

SUCCESSFUL BOWLING

Martin McIntyre

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 **BURGESS INTERNATIONAL GROUP INC**
Bellwether Press Division

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Preface

The joy of any game is in participating, trying to win or improve a personal score, along with the knowledge that for a particular moment one has tried to give the very best performance. The fun of bowling is learning the skills and trying to improve. The purpose of this book is to assist the reader in striving for that ever-illusory excellence of performance, or in other words, to have fun.

The material is organized, written and illustrated in an attempt to provide both student and teacher with a simplified progressive program of learning experiences. The skills are described for both the right and left-handed bowler. Principles of biomechanics are used to illustrate the reasons skills need to be executed in a particular manner. Concepts of motor learning are presented to assist the bowler in understanding the relationship between the physical and the mental aspects of the game. General health is the foundation of every athletic performance. As the bowler strives for excellence, the need for a greater than normal degree of fitness is realized. A section of the book is devoted to the major muscles involved in bowling and how to strengthen them. The concept of mental practice and its application to bowling is also presented.

Unlike most bowling authorities, this book suggests that the progression of instruction begins at the foul line with the finish, and then concentrates on the other skills that are involved in getting the bowler to the foul line. The proper body posture and the correct release of the ball must be taught from the very beginning of instruction and practiced at every opportunity.

Whether one is alone, with someone, or in a group instruction environment on a bowling lane, the object is to enjoy the experience. Enjoying bowling is a by-product of understanding the game and repeated correct practice. Hopefully, this book will contribute to your increased enjoyment of bowling.

Acknowledgments

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Table of Contents

| | |
|---|-----------|
| Preface | IV |
| Acknowledgments | V |
| 1. Introduction | 1 |
| 2. Equipment and Facilities | 7 |
| 3. The Finish | 16 |
| 4. Address and Pushaway | 29 |
| 5. Pendulum Swing and Approach | 36 |
| 6. Integration/Principles and Concepts | 52 |
| 7. The Strike Ball | 59 |
| 8. The Spare Ball | 67 |
| 9. Split Bowling | 77 |
| 10. Strategy | 81 |
| 11. Rules and Etiquette | 84 |
| Appendix A | 88 |
| Skill Evaluation Check Sheet | 88 |
| Appendix B | 93 |
| Individual Scoring Chart | 93 |
| Appendix C | 94 |
| Conditioning | 94 |

Chapter 1

Introduction

Objectives

There are a number of reasons why people are attracted to the sport of bowling. Some people search for the ever-elusive perfect game. Others desire to perform well once a week during league competition. Still others consider bowling the medium for a social experience. However, underlying all motivation is the desire to have fun, and this is the key to learning.

It is no fun to throw a ball in the gutter consistently, to record the lowest score in the group, or to see scores regressing. The game is fun only if success is experienced. The minimum degree of success is that which propels an individual to “try it again.” Less than that degree of success is debilitating because it signifies a physical experience of no worth. This has a negative psychological impact on an individual which, in turn, impedes or even prevents another experience. This does not have to happen.

The fun of bowling can be enjoyed by everyone. The skills of the game are based on elementary motor functions, i.e., walking, swinging, balancing, eye-hand movement, and coordination. Strength is also a factor. Everyone has developed these fundamental motor skills to some extent. The game of bowling is a matter of integrating these individual skills into a whole motor-movement pattern.

In the last analysis the sole objective of the game is to learn the skills well enough so that one can have fun; to enjoy the game in any environment that one chooses. That level of enjoyment will be different for everyone.

History

The urge to throw a stone or a similar pellet at an object is basic to the play habits of people throughout the world, so it is not surprising to find the historical accounts of bowling going back seven thousand years. The Egyptians played a game similar to modern tenpins in 5200 B.C. According to some historians, bowling was introduced into Europe in 50 B.C. via the Italian game that has come to be known as *boccie*. And no history of the sport would be complete without mentioning the contribution of Wilhelm Pehle, a member of the German Bowling Society and Berlin Bowling Club. Pehle was a great student of the game who indicated in his book, *Bowling*, written in the nineteenth century that religion and bowling were closely associated as far back as the fourth century A.D. At that time bowling was done in the cathedrals as a religious ceremony. The parishioners were asked to place their pins or *kegels* at the end of the cloister and then

were given a round stone called a *heide* ("heathen"). If the *kegler* was successful in knocking over his pin, this indicated a clean and pure life. Failure to knock over the pin called for stricter adherence to church rules and regulations.

As time went on, changes in both the equipment and rules took place. Specially shaped pins were developed, small stones were replaced by larger ones, and wooden balls were eventually substituted for stones. The game lost its religious significance, but it continued to be played by the upper class of laymen rather than by the common man. Martin Luther was an avid bowler and established the ninepin game that became standard in Germany. The game of bowling spread from Germany into Belgium, Holland and Austria in the fifteenth, sixteenth and seventeenth centuries. Skittles, as bowling was called in England, was introduced there in the fourteenth century. Lawn bowling, a present-day favorite of the British, had its beginning with the development of skittles.

The Dutch are credited with bringing bowling to the United States. It is not known just when this happened, but the year 1820 is accepted by most bowling historians. By 1835 bowling at pins gained considerable popularity in the area of New York, New England, and as far south as Washington, D.C. Unfortunately, gamblers also began to take a keen interest in bowling, and in a few years they just about took over the sport. Conditions became so bad that in 1841 the Connecticut state legislature passed an act prohibiting "bowling at 9 pins," which was the standard game then. The legislative action, however, did not preclude the formation of the game of tenpins. A group of men who wanted to continue the sport without the gambling developed this new game and met to establish rules for its conduct. This meeting, which took place in 1895, marked the organization of the American Bowling Congress (ABC) and so established the group that was to shape the game as we know it today. In 1901 the ABC conducted its first national championship tournament in Chicago. These tournaments have continued through the years since then and have gained a large following. By 1942 ABC members numbered more than a million, and by 1961 membership exceeded the 4 million mark. The number of ABC members for 1978 was over 4.7 million. The membership of the Women's International Bowling Congress (WIBC), which was founded in 1916 in St. Louis, Missouri, also passed the 4 million mark in 1978.

Among professional bowlers, the prizes have shown a similar increase. On January 2, 1961, the biggest single bowling prize to date was won by Therman Gibson of Detroit; he won \$78,000 on the Jackpot Bowling television show, and he picked up this huge amount by rolling six straight strikes.

Dick Weber of St. Louis occupied a unique place in bowling history for the period from 1959 to 1965. During that time he averaged \$36,000 per year in tournament winnings, with a total for the period of more than \$225,000. This amount was more than double that of his nearest competitor. But then, contrast that with the earnings of Mark Roth of North Arlington, New Jersey, who set a new record for winnings in one year with \$134,850 total in 1978.

In noting the growth of the sport in terms of the number of ABC and WIBC members, it must be remembered that the memberships of these groups represent only a fraction of the total number who bowl. The most remarkable growth in the sport has taken place since 1954. Automatic pinsetters as well as lavish bowling establishments complete with free babysitting service, free lunches, and free lessons have made the sport attractive to the entire family. In their highly successful efforts to eradicate the stigma of the past, bowling promoters now refer to the bowling surface as *lanes* rather than alleys. In 1954 there were seventeen million bowlers in the United States. In 1978 the estimated number was sixty million, and whether this represents peak participation is anybody's guess.¹

¹From *Bowling* by Richard T. Mackey by permission of Mayfield Publishing Company. Copyright © 1980 by Mayfield Publishing Company.

TERMINOLOGY

ABC—American Bowling Congress.

Anchor—The last person in the lineup of a team.

Approach—The area immediately in front of the foul line.

Baby Split—The 2-7 or 3-10 split.

Backup—A ball that curves left to right for a right-hander, right to left for a left-hander.

Bedposts—The 4-6 or 7-10 split; also called railroad.

Blind—Score given a team for an absent member.

Blow—Failing to make a spare except in the case of a split that cannot normally be made. Also called an error or a miss.

Board—One of the one-inch boards making up each lane.

Brooklyn Hit—A ball that rolls into the pocket on the wrong side of the headpin. Also called a crossover or Jersey hit.

Bucket—The 2-4-5-8 or 3-5-6-9 pin leaves.

Cherry—Knocking down the front pin(s) leaving a pin(s) standing; also referred to as chop.

Chop—Knocking down the front pin on a spare attempt.

Convert—Successfully made spare.

Creeper—A very slow ball.

Curve—A ball that has a wide and sweeping arc, more pronounced than a hook.

Dead Ball—A poorly rolled ball which has little “action”; does not knock down as many pins as a “live” ball or any illegally delivered ball.

Double—Two strikes in succession.

Error—A blow or miss.

Fast Lane—A slick lane on which the hook ball does not curve or “take” as much as usual.

Foul—Touching any part of the bowling establishment and/or going beyond the foul line as the bowler delivers the ball.

Foul Line—The line that separates the approach from the lane.

Frame—The box on the score sheet in which the score is recorded; ten frames constitute a game.

Gutterball—A ball that goes off the lane into the gutter; also called channel.

Handicap—A method of score adjustment enabling individuals or teams of different averages to compete on a basis of equality.

Headpin—The number one pin, which is the pin closest to the bowler.

High Hit—A ball that hits the head pin or pocket too full or straight on.

Hook—A ball that breaks sharply to the left for a right-hander, and to the right for a left-hander.

Kegler—A synonym for bowler, derived from the German word “Kegel”.

Kingpin—The number five pin.

Lead-off—The first bowler in a team line-up.

Leave—The pins remaining standing after the first ball is rolled in a frame.

Light Hit—A ball that hits the head pin too far to the outside or not at all.

Line—A game of ten frames; also refers to the path of ball.

Lofting—Throwing the ball too far out on the lane.

Mark—A strike or a spare.

Nose Hit—A ball that hits the head pin straight on.

Open Frame—A frame without a strike or a spare.

Pin Bowling—Using the pins as the point of aim.

Pin Count—The actual number of pins knocked down.

Pin Deck—The area underneath the machine on which the pins are spotted.

Pocket—The area defined by the 1-3 pins for right-handers; the 1-2 pins for left-handers.

Sandbagging—Term applied to bowlers who deliberately hold down their scores.

Scratch Bowler—A bowler who has no handicap.

Series—Three or more games in league or tournament play.

Sleeper—A pin hidden behind another pin.

Slow Lane—A dry lane on which the ball will hook or curve, “take” easily.

Span—Distance between thumb and finger holes.

Spare—Knocking down all ten pins with two balls in a frame.

Split—A leave in which the headpin is down and two or more pins remain standing with adjacent pins knocked down in front and between.

Spot Bowling—Using the range finders or darts as the point of aim.

Strike—Knocking down all pins on the first ball.

Strike Out—To get three strikes in the tenth frame.

Sweeper—A “live” ball that sweeps the pins off the lane.

Tap—Leaving a 10, 4 or 7 pin on what appeared to be a strike ball.

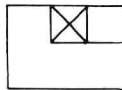
Turkey—Three strikes in a row.

Washout—The 1-2-4-10 leave for a right-hander; the 1-3-6-7 leave for a left-hander; also referred to as clothes line.

WPBA—Women’s Professional Bowlers Association.

SCORING

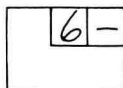
Most modern bowling establishment have electronic scoring systems; however, to fully enjoy the game one should understand the scoring system. The system includes six symbols and three rules:



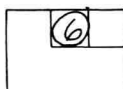
Strike—All pins knocked down on first ball.



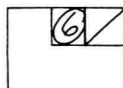
Spare—All pins knocked down with two balls.



Error—Failure to knock down all pins with two balls, except for a split.



Split—Head pin is knocked down, two or more pins are standing with adjacent pins knocked down in front and between.



Split Converted—Leave picked up with second ball.



Foul—A violation of the rules on second ball.

1. **Strike rule**—10 plus the pin count of the next two balls.
2. **Spare rule**—10 plus the pin count of the next ball.
3. **Tenth Frame Rule**—If a spare, one additional ball; if a strike, two balls are rolled.

Frame

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | |
|--------|-------|-------|-------|-------------|---|-------|-------------|---|-------|-------|-------|-----|
| Game 1 | 9 - | 6 3 | 3 / | 5 2 30 | | 7 4 | 8 1 29 | F | 9 F | 8 4 | | 129 |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | |
|--------|-------|---|-------|---|---|-------|-------|-------|---------|----|-------|-----|
| Game 2 | F F | X | 9 / | X | X | 6 2 | 3 6 | 6 / | 7 / 3 | 4 | | 138 |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | |
|--------|---|---|---|-------|---|-------|-------|-------|---------|-------|-------|-----|
| Game 3 | | X | X | 7 / | X | 6 / | F 7 | 8 / | 7 / X | X X | | 201 |

Score the above three games, frame by frame.

LEARNING STRATEGIES

1. Begin to apply correct terminology to the equipment, the facility, and the situations produced by the game.
2. Learn to use mechanical scoring systems.
3. Develop an appreciation for the history of the sport.
4. Learn to score manually.

Chapter 2

Equipment and Facilities

Objectives

Bowling is a sport that does not require the purchase of equipment. Casual clothing can be worn. A ball and rental shoes can be obtained at a bowling establishment. However, if one is serious about the game, it is imperative to have your own personal equipment, especially a ball and shoes. Care should be exercised when purchasing equipment. Generally, it is preferable to purchase quality equipment at a pro shop or a bowling supply house.

A modern bowling establishment will cost several million dollars or more. The fees that bowlers pay are used to maintain the facility, defray operational expenses, amortize the mortgage, and render a profit. It is important that the customer understand the operation of the machinery and the services provided by the personnel of the bowling establishment.

Personal Equipment

Shoes:

Most bowling shoes manufactured today are made for the mass market. They are designed for the casual rather than the serious bowler. When shopping for shoes, one should look for a pair that will have a leather or teflon sliding sole on one shoe and a non-sliding sole that will be rubber or polyurethane material on the other shoe. The tip of the non-sliding sole will be leather to prevent excessive wear on the toe. Less expensive shoes will have the same sole on both shoes (so the same pair of shoes can be sold to either right or left-handed bowlers). Well made bowling shoes will have the sole stitched to the body of the shoe. The poorer quality shoes will have the sole glued to the body of the shoe. The sole will separate from the shoe due to foot perspiration.

If one is serious about the game or has feet that are difficult to fit properly, a pro shop can order a pair of custom-made bowling shoes. Although the initial cost is high, the shoes will last a lifetime with normal care.

Gloves:

Most of the time bowling gloves are not necessary if the bowler maintains a proper grip. Some bowlers, however, feel a glove helps them keep a firm wrist. Since most gloves are designed for the mass market, quality is usually lacking. If wrist control is

desired, make sure the glove chosen has metal on both the front and the back. The hand will perspire during use; therefore, a glove with removable metal strips should be purchased so that it can be hand washed occasionally.

Bags:

A bowling bag must withstand considerable abuse. Choose a bag made of a high quality vinyl material for easy cleaning and long wear. Plastic bag covers are available at a nominal cost to help protect the bag from dirt and scratching.

Bowling Balls:

The most important piece of equipment for bowling is the bowling ball. Due to the wide assortment of ball weights, composition, and types of drilling, it is important that a ball be chosen carefully. A properly fitted and drilled ball is necessary if maximum results are desired. Before purchasing a new ball, it is important to understand the choices possible.

← **Weight**—Bowling balls are manufactured from 8 lbs. up to a few ounces over 16 lbs. Generally the 8 to 11 pound balls are used for younger junior bowlers, people with physical limitations, or those who are very small in body build.

Almost any bowler (man or woman) with normal physical abilities can handle a ball weighing 14-16 pounds. Once the ball is set in motion by the pushaway, it should swing freely and easily without additional effort. Bowlers using a light ball have a tendency to carry it during the approach rather than letting it swing properly. A heavier ball cannot be stopped or carried as easily and will usually enable the arm to swing more freely. Many timing problems can be eliminated with a heavier ball.

A heavier ball is more powerful since it will deflect less when it hits the pins. Additionally, a heavier ball will usually be rolled at a slightly slower velocity, creating more hook. Most bowlers who increase their ball weight are surprised at the increased number of strikes that result. Whenever changing ball weight, a short adjustment period will be necessary. Normally a change of no more than two pounds at a time is recommended.

Grip—There are three main types of ball grips: conventional, fingertip and semi-fingertip. Each has its advantages and disadvantages.

In the conventional grip the fingers are inserted to the second joint. This enables the bowler to feel a secure hold on the ball. Less rotation can be placed on the ball because less leverage is applied by the fingers as they slide out of the holes.

In the fingertip grip the fingers are inserted to the first joint. More leverage can be applied by the fingers and the ball will hook more. Some bowlers feel insecure with the fingertip grip because they feel they do not have a firm grip on the ball. A short adjustment period will be necessary before the bowler feels comfortable.

The third type of grip is the semi-fingertip. Here the fingers are inserted midway between the first and second joints. More leverage can be applied than with the conventional grip, and the bowler will feel more secure than with the fingertip grip. The major problem with the semi-fingertip grip is that there is no natural line between the two joints; therefore, the fingers may be inserted to a different depth with each delivery. When this happens, the ball will roll inconsistently. By having the finger holes drilled to the exact depth desired, the fingers can be inserted into the bottom of the holes before inserting the thumb. This will keep the hand position relatively consistent.

Composition—Bowling balls are manufactured of rubber or polyurethane material. Lane coatings, lane conditions and the individual's delivery will cause balls of different composition to react differently. A person should choose the type of ball that works best for him/her.

Rubber bowling balls tend to grip the lane surface sooner than plastic. Because the ball begins hooking earlier, it may lose some of its roll just before it gets to the pins.

A plastic ball will tend to slide farther on the lane before it begins its rotation. Once it begins its hooking action, the ball will usually hook more than a rubber ball. On oily lane conditions the plastic ball may skid too far and hook late, not gaining enough revolutions for maximum power.

The type of lane coating used at a bowling establishment will have some effect on the type of ball to select. The softer lacquer coatings cause plastic balls to hook a great deal. Generally, rubber balls work best on lacquer-coated lanes. The harder plastic lane coating retards the amount of hook. Usually the plastic balls will react best on plastic coated lanes. It is important, however, to realize that these are generalizations which do not take into account the amount of hook produced and the conditions of the lane.

Hardness—Modern technology has enabled manufacturers to produce bowling balls of varying hardness. With a softer bowling ball more surface area of the ball touches the lane (much like a radial tire). More friction is produced and the ball will grip the lane better, resulting in more hook. A harder ball will hook less and skid more because less surface area of the ball touches the lane.

Ball hardness can be used to play various lane conditions. A soft ball should be used on oily lanes when more hook is desired. A hard ball should be used on dry lanes when less hook is desired.

Ball hardness is measured by a machine called a *durometer*. This machine measures the amount of pressure necessary to push a pin into the outer shell of the ball. The American Bowling Congress has ruled that 72 is minimum legal hardness. The following list may be used as a guideline to determine relative hardness:

| | |
|----------|-----------|
| Under 72 | Illegal |
| 72-75 | Very Soft |
| 76-80 | Soft |
| 81-85 | Medium |
| 86-90 | Hard |
| Over 90 | Very Hard |

Hardness will vary from one ball to the next. Most good pro shops have a durometer for testing the ball hardness. If one plans to bowl tournaments, it is essential that the ball meets the minimum legal hardness requirement.

Ball hardness will change with temperature variations. The warmer the ball, the softer it becomes. As the ball cools, it becomes harder. It is wise to keep the ball at about the same temperature as the bowling establishment.

Ball Weight Systems —

When a bowling ball is manufactured, an additional amount of weight is added to the top of the ball underneath the label. This added weight is called the *weight block*.

Rubber balls will normally have a weight block made of a denser rubber material. Plastic balls will normally have a weight block made of a barium material. No metal weights are allowed by ABC specifications.

The purpose of this added weight originally was to bring the ball back to a balanced state after drilling. However, by drilling the holes off center, or by taking less weight out of the fingers and thumb hole, the ball will remain out of balance. This unbalanced ball will do different things depending on where the weight is placed.

Until recently, very little scientific research has been done on the effects of ball weight systems. Most of the information was based on individual experience by the bowlers. Results from scientific research under laboratory conditions have revealed some startling contradictions to accepted beliefs regarding ball weight systems. A great deal more research is needed before a specific set of rules will be available.

The effect of ball weight systems depends on the individual delivery by the bowler. Such factors as ball weight, speed of delivery, amount of lift applied and location of the ball track will cause these weight systems to react differently.

Ball weighting is a technical skill and requires the services of an expert. When a ball is purchased, personnel at the pro shop will factor in the proper weight block characteristics before the ball is drilled.

Purchasing A Ball

Many department or discount stores sell high quality balls but will not be able to drill the ball properly. It is preferable to buy a ball from a pro shop located in a bowling establishment that specializes in ball fitting and drilling. After a ball has been drilled, some minor alterations may be necessary. Usually these problems are not discovered until the ball has been used. Personnel in a bowling center can watch a person bowl and make suggestions as to the type of ball needed based on the type of delivery used. Bowl several games before having the ball drilled. The hand will expand slightly while bowling and the ball should be fitted to this size.

If possible, always bring your old ball to the pro shop. A good drilling pro will examine the span of the old ball and hand callouses to determine if a change in pitch or span is necessary. Additionally, the ball track can be examined and different weight systems recommended.

Whenever possible, visit the pro shop during the day. There are fewer customers in the afternoon and lanes are usually available. Make an appointment. The more time one is able to spend with the person fitting and drilling the ball, the better the outcome will be.

Selecting A House Ball

Nothing impedes learning the skills of bowling more than an improperly fitting ball. Most beginning bowlers are concerned that the thumb will stick in the ball, and as a consequence will select a ball that has a larger than necessary thumb hole. If the ball drops off the thumb on the pushaway, there is little chance for consistency in the delivery. Also, this occurrence usually leads to other improperly executed skills. It is absolutely necessary to select a properly fitting ball.

The grip and the span are the two factors to consider when fitting a ball. Since most house balls are drilled with the conventional grip, this grip will be used as an illustration. The thumb is fitted by placing a ball on the return rack with the thumb hole in the top position, and inserting the thumb in the hole, up to the second joint. The thumb should be able to slide in and out freely, but one should feel the sides of the hole surrounding the thumb. The hole should be deep enough so that the thumb does not touch the bottom. A bent thumb resulting from the thumb touching the bottom of the hole or from a hole that is too large will cause problems in releasing the ball. Thumb nails may have to be trimmed.

To fit the span, insert the thumb into the ball and place the hand flat on the ball, extending the fingers out over the finger holes. The second joints of the middle and ring fingers should extend approximately 1/8" - 1/4" beyond the inside edge of the holes. The finger holes should fit a little looser than the thumb hole. If the span is too narrow, the ball may slip off the fingers. The hand and arm will become fatigued easily because of the extra muscular contraction needed to keep the ball from falling off the hand. If the span is too wide, the hand will be over extended and will also fatigue easily, causing an inconsistent release. In both cases the muscles of the thumb, fingers and forearm will be strained unnecessarily. A simple test to determine the fit of the span is to hold the ball at the side (with a straight wrist and thumb at the thigh) and insert a wooden pencil between the surface of the ball and arch formed by the palm of the hand. The pencil should fit snugly. If the pencil cannot be inserted, the span is too wide which will cause the bowler to drop the ball. If the pencil is loose, the span is not wide enough, which will prevent the bowler from getting the proper lift. In either case, select another ball using the same techniques.



Figure 2.1. Thumb should be inserted and retracted easily.

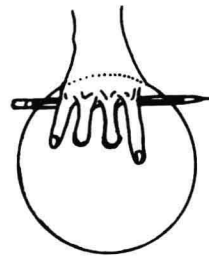


Figure 2.1. Slide pencil between surface of ball and palm of hand.

For left-handed bowlers, the middle finger hole is set approximately 1/4" closer to the thumb hole than is the ring finger hole. Most house balls are drilled for right-handed people, making it difficult for left-handed persons to select a properly fitting ball. There are three solutions to this problem: (1) search for a ball that has been drilled with the "house drill", i.e., with no pitch and both finger holes equal distance from the thumb hole which permits usage by both right- and left-handed bowlers; (2) select a ball with over-sized finger holes; or (3) purchase a ball drilled to one's own