

# **BOWLOLOGY**

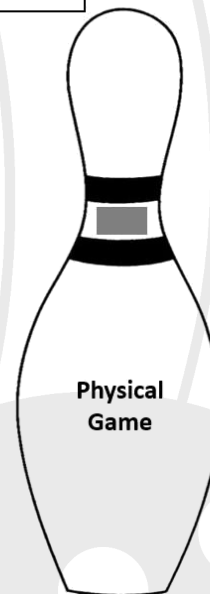
## **Bowlology Spare-Strike Pillars**



Lane Play



Knowledge  
of the  
Sport



Physical  
Game



Ball  
Dynamics

**Bowlology Presents:**  
**Bowlology Academy Overview, Fact Sheets & Exams**  
This program will enable bowlers, coaches,  
pro-shop operators to identify bowling knowledge

By Bowlologist Josh Hyde B.L.P  
USBC Silver Coach



# Knowledge of the Sport

This may sound elementary; however bowlers do not know what they think they know. Some do not even now how to keep score, some do not even know what pins they even left. When they leave a spare. The knowledge of the sport is the foundation to have a great mind in bowling. If a person does not even know what pins they left when they shot a 299, this shows they are not even on an amateur level. The knowledge of the sport is the foundation in helping bowlers to improve in their game. Keeping score in bowling was one of the biggest challenge to learn. As I got better, I thought as if I could absorb bowling knowledge like a sponge. To be a pro-bowler pros know what they need to do when they win a game for a title or to advance to the

## Physical Game

One-fifth of the lanes is the approach this is where the bowler has to put their position to execute properly so they can win a pot game or a small tournament at their bowling center. The text-book style is a good place to start but as a bowler wants to advance their game. They need to work on fundamentals and one advanced move that they can think can do. Timing in a text-book is moving the ball and the feet at the same time. For a pro-bowler this may not be the case. They are more advanced at the game than what the average Joe Bowler is doing with bowling three games a week and a sweeper here and there. Some fundamentals that bowlers see from the pros in their game are textbook like while others are what an experienced and talented pro would do. Coaches would not want their students to emulate what the pros are doing right off the bat as a student needs to learn the basics and how they react on the lanes. The textbook style with a four-step approach would be 1,1,2,2,3,3,4,4. This is an easy way to teach the first-time bowler as the coaches get more advanced. They need to work with what the bowler has and try to help them critique their style of play.

## Lane Play

Bowling is a surface sport. Bowlers are going to have to adjust in their league or tournament play. There are all kinds of adjustments, such as hand position changes, that a bowler can make during lane transition. If they expect the lane to remain the same during a game in league or tournament play, they are sadly mistaken. If bowlers know how to play lanes throughout the course of the block, they might have a leg up on the field in tournament play or league. However, if they do not know how to adjust on the lane, they will be at a disadvantage. Smart lane play helps a bowler know what to do when he/she runs into a difficult situation.

## Ball Dynamics

In ball dynamics there are a number of layouts that a pro-shop operator can use. In the past bowlers have been told that a pin-down ball will read the lanes earlier. A pin-up will read the lanes later. This is true however bowlers need to rethink as a pin up or pin-down as the delaying or making the breakpoint sooner. Bowlers need to keep in mind that the surface of the ball is more important as to the layout of the ball. There are three types of bowlers the spinner, three quarters and the full roller. Pro-shop operators need to know the bowler's positive axis point to be able to suggest a ball that a bowler could buy. If a bowler has a pin-up ball but is sanded to 1500 the ball is going to read earlier. Vice versa if a bowler has a pin down ball but is polished the ball is going to react later. Since it is polished both balls will still read earlier or later depending the bowlers PAP. In developing an arsenal this is important to know. How many asymmetrical and symmetrical does the bowler want to have.

# Spare Strike Pillars

A bowler who applies these four pillars during a tournament or a league will have success. Knowledge of the sport is the foundation of the sport itself. The physical game is also important because the bowler has twenty percent of the lane in which he or she will execute every frame. Lane play is a factor because if the bowler can read their ball on the lane, they will know what adjustments are needed. Ball dynamics are essential to the bowler. The bowler and the pro-shop operator must be on the same page. This will give the bowler a leg up on their competition. These four pillars properly followed can maximize a bowler's game. Bowlers, coaches, and pro-shop operators should have a high degree of understanding of these pillars to be successful on and off the lane.

## Greatest Minds of Bowling

These individuals have studied the game with great detail. This cannot be stressed enough. The Bowlology spare strike pillars are the essentials of the game to become one of the greatest minds of bowling. All of these individuals know these four key areas of the sport. Some of these leaders have contributed to the USBC coaching manuals for the Bronze, Silver and Gold certifications. The second bowler that completed the Triple Crown was Johnny Petraglia. Parker Bohn III has made the statement about Johnny being the smartest person in bowling. Brunswick named a ball after him. Glenn Allison said that Bill Taylor was the smartest person in bowling. These individuals have studied the sport and have made bowlers bowl better. David Ozio talked with Bill Taylor one day. The next day, Ozio went to the bowling center and thought about what he and Bill had discussed. He sat down at the settee area and he came to the realization with what Bill had said totally made perfect sense. Bill Taylor was not a big fan of the new bowling ball technology. However, during the late 70s, he wrote a book entitled **Balance**. The book described how bowlers could drill balls like they do today. He also explained ball reaction in this book. Taylor also came up with the idea of the oil-less lane.

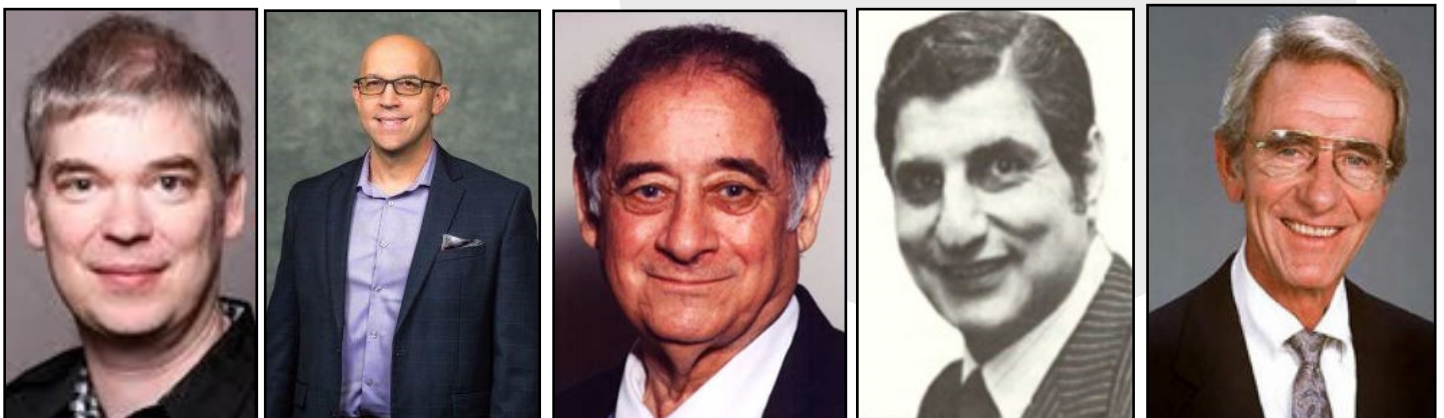
## Bowling Innovations

Back in the 1800s, bowlers yearned for more hook out of their ball. Balls were made out of wood back then. To get more hook, they would actually cut the ball in half and put a block of wood (referred to as the "DoDo") in the ball. These balls would hook more resulting in bowlers shooting higher scores. They would invent a dodo scale to find the counterfeit balls that bowlers tried to sneak in. In 1903, they would outlaw the DoDo ball. In 1973, Don McCune would soak his ball in MEK. This would make the ball hook more on the lane. He would win six PBA Tour Titles to become the Player of the Year. McCune revolutionized the game of bowling. Mark Roth and Marshall Holman created the modern power game. Roth & Holman were the first ones to hook the entire lane with the Columbia 300 Yellow Dot. Roth would go straight and hard at the spares. It was a different game back in the 70s. It is getting to be less of a challenge for a bowler to struggle. Bowlers still have to make a delivery on the lane. The ball is not striking on its own. Bowlers today want to drill up the same layout that Jason Belmonte used at the 2020 U.S. Open. This layout may not work out for Joe Bowler because he does not throw the ball like Belmonte. It is important that pro-shop operators & coaches work together to help the Joe Bowlers understand what is needed to attack the lane in order to win a Mega buck scratch tournament or to cash in a PBA Regional Tournament. Joe Bowler may have the same ball that Belmonte used to win his first U.S. Open title; however, it may not be drilled the same way. The coach and the pro-shop operator need to stress to Joe Bowler that he does not need the same layout as Belmonte. Jason Belmonte has revolutionized the sport of bowling, most notably the two-handed ball release. Winning 13 majors on the PBA Tour and becoming the second player to complete the Super Slam is an amazing feat in and of itself. All of these are examples of bowling innovations that applied throughout the history of the sport. Bowlers always want to strike as much as they possibly can. The U.S. Open is the ultimate test of a bowler's skill. In 1958, Eddie Elias founded the PBA which enabled bowlers to make a living by throwing a bowling ball.

# PBA Pinnacle of Bowling

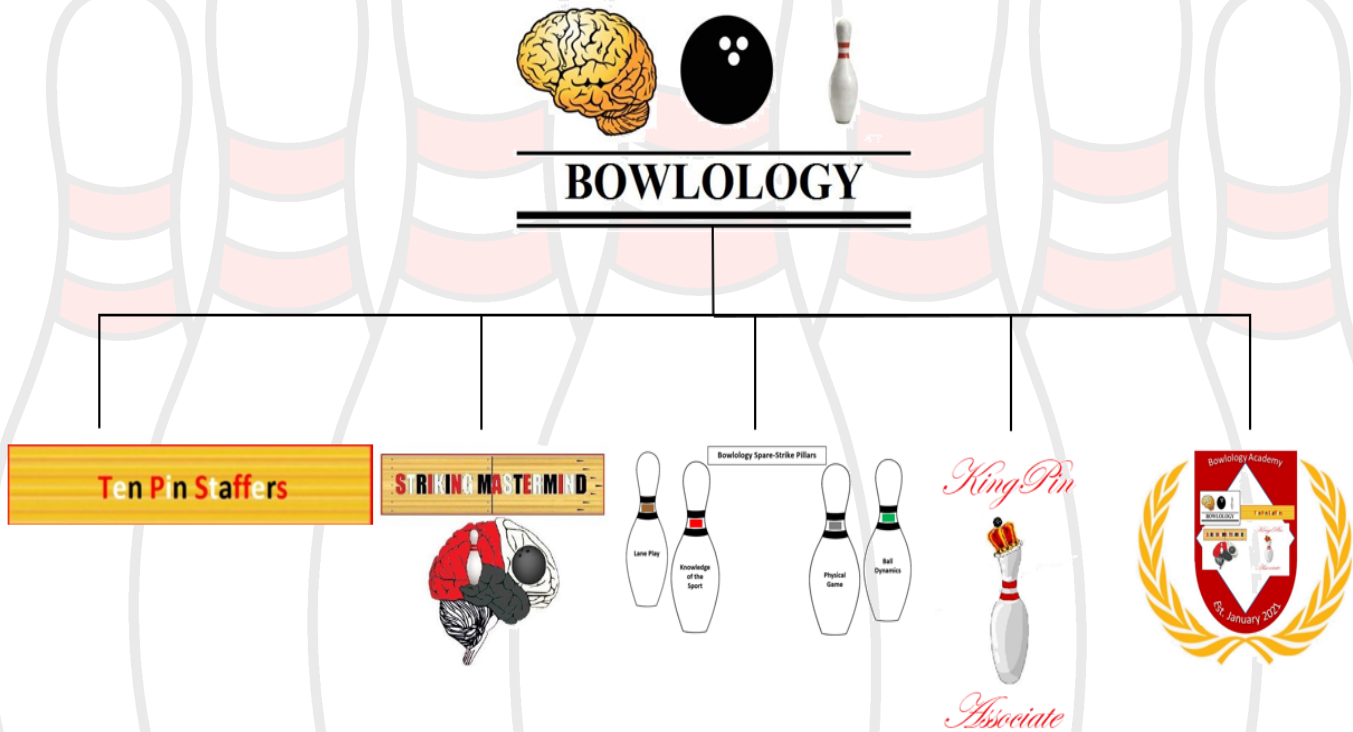
The Pinnacle of Bowling is the PBA. Earl Anthony, Dick Weber, Don Carter, Walter Ray Williams, Jr., Pete Weber, Jason Belmonte, and EJ Tackett are the elite group of the greatest players in the history of the PBA. Along with many others the PBA has five majors tournaments. These tournaments are as follows. The PBA World Championship the U.S. Open, the Tournament of Champions, The USBC Masters, and the PBA Players Championship, Norm Duke, Johnny Petraglia, Billy Hardwick, Chris Barnes, Pete Weber, Mike Aulby are the only players to complete the Triple Crown. In 2013 Pete Weber became the first bowler to complete the Triple Crown twice when he won the Tournament of Champions. These five majors are difficult to score on because of the challenging lane conditions that have less margin of error than a normal PBA tournament. In 2008 the PBA celebrated 50 years of the PBA. Earl Anthony was voted the greatest bowler in the history of the PBA. Ten years later for the 60<sup>th</sup> anniversary the PBA would come up with 60 greatest moments in PBA History. Don Johnson would have the all-time greatest moments in the 1970 Tournament of Champions by shooting a 299 in the championship game. In 1975 the PBA would have the inaugural PBA Hall of Fame. Dick Weber, Don Carter, and Carmen Salvino would be the first PBA Hall of Famers to get inducted into the hall of fame.

Chris Schenkel, Eddie Elias, and Dick Weber were the forefathers at the PBA founding.





# Bowlology Organizational Chart



Bowlology was established in 2011 as a column in the Josh Hyde Bowling Newsletter. The first topic was on the perfect strike. The founder of Bowlology, Josh Hyde, wanted to share his knowledge about the sport of bowling. This organizational chart is made up of coaches, bowlers, and pro shop operators that love the sport of bowling. In each area, Bowlology is striving to teach bowlers more about the sport they compete in. Josh Hyde noticed that few bowlers were aware of the fundamentals of the sport. The Ten Pin Staffers and pro-shop operators know the dynamics of the bowling ball and the physical game. Striking Mastermind is for bowlers who compete at tournaments. Ten Pin Staffers, Striking Mastermind and the Spare Strike Pillars are all under the Bowlology umbrella. Authors and/or coaches like Mike Shady, Kim Terrell-Kearney, Fred Borden, Mark Baker, Del Ballard, Jr. and Mo Pinel have been highly influential in bowling instruction. For those people that are interested, they can email Josh Hyde at [joshhydeb bowling@gmail.com](mailto:joshhydeb bowling@gmail.com) for more information.

# Bowlology Fact Sheet

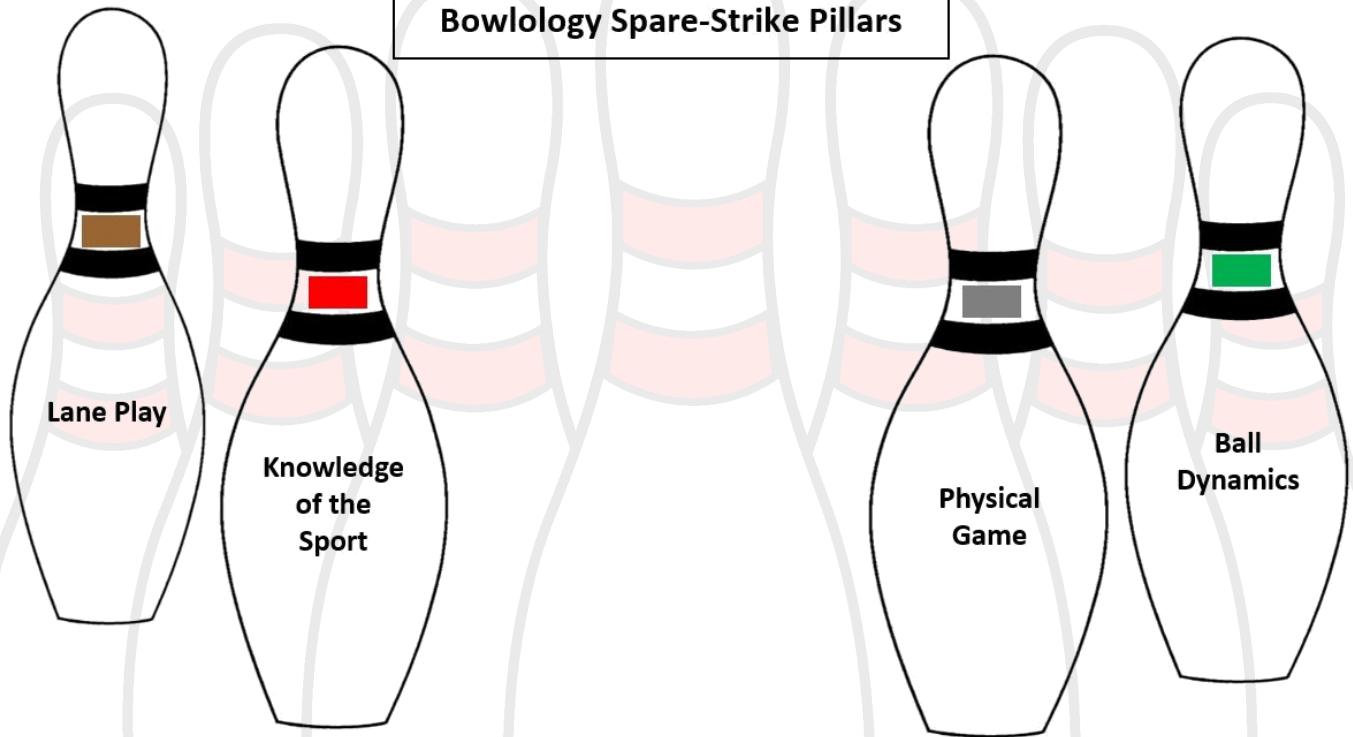


1895 The ABC was founded currently known as the USBC.  
1913 Bowler's Journal was founded.  
1913 the Dodo Ball was outlawed.  
1916, the WIBC was founded  
1932 Bowling was an exhibition sport in the Olympics.  
1932 the BPAA was founded by a few bowling proprietors.  
1936 the first mechanical pin setter was invented by AMF.  
1941 The ABC currently known as the USBC founded the ABC Hall of Fame.  
1941 John Crimmons won the first BPAA All-Star tournament now known as the US Open  
1951 Lee Jouglaard would win the first Master's Tournament.  
1957 Dick Hoover became the first player to win successfully defend his Masters Title.  
1958 Eddie Elias founded the PBA.  
1958 the Budweiser Team shot a team record of 3858 the team was consisted of Ray Bluth, Don Carter, Dick Weber, Tom Hennessey, and Pat Patterson  
1959 Lou Campi won the first PBA Tournament.  
1962 ABC broadcasted their first PBA telecast.  
1964 Don Carter became the first bowler & athlete to sign a seven-figure deal with Ebonite.  
1966- 1970 Don Johnson made the Championship Round at the Tournament of Champions.  
1967 Jack Biondolillo rolled the first televised 300 at the Tournament of Champions.  
1969 at the BPAA All-Star currently known as the US Open Billy Hardwick became the first player to complete the Triple Crown.  
1969 the PBA created the Regional Program giving high level amateur bowlers the chance at professional level competition of the PBA.  
1970 Don Johnson had a 299 game to win the Tournament of Champions  
1973 Don McCune won six titles by soaking his ball in MEK.  
1973 Jim Godman became the first player to win multiple Tournament of Champions.  
1976 Marshall Holman became the youngest bowler to win the Tournament of Champions.  
1978 Mark Roth won eight titles on the PBA Tour.  
1979 George Pappas led the Tournament of Champions wire to wire.  
1979 Nelson Burton Jr wins the Doubles and All Events in the USBC Open Championship.  
1980 Mark Roth made a 7-10 split on national television.  
1981 the PBA50 Tour was founded these bowlers could not the bowl on the regular PBA Tour in their earlier years. It allowed those guys to compete with Dick Weber, Carmen Salvino, and Harry Smith  
1982 Glenn Allison shot 900.  
1983 Earl Anthony became the first millionaire at the PBA National Championship.  
1983 Norm Duke became the youngest player to win a PBA Title.  
1984 Mike Durbin became the first bowler to win three Tournaments of Champions.  
1984 The Bowling Hall of Fame was opened.  
1987 Pete Weber became the fastest bowler to win ten titles at the Tournament of Champions.  
1988 Bob Benoit was the first bowler to bowl a perfect game in the Championship Match.  
1990 At the Fall Classic in Milwaukee, Wisconsin the United States Bowling Congress finally sanctioned PBA Tournaments.  
1991 Del Ballard, Jr rolled a gutter ball on the final ball to lose the title to Pete Weber at the Fair Lanes Open.  
1992 Dick Weber became the first player to win titles in five different decades.  
1993 Wichita Open Mike Aulby and David Ozio would set the highest scoring match on National Television.  
1993 George Branham III became the first African American to win a major at the Tournament of Champions.  
1993 Phil Ware would win the first ABC Senior Masters  
1994 PBA National Championship Johnny Petraglia would earn \$100,000 on National Television.  
1995 ABC currently known as USBC celebrated their 100th anniversary.  
1995 John Handegard became the oldest bowler to win a PBA Tour Title.  
1995 Mike Aulby would become the fourth player to complete the Triple Crown and Grand Slam.  
1995 The National Bowling Stadium opened.  
1996 After a hiatus both the Men's & Women's U.S Open were conducted simultaneously  
1996 Bob Learn, Jr shot a four-game record of 1129 averaging 282.25 for his four games.  
1996 Dave Husted became the first bowler to successfully defend the U.S. Open.  
1996 Mike Aulby became the first bowler all five majors at the Bayer-Brunswick Touring Players Championship.  
1996 The Top Five averaged 276.37 in the Flagship Open.  
1997 Amleto Monacelli became the first international bowler to enter the PBA Hall of Fame.

## Bowlology Fact Sheet—Cont'd

1997 Jeremy Sonnenfeld rolled the first sanctioned 900.  
1997 Walter Ray Williams, Jr would become the first bowler to earn two million dollars in career earnings.  
1998 Mike Aulby would become the first bowler to win the USBC Masters three times.  
1998 PBA Founder Eddie Elias passed away.  
1999 Eric Forkel would win the very first outdoor tournament in Bryant Park.  
2000 Chris Peters a former Microsoft Executive purchased the PBA.  
90's to the 2000's Walter Ray Williams, Jr was voted the bowler of the decade for two straight decades.  
2000 Jason Couch became the first player to defend his TOC title at the Brunswick World Tournament of Champions.  
2000-2001 Jeff Carter set the all-time high average for one season of 261.7.  
2001 Carolyn Dorin-Ballard won a record seven titles on the PWBA Tour.  
2001 Joe Norris & Earl Anthony passed away.  
2002 Jason Couch became the first player in PBA History to win three TOC in a row.  
2002-2003 Walter Ray Williams, Jr won two majors while earning \$300,000 on the PBA Tour.  
2003 The PWBA had to shut down due to financial hardship.  
2004 the USBC Open Championship turned 100 years old.  
2004 Danny Wisemen shot 289 at the USBC Masters in Milwaukee Brewers Stadium.  
2005 the Bowling World lost two icons Dick Weber & Chris Schenkel  
2006 at the PBA World Championship Walter Ray Williams Jr tied Earl Anthony with 41 titles beating Pete Weber.  
2008 Earl Anthony was voted the greatest player in PBA History.  
2008 Norm Duke also won the three majors in a single year because it was not in the same season. It did not count as three majors in a single season.  
2008 the PBA recognized the USBC Masters and the BPAA All-Star as PBA Titles.  
2009 Jason Belmonte became the first bowler to win with two hands.  
2009 PBA introduced the World Series Of Bowling Tournament in Allen Park, Michigan.  
2009 Tom Smallwood went from unemployment to PBA World Champion.  
2009-2010 Walter Ray Williams, Jr would become the first bowler to earn PBA Player of the Year in three different decades.  
2010 Kelly Kulick became the first woman to win a major at the Tournament of Champions.  
2011 The Tournament of Champions had a one-million-dollar purse with \$250,000 going to the winner.  
2011 In the Semi-Finals of the Tournament of Champions Mika Koivieumi & Tom Daugherty would set most margins by 299 to 100.  
2011 Sean Rash made all the Animal pattern Championships at the World Series of Bowling  
2012 Johnny Petraglia became the first PBA Player to win titles in six different decades.  
2012 Pete Weber won his fifth US Open.  
2013 Pete Weber became the only player to complete the Triple Crown at the Tournament of Champions  
2015 Jason Belmonte became the first bowler to three-peat the USBC Masters.  
2015 Jason Belmonte became the second bowler defend his Tournament of Champions Title.  
2015 Sean Rash became the first bowler to roll two perfect games on National Television at the Tournament of Champions.  
2016 Anthony Simonson became the youngest player on the PBA Tour to win at the USBC Masters.  
2016 Francois Lavoie became the first player to bowl a 300 in the championship round at the U.S. Open.  
2016 Jesper Svensson became the youngest bowler to win Tournament of Champions.  
2017 Walter Ray Williams Jr would win his 100 PBA Title in a PBA Regional.  
2017 Jason Belmonte became the first player to win three majors in a single season on the PBA Tour.  
2017 Liz Johnson became the second women to win a PBA Title at the World Series of Bowling.  
2017 Jason Belmonte became the first player to win four USBC Masters Titles.  
2019 USBC Women's Open Championship it turned 100 years old.  
2019 Brunswick merged with Ebonite, they now own Columbia 300, Track, Hammer, and PowerHouse along with Ultimate & Radical & DV8 Products.  
2020 In the month of August the USBC outlawed weight holes.  
2020 Jason Belmonte would join Mike Aulby as the only two players all five majors by winning the U.S. Open.  
\*\*Tommy Jones, Chris Barnes, Mike Aulby, Jason Belmonte and EJ Tackett are the only five players to earn Player of the Year & Rookie of the Year Honors.

## Bowlology Spare-Strike Pillars



When Bowlology was founded in November of 2011, the Josh Hyde's Bowling Newsletter wanted to give bowlers some knowledge of the sport. These spare- strike pillars are essential to Bowlology in that they are the four pillars that a Bowlologist will need in order to help bowlers, coaches and pro-shop operators.

--The First Pillar is Knowledge of the Sport which involves split making, makeable splits, lane courtesy, the perfect strike, score-keeping, playing field, pin knowledge, pin carry, and general bowling knowledge.

--The Second Pillar is the Physical Game. If a bowler does not have a solid foundation, he or she is not going to be able to execute in every frame. Timing puts away the trail leg, the finish position and the arm swing. These are the main attributes of a bowler's physical game.

--The Third Pillar is Lane Play which is how the bowler plays the lanes making hand position and speed adjustments. In most sports, the athletes are not going to have to worry about the surface of the field. However, in bowling, bowlers do have to know what the lanes are doing in order to be a contender in a league match. The same holds true when Jason Belmonte needs a strike to win the U.S Open. Lane play is a big portion of a bowler's game.

--The Final Pillar is Ball Dynamics. This is where the bowler and the pro-shop operator need to be on the same page. Each bowler is different. If a pro bowler wins a Major and Joe Bowler wants to use the same ball with the same layout and surface, more than likely Joe Bowler will not have the same results as the pro bowler due to differences in their game. They may use the same ball except with a different layout and surface. This is why it is so important for the pro-shop operator to know Joe Bowler's game. Pro-shop operators generally know the dynamics of the bowling ball. Ideally, the bowler needs to find a pro-shop operator that has some coaching experience. If he/she has a pro-shop operator and a coach, all three need to come up with a game plan so that the bowler can be successful on the lanes.

These four Bowlology Spare-Strike Pillars will enable bowlers, coaches and pro-shop operators to identify bowling knowledge.



# Bowlologist Problem-Solving Chart

<u>Open</u>	<u>Spare</u>	<u>Strike</u>
Bowler falls off balance at the foul line	Physical Game	Frame 2
Bowler cannot identify his PAP	Ball Dynamics	Frame 3
Bowler is muscling the ball	Physical Game	Frame 2
Bowler is not choosing the right ball	Lane Play and/or Ball Dynamics	Frames 3 thru 5
Bowler misses spares	Knowledge of the Sport	Frame 1
Bowler is not using the correct surface on the ball	Ball Dynamics	Frame 3 & 5
Bowler is not reading the lanes right	Lane Play	Frame 4
Bowler is using the wrong layout	Ball Dynamics	Frame 3
Bowler is playing in the wrong area on the lane	Lane Play	Frame 4
Bowler is leaving the ten pin and is unable to string strikes	Lane Play	Frame 4
Bowler fails to acknowledge bowlers on adjacent lanes	Knowledge of the Sport	Frame 1
Bowler stands in the same spot every frame and does not adjust	Lane Play	Frame 4
Bowler bowls well on specific pattern but has trouble bowling on other patterns	Lane Play	Frame 4
Bowler misses double wood spares	Knowledge of the Sport	Frame 1

This chart is for Bowlologists to use as a reference to help other bowlers.

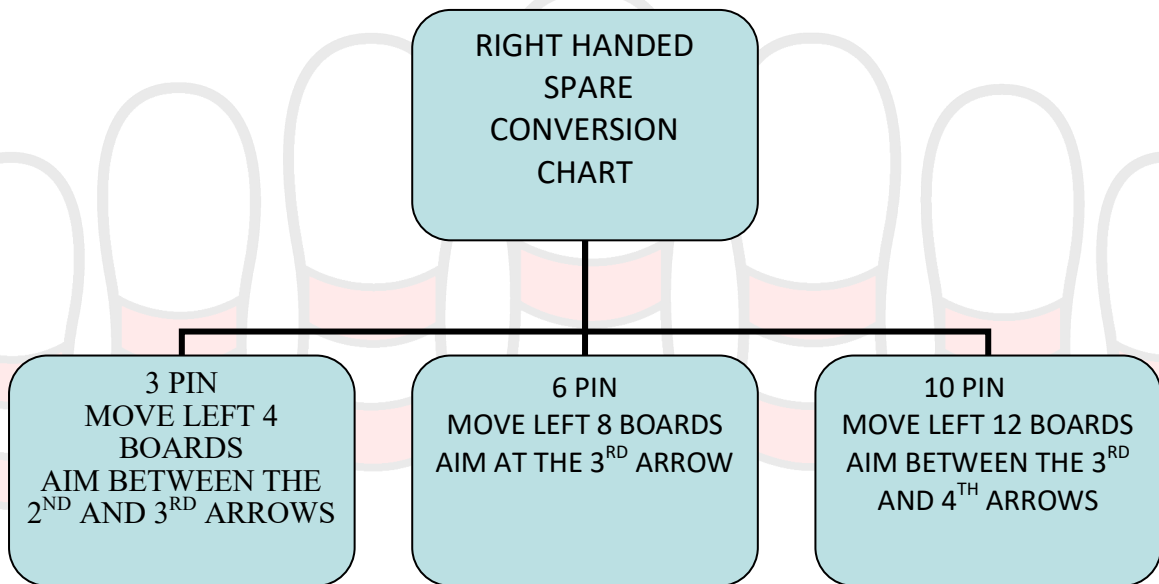
The "Open" represents the problem.

The "Spare" represents the four key areas - Knowledge of the Sport, Physical Game, Ball Dynamics and Lane Play.

The "Strike" refers to the specific frame(s) in the Bowlology book.

Bowlers must practice in order to advance their game to the next level. The chart above is of course not a substitute for practicing on the lanes. Bowlers must have always practice to improve their game and maintain their skills. Also remember going hard and straight at spares is the ideal way to convert spares and it will alleviate the pattern of whiffing the spare. Bowlers do not want to do this especially opening up with a double. If a bowler goes double ten pin and makes the spare his/her maximum score is 279. However if they miss the spare. Then they can only max out at a 267 making that spare can add 12 pins at the end of the game.

**\*\*\*PRACTICE\*\*\***  
**Shooting Spares & Strikes**



REMEMBER- BOWLERS NEED TO OPEN THEIR BODY SLIGHTY TO THE TARGET.

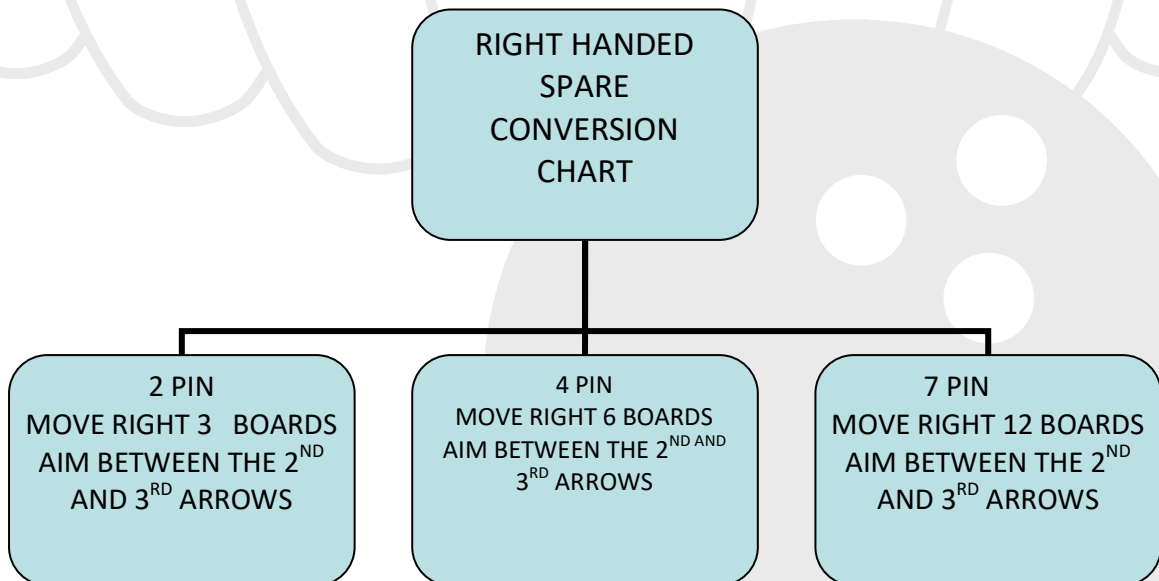
#### HEADPIN & 5 PIN SPARES

IF A BOWLER LEAVES THE HEADPIN- NO ADJUSTMENT IS NEEDED- THEY CAN USE THEIR STRIKE SHOT.

IF A BOWLER LEAVES THE 5 PIN- NO ADJUSTMENT IS NEEDED- THEY CAN USE THEIR STRIKE SHOT.

STRAIGHTER IS GREATER- GOING HARD AND STRAIGHT AT SPARES HAS A HIGHER PERCENTAGE RATE THAN HOOKING AT SPARES.

EQUIPMENT NEEDED- PLASTIC BALL- PLASTIC BALLS TEND TO GO MUCH STRAIGHTER THAN THE HIGH-TECH BALLS OF TODAY.



REMEMBER- BOWLERS NEED TO OPEN THEIR BODY SLIGHTY TO THE TARGET.



## LEFT HANDED SPARE CONVERSION CHART

2 PIN  
MOVE RIGHT 4 BOARDS  
AIM BETWEEN THE 2<sup>ND</sup>  
AND 3<sup>RD</sup> ARROWS

4 PIN  
MOVE RIGHT 8 BOARDS  
AIM AT THE 3<sup>RD</sup> ARROW

7 PIN  
MOVE RIGHT 12 BOARDS  
AIM BETWEEN THE 3<sup>RD</sup>  
AND 4<sup>TH</sup> ARROWS

REMEMBER- BOWLERS NEED TO CLOSE THEIR BODY SLIGHTLY TO THE TARGET.

### HEADPIN & 5 PIN SPARES

IF A BOWLER LEAVES THE HEADPIN- NO ADJUSTMENT IS NEEDED- THEY CAN USE THEIR STRIKE SHOT.

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## LEFT HANDED SPARE CONVERSION CHART

3 PIN  
MOVE LEFT 3 BOARDS  
AIM BETWEEN THE 2<sup>ND</sup>  
AND 3<sup>RD</sup> ARROWS

6 PIN  
MOVE LEFT 6 BOARDS  
AIM BETWEEN THE 2<sup>ND</sup>  
AND 3<sup>RD</sup> ARROWS

10 PIN  
MOVE LEFT 12 BOARDS  
AIM BETWEEN THE 2<sup>ND</sup>  
AND 3<sup>RD</sup> ARROWS

REMEMBER- BOWLERS NEED TO OPEN THEIR BODY SLIGHTLY TO THE TARGET.

## 21 MULTIPLE COMMON/MAKEABLE SPARES

Left Hand		
Spare	Move	Target
3-5-6	3 Boards Left	Aim between the 2nd and 3rd arrow
1-3-9	5 Boards Left	Aim between the 2nd and 3rd arrow
3-6-9	3 Boards Left	Aim between the 2nd and 3rd arrow
6-9-10	5 Boards Left	Aim between the 2nd and 3rd arrow
2-4-8	6 Boards Right	Aim between the 2nd and 3rd arrow
2-4-7	6 Boards Right	Aim between the 2nd and 3rd arrow
4-7-8	8 Boards Right	Aim between the 2nd and 3rd arrow
1-5	Strike Shot	Aim between the 2nd and 3rd arrow
3-6	5 Boards Left	Aim between the 2nd and 3rd arrow
3-9	3 Boards Left	Aim between the 2nd and 3rd arrow
2-4	3 Boards Right	Aim between the 2nd and 3rd arrow
6-10	8 Boards Left	Aim between the 2nd and 3rd arrow
6-9	6 Boards Left	Aim between the 2nd and 3rd arrow
5-9	1 Board Left	Aim between the 2nd and 3rd arrow
5-8	Strike Shot	Aim between the 2nd and 3rd arrow
4-7	10 Boards Right	Aim between the 2nd and 3rd arrow
1-3-5-6	5 Boards Left	Aim between the 2nd and 3rd arrow
1-3-6-10	5 Boards Left	Aim between the 2nd and 3rd arrow
1-3-6-9	5 Boards Left	Aim between the 2nd and 3rd arrow
3-5-6-9	6 Boards Left	Aim between the 2nd and 3rd arrow
2-4-7-8	6 Boards Right	Aim between the 2nd and 3rd arrow

Right Hand		
Spare	Move	Target
2-4-5	6 Boards Right	Aim between the 2nd and 3rd arrow
1-2-8	2 Boards Right	Aim between the 2nd and 3rd arrow
2-4-8	3 Boards Right	Aim between the 2nd and 3rd arrow
4-7-8	7 Boards Right	Aim between the 2nd and 3rd arrow
3-6-9	6 Boards Left	Aim between the 2nd and 3rd arrow
3-6-10	6 Boards Left	Aim between the 2nd and 3rd arrow
6-9-10	7 Boards Left	Aim between the 2nd and 3rd arrow
1-5	Strike Shot	Aim between the 2nd and 3rd arrow
2-4	5 Boards Right	Aim between the 2nd and 3rd arrow
2-8	3 Boards Right	Aim between the 2nd and 3rd arrow
3-6	6 Boards Left	Aim between the 2nd and 3rd arrow
4-7	8 Boards Right	Aim between the 2nd and 3rd arrow
4-8	6 Boards Right	Aim between the 2nd and 3rd arrow
5-8	1 Board Right	Aim between the 2nd and 3rd arrow
5-9	Strike Shot	Aim between the 2nd and 3rd arrow
6-10	10 Boards Left	Aim between the 2nd and 3rd arrow
1-2-4-5	4 Boards Right	Aim between the 2nd and 3rd arrow
1-2-4-7	4 Boards Right	Aim between the 2nd and 3rd arrow
1-2-4-8	4 Boards Right	Aim between the 2nd and 3rd arrow
2-4-5-8	6 Boards Right	Aim between the 2nd and 3rd arrow
3-6-9-10	6 Boards Left	Aim between the 2nd and 3rd arrow

**REMEMBER- IT IS BETTER TO TAKE AS MANY PINS OUT AS POSSIBLE WITH THE BALL RATHER THAN SOLELY RELYING ON PIN ACTION.**



MAKEABLE SPLITS			
SPLIT	Move	RH-LH	Target
2-4-7-10	6 Boards Left	LH	Aim between the 2nd and 3rd arrow
3-6-7-10	6 Boards Left	RH	Aim between the 2nd and 3rd arrow
2-4-10	6 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-3-4-6-7-9	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
4-7-9	10 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-8-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-8-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-6-8-10	5 Boards Left	RH	Aim between the 2nd and 3rd arrow
5-7-9	Strike Shot	RH	Aim between the 2nd and 3rd arrow
5-8-10	Strike Shot	LH	Aim between the 2nd and 3rd arrow
1-3-4-5-6-7	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
6-8-10	10 Boards Left	LH	Aim between the 2nd and 3rd arrow
3-6-7	6 Boards Left	RH	Aim between the 2nd and 3rd arrow
2-7	6 Boards Right	LH	Aim between the 2nd and 3rd arrow
9-10	6 Boards Left	RH-LH	Aim between the 2nd and 3rd arrow
7-8	8 Boards Right	RH-LH	Aim between the 2nd and 3rd arrow
5-10	Strike Shot	LH	Aim between the 2nd and 3rd arrow
5-7	Strike Shot	RH	Aim between the 2nd and 3rd arrow
3-10	6 Boards Left	RH	Aim between the 2nd and 3rd arrow
3-9-10	6 Boards Left	RH	Aim between the 2nd and 3rd arrow
2-7	6 Boards Right	LH	Aim between the 2nd and 3rd arrow
2-7-8	6 Boards Right	LH	Aim between the 2nd and 3rd arrow
1-2-4-10	6 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-6-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-3-6-7	6 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-3-4-6-7	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
4-7-10	10 Boards Right	RH-LH	Aim between the 2nd and 3rd arrow
4-5	3 Boards Right	RH-LH	Aim between the 2nd and 3rd arrow
6-7-10	10 Boards Left	RH-LH	Aim between the 2nd and 3rd arrow
5-6	3 Boards Left	RH-LH	Aim between the 2nd and 3rd arrow
4-9	10 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-5-6-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
8-9	Strike Shot	RH-LH	Aim between the 2nd and 3rd arrow
1-2-4-7-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-5-7-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-2-4-7-8-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-3-5-6-7-10	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-3-6-7-9-10	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-2-4-6-7-10	5 Boards Right	RH	Aim between the 2nd and 3rd arrow
1-3-6-7-10	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-3-4-5-6-7-10	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
1-3-6-7-9	5 Boards Left	LH	Aim between the 2nd and 3rd arrow
6-8	10 Boards Left	LH	Aim between the 2nd and 3rd arrow

Remember: it is better to take as many pins out with the ball rather than solely relying on pin action. Split-making: the smallest number pin standing will take out either the adjacent or diagonal pins.

HOOKABLE SPARES / SPLITS			
LH/RH	SPARE /SPLIT	ADJUSTMENT	TARGET
RH	2-4-5-7	5 boards right	Same as Strike target
LH	3-5-6-10	5 boards left	Same as Strike target
RH	1-2-4-7-8	3 boards right	Same as Strike target
LH	1-3-6-9-10	3 boards left	Same as Strike target
RH	3-6-10	5-9 boards left	Same as Strike target
LH	2-4-7	5-9 boards right	Same as Strike target
RH	3-6-9-10	5-9 boards left	Same as Strike target
LH	2-4-7-8	5-9 boards right	Same as Strike target
RH	1-2-4-9	1 board right	Same as Strike target
LH	1-3-6-8	1 board left	Same as Strike target
RH	2-4-5-8	3 boards right	Same as Strike target
LH	3-5-6-9	3 boards left	Same as Strike target
RH	1-3-8-9	2-3 boards right	Same as Strike target
LH	1-2-8-9	2-3 boards left	Same as Strike target
RH	2-4-5	3 boards right	Same as Strike target
LH	3-5-6	3 boards left	Same as Strike target
RH	2-4-10	5-6 boards right	Same as Strike target
LH	3-6-7	5-6 boards left	Same as Strike target
RH	4-5-7	3-4 boards right	Same as Strike target
LH	5-6-10	3-4 boards left	Same as Strike target
RH	4-7-9-10	9 boards right	Same as Strike target
LH	6-7-8-10	9 boards left	Same as Strike target
RH	5-7-9	3-5 boards left	Same as Strike target
LH	5-8-10	3-5 boards right	Same as Strike target
RH	1-2-4-10	5 boards right	Same as Strike target
LH	1-3-6-7	5 boards left	Same as Strike target
RH	1-3-6-9	2 boards left	Same as Strike target
LH	1-2-4-8	2 boards right	Same as Strike target
RH / LH	5-8	1-2 boards right	Same as Strike target
LH / RH	5-9	1-2 boards left	Same as Strike target

Remember: Straighter is greater, but if the bowler feels like he/she is better at making the spares or splits by hooking at them, the bowler's margin of error goes down significantly. The smallest number pin standing will take out the diagonal pins if thrown correctly.

# Ten in the Pit - Important Bowling Numbers

## Every Bowlologist Should Know

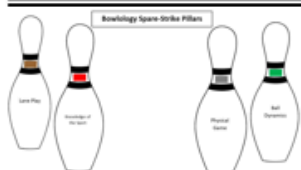
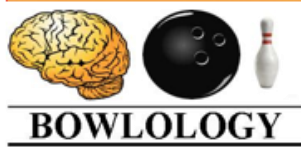
10	The maximum number of pins a bowler can knock down in one or two shots
10	The number of frames in a single bowling game
10	The number of pins on the lane
15	The number of feet from the back of the approach to the foul line
20	Minimum score per frame that a bowler can obtain for a 200 game
30	The amount of pins that a bowler can achieve in one frame
39	The number of boards on a bowling lane
60	The number of feet from the foul line to the headpin
75	The number of feet from the back of the approach to the headpin
300	The maximum score for a bowling game



*King Pin*



*Associate*



These 10 numbers are important in the sport of bowling. For Bowlologists, these numbers are essential for understanding many critical aspects of the sport. Knowing these numbers allows a bowler to achieve the level of a Bowlologist. A Bowlologist should always be able to recall these numbers. This chart is called "Ten in the Pit" to signify that by knowing these numbers, you are assured of a "strike" (having a high level of knowledge about the sport of bowling - a Bowlologist).

### ← The Bowlology Zones

This picture illustrates the five zones that make up Bowlology:

- Spare-Strike Pillars
- Bowlology
- Ten Pin Staffers
- Striking Mastermind
- King Pin Associate
- Bowlology Academy

# Bowler Inventory Guide

Balls	Bowler needs one plastic ball for spares, a benchmark ball, a ball that gives a bowler a feel for the lane conditions and three more balls with different layouts and surfaces.
Tape	Texture to put on bowlers hands and or finger or thumbhole.
Wrist support	To keep a bowlers wrist in the proper position.
Glue	To re-glue the bowler's finger & thumb inserts.
Finger & Thumb inserts	If a bowler has a Switch Grip by Turbo and Interchangeable Thumb by Vise.
Shammy	To make sure all the oil gets off the ball each time the ball is thrown.
Soles & Heels	A bowler needs spares of these to be able to adjust the different approaches.
Abalon Pads	A low number on the pad, i.e. 500, will give the ball more traction and make it hook earlier. A high number on the pad, i.e. 3000, will make the ball smooth and reduce friction and make it hook later. The bowler must adjust the surface before competition starts. Once the ball is thrown for competition, bowlers cannot adjust the surface for the ball.
Shoes	One pair of good custom bowling shoes for the bowler.
Bags	Two 3 ball rollers and one tournament tote bag
Ball Cleaner	When a bowler get to the lanes. They should clean their balls before throwing practice balls.
Grip sack (Rosin bag)	A bowler can have a grip sack or rosin bag. This aids in keeping the hand dry and removes sweat.
Small Notebook	This comes in handy for a bowler to take notes on many things during competition. For example, if a bowler finds a pair they struggled on earlier, they can look back and make adjustments to figure out how to hit that pair of lanes better.
Extra Shoestrings	Quick replacement of broken shoestrings as a bowler cannot keep their balance on the approach with loose shoes.
Ball Cups	1 to 3 cups. To hold the bowler's ball after they clean or resurface ball so they do not roll away.
Shoe Brush	To clean off the bottom of their shoes to wipe off debris excess oil, etc.



# Bowling Resources

## Books

Bowling: How To Master The Game by Parker Bohn III  
Bowling Knowledge is the Key by Fred Borden  
Game Changer by Mark Baker  
Bowlology by Josh Hyde  
Revolutions I & II by Chip Zleke  
Beyond the Basics by Ron Hatfield  
Par Bowling: Progressive method of bowling instruction  
Bowling Execution by John Jowdy  
Balance by Bill Taylor  
From Gutterballs to Strikes by Mike Durbin  
How to Pick Up Spares by Michelle Mullen  
Bowling for Dummies by A.J. Forrest and Lisa Iannucci  
Fifty Greatest Bowlers in PBA History  
Stone 8 by Len Nicholson  
Bowling Fundamentals by Michelle Mullen

## Magazines & Newsletters

Bowlers Journal International  
Josh Hyde's Bowling Newsletter  
Bowling This Month

## DVD's

Learn to Bowl Competitively: Bowling Lessons From the Legend by Norm Duke  
The System by Mark Baker featuring Chris Barnes, Tommy Jones, Lynda Barnes, Barry Asher  
Becoming a Better Bowler with Walter Ray Williams Jr  
Beyond the Bowling Basics featuring Parker Bohn III and Brad Angelo  
Bowling Lessons from the Pros

## Coaching & Training Centers

Kegel Training Center  
International Training & Research Center  
Bowling IQ

## Bowling Manufacturers

Brunswick—Ebonite—Columbia 300—DV8—Track—Hammer—Radical  
Motiv  
Storm— Roto Grip— Global 900  
Dexter  
Big Bowling  
Vise Grips  
Turbo



## **BOWLOLOGY**

This exam is for the beginner

1. How many pins does the ball hit in a perfect strike?
2. In timing what does the first and second # mean?
3. Name 3 out of 7 mistakes bowlers could get into?
4. How does a right hander read the lanes?
  - A. Right to Left
  - B. Left to Right
  - C. Side to Side
5. How does a left hander read the lanes?
  - A. Right to Left
  - B. Left to Right
  - C. Side to Side
6. How does a bowler score a strike?
7. How does a bowler score a spare?
8. How does a bowler score an open?
9. True or False? If a bowler marks in the Tenth Frame they at least get one extra ball.
10. Score Frame 1-3

9	/		x	7	2

11. In a bowler's spare game what is the best piece of equipment they can have
  - A. Resin Reactive Ball
  - B. Particle Ball
  - C. Plastic Ball
12. A right hander leaves the Ten Pin. How many boards do they need to move and what way?
13. If a bowler leaves a 6-10 spare how many boards and what way?
14. Is it better to throw a straight or a hook at a spare why?
15. In a proper release the thumb will exit the ball first. True or False?
16. Bonus Question: What is perfect game?

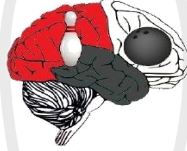
## Ten Pin Staffers

### Short Questions:

1. Name the three phases of ball motion.
2. If the lanes are slick, is it better to use a sanded ball or a polished ball? Why?
3. If the lanes are dry, is it better to use a sanded or a polished ball? Why?
4. Using the rule of 31, the length of the pattern is 40 feet. What is the break point?
5. What is "High RG" and "Low RG"?
6. What is "PAP"? What is a flat pattern?
7. What is "VAL"?
8. What is a flat pattern?
9. Is it better to go straight or hook the ball at single pin spare?
10. What does 2 and 1 mean, in reference to a bowler's technique adjustment?

### Essay Questions:

1. A bowler is having difficulty getting to the pocket. The bowler moves right, and the ball hooks more. The bowler moves left, and the ball hooks less. What should the bowler do?
2. A bowler is 80 over and the cut is 100, with one more game to go, what does he need to shoot in order to make the cut?
3. A bowler goes into the pro shop looking to purchase a ball. Normally, bowlers want to get a ball with the most aggressive hook. How would a Pro Shop operator help make this determination?
4. A bowler is having trouble getting out of the ball. Is this due to too much forward pitch, or too much reverse pitch? How would the bowler best correct this problem?
5. The cut after 5 games was at 130 over. The cut went to 100 over. What happened to reduce the cut and why?



The Striking Mastermind program is for the higher average bowlers that bowl PBA Regional, local scratch tournaments, and “megabuck” tournaments. This quiz will enable a bowler to know more about the game and succeed in tournament play. Each question is worth five points to pass this exam the bowler must get a score of 80 out of 100. It is an exam in that hopefully tests the bowlers knowledge. This program was founded by the Ten-Pin Staffers and Josh Hyde Bowling.

1. If a bowler comes into a pro shop that has an asymmetrical ball the pro shop operator will be able to drill the ball stronger than symmetrical ball.
  - A. True
  - B. False
2. Why is it important to have a good fitting grip in all of your bowling balls?
  - A. To keep the hand in good condition
  - B. To ensure a clean release
  - C. To be able to switch bowling balls without worry
  - D. All of the above
3. In a five step approach to achieve neutral or textbook timing when should the ball and foot begin moving together?
  - A. First step of five
  - B. Second step of five
  - C. Third step of five
4. How can a Pro Shop operator help you improve your bowling ball selections?
  - A. Proper fit
  - B. Drilling layouts
  - C. Coaching
  - D. All of the above
5. Bowlers should know what and how all of their equipment reacts in order to choose the proper ball and surface in competition?
  - A. True
  - B. False
6. What is a flat pattern?
  - A. 12 to 1
  - B. 3 to 1
  - C. 1 to 1
7. If a pattern is longer in length, what type of surface grit does a bowler want on the ball?
  - A. Higher
  - B. Lower
8. Compared to a house pattern, a sport pattern typically has an oil ratio of?
  - A. 4-1 or less
  - B. 2-1 or more
  - C. 3-1 or less





9. What phase of ball motion does the ball need to be in at the backend of the lane in order to have its best chance to strike?
  - A. Roll phase
  - B. Skid phase
  - C. Hook phase
10. What is PAP?
11. When a ball is skidding too far down lane and does not get into the roll phase, what adjustments could you make?
  - A. Change to a ball with a lower surface grit
  - B. Decrease ball speed
  - C. Both A & B
12. If you need the ball to have maximum backend reaction at what degrees should the ball be rotating after the release?
  - A. 0 degrees
  - B. 45 degrees
  - C. 90 degrees
13. When shooting cross lane at a single pin spare conversion, it is better to roll your plastic ball across the lane using 0 degrees rotation so the ball goes straight toward the pin?
  - A. True
  - B. False
14. What is axis rotation
15. What is axis tilt
16. When is it better to hook at a spare, and why?
17. The typical amateur bowler most likely changes balls after the ball does not strike. Why is that not always the best thing?
18. The typical bowler will more than likely go into a pro-shop to get the most hooking ball. Why is this not always a good idea?
19. In a PBA Tournament what is lane courtesy?
20. Why should a bowler learn to tape up their ball.

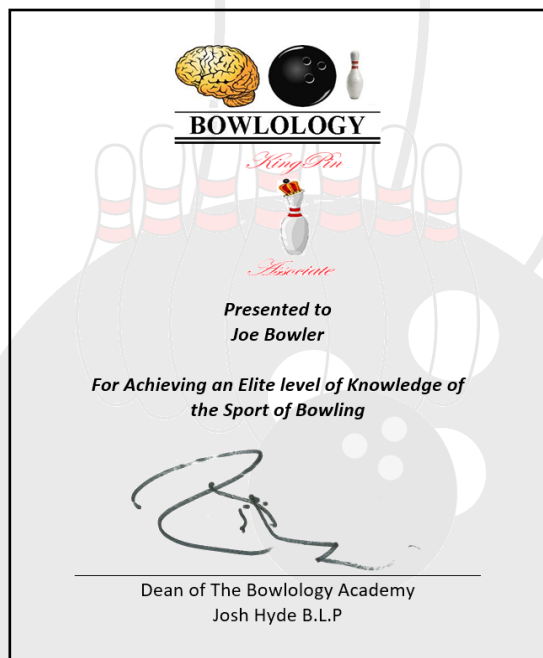
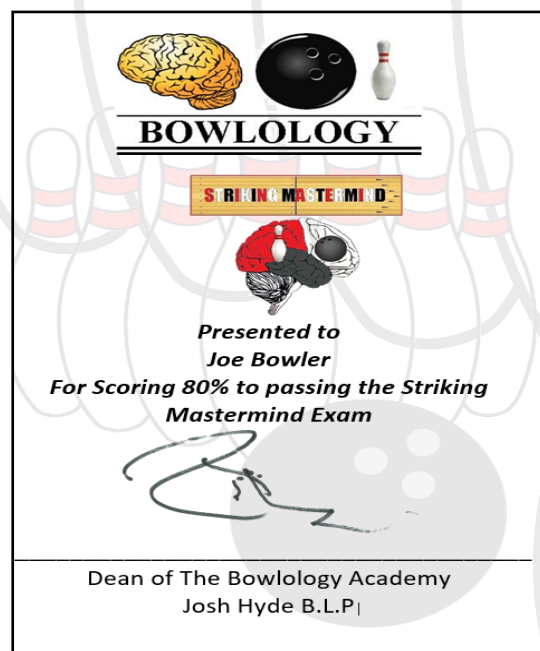
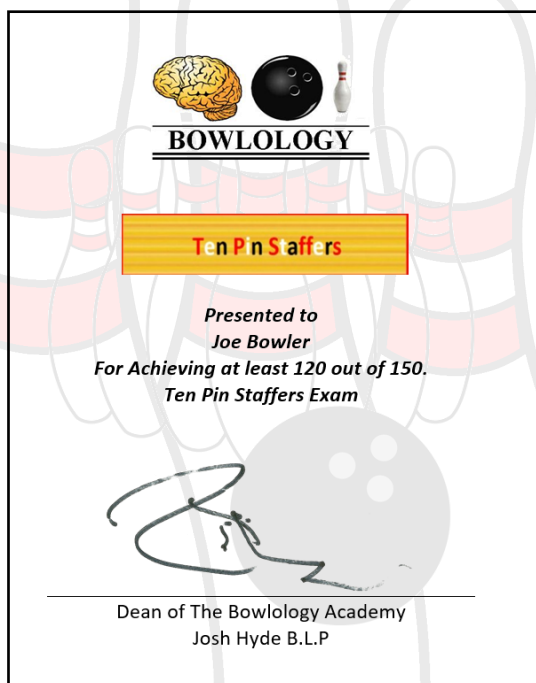
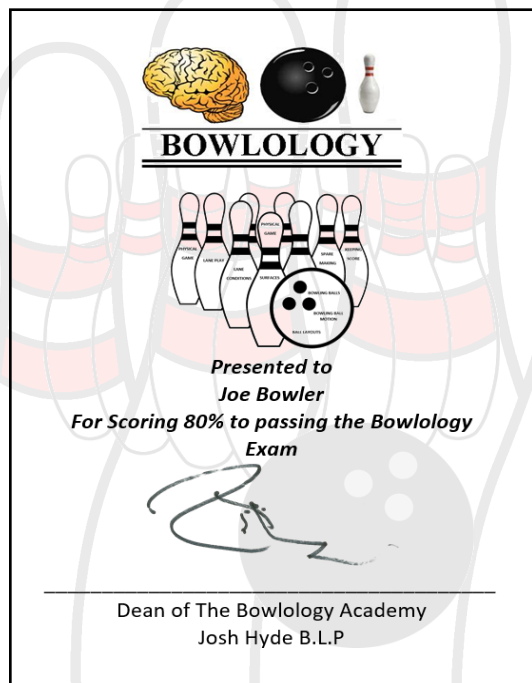
*King Pin*

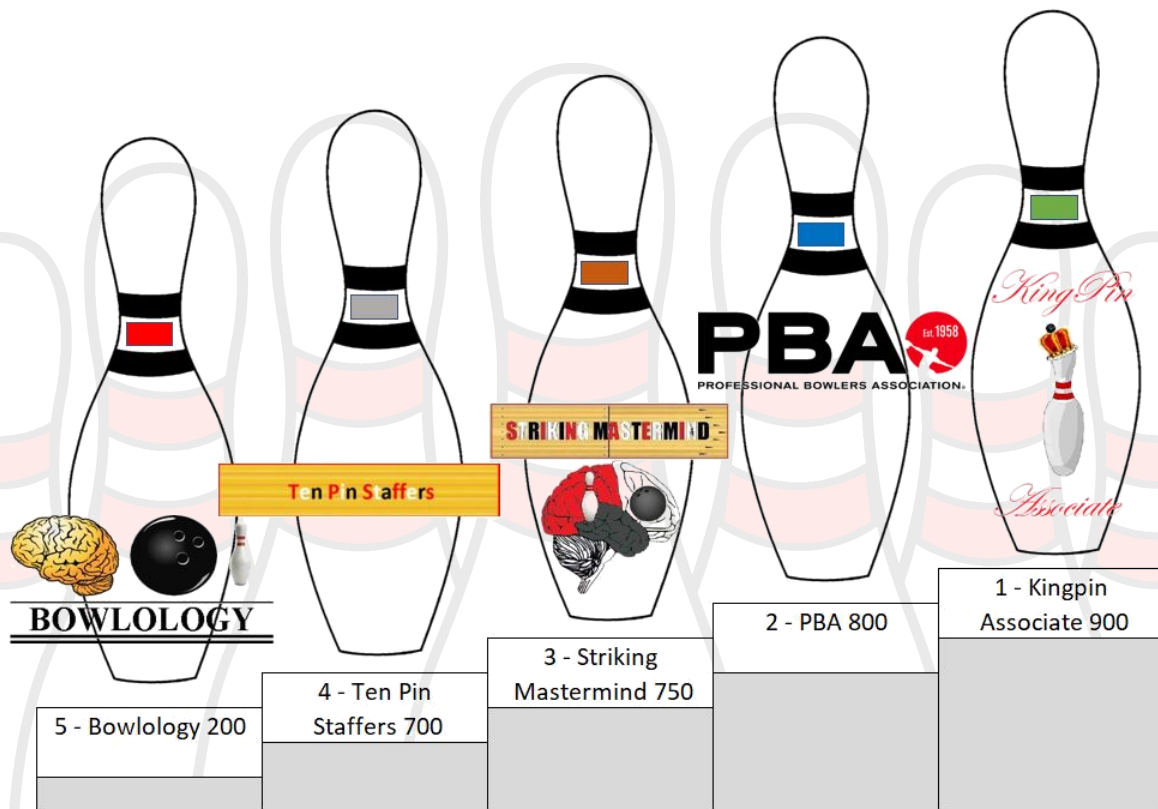


*Associate*

1. Should Glenn Allison's 900 be recognized by the USBC? Why or Why not?
2. Is today's bowling equipment hurting bowlers? Why or why not?
3. Should the Tournament of Champions come back as a tournament in which only PBA Tour titlists can bowl, rather than including Regional and/or PBA50 Tour titlists. Why or Why not?
4. Who was the greatest bowling coach and why?
5. Should bowlers aim for the PBA or should they try to succeed in a MegaBuck Tournament and stay an amateur player?
6. As of August 1st of 2020, USBC outlaws weight holes. Is this a good idea or not?
7. Is using urethane or resin reactive equipment better for the pros?
8. Rank each of these tournaments using one through five with five being the highest: PBA Players Championship, USBC Masters, U.S. Open, PBA World Championship and Tournament of Champions. Explain the significance of these majors on the PBA Tour.
9. Should bowlers have a house shot average or a league shot average or both in order to join the PBA?
10. Should the U.S. Open be a limited field or have a multitude of bowlers bowling in this tournament?
11. In 2009 the PBA voted Earl Anthony the greatest bowler in the history of the PBA. The second greatest bowler according to the PBA was Walter Ray Williams, Jr. Which one do you think is the # 1 or do you think someone else from 1958 to 2009 should have been nominated? Give an explanation as to your answer.
12. Jason Belmonte and Mike Aulby are the only 2 players to win all Majors on the PBA Tour. Which one was the best?
13. Which was or is the best bowling innovation(s) in the history of the sport? Why?
14. Who had the best bowling form in the history of the sport? Why?
15. Who revolutionized the game the most and why?

These answers are for essay responses rather than for the purpose of receiving a certificate. It is highly recommended that the answers be concise. Bowlers and pro-shop operators can email their answers to Josh Hyde, founder of the Bowler Intelligence Agency, at [joshhydeb bowling@gmail.com](mailto:joshhydeb bowling@gmail.com). They will receive a return email from Josh once he has reviewed and critiqued their answers.





**Bowlology 200**— is knowledge of the sport of bowling. Examples are: knowing how to keep score, correctly making spares, lane courtesy, and just basic knowledge of the sport of bowling. Bowlers that are interested in joining Bowlology will receive a certificate once they pass an exam with a score of 80% or better.

**Ten Pin Staffer 700**— is for coaches and pro-shop operators who know the physical game and the dynamics of a bowling ball. In order to become a Ten Pin Staffer, a bowler is required to score 130 out of a possible 150 to pass. These individuals know how to help bowlers improve their game.

**Striking Mastermind 750**— the Striking Mastermind exam is for the tournament bowler that wants to advance their game to the next level. The Striking Mastermind takes a score of 80 out of 100 to pass.

**PBA 800**— the PBA 800 course is designed for the high scratch bowler that might have cashed in a PBA Tournament as an amateur - who had a good shot early in a tournament but fell short the last couple of games. Additionally, bowlers in the class will learn how to conduct themselves as a high-level bowler. This class reviews the non-member orientation meeting more in depth.

**Kingpin Associate 900**— is for those individuals who know a depth of knowledge of the sport of bowling. The greatest bowlers have gone to coaches like Fred Borden, Mark Baker, John Jowdy and Del Ballard, Jr. The Kingpin Associate is for people who know the sport. In addition to knowing how to attack the lanes and bowling ball dynamics. Those who are interested to learn more about this program can email Josh Hyde at [joshhydeb bowling@gmail.com](mailto:joshhydeb bowling@gmail.com).