate. The results of the study suggest that being overweight is a greater problem with women than with men. At the same time, although being overweight is a problem affecting all ages, it is more in evidence in the 35- to 64-year age range. It is also less common in those who live in the West, probably because the Westerners have more active life-styles.

It is interesting to note that most Americans put considerable emphasis on their weight in rating their physical condition. If they feel their weight is right, they are more likely to rate themselves as being in excellent physical condition. However, if they are overweight, they are more likely to rate themselves in "fair" or "poor" shape.

The *Sports Illustrated* poll was based on mail questionnaires completed by a nationwide representative sample of 2,043 adult Americans 18 years old and over. The sample included men and women of various ages, income and education levels, and geographic regions, as well as sports fans and nonfans.

EXPENDITURES FOR SPORTING GOODS AND EQUIPMENT

Further evidence of the magnitude of the interest in fitness and exercise is seen in the expenditures for sporting goods and exercise equipment; these expenditures have reached an all-time high.³ The sale of sporting goods has become big business. In 1983 sporting goods' sales reached \$13.6 billion. Sales of about \$15 billion were recorded in 1984. The athletic shoe business alone has become a \$2 billion a year business. Close to \$4 billion is being spent on athletic clothing. Sale of home exercise equipment has skyrocketed from \$723 million in 1982 to about \$2 billion today as individuals seek the convenience of being able to work out at home. Stationary bicycles, rowing machines, treadmills, and weight systems are the most popular items. Sales of diet and exercise books continue to rise. Corporate fitness and commercial health clubs have attracted a record number of