History

Bowling is an ancient game with a long and diverse history. Bowling can be traced to ancient Egypt, where archaeologists unearthed a child’s tomb containing stone balls and other bowling artifacts. It is believed that bowling at pins most likely originated in Germany. In third century Germany, bowling was a religious rite. In church services, a pin would be set up to represent a heathen or pagan. The ability to knock down the pin was a testament to a person’s godliness and would often be followed with a post-session banquet. Failure to knock down the pin would result in the person being encouraged to seek greater spiritual fortification. Over the next thousand years, Germans bowled at clusters of 3 to 17 pins, with 9 pins emerging as the most popular number. Throughout the middle ages, ninepin bowling spread across Europe in various forms.

Ninepin bowling came to America with the Dutch colonists. In America, it was both an outdoor and indoor sport. Indoor bowling was a commoner’s sport and became strongly associated with drinking and gambling. Bowling enthusiasts waged continuous battles against local authorities who tried to ban bowling activity as a way to eliminate gambling, the idle use of time, and drinking. Many believe the addition of a tenth pin was a tactic to circumvent an 1837 Connecticut ban of public ninepin bowling. Private bowling clubs also began to develop as an answer to bans on public bowling.

A major issue in the sport of bowling in the late 1800’s was a lack of standardization. Balls, pins, lanes, rules, and even scoring varied from city to city. By the late 1800’s regulatory groups began forming in an attempt to standardize the game. Rules were formed regarding ball size, pin size, playing procedures, and lane dimensions. The first successful national organization for bowling was the American Bowling Congress (ABC), founded in 1895. The ABC standardized the rules, scoring, and equipment for the first time in the game’s long history.

Despite its popularity, bowling continued to be associated with the “rough life” of taverns and pubs. This continued until the Women’s International Bowling Congress (WIBC) was formed in 1916. Slowly, women began to assert their influence and skill on the game. This brought a much-needed respectability to the sport. Bowling alleys began cleaning up and eventually became the modern, family-oriented recreational facilities we see today.

Membership in the national organizations peaked in the late 1970’s when both the ABC and WIBC had more than four million members each. Unfortunately, membership in national organizations has dropped by more than half over the last 25 years. Despite this dramatic drop in membership, the number of perfect scores in sanctioned competition has risen more than ten times. Many bowling purists claim that easy lane conditions and technological advances have hurt the sporting aspect of the game, making it too easy. In an attempt to regulate this more closely, all national bowling organizations have merged into one organization. In 2004 the United States Bowling Congress (USBC) was created. Its goal is to speak with one voice for bowlers of all ages, genders, and skill levels in the promotion and development of the game.

Terminology

ABC: American Bowling Congress
WIBC: Women’s International Bowling Congress
USBC: United States Bowling Congress
PBA: Professional Bowlers Association

Approach: 1) Start of the bowler’s motion, ending with the delivery.
           2) Part of the lane from the back of the ball return area to the foul line.

Alley: A bowling establishment or group of lanes.
Foul: Touching or going beyond the foul line at delivery.
Foul Line: The line that determines the beginning of the lane, also where the gutters start.
Frame: One of ten units that comprise a game. Each large square on a score sheet is 1 frame.
Gutter/Channel: Semicircular depression to the right and left of the lane to guide the ball to the pit should it leave the playing surface.
Handicap: Pins awarded to individuals or teams in an attempt to equalize competition.
Headpin: Front or Number 1 pin of a rack.

Hook Ball: A ball that breaks to the left for right-handers and to the right for left-handers.

House Ball: Bowling ball provided by the bowling center.

Kingpin: Number 5 pin. It is a key pin to produce a strike: a light pocket hit or deflected ball leaves this pin still standing.

League: Organized competition on a weekly basis for team play.

Leave: Pins left standing after the first ball has been rolled.

Mark: Making either a spare nor strike in a frame.

Open Frame: A frame having neither a spare or strike.

Perfect Game: A game of all strikes, resulting in bowling's maximum score of 300.

Pit: Space at end of lane where ball and pins wind up.

Pocket: The space between the 1–3 pins for the right-handed bowler; between the 1–2 pins for the left-handed bowler. Ideal target for hitting strikes.

Return: The track on which balls roll from pit to ball rack.

Spare: To knock down with the second throw the pins left standing after the first throw.

Split: A spare leave in which there is at least one space between standing pins.

Strike: Knocking down all ten pins with the first effort.

Turkey: Three consecutive strikes.

Bowling Lane and Equipment

The rules, equipment, specifications, and scoring system of tenpin bowling are standardized worldwide.

Pins: Height of 15 inches; weight ranging from 3 lbs, 6 oz to 3 lbs, 10 oz.

- Pins are arranged in an equilateral triangle (3 ft on each side) and are spaced 12 inches apart.

Balls: Circumference of 27 inches; maximum weight of 16 lbs

- Balls must be made of a solid, non-metallic material and properly balanced

Lane: Width of 41–42 inches; length of 60 ft (foul line to front pin) with an approach of 16–17 ft

- Lane must be flat and made of wood or a hard synthetic material.

Pin Numbering: The pins are numbered as follows.

Rules and Etiquette

A player is allowed up to two bowls (or throws) of the ball with each turn, called a frame. There are ten frames in a game. The goal is to knock down as many pins as possible within each frame. If all ten pins are knocked down on the first bowl (strike), the second bowl is not necessary. When delivering a throw, no part of the bowler’s body may touch any part of the lane past the foul line. A foul results in that specific bowl counting as a zero. If the foul occurs on the first throw, the bowler is permitted the second throw of that frame. A ball that falls into the gutter is considered a dead ball; any pins knocked down after a ball enters the gutter are not scored. Fallen pins that are not removed by the sweep are considered dead and are not to be played. All dead pins are to be cleared from the lane prior to the next bowl. It is illegal to put any substance on the ball or the shoes that will alter the playing surface (the ball, the approach, or the lane).

It is considered good etiquette to stand off the end of the lane when waiting your turn. Before each bowl, a bowler should look to their immediate left and right to ensure they are next to go. Loud talk and obnoxious behavior should not exist on the lanes. Celebration for success is permitted, but should be done in a spirit of good sportsmanship. Expressions of disappointment or frustration should be controlled and limited. If you wish to borrow someone’s ball (even if it is a house ball), show courtesy by asking first. Be considerate by not abusing your bowling area. Things like lofting the ball down lane or abusing the ball return are not appropriate. Courtesy also dictates cleaning up the bowling area when all players are finished. This includes returning house balls and shoes.
Scoring

Scoring is done by either a scorecard or automatic electronic scoring. Even when scoring is done automatically, it is essential that all bowlers know how to score a game. Fortunately, it is not as hard as it seems.

The most difficult part to comprehend is when a strike or spare is scored. If a bowler knocks down all the pins on the first throw, it is called a strike. The score doesn't get calculated right away. When a bowler rolls a strike, he/she receives 10 points plus the values of the next two throws as a bonus. For example, if you score a strike in the first frame, then a 7 and 1 in the second frame, you would score 18 (10 + 7 + 1) for the first frame, and 8 for the second frame, making a total of 26 after two frames.

If a bowler is unable to knock down all of the pins on the first throw, a second ball is thrown to knock down the remaining pins. Successfully knocking down all the pins on a second throw is called a spare. Again, the score doesn't get calculated right away. When a bowler picks up a spare, he/she receives 10 points plus the value of the next throw as a bonus. For example, if you score a spare in the first frame, say a 6 and a 4, then get an 8 and a 1 in the second frame, you would score 18 (6 + 4 + 8) for the first frame, and 9 for the second frame, making a total of 27 after two frames.

When it comes to the final frame or tenth frame, the scoring is slightly different. In the tenth frame, you get bonus balls if you strike or spare, to a maximum of three rolls. If you strike in the first roll, you have the opportunity to bowl a second and third roll. If you scored strikes in each of your final three throws, the score for the tenth frame would be 30 (10 + 10 + 10). If you spare the first two rolls of the tenth frame, you get the third roll as a bonus. So, a spare, 9 and 1, followed by a strike would equal 20 (9 + 1 + 10).

An example of how to score a game is as follows:

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ball 1</th>
<th>Ball 2</th>
<th>Ball 3</th>
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<tr>
<td>1</td>
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<td>10</td>
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</tbody>
</table>

Equipment Selection

The most important equipment decision you make will be which ball to use. Most bowling centers provide a large number of balls from which the bowler can choose. This provides an excellent opportunity for beginning bowlers to enjoy a sport without making a large investment in it. Certain principles should be understood when choosing a house ball. Three areas to observe are hole size, span, and ball weight.

Your whole thumb should fit comfortably into the hole with both sides of the thumb touching the inside of the hole. Do not choose a ball with a hole that is too loose or too tight. With the thumb inserted, the fingers should then fit comfortably into the finger holes up to their second joints (conventional grip). Span (the distance between the thumb and finger holes) plays a major role in this. If the span is too long or too short, your fingers won’t insert to their proper depth. A properly fitting ball should feel comfortable in the palm while allowing the thumb and fingers to be appropriately inserted. Proper weight depends on the bowler’s strength and ball fit. The better the fit, the better the ball will stay on the hand without additional effort. A general rule is to choose the heaviest ball that you can still control easily. Too heavy of a ball results in lack of control, shoulder depression, jerky movements, and, ultimately, inconsistent placement. Too light of a ball prompts a bowler to “muscle” the ball (apply excess force), causing a lack of smoothness to the swing and, ultimately, inconsistent placement.

To ensure the ball is not too heavy, perform the extension test by placing the ball in your swing arm and extending it out, away from your body. Choose a ball that allows you to hold this position 4–5 seconds without dropping the ball or bending the wrist. To ensure proper fit and weight, perform the practice swing test. Standing in the finish position (sliding foot forward), start with the ball hanging at your side. Swing the ball in a short arc back and forth, gradually increasing the length of the swing. You should be able to perform 3–4 swings while still maintaining ball control.

Shoe selection is also important in bowling. In addition to bowling centers providing house balls, they also provide house shoes. When selecting a pair of shoes, find a pair that fits properly (not too loose or too tight) and provides comfort and stability. The ideal bowling shoe is a commercial shoe that has rubber on your propelling foot and leather on your sliding foot. Most bowling centers offer universal bowling shoes in order to accommodate both right- and left-handed players with leather on both soles. This compromise does not promote good bowling form and results in less...
stability in the delivery.

**Bowling Technique**

**Set-up**

There are four basic strokes in bowling. All four require a similar set-up and approach. Consistent bowling requires a consistent set-up. Although it takes some trial and error to establish the proper set-up, once established it should be strongly adhered to. The set-up can be organized into 3 steps—starting position, posture, and target and approach alignment.

1) Start by placing your sliding foot (left foot for right-handed bowlers) on the center dot. This offsets the ball to your dominant side, giving you the proper angle of attack. Left and right adjustments should be made based on deviations from your desired target. Starting distance adjustments should be made based on the distance needed for your approach.

2) Next, align your feet, hips, and shoulders so that they are facing your target. This is called “squaring” yourself to the target. Allow for a slight flex in the knees and a slight forward lean at the waist (do not slouch or slump though).

3) Every time you bowl, you should have a target line and an approach line. The target line is the ball’s intended path down the lane. It starts with the ball in the set-up position and ends with the ball striking the pins. The ideal target line for strikes should always cross over the second arrow in from the gutter and finish at the pocket (see terminology). This is true for both straight bowlers and hook bowlers. The approach line is the line your body takes during the approach. This line should always be parallel with your target line. A proper set-up incorporates visualization of both your target line and approach line.

**Approach**

The most common approach in bowling is the four-step approach, a combination of footwork and arm swing. Your approach should feel natural and smooth. If you feel uncomfortable, or if you are forcing things, your approach and delivery will lack consistency. Like a metronome keeping time, your approach should have a consistent rhythmic cadence. Along with a four-step approach, you should have a four-count cadence. This helps with smoothness and consistency.

Start your forward motion with two concurrent moves. On the cadence count of 1, confidently step forward with your propelling foot (right foot for right-handed bowlers), while at the same time pushing the ball away from your body in the direction of your target line (pushaway). Let your momentum continue forward as the ball begins a free pendulum swing downward. On the count of 2, step forward with your sliding foot (ball should be at the bottom of its pendulum swing). At the same time, let your balance arm move to an out, down, and back position. This is called the takeaway. On the count of 3, continue to maintain your set-up posture and step forward again with your propelling foot (ball should be at the peak of the backswing, starting to come forward). On the count of 4, step forward with your sliding foot and, while lowering your hips straight down (into a lunge), push into your slide with your propelling foot. Finish with the release of the ball. Be sure to follow through high and hold your position (failing to hold your position indicates lack of balance throughout the delivery).

Always keep your swing in line with your target line. Two of the most common swing errors are the wraparound swing and the outside swing. Like it sounds, the wraparound swing occurs when the bowler allows the ball to wrap around his/her body during the backswing, usually from pushing the ball too far to the outside during the pushaway, resulting in the ball being pushed outside of the target line. The outside swing occurs when the bowler allows the ball to swing out away from his/her body during the backswing, usually from pushing the ball too far inside during the pushaway, resulting in the ball being pulled to the opposite side of the swing arm (inside the target line).
**Straight Release**

The straight ball requires a passive release. A passive release means there is no movement at the point of release. The ball is set in position at the beginning of the stance and remains there throughout the swing. For the straight release, the fingers are aligned at the 12 o’clock position (as if the hand were a clock and the fingers are pointing straight up in the 12 o’clock position). From start to finish, your hand position does not change. This position produces very little side roll. The rotation of the ball should be in the same direction the ball is thrown.

There are five steps to an effective straight release. They are as follows:

1. Hand is positioned in the 12 o’clock position and maintained throughout the swing.
2. Near the bottom of the swing, the ball starts to drop off the thumb.
3. Ball rolls forward onto the fingers.
4. As the swing extends, ball rolls off the fingers and smoothly onto the lane.
5. Fingers come almost directly up the back of the ball into a follow-through.

**Passive Hook Release**

The hook ball can be done with both a passive and an active release. When throwing a hook ball, it is important to realize that excessive motion is not necessary. The best hook bowlers let their hand position do the work of creating spin on the ball. This is done by having the fingers slightly offset from the ball’s center. Spin is created as the swing drives the hand through and then up the side of the ball.

For a passive hook, start with the fingers slightly rotated inward in the 10 o’clock position. Having the fingers in the 10 o’clock position offsets the fingers from the center of the ball. As the ball releases off the fingers sideways, it naturally imparts lateral spin on the ball. Clearing the thumb is essential to an effective hook ball. If the thumb releases late, the fingers cannot create the spin necessary for the hook.

There are four steps to an effective passive hook release. They are as follows:

1. Hand is positioned in the 10 o’clock position and maintained throughout the swing.
2. Ball slides off the thumb near the bottom of the swing.
3. Drive the ball forward while fingers maintain their offset position.
4. Follow-through with firm fingers moving in a straight line through the ball. (If the fingers are in an offset position, the ball will rotate.)

Although not as aggressive, a passive release like the straight ball or passive hook will often provide you with more consistency than what you might find with an active release.

**Active Hook Release**

The active hook is a release that provides more hook to the ball, while still maintaining an acceptable level of accuracy and consistency. It is similar to the passive hook, in that the spin of the ball is still generated by the ball’s release off the fingers. The active hook, however, allows for a small amount of wrist motion prior to releasing the ball. Instead of passively holding the 10 o’clock position, you actively rotate to the 10 o’clock position after the thumb has cleared the ball. If this is done after the thumb has cleared, it places additional spin on the ball as it is released. Do not rotate past the 10 o’clock position. Although the active hook may place more spin on the ball, it is a harder release to control than the passive hook.

There are four steps to an effective active hook release. They are as follows:

1. Hand starts in the 12 o’clock position.
2. Ball slides off the thumb near the bottom of the swing.
3. As the thumb clears, continue to drive the ball forward while rotating the hand into the 10 o’clock position.
4. Follow-through with firm fingers moving in a straight line through the ball. (Do not rotate past the 10 o’clock position.)

**Rolling Release**

The rolling release is the most active release taught in this class and, as such, has the potential to have the most hook. However, with more release activity comes more variability. It takes years of practice and dedication to obtain the consistency that is required for a highly active release.
To perform the rolling release, think “open then shut.” You will need to open the hand at the top of the backswing and close it at the bottom. Start out with the ball in the 12 o’clock position. Maintain this position through the pushaway and backswing. At the top of the backswing you will need to open your hand position. Rotate your hand outward to a nearly 2 o’clock position. Imagine pointing your thumb at the wall with your pinkie pointing in line with your target. This will allow you plenty of room to build up your rotation during the release. Maintain this open position until the release. At the release, rotate your wrist through and past neutral to a closed position (no further than 9 o’clock). Keep your hand behind the ball. Rotating around the ball and beyond the 9 o’clock position forces your arm away from the body and causes rotation within the shoulder socket. This causes a weaker roll (more spin than roll) and sacrifices accuracy.

There are six steps to an effective rolling release. They are as follows:
1. Hand starts mostly under the ball in the 12 o’clock position and slightly cupped if possible.
2. Hand stays in original position during the backswing.
3. At the top of the backswing, the hand turns slightly outward with thumb facing away from the body (approximately 2 o’clock position).
4. At the bottom of the swing, the forearm begins rotating back to a neutral position.
5. Continue driving the ball forward through the release while finishing the rotation to a closed position (no more than 9 o’clock position).
6. With the hand behind the ball, allow the thumb to clear and drive the fingers through the ball and to the target.

**Bowling Strategy**

**Strike Targeting**

When attempting your first bowl of each frame, your primary goal should always be to hit a strike. Most bowling lanes are oiled so that they are very forgiving and strikes are a very real possibility. It is generally accepted that a well executed hook ball provides the greatest chance for a strike. The hook ball has been shown to have a steeper angle of attack at the pins. This angle lessens the effect of ball deflection and increases the chance of striking the kingpin (5 pin). The hook ball has also been shown to make the pins tilt and spin more than a straight ball. This creates greater pin action and increases the chances of more pins falling. It should be noted that the benefits of a hook ball become obsolete if the bowler cannot accurately place the ball on the target line. In such cases, the bowler is best served by focusing on accurately placing a straight ball.

When attempting to get a strike, always have your target line finish at the pocket. The pocket is a common term in bowling that designates the ideal place to strike the pins in order to get a strike—generally accepted as the small space between the first three pins for right-handed bowlers or between the second and first pins for left-handed bowlers. Although your target is the pocket, you should not look at the pins when bowling. Choose a closer visual target that falls along your target line. Most bowlers use the second arrow as their visual target (see picture). Whether it is an error in your set-up, approach, target line, swing, or release, missing the pocket will almost always result in a leave (pins left standing). Nobody is expected to bowl a perfect game of 12 strikes. The key to good bowling is determining where an error occurs and adjusting for it; doing so brings improvement and success.

**Spare Targeting**

The biggest decision people are forced to make when attempting to hit a spare is which type of bowl to use. Many hook bowlers feel that it is weak to attempt a spare using a straight ball release. They are wrong. Most professional bowlers use several variations of hook balls and straight balls when picking up spares. Before attempting a spare pick-up, always address the question of which type of bowl is best for the situation. Many times a leave consists of just one or two pins. These pins can usually be knocked down best using a straight bowl. Often we might have a small cluster of 4–5 pins to the left or to the right. Likely an accurately placed hook ball would suit here. Regardless of the type of bowl you choose, always attack the remaining pins at an angle. There is more room for error when you use angles. This is especially true when shooting for the 7 or 10 pins. An angled attack is always recommended over a straight-on attack.

Take pride in being able to pick up spares. Although it may be frustrating to not get strikes, consistently picking up your spares is the best way to succeed. Make it a focus of your game, and your scores will reflect it.