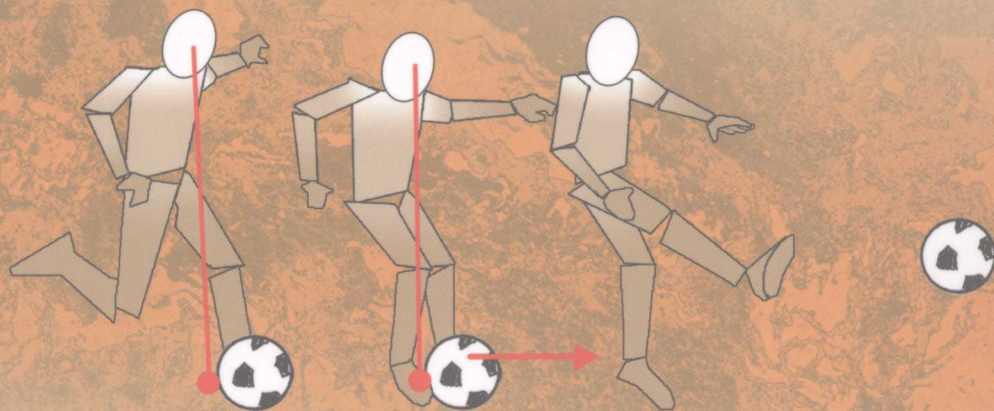


**Second Edition**

# **Secrets to Success in Sport & Play**

**A Practical Guide to  
Skill Development**



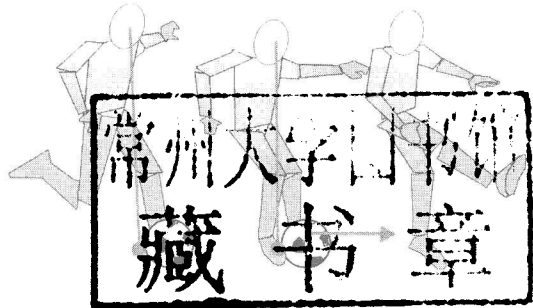
**Marianne Torbert**

SECOND EDITION

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# Secrets to Success in Sport & Play

**A Practical Guide to  
Skill Development**



**Marianne Torbert, PhD**

Leonard Gordon Institute for Human Development Through Play  
Temple University



**Human Kinetics**

## Library of Congress Cataloging-in-Publication Data

Torbert, Marianne.

Secrets to success in sport & play : a practical guide to skill development /  
Marianne Torbert. -- 2nd ed.

p. cm.

Includes bibliographical references and index.

ISBN-13: 978-0-7360-9029-2 (soft cover)

ISBN-10: 0-7360-9029-0 (soft cover)

1. Physical education and training. 2. Human mechanics. 3. Motor learning. I. Title.

GV341.T64 2011

613.7--dc22

2010039250

ISBN-10: 0-7360-9029-0 (print)

ISBN-13: 978-0-7360-9029-2 (print)

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This book is a revised edition of *Secrets to Success in Sport & Play: A Guide for Players of All Ages*, published in 1982 by Prentice-Hall, Inc.

The Web addresses cited in this text were current as of September 2010, unless otherwise noted.

**Acquisitions Editor:** Scott Wikgren; **Developmental Editor:** Melissa Feld; **Assistant Editor:** Rachel Brito; **Copyeditor:** Patrick Connolly; **Indexer:** Dan Connolly; **Permission Manager:** Dalene Reeder; **Graphic Designer:** Robert Reuther; **Graphic Artists:** Robert Reuther and Denise Lowry; **Cover Designer:** Keith Blomberg; **Art Manager:** Kelly Hendren; **Associate Art Manager:** Alan L. Wilborn; **Illustrator:** © Human Kinetics; **Printer:** Versa Press

Printed in the United States of America      10 9 8 7 6 5 4 3 2 1

The paper in this book is certified under a sustainable forestry program.

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*To the many who love the joy and celebration of sport  
and play as players, teachers, parents, and spectators.*

*It is my hope that this book will allow each reader to  
enjoy additional involvement, growth, and skill.*

# FOREWORD

**S***ecrets to Success in Sport & Play* is the second book of what I hope will be a series by Marianne Torbert. Countless other instructional books deal with the mechanics of sport and games. Unfortunately, many of them contain misconceptions based on either the folklore of sport or the unsubstantiated opinions of popular sports figures. An understanding of the mechanics of skilled human movement requires a sound insight into the concepts of Newtonian physics and some familiarity with the anatomical structure of the body. Thus, the information that the author conveys must be scientifically unambiguous and at times complex. This book appeals to a diverse field. Therefore, the most formidable task in writing this book was to take each concept and present it in a manner that would be readily comprehensible to nonspecialized readers.

Clearly, Dr. Torbert has succeeded in ensuring that the significance of the concepts was not lost through oversimplification. The book is dedicated to the many who love the joy of sport and play, and you will sense that the author shares that love. Her informal writing style and her personal anecdotes are both refreshing and applicable to those in the field. Most important, *Secrets to Success in Sport & Play* promotes learning through participation rather than by reading alone. These characteristics are the hallmarks of a real educator.

Marianne Torbert's book is for players of all ages and for parents, teachers, and coaches. You most likely will search through this book in the hope of finding the secrets to success in sport and play, and you will indeed uncover those secrets. But in the search, you will also find some of the joys and the magic of science. Perhaps this is Dr. Torbert's greatest gift to her readers.

**Peter R. Francis**

Past chairperson

Kinesiology Academy of the American Alliance for Health,  
Physical Education, Recreation and Dance

# PREFACE

**P**lay has an expanding and unlimited potential to contribute to personal growth. Increasing one's understanding of any aspect of play will increase the personal challenge to be found within it. This challenge will enable people to produce and increase physical skills. At the same time, the challenge can contribute to the quality of people's lives by adding to the thrill of playing, reducing daily accidents, opening doors to social interaction with others, and perhaps increasing participants' personal confidence.

This book can help you do all of this. I have selected several principles of movement and attempted to incorporate them in a way that will clarify how you can apply them and make them work for you. Here are some things you should keep in mind:

1. No one is destined to be unskilled.
2. Understanding the keys to the mechanics of sport and play can greatly increase your success; it can also reduce the time normally required to improve your skills.
3. All individuals can improve their balance. By increasing your balance, you will also improve your agility, power, and accuracy.
4. Knowledge of spins can improve your performance in many sports, including basketball, tennis, bowling, soccer, and golf.
5. Understanding some of the basic mechanics of movement can help you begin to become an outstanding coach, teacher, or player.

Over the years, I have spent a lot of time teaching people to play. While doing so, I frequently found that participants as well as some coaches really had no idea about WHY things happen. There seemed to be a great deal of interest, however, whenever I attempted to clarify and simplify the mechanical principles of movement that had so excited me when I discovered them in various texts. As I fumbled in my attempts to explain certain principles, I found I was learning a great deal myself. A desire to simplify led me to seek help in biomechanics books, and what I found excited me even further.

Although I had been a nationally ranked participant, I was now discovering secrets to success in sport and play that I had been unaware of. It was challenging to try out new possibilities and conquer old unsolved problems. I found myself beginning to be able to transfer my new understandings from one activity to another—and that's when the contents of this book began to evolve. The book has gone through the normal labor pains as decisions of inclusion, omission, and format had to be made. My usual but unbelievable luck gave me help from Dr. Peter Francis of the University of Oregon, chairperson of the Academy of



Kinesiology of the American Alliance for Health, Physical Education, Recreation and Dance. His assistance enabled me to maintain scientific honesty in my attempts to simplify and explain materials that frequently involve a somewhat sophisticated understanding of math, engineering, and physics.

*Secrets to Success in Sport & Play* was written to assist both those who are seeking personal help and those who wish to help others in this task. The format, which is meant to be participatory, was selected to maximize your sense of involvement. You will find suggestions, observations, experiments, and applications that you might like to try as you read. Each of these has been expanded in the new edition. For this edition of *Secrets to Success in Sport & Play*, several new features have been added. Each chapter has been updated with many additional sport applications for each mechanical principle. For each chapter, a set of true or false review questions now appears at the end of the chapter; appendix C provides the answers to these questions along with explanations regarding why a question is true or false. You'll also find a new chapter (10) that describes numerous games that have proven to be helpful in assisting players to learn and apply the mechanical principles found in this book. This chapter includes a matrix that allows you to match games to principles at a glance. Also, a new appendix contains information on how you can make your own equipment.

Play may be the key to open many doors to lifelong growth and development. Understanding seems to lead to further understanding, and gradually you are actually playing with the secrets to success in sport and play. For some of you, the enjoyment of learning can become play in itself as you help yourself and others move well. My hope is that the reading of this book and your participation in the activities described will be a pleasurable experience that encourages you to have a lifelong involvement in play. Robert W. White, a Harvard psychologist, once said, "Play may be fun, but it is also a serious business in childhood. During these hours the child steadily builds up his (or her) competence in dealing with the environment." I would raise only one question: Why should this be limited to childhood? I think you'll find that the games and activities in this book can be played by all ages.

My personal reason for writing this book is my desire to share the joy I have known in successful participation in sport and play—and the joy of overcoming the difficulties within a partnership of the physical and the mental. I believe you will find that the excitement of participation increases as you begin to discover the secrets to success in sport and play.

## True or False Review Questions

Information about each question is found on the page number provided within the parentheses following the question.

REMEMBER THAT A PARTIALLY FALSE QUESTION IS CONSIDERED FALSE.

Answers to all questions are found in appendix C.

1. An understanding of the mechanical principles of movement allows a person to have a better understanding of why things happen—and in turn increases the person's ability to decide how those things might be done better (page xi).
2. Writing this book was easy because all the author had to do was simplify the math, engineering, and physics involved in the mechanical principles of movement (page xi).
3. *Secrets to Success in Sport & Play* was written only for coaches (page xii).
4. Understanding the keys to the mechanics of sport and play can reduce daily accidents and the time normally required to improve skills (page xi).



# ACKNOWLEDGMENTS

Thanks to all of the following:

- Peter R. Francis, professor emeritus of San Diego State University, for his patient and careful assistance in trying to keep me scientifically honest. Any errors in judgment are strictly mine and are probably the result of my bullheadedness.
- Marion Broer, whose books turned me on to the mechanical principles of movement.
- My students (especially Gene White, Brian Barrett, Steve Palis, Lisa Hand, Joan Wood, Jody Kelly, Ron Quinn, and Nancy Stout), who helped me to understand Kahlil Gibran's statement: "Thought is a bird of space, that in a cage of words may indeed unfold its wings but cannot fly."
- Lynne B. Schneider, who has patiently put up with me during the stressful times and has helped me to clarify my thoughts.
- Morgan Beatty, who has taught me some very special things about the magic of play.
- Doug Parise, whose knowledge of movement, artistic talent, and personal patience and perseverance made the initial illustrations for this book possible.
- The College of Health, Physical Education, Recreation, and Dance; the College of Education; the College of Health Professions; and the department of kinesiology that made my tenure at Temple University so pleasurable and have allowed me the privilege of being the director of the Leonard Gordon Institute for Human Development Through Play ([www.temple.edu/leonardgordoninstitute](http://www.temple.edu/leonardgordoninstitute)).
- Scott Wikgren of Human Kinetics, who enthusiastically supported the publishing of this book through every step of the process.
- Rainer Martens, who was wise in his awareness that the study of human movement needed a strong publishing company.
- The Cleveland Women's Physical Education Association, which gave its first scholarship to a scared, five-foot-two, 100-pounder who had a dream of becoming a physical education teacher. That dream came true.
- And last, but certainly not least, my brother, Raymond Richard Rothhaas, who taught me so many things that have meant so much to me through the years.

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PART I

# **Approaching Movement Analysis**

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# Teaching and Learning

**L**earning involves input, processing, experiencing, evaluating, and trying again. This can be facilitated by the assistance of a knowledgeable teacher, coach, parent, or player who is willing to take an analytical problem-solving approach that involves using the mechanical principles of movement.

This chapter covers two approaches to analysis. One approach—the specific objective method—involves looking at your objective, or the specific skill that you want to develop. The second approach—the correcting errors method—involves dealing with errors that are occurring.

## Specific Objective Method

Determine your *objective*. What do you want to accomplish? Begin to list the mechanical principles that might help you achieve your objective. Perhaps you want to hit the tennis ball over the net consistently. This is certainly an important goal. You could detail and study all the mechanical principles that might be involved in accomplishing this task (as done in appendix A); however, a better strategy would be to analyze the specific need that you are going to deal with first and to direct your efforts toward this goal. For example, if you're not making contact with the ball, perhaps the problem lies in your inability to visually evaluate a moving object (see chapter 9). If you contact the ball but it just doesn't go far enough, you have a force problem and could use the mechanical principles in chapter 4 as a checklist. If you find your force improving but now the ball is going wild, then the mechanical principles related to direction and accuracy (described in chapter 8) should be helpful. Try to enjoy the process of puzzling out what mechanical principles are related to your objective. The chapters in this book should give you an excellent repertoire of possibilities.

If you are trying to correct an error that is causing a problem, you should consider a different approach: the correcting errors method.



## Correcting Errors Method

The correcting errors approach assumes that a player is having specific problems, so the focus becomes the errors and the need to correct these errors. Correcting a single error will often correct many other errors as well. The most relevant error that may be affecting success can be tackled through analysis.

To identify the most relevant error, you may need to become a mental detective. Here is a method that you might like to try:

- State the problem as you see it.

- Begin to zero in on the key to the solution by using the “curious child” technique (*why, why, why?*). Ask why the stated problem occurred. For example, you may determine the following: “The ball went too high instead of going low and directly over the net.” Then try to determine what may have caused this problem to occur (e.g., “I hit under the ball”). When you have this answer, you should ask why *this* problem occurred (e.g., “I didn’t swing level” or “My racket was tilted slightly upward”). The key is to find the first problem or error that occurred, because this error is probably the cause of all the subsequent errors. Identifying the first error makes it easier to determine the mechanical principles that will be the most helpful. Look through the chapters in this book and jot down possibilities. When you correct the earliest occurring error, the errors that followed will tend to correct themselves. If you only correct the later errors (which are really just effects or results of the initial error), the initial error will not be corrected, and thus the primary problem will still exist.

Attempt to put your solution into practice. Be patient. Remember, correcting an error takes time. It may be more difficult than other forms of learning because you may also be working on breaking habits.

Practice your observational skills. You can learn a great deal from watching both good and bad players. Can you determine why the former succeed and why the latter fail? If you need activities to observe, try the games in chapter 10.

Initially, the study of the biomechanical principles of movement may take some real effort. But with time you will begin to see that “the principles of balance, force production, motion and leverage are identical regardless of the activity” (Broer and Zernicke 1979, p. 29). The purpose of each (movement pattern) causes some adjustments, but the basic mechanics remain the same (p. 13). An understanding of the principles or procedures underlying the initial task will result in greater transfer to a different activity (Oxendine 1968, p. 97) and greater depth of understanding on your part.

In working with either the specific objective method or the correcting errors method, you should be aware that most movements have three phases:

**The key is to find the first problem or error that occurred, because this error is probably the cause of all the subsequent errors.**

**The principles of balance, force production, motion and leverage are identical regardless of the activity (Broer and Zernicke 1979, p. 29).**

1. *Preparatory phase*: backswing, stabilization, weight transfer away from the final direction of action, stretching of the muscles to be involved in the action phase

2. *Action phase*: motion or effort that follows the preparatory phase and precedes the final follow-through phase

3. *Follow-through phase*: completion of a movement after the action phase; absorption of force; reaching out after a hit, throw, or kick. This may lead into a new preparatory stage (e.g., when catching a throw, you rock backward to absorb the force).

**An understanding of the principles or procedures underlying the initial task will result in greater transfer to a different activity (Oxendine 1968, p. 97) and greater depth of understanding on your part.**

Any limitations in a previous phase will negatively affect the phases that follow.

## Encouraging the Learner

Here are some tips that you should keep in mind when helping players learn skills:

- Remember that feelings are important to learning and changing habits.
- Encourage players to try not to invest their identity in instant success. Mistakes are also a vital part of learning.
- Try to recognize improvement—even when it may seem minimal.
- Use a visual model. A visual model gives learners an idea of what they are supposed to be doing. This can be a demonstration, a picture, or observation of a live or recorded performance. I have noted that learners tend to focus on the results rather than concentrate on the three phases of the motion; therefore, I no longer demonstrate by hitting a ball *over* the net or shooting a ball *into* the basket. Learners retain more of the relevant aspects of the demonstration when the result becomes irrelevant. So I demonstrate only the motion that I want the learners to focus on and retain. No ball or goal is involved.
- Remember that young children may not be the best listeners. Try to help them understand and begin to use the mechanical principles of movement through *experiencing*. Games and movement activities can be selected that will enable them to practice specific foundation skills that incorporate the mechanical principles. These foundation skills (balance, visual tracking, absorbing force, changing directions, stopping and starting, spatial [space] awareness, and reading movement) are vital because they underlie many activity skills. (See the games in chapter 10.)
- Try to have a thorough understanding of the mechanical principles and the visual evaluation skills involved so that your help can be specific and keyed to a particular skill or problem. This understanding will help you see relationships, make wise choices and decisions, and increase the possibility of a transfer of learning from one activity or situation to another.
- Avoid giving too much information at once. Solve only one problem at a time. Focus on what is most relevant and will give the players the most to build on. Problem areas will be discussed throughout the chapters that follow.