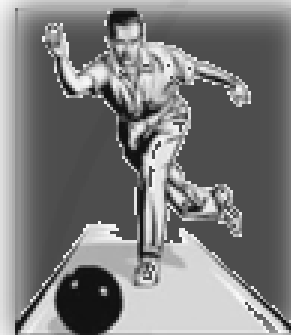




Balls³ + Lanes² + Pins²=Bowling 39balls X 60 ft =Dimensions of the Lane

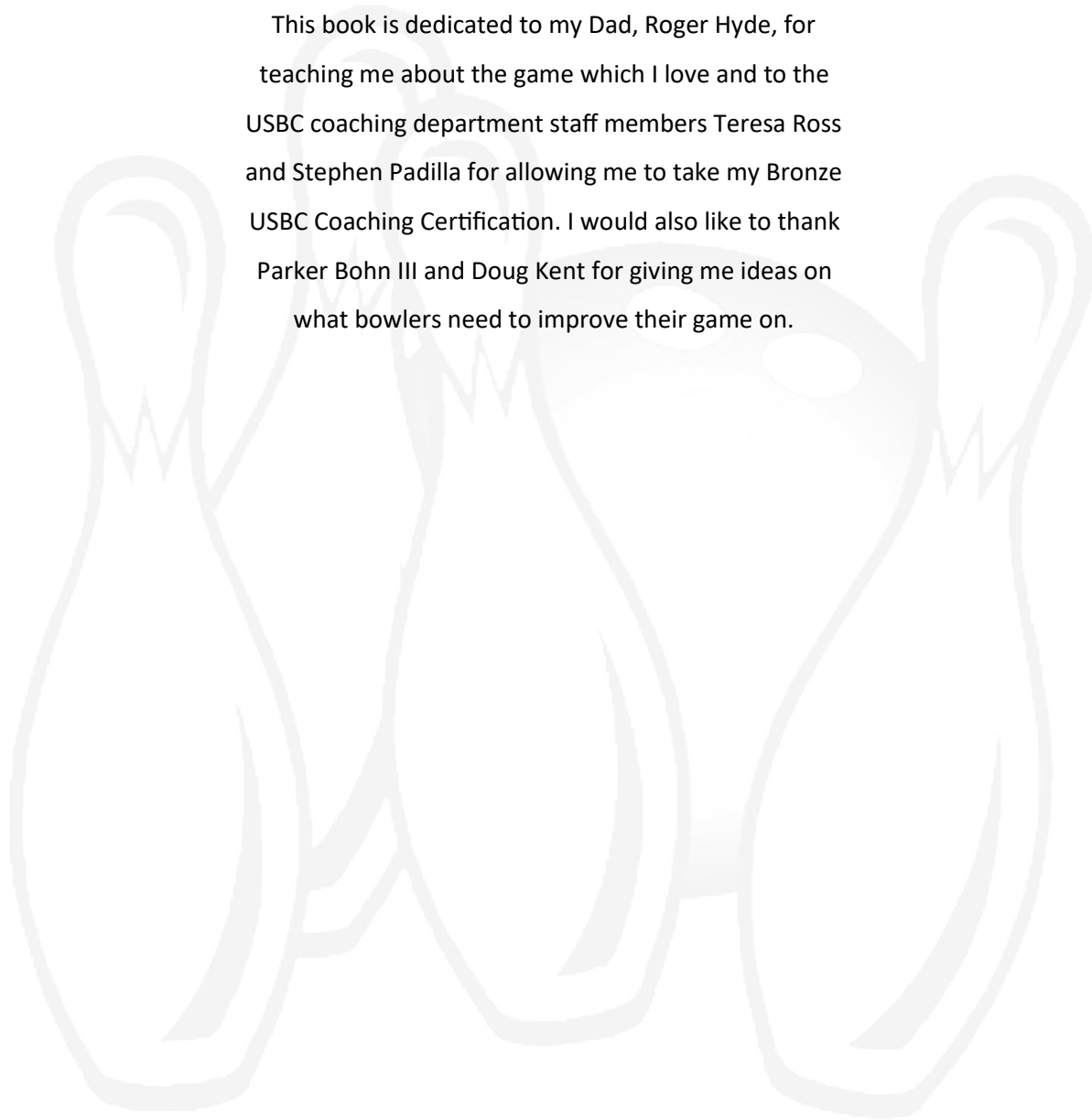


“Bowlology”—the study of bowling with the desired result being that the student gains more knowledge of and more respect for the sport.

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Dedication

This book is dedicated to my Dad, Roger Hyde, for teaching me about the game which I love and to the USBC coaching department staff members Teresa Ross and Stephen Padilla for allowing me to take my Bronze USBC Coaching Certification. I would also like to thank Parker Bohn III and Doug Kent for giving me ideas on what bowlers need to improve their game on.



Foreword

By Dennis Bergendorf - Former Senior Writer for Bowler's Journal International

"Bowlology" is the most comprehensive web publication ever compiled to chronicle the great sport of bowling. And would you expect anything less when it's a project by Josh Hyde? Not only the world's best ramp bowler, he is known as the Superfan, friends with dozens of players, pros and amateurs alike. Josh has made learning about the ten pin game his life's work. He knows not only how to get strikes and spares, he knows the dynamics of ball motion, lane play and pin fall.

Just look at the Bowlology Academy, which offers five top-flight courses in the whys and wherefores of the sport (and art) of knocking down ten pins. It would be difficult to become a pro or high-level amateur without knowing the history and basics of the game. That's where Bowlology 200 comes in. Josh takes us on a quick tour of the game, from its beginning some five millennia ago, to the sometimes intimidating scoring system, the best way to make spares, and how to get the perfect strike.

Josh should know about that. He's rolled 12 perfect strikes in a row for the coveted perfect game, as well as averaged around 220 for an entire season. Bowlology gives us the pillars of bowling, from the aforementioned knowledge of the sport, to lane play to the physical game to ball dynamics.

Josh Hyde has established himself as an expert on bowling, and is even known as the dean of the Academy. And, the United States Bowling Congress has honored him with the Silver-Level Coach designation. He can often be found at arenas (bowling centers) that host professional events. As the world's most pre-eminent bowlologist, Josh Hyde and his comprehensive project are sure to make you a better bowler, whether your goal is to earn a handsome living on the lanes, or just to have a good time.

I've known Josh Hyde for many years, and I know he worked diligently to prepare Bowlology.

—— **Dennis Bergendorf**

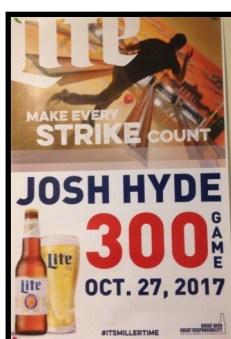
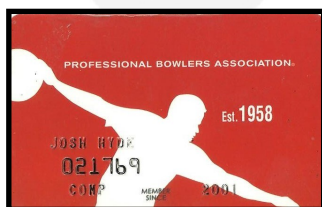
Introduction

Hi, my name is Josh Hyde. I have been doing a bowling newsletter since 2008. One of the features in my bowling newsletter is called Bowlology. This part of my newsletter covers the physical aspect of the game of bowling. There are a number of bowlers who do not understand the basics of the sport. The information in this book covers everything from the perfect strike to the pendulum swing. There is something for every bowler in this book. Please enjoy as you learn about the great sport of bowling.

My dad, Roger Hyde, was a PBA member back in the 80s.

Since then, he has dropped his card. At the time, I was a little too young to understand how my Dad was a part of the sport of bowling. He owned and was a pro-shop operator for nearly 15 years. Classic Products of Fort Wayne, Indiana, was my Dad's team sponsor of the traveling league. At the 1993 Bud Light PBA Regional in Fort Wayne, my dad qualified third as a non-member. The next day, he would beat Scott Devers, Eugene McCune and the champion of the tournament—Troy Stus. Three years later, he would get the opportunity to bowl in the U.S. Open won the amateur part of the U.S. Open.

I have had the opportunity of receiving my Bronze Certification and Silver Coaching Certification from the USBC. During my bowling career, I have been fortunate enough to have bowled a six 300 game and a 837 series. There have been three great moments in my bowling career: bowling a perfect game, becoming a PBA honorary member (see my card below) and becoming a PBA Hall of Fame Committee member. Applying my knowledge of the sport of bowling has given me opportunities that I never dreamt of. I hope bowling fans and bowlers alike enjoy this book as much as I have enjoyed writing it.



Thanks for the Memories



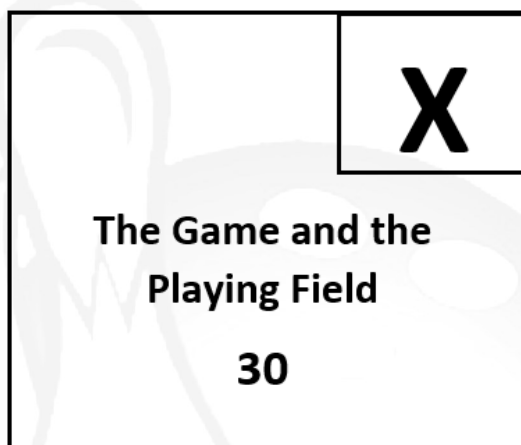
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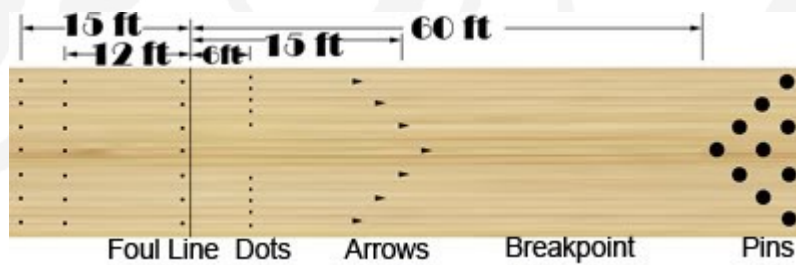
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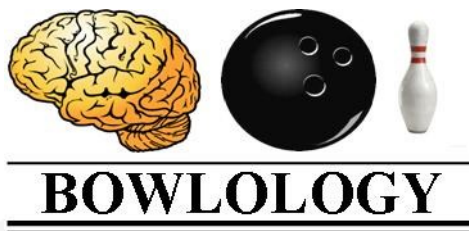
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Frame 1



	X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300							





Philosophy

"Bowlology"—the study of bowling with the desired result being that the student gains more knowledge of and more respect for the sport.

Serious bowlers know the bowling lingo today. However, when there are new bowlers or a family of four going out to bowl—they are not aware of some of the specifics of the sport of bowling.

I went bowling one time, and my caregiver stepped over the foul line nearly falling. She did not know that there was oil on the lane, so I told her. She asked why, I explained to her that it is like golf where there are trees, bunkers, water hazards, and rough. I also explained that this helps the bowler know where to throw the ball and where not to throw the ball. Then she was able to understand.

I had another caregiver who bowled and had high-performance bowling balls yet could not describe pin location to me. She also told me she had bowled a 240-game and a 250-game, but did not shoot a 600 series. On top of that, she told me she was better at converting splits than spares. She was a right-hander but slid on the right foot instead of the left foot.

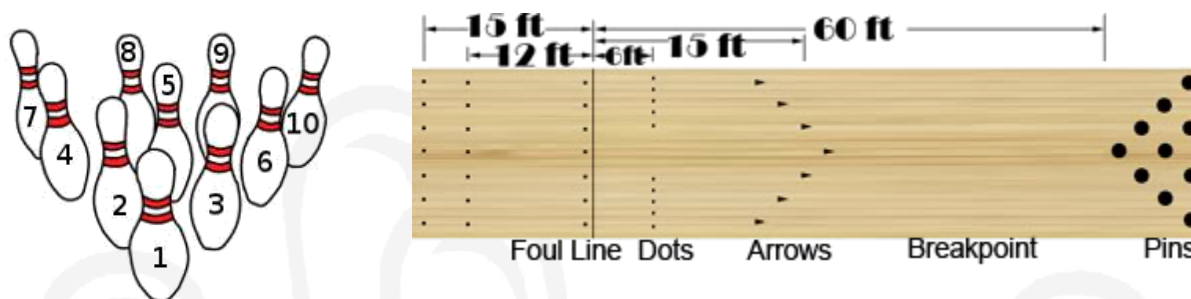
A golf professional that I know once told me that he would take a first-time golfer out on the range and work with them on their driving, chipping and putting before they could even go play a round of 9-holes.

There is no expectation for a first-time bowler. Many, when they start, do not want to get serious about the game. At the same time, there should be some guidance for first-time bowlers to learn basic bowling techniques. There is generally no one at the bowling center to help first-time bowlers learn more about the game. Yes, they may just want to bowl one time a year; but if they want to learn something more, there is no one to help them strengthen their knowledge of bowling.

The caregiver with the high performance bowling balls would have been better off with a simple ball and instead focused on learning bowling basics.

The difference between the pro bowlers and amateur bowlers is that amateurs look at where the ball enters the pocket as opposed to pros looking to see how the ball goes through the pins. If a bowler can make the ten go out on a half pocket shot and also carry the solid pocket hit and have a light hit pocket and strike they know they are going to be able to score throughout the tournament or league. All bowlers are trying to strike in different ways. The US Open pattern on the PBA Tour is by far the hardest pattern to string a number of strikes together. Just ask Pete Weber, winner of 5 US Open titles. This is not an easy task to complete.

Basics of Bowling



Terminology

- Strike-All 10 pins go down in one ball
- Spare-All 10 pins go down in two balls
- Open-Pins are still left remaining after second ball
- Foul-The foul line is crossed on a throw, counts as zero pins

Scoring

- Strike-10 plus next two balls
- Spare-10 plus next one ball
- Open-Player does not strike or spare in frame.

The lane is 60 feet from the foul line to the pins. There is a total of 15 feet from the back of the approach to the foul line. There are 39 boards on a lane. Every fifth board there is an arrow and a dot on the lane. The best way to get a strike is to hit a pocket, which is defined as the 1, 3 pins for a right-hander and a 1, 2 pin for a left-hander.

Lane Courtesy-If a bowler is up on your right side you should let them go first and then you can bowl.

Rule of thumb for bowling ball weight: bowlers should start with 10 percent of their body weight and adjust if needed. The maximum weight of a bowling ball is 16lbs, so if a bowler weighs 170lbs or more that is the heaviest ball available.

Frame-There are ten frames in a single game of bowling.

Foul line-Do not cross the foul line.

Gutter-Is considered out of bounds

The balls are rubber, plastic, urethane, resin reactive and particle balls.

Rubber was used between the 1940s thru the 1960s. Plastic was used between the 1970s thru the 1980s. Urethane was used between the 1980s thru 1990s. Resin Reactive was used the 1990s and 2000s. Particle balls were first introduced in the 2000s and are still in use today.

The perfect game is a score of 300, where it consists of all strikes.

Bowl Frame Scoring System

This is a way for bowlers to evaluate each frame of their game and compare it to previous games and other bowlers. It provides a score that shows a accurate game compared to a lucky game. Hopefully, it will allow a bowler to get more strikes and spares in future games. It is not intended to replace the bowling score, but to evaluate the bowlers consistency.

If a bowler strikes and spares the whole game, they would have a 200 game, which is par in professional bowling. In this scoring, a strike-spare would yield a score of 1,000 and a percentage of 66.6%. The maximum score per game is 1,500 which would give a 100%. Scoring is like bowling. The bowler scores a frame only after finishing the next one. The numbers on the bottom under each frame is a percentage of what a bowler does in each frame. On the last ball in the tenth the bowler must get 7 to 9 to receive a score of a spare. However, if a bowler leaves a 7-10 split on his or her fill ball it will be considered as an open frame.

This is a great way for a bowler to evaluate what he or she needs to work in order to improve their game.

1	2	3	4	5	6	7	8	9	10		
9 / 18	8 / 27	1 / 47	X / 67	X / 97	X / 126	X / 146	9 / 166	X / 195	X / 215		
25	50	100	100	150	150	100	100	150	100	1025	68.33%
X / 26	X / 46	6 / 65	9 / 85	X / 110	X / 129	5 / 138	X / 152	3 / 156	1 / 171		
150	125	80	100	150	50	50	50	50	50	855	57.00%
5 / 5	7 / 17	2 / 19	- / 20	1 / 40	X / 60	4 / 77	7 / 97	X / 122	X / 142		
25	75	25	25	100	100	75	100	150	100	775	51.67%
X / 20	3 / 32	2 / 52	X / 67	3 / 72	7 / 88	6 / 107	9 / 122	5 / 131	4 / 144		
100	75	100	50	25	85	85	25	25	25	595	39.67%

Strike-Strike =150

Strike-Split-Spare or Split-Spare-Strike=125

Strike-Spare or Spare-Strike=100

Split-Spare-Split-Spare= 85

Split-Spare-Spare or Spare-Split-Spare=80

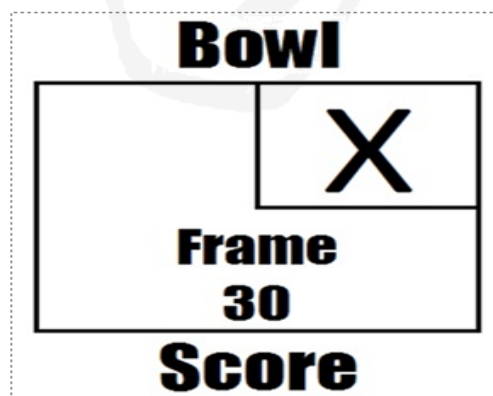
Spare-Spare= 75

Open Strike or Strike Open=50

Open Spare or Spare Open=25

Open-Open=0

Fill ball = 7-9 is a good count . It constitutes as a spare. 6 or less as an open. It also depends on what the bowler leaves 7-10 split it would be constituted as an open.



Bowling Pace & Advanced Scoring

In bowling, bowlers want to score 200s in each game that they bowl. A strike/spare is 20 in the first frame. If a bowler gets a turkey, they receive a score of 30 in the first frame. Therefore, the bowler's highest score could be a 300. In the scoring pace of this book, it explains how scoring works in bowling. Strike is ten plus the next two balls, and the spare is ten plus the next ball. Today, in 100% of bowling centers, bowlers do not have to keep their own score since it's automatic scoring. When bowling fans watch pro-bowling and the commentator says at a 229-pace, this means the bowler has least a four bagger or four strikes in a row and then a spare. When a bowler has the front four, then alternates spares and strikes throughout the remainder of the game, the final score would be 229. This example illustrates a simple way for bowling fans to keep track of their favorite pro's score. Top pros should be able to make their ten pins and six ten spares. These are makeable spares. However, if a bowler leaves a split along with getting the count, they are now on a 2-0 pace because they did not convert the split. A string of strikes will make the bowler's score go up. However, if a bowler has a seven bagger and an open frame and shoots a 240-something, the bowling fan will know that the bowler had an open frame during the game.

When I had mastered how to keep score in bowling, my dad asked me: what happened in the game if a bowler threw a four bagger with a 205 game instead of 220 something game? I told him that the bowler had a couple opens during the game. Another aspect is that the bowler could have low counts during the game and still stayed clean. Bowlers leaving a couple of ten pins after having an 8-bagger will shoot a 268-game. Bowlers hitting the pocket are more likely to get a nine or a strike on their first ball. Their chances of getting nine by hitting the pocket on the first ball go up. However, they still can get a pocket 7-10 split. The key to bowling pace is to leave makeable spares and to strike after converting a spare.

When the pros are bowling on television, commentator Randy Pederson bases the bowling pace on striking out rather than alternating spares and strikes. His view raises the bar. However, when the U.S. Open is on television, the scores are going to be drastically lower than previous tournaments. The U.S. Open is the toughest pattern that the PBA players have faced all year.

Strike on Strike/Spare Pace	100%	100%	100%	100%	50%	100%	50%	100%	50%	50%	90%
	1	2	3	4	5	6	7	8	9	10	
Bowler 1	X	X	X	X	9 /	X	9 /	X	9 /	X 9 /	
	30	60	89	109	129	149	169	189	209	229	
Strike on Strike/Spare Pace	100%	100%	100%	100%	100%	50%	100%	50%	100%	50%	85%
Bowler 2	X	X	X	X	X	9 /	X	9 /	X	9 / X	
	30	60	90	119	139	159	179	199	219	239	
	100%	100%	100%	100%	100%	100%	50%	100%	50%	50%	85%
Strike on Strike/Spare Pace	1	2	3	4	5	6	7	8	9	10	
Bowler 3	X	X	X	X	X	X	9 /	X	9 /	X 9 /	
	30	60	90	120	149	169	189	209	229	249	
Strike on Strike/Spare Pace	100%	100%	100%	100%	100%	100%	100%	50%	100%	50%	90%
Bowler 4	X	X	X	X	X	X	X	9 /	X	9 / X	
	30	60	90	120	150	179	199	219	239	259	

Grinding The Game Out

Pete Weber has won five US Opens. It is tough to win one US Open let alone winning five. In an interview a few years back, Weber said it was a mental as well as a physical grind tournament to win. Strikes do not come easy in the US Open. A bowler must be patient and make their spares and know that a low 200 game is a great score. Scoring 220 is a fantastic score. In the last round of match play in the 2012 US Open, he bowled three 250 games. This is hard to do because of the demanding lane conditions. The sample scorecard below depicts a good score in a US Open. Notice, there are fewer strikes, and rarely as a 4- or 5-bagger. If a bowler misses an easy spare in the US Open, it is difficult to get the frame back. Hitting the pocket is crucial in this tournament. A 190 game in any other tournament can kill a bowler's chances of winning; whereas, in the US Open, that score is not a death threat. It is imperative to hit the pocket and make all spares (even the more challenging ones, for instance, the bucket - the 2-4-5-8 pins) and baby splits. A double in this tournament is big. Anything more than a turkey, is a bonus. There was only one perfect game in the 2012 US Open. That shows how tough this tournament is. The winners of the US Open are not going to have very many games over 230. If a bowler can turn a 150-game into a 190 or even a 180 game, that will be a good thing. It would have been harder to come back from a 150-game rather than a 190 or 180 game. The name of the game in winning the US Open is staying clean and staying out of trouble. Winning five US Opens tells the bowling world that Pete Weber does know how to throw the ball and capitalize on his good games. Bowlers are not going to have an easy way to get to the 1-3 pocket. If the bowler misses to the right or left, more than likely, the bowler will pay the price. Bowlers cannot win the US Open on the first day, but they can definitely lose it on the first day. If a bowler happens to make a hard split, that is a definite bonus. Converting that big split makes the bowler feel like he threw a 5 bagger in this tournament.

"Grinding the game out" is a big factor when a pro bowler wins major tournaments. Staying clean and hitting the pocket is going to maximize the chance of a pro bowler winning a major tournament.

1	2	3	4	5	6	7	8	9	10
X	9 /	9 /	X	X	9 /	8 /	X	9 /	X 9 /
20	39	59	88	108	126	146	166	186	206

Keeping Score

Some bowlers find it challenging to keep score correctly. Keeping score is critical. When bowling fans are watching a match or a tournament, knowing how to keep score can help them figure out what their favorite bowler needs to do to advance or win the game. In keeping score by hand, bowlers can calculate what they need to do in order to shoot deuce.

Three basic rules of thumb in scoring bowling: Spare=Ten plus the next ball; Strike=Ten plus the next two balls; Open=Add up the pins. If a bowler is on a 238 pace, that means he had 5 strikes in a row, then an 8 pin spare. Then, if he strike/spares the rest of the game, his final score would be a 238 (see chart below). Maxing out is another way of saying striking out. If the commentator is saying Walter Ray has a possible 258, this means that if he were to strike out from this point forward, his score would be 258.

It used to be that pace meant that a bowler would strike/spare out. Pace today means that each ball is a strike. The original way is better because it gives the fans a realistic estimate for the game.

1	2	3	4	5	6	7	8	9	10
X	X	X	X	X	8/	X	9/	X	9/X
10+10+10	10+10+10	10+10+10	10+10+8	10+8+2	8+2+10	10+9+1	9+1+10	10+9+1	9+1+10
30	30	30	28	20	20	20	20	20	20
30	60	90	118	138	158	178	198	218	238

Pro Bowlers Scoring System

In professional bowling, there is a par of 200. In golf, it is good to be under par and saving strokes. However, in bowling it is better to be over par. When bowling fans go to a PBA Tournament and they see a +/- beside a bowler's name, they can understand if a bowler is having a hard time on the lanes or if he is striking. If a bowler shoots a game of 259, his score is +59. Unfortunately, if he shoots 179, his score would be -21. The minus score is usually displayed in red and the positive score is in black. The pros will have a cumulative total after their total qualifying games are over. The PBA tournament officials will be able to tell the bowlers and bowling fans what the cut score will be.

In match play, it is a little bit different because bowlers can earn 30 bonus pins for winning their game. The bonus pins are split between the two bowlers when there is a tie. No bonus pins are added if a bowler loses their game. If they happen to bowl a 270 game and win their match, it is like they bowled a perfect game.

	Score	game +/-	total +/-
Qualifying			
Game 1	259	59	59
Game 2	245	45	104
Game 3	225	25	129
Game 4	194	-6	123
Game 5	179	-21	102
Game 6	279	79	181
Game 7	268	68	249
Game 8	237	37	286
	Score	game +/-	total +/-
Match Play			
Match 1	259	W 30	89
Match 2	245	W 30	164
Match 3	225	T 15	204
Match 4	194	W 30	228
Match 5	179	L 0	207
Match 6	279	W 30	316
Match 7	268	W 30	414
Match 8	237	L 0	451

Making Splits

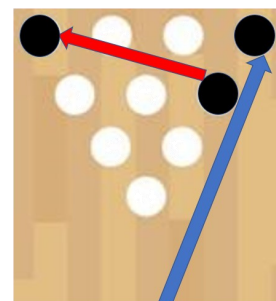
Some splits are easier to make than other splits. In my own personal bowling game I have made the 2/10 split, 6/7/10 split, 3/7/10 split, the 3/6/7/10 split, the 4/7/10 split, the 3/10 split, and the 2/7/8 split.

While bowlers think that splits are hard to make they tend to try to make the split by hooking the ball too much and not getting the count. If a bowler needs to make a split in order to make the cut and doesn't, he/she might miss out on a roll off to advance to the next round in the tournament. I have seen numerous splits being made, both professionally and at an amateur level. While the 7/10 is the hardest split, it is the easier to make then the 4/6 split. This is because of the pin placement. When making the 7/10 split the bowler has the assistance of the curtain to help bounce the pin out. When the bowler has a 4/6 split, he/she has more distance between the pin and the curtain.

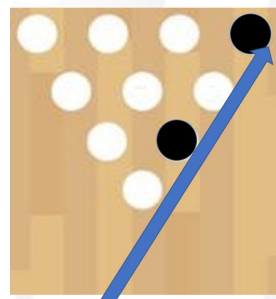
Again, I am not saying that the 7/10 split is an easy split, all I'm referring to is that between the 7/10 split and 4/6 split, the 7/10 is the easier of the two.

When a bowler is dealing with a split situation he/she needs to decide rather to go for the split or get the count. If the bowler leaves the split when needing a mark in the 10th to win the game or to make the cut usually he/she will go for the split. This puts a bowler in the position to calculate the cost/benefit ratio.

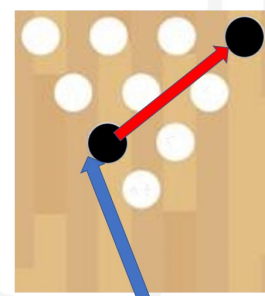
The risk is not getting any count at all. However, the reward is having a spare rather than an open frame. The bowler really needs to be the judge of this factor. The next time you bowl in a league or tournament and you leave a split, you need to take these factors in consideration.



6-7-10 Split
The blue line represents the ball and the red line represents the pin action.



3-10 Split
The Ball will take out both pins therefore is no pin action required.



2-10 Split
The blue line represents the ball and the red line is the pin action.

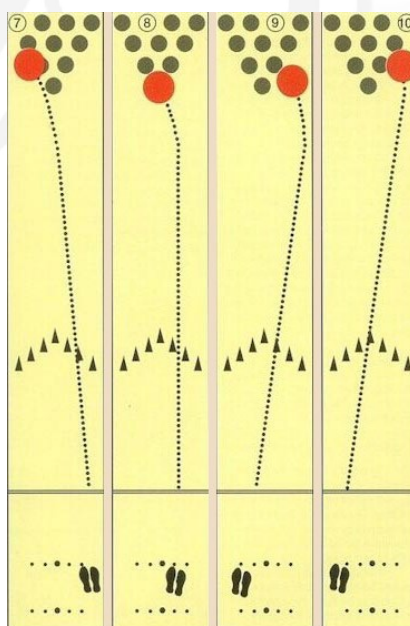
Low Ball Game

If a bowler is having trouble shooting their spares, there is a perfect game that they can play called “low ball”. Now, the object of the game is to get the lowest score possible without getting the ball in the gutter. If a bowler throws his ball in the gutter on the first ball of the frame, it counts as a strike. If a bowler throws his ball in the gutter on the second ball, it counts as a spare. The lowest possible score that a player can bowl is a 20—a perfect game. Bowlers normally go for the 10-pin on the first shot and for the 7-pin on the second shot. This is a great tool for a bowler to learn to get their spares. A plastic ball would be great for this game as it would allow a bowler’s ball to roll in a straight line down the lane. It also takes the condition of the lane out of the equation. By playing this game, bowlers are able to concentrate on picking up their corner spares. A great score to aim for is 40. In a 3-game series, a score under 100 would be exceptional.

Making Spares is Crucial

The art of making spares is crucial to the sport of bowling. This is important because if the bowler makes their spares, they are more than likely going to score higher. In order to do this, the best option is to throw the ball straight and hard at the spares. By throwing the ball straight at your spares, this will eliminate the lane conditions. All a bowler has to do in order to make a spare is touch the pin and knock it down; in other words, make the pins go 8 degrees. This will make a bowler’s scores go up, and they will be a better player because they make your spares.

The best ball for a spare is a plastic ball. This ball does not hook as much as a strike ball does.



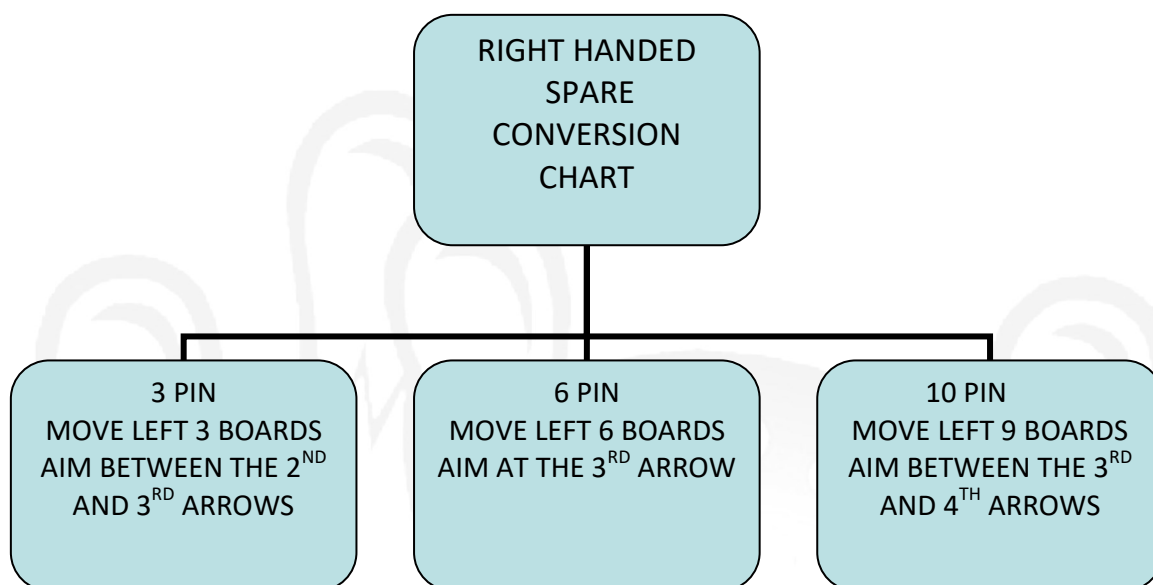
At left: The diagram shows the best way to more easily make spares.

Spare Synopsis

No matter how easy the lanes may seem, bowlers are going to leave spares. Even though there are over twenty USBC 900 series, bowlers are going to have to shoot spares in league or tournament play. When a bowler misses a ten pin in the first frame and strikes off the sheet, he shoots 279 instead of 290 because of missing the ten pin in the first frame. The likelihood of a bowler shooting a 900 is highly unlikely. Bowlers must keep making their spares with the current bowling ball technology. A bowler only needs to knock a pin 8 degrees to get the pin to fall. Bowlers do not need to throw a big powerful ball to knock over these spares. If a bowler is bowling in a PBA Tournament or a sport shot tournament and they hit the pocket and leave a spare, they need to capitalize on that spare by picking it up. The best equipment for making spares is a plastic ball.

In 2019 Bear Open, E.J. Tackett faced a 2-4 spare to shut out Anthony Simonsen. However, Tackett only got the 4-pin. Anthony was able to strike out to force a 1 ball roll off. Had E.J. made that spare, he would have earned his second PBA title of the year. Bowlers can see, even with the high tech bowling balls of today, the importance of making their spares.

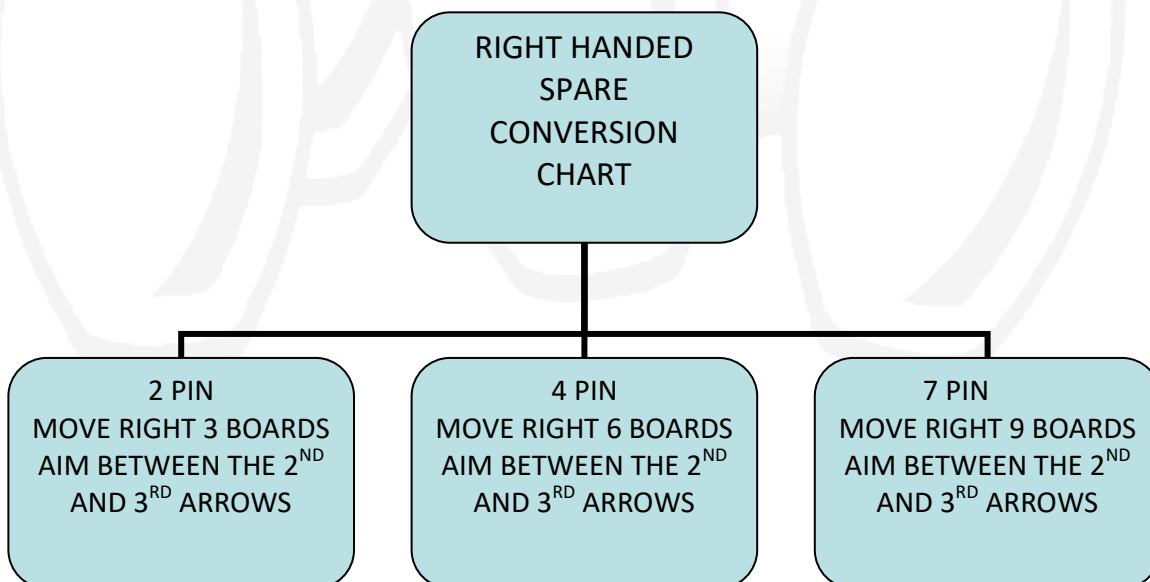
Single pin spare shot—Right Handed



Remember-Bowlers need to open their body slightly to the target

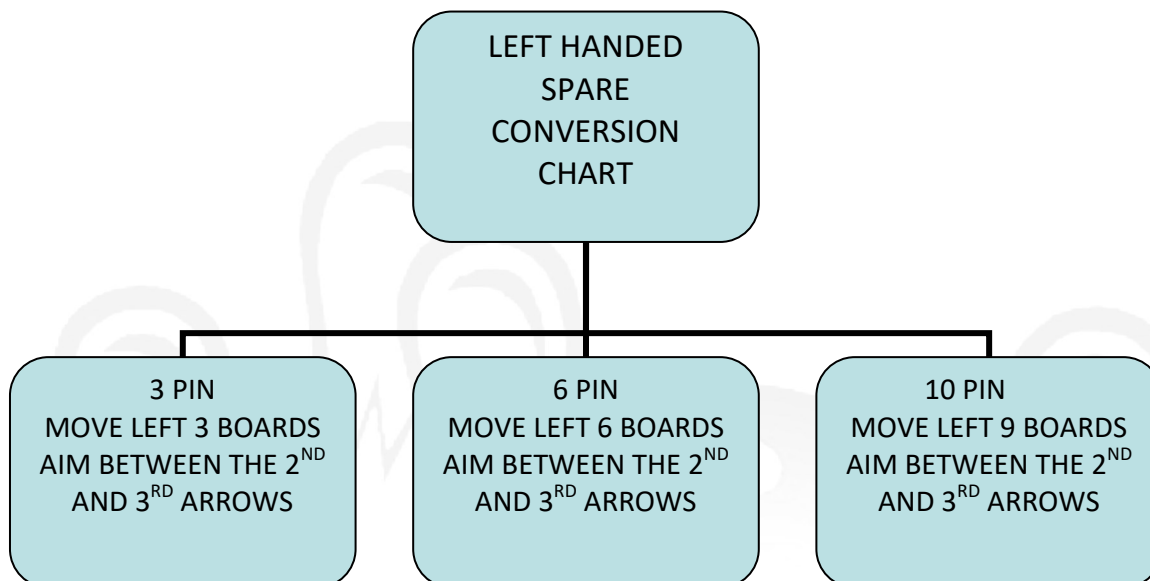
HEADPIN & 5 PIN SPARES

- If a bowler leaves the Headpin—No adjustment is needed. They can use their strike shot.
- 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 the Spares has a higher percentage rate than hooking at Spares.
- Equipment needed—Plastic Ball. A Plastic Ball tends to go much straighter than the high-tech balls of today.



Remember - Bowlers need to close their body slightly to the target.

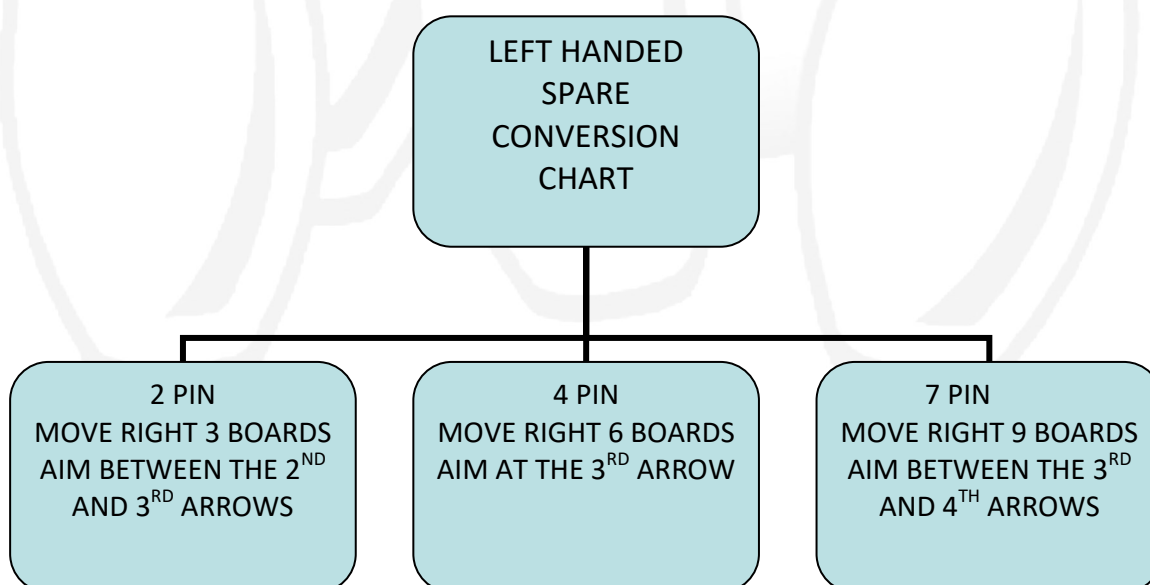
Single pin spare shot—Left Handed



Remember-Bowlers need to open 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.
- 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 the Spares has a higher percentage rate than hooking at Spares.
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Remember - Bowlers need to close their body slightly to the target.

21 Multiple Common / Makeable Spares

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

Pin Carry

Pin carry is an essential part of a bowler's score. If there is no pin carry, more than likely a bowler's score is going to be lower. If a bowler can carry, however, his score will reflect that.

In the first Bowlology that I wrote, I discussed the perfect strike. There are five categories of strikes. The perfect strike is the Solid Pocket where the ball takes out the 1-3-5-9 pins. The ball will exit the pin deck left of the 9. The second type of strike is the Light Pocket where the ball hits the 3 pin and exits right of the 9 pin. This is where Billy Welu came up with the phrase "hit them thin and watch them spin." The third type of strike is the High Pocket. The ball will be more toward the head pin and exit left of the pin deck for a right handed player. The fourth type is the Brooklyn which is when the ball crosses over and hits 1-2 for a right-hander. For a left-hander, a Brooklyn strike would be when the ball crosses over and hits the 1-3.

There are three factors regarding the lane that influence pin carry: 1) pin deck, 2) kickback plate, and 3) flat gutter. The pin deck material will have the most effect on pin carry. The kickback plate has the second most effect on pin carry which is caused by the pins flying out and taking out pins that are still standing. Believe it or not, the flat gutter has the least effect on pin carry even though bowling fans see pins coming out of the gutter to take out other pins all the time. With the flat gutter, it is harder for the pins to come out. The lane will tend to be higher than a flat gutter. With regular gutters, pins will more likely be able to take out other pins by bouncing out of the gutter than in a flat gutter.

Another factor that affects pin carry is lofting. A way to practice this is by putting a towel out about a foot past the foul line, and throwing the ball over the towel. This will give the bowler more loft, and he/she will be able to carry more of the corner pins.

The name of the game is pin carry. This will help bowlers not leave as many ringing ten pins (or ringing seven pins for the left handed bowler). If bowlers are able to carry more, there scores will dramatically go up from a 2-0 game to a 240 or 250 game. This is how bowlers are able to carry more.



The Perfect Strike

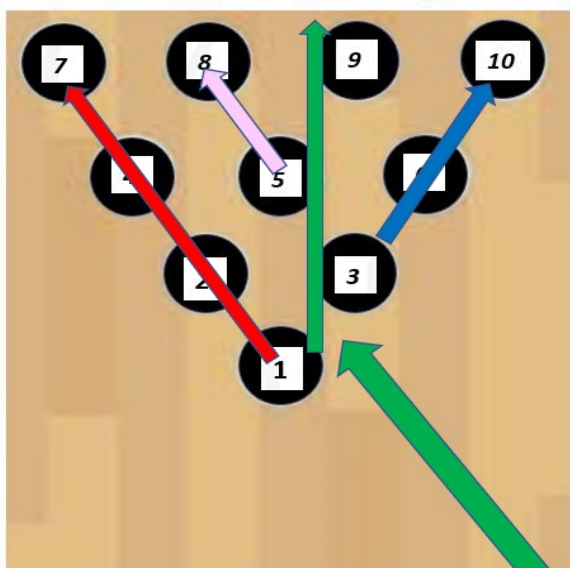
Many non-bowlers do not know the difference between a good strike and a lucky strike.

In a perfect strike, the ball hits between the 1 and 3 pins. The ball only hits four pins in a perfect strike—the 1, 3, 5, and 9 pins for a right-handed person and the 1, 2, 5, and 8 pins for a left-handed person.

First, the head pin must be hit at the 5 o'clock mark (if the pin were a clock). Next, the ball then hits the 3 pin at the 8 o'clock mark as the head pin takes down pins 2, 4, and 7.

Lastly, as the 3 pin takes down the 6 and 10 pins, the ball hits the 5 pin (which knocks down the 8 pin) and the 9 pin. This gives the bowler a perfect strike.

Bowlers can use this information to know how to knock down all of the pins properly.



The Green Line represents what the ball would take out. The Pink Line represents what the five pin would take out. The Blue Line represents what the three pin would take out. The Red Line represents what head pin would take out.

Lane Courtesy

In bowling competition, bowlers must abide by lane courtesy rules. In league competition, it is standard to follow one-lane courtesy. However, usually bowlers follow two-lane courtesy.

The PBA rule (17.4) regarding lane courtesy states:

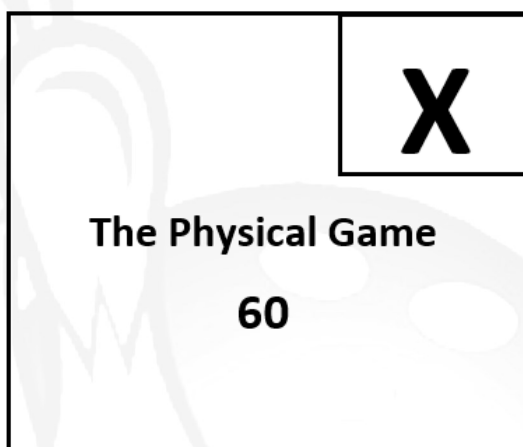
Lane Courtesy and Double Jumping. *Competitors must observe one (1) pair lane courtesy at all times. Competitors may not "Double Jump." Double jumping occurs following a delivery when a competitor on the same pair delivers his or her ball before one (1) competitor from the pair to the right and one (1) competitor from the pair to the left have made a delivery, unless those competitors are not ready to bowl or they give way.*

Bowlers need to bowl when it is their turn. Some bowlers tend to take courtesy to a new level especially when there is a great bowler on a nearby lane. They are slowing down the process. Bowling does not have to be a timed sport; however, bowlers should strive to keep a decent pace of play.

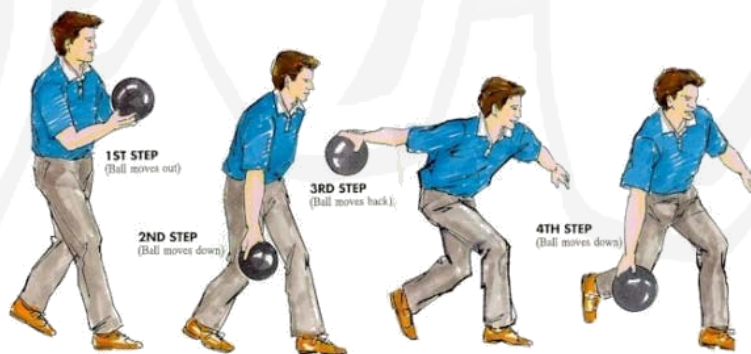
For more information on lane courtesy, league secretaries or other league officers are good sources. When bowlers are bowling in their first regional PBA tournament, the pros are more than happy to help bowlers understand the lane courtesy rules. Bowlers who break the lane courtesy rules cause their fellow bowlers more frustration.

Courtesy toward others is an essential part of any competitive sport. Bowling is not an exception to the rule. Bowlers: be aware of the courtesy rules of league and tournament play and help others understand lane courtesy.

Frame 2



X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300						



Pre-Shot Routine

In the settee area, the bowler gets to concentrate on what he or she is going to do on the next shot. The Pre-Shot Routine should be used each time the bowler starts. This will make the bowler be more focused on what he or she needs to do on the future frames during tournament or league play. If bowlers grab the ball with their bowling hand, their arm will get tired. They should cradle the ball with their opposite bowling arm. A few suggestions that might help are:

Squeezing the rosin bag a number of times. This might calm the bowler's mind and relax the muscles in the bowling hand.

Wiping off the ball a few times. This will get the oil off the ball.

Deep breathing. Once the bowler is on the approach, their mind needs calm down and avoid second guessing your shot.

This can be a "ready—set—go" so the bowler knows exactly what he or she is going to do during each frame. The bowler should practice through these suggestions in order to see what works best.

Not having a pre-shot routine can lead the bowler into making mistakes over and over again. A bowler that is just going up on the approach to throw his or her next shot can result in not being able to execute properly if they need a strike or spare to win a game. A pre-shot routine is a must if a bowler wants to success in the sport of bowling.

Timing

Bowling can be simple if a bowler has a good solid game with his/her timing. A good example of good timing is a string attached to the bowler's toe and finger. If a bowler has a string tied to both when the foot moves the finger will follow. This is good synchronized timing. So many bowlers think that they need a different ball, but maybe they need to work on their timing instead.

Early timing is when the ball is pushed out without movement of the foot. Late timing is when the foot is moved prior to moving the ball. Early or late timing can cause the bowler to pull the shot causing the ball to go Brooklyn or be light in the pocket. Early or late timing can also eliminate a bowler's possibility of having a pendulum swing. If the bowler is always trying to get the ball back in the right position, he/she is not letting gravity take charge of the bowling swing.

Common mistakes to avoid:

- Getting fast with the feet
- Pushing away inconsistently leading to being early or late with the timing
- Muscling the shot
- Allowing the swing to bump outward from the body in the early stages which causes the ball to loop
- Dropping the ball into the swing
- Holding the ball in front of the torso so that the arm must swing circuitously just to clear the body
- Failing to concentrate fully on all shots, even the seemingly easy ones

These are just some of the mistakes to avoid with a bowler's timing. See the diagram below for an example of good timing.

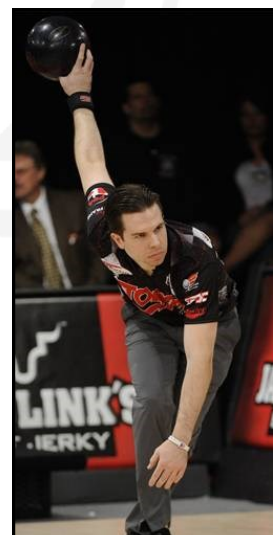
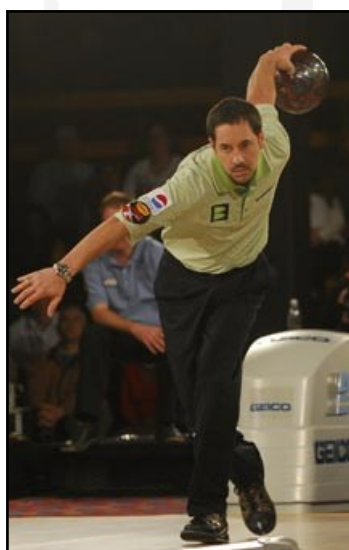
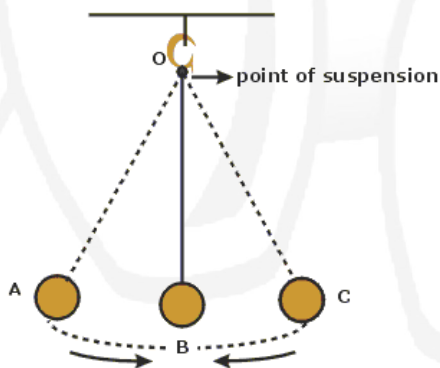


Pendulum Arm Swing

A *pendulum* is a weight suspended from a pivot so that it can swing freely. If a ball was hung from a string, the ball would swing freely in a perfect pendulum. This is how the arm swing of a bowler needs to be.

When a bowler releases a throw, they must let gravity take over. A bowler does not need to worry about the speed of the swing to get extra ball speed. Speed comes with the step, not through the arm swing. Correct form looks effortless, as evidenced by Mike Fagan and Parker Bohn III. These bowlers are going to be able to repeatedly make shots because of their free pendulum arm swing. Another good bowler who does this is Mika Koivuniemi, winner of three majors. Again, his throw looks effortless. This is one of the reasons these bowlers are so successful.

When practicing, make a point to feel how loose the swing is. Recording a throw to see the swing can also be helpful. Try not to just “throw harder.” This will raise scores.



Deep Knee-Bends

In bowling, bending the knees in the approach is essential to the bowler's game. This way, the ball can get into a roll earlier. Similarly to a pilot landing a plane, the smoother the ball gets down, the better.

The knee-bend enables a bowler to release the ball into the lane properly, without a "thud." It also keeps the bowler well balanced during their finishing position. If the bowler's knee is straight, the bowler's upright position will cause them to pull up on their shot, causing the ball to be off target. This will not allow the ball to read the lane properly.

In a four-step approach, the third step has to be shorter and rapid. This will enable the bowler to be more efficient in their release. A long third step will hinder this from happening. The power step is used to push off into the slide. Again, the knee-bend is crucial here for balance. If a bowler stands up on the shot, there is a greater chance they will injure themselves with all the pressure on their knee. Many of the great players have great knee bends.



The Trail Leg

In a bowler's motion, the trail leg is the stabilizer for the point of release. A bowler should always feel in control of their body--not off-balance or off the shot. The trail leg is important, as it distributes the uneven weight of the bowling ball and allows a bowler to keep their swing path close to their body.

If a bowler is having a problem with their trail leg, they need to do a one-step drill. The one-step drill is an exercise in which the trail leg sweeps past the non-ball side leg, low to the floor in repetition. This will help in getting a consistently accurate trail leg position.

At the proper finish position, the trail leg should have the top of the foot facing the floor. If the trail leg leaves the floor, the bowler sacrifices leverage. On the flip side, be careful not to over-rotate the hips or leave the trail leg too far back.

A bowler who can repeatedly have a good trail leg position is like a gymnast who always lands on both feet.



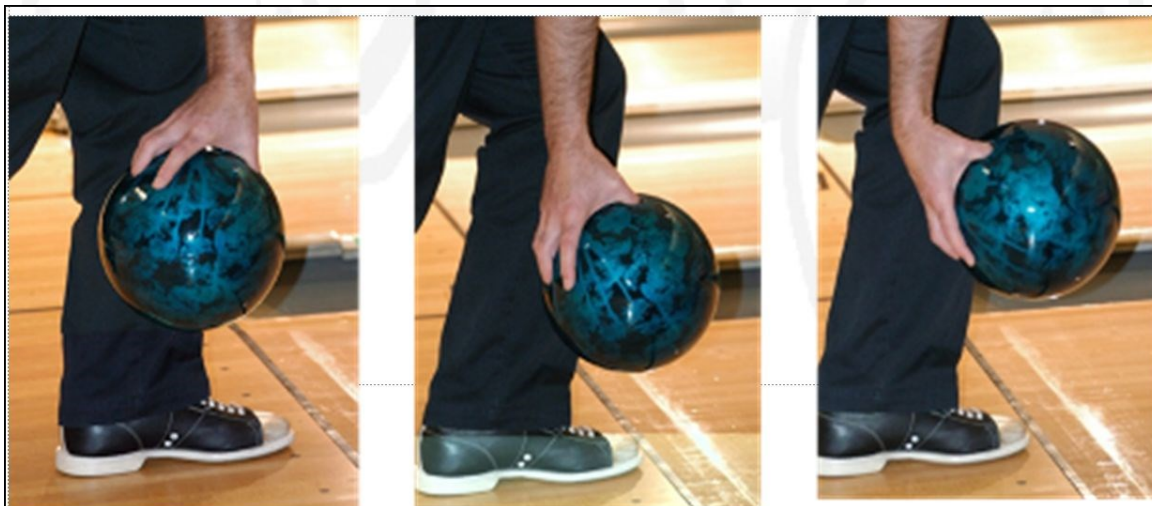
Wrist Position

Wrist position is very important in bowling. There are three basic wrist positions that a bowler can have:

First, there is the collapsed position. This creates the minimal amount of revolution on a bowling ball. The collapsed wrist position is great for shooting spares. When the lanes start to get dry, this is another way that the ball can get down the lane longer before hooking.

Second, there is the straight position. This is ideal for the beginner bowler. This creates an average amount of revolutions. When they have a low oil volume or are very dry, this position is good for when the ball is hooking too much for a bowler.

Third, there is the cupped position. This position creates the most revolutions on a bowling ball. It is great for when the lanes are tight, when the ball really needs to read the lane earlier to get into the 1-3 pocket (RH) or 1-2 pocket (LH). This is a powerful position. If the bowler is muscling the ball while using a cupped wrist position, it may decrease the hook potential as the bowler's wrist may collapse going into the release. If the ball is going straight when a bowler starts with a cupped wrist position, that means their wrist is collapsing prior to the delivery or their rotation degree is lower making the ball roll more end over end which makes the ball go straighter.



Clasped

Straight

Cupped

Release

In the delivery, the bowler releases the ball with the thumb exits first followed by the fingers like he/she is shaking hands with the second arrow. This creates side rotation on the ball resulting in maximizing pin carry and higher scores. The ball rotates in a clockwise manner for left-handed bowlers and in a counterclockwise manner for right-handed bowlers. Conversely, if the bowler over rotates on his/her release, called topping the ball, the ball will react in a spinning motion away from the pocket.

The bowlers wrist position—cupped vs. straight— affects how the ball reacts on the lane. In a cupped position, the wrist will unload at the point of the bowler's release, creating more revolutions causing the ball to hook more. When the wrist is in a straight position, the ball remains neutral as it is migrating toward the pins.

The three main elements of an accurate bowling ball release are thumb release, wrist rotation, and finger release.



Finish Position

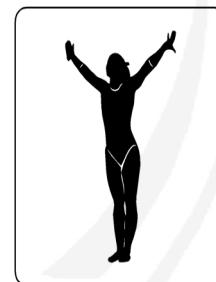
In gymnastics, an athlete needs to land on their two feet in order to get a good score. If they don't land on their two feet, they will get docked on their score. Similarly, bowling starts with a good starting position. A good finish position creates more power, accuracy, and versatility. If a bowler does not have a good starting position, it is harder for them to have good finish position.

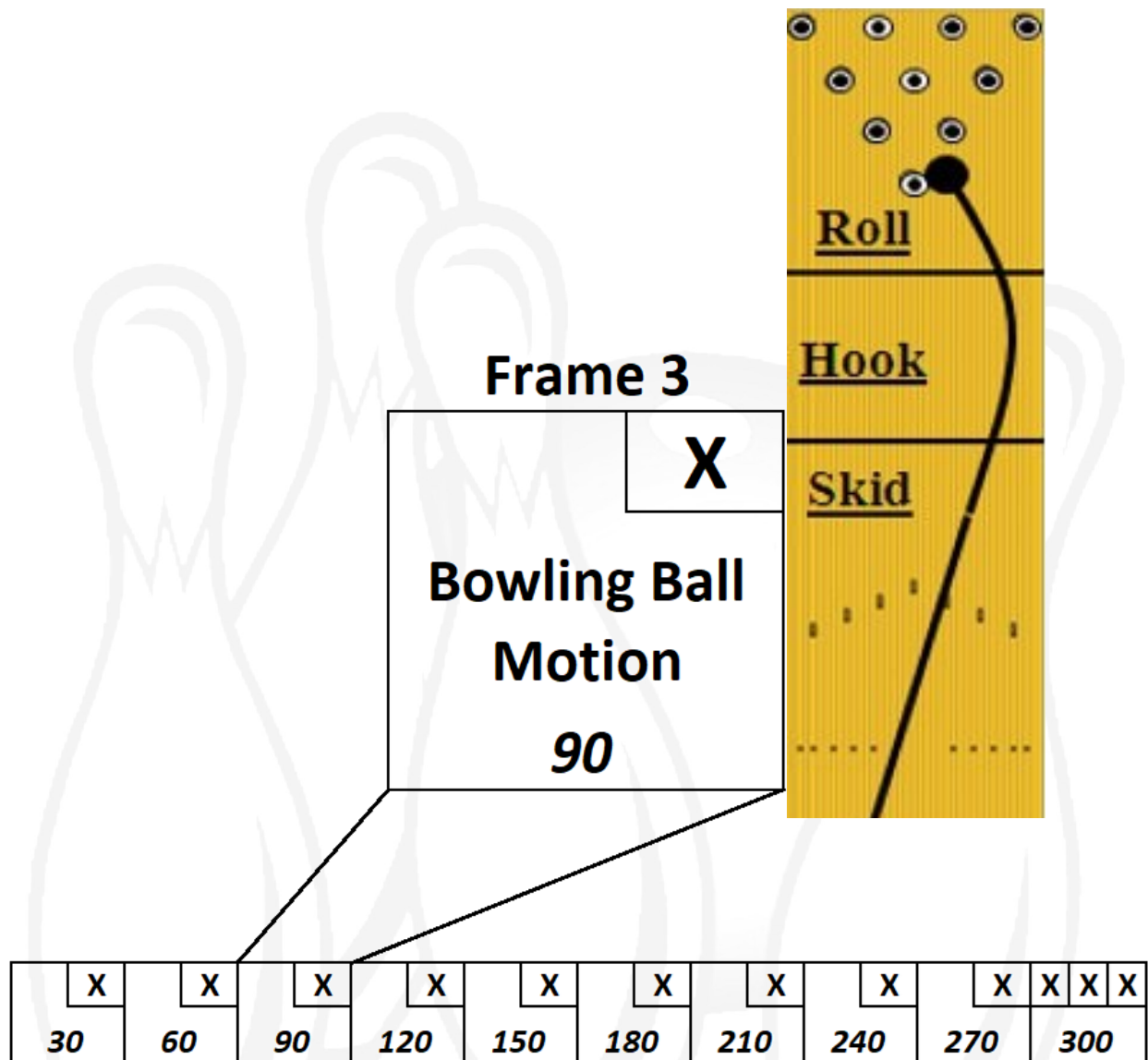
This starts with a good stance. If a bowler has the right rev rate, right speed, the right axis tilt, and the axis rotation, but they do not have a solid finish to the line, they are going to have more frequent errant shots or an "off night." At the 2012 Tournament of Champions, Sean Rash executed greatly and was able to win the tournament. If a bowler is always off-balance, he/she is going to have a hard time scoring. If a bowler has a good finish position, the more success they will have.

First, the bowler must have a forward lean of 10-15 degrees and keep their knees directly above their toes. A bowler must keep this stance during their approach. It is key that the bowler has a good stance. Second, the bowler needs to make sure that their bowling shoulder is not above their non-bowling shoulder. It should stay in this position through the foul line. Third, the bowler should place the ball in front of the bowling shoulder and as close to their body as comfortable. Fourth, they need to make certain that their head is steady with their chin above their shoulder level, directly facing their target. Lastly, the bowler should avoid upper body elevation changes and keep it in the same stance during the approach.

This will allow the bowler to have good finish position. This is how a bowler can have the best finish position.

Following the above guidelines will likely improve your game resulting in your score being more consistent.





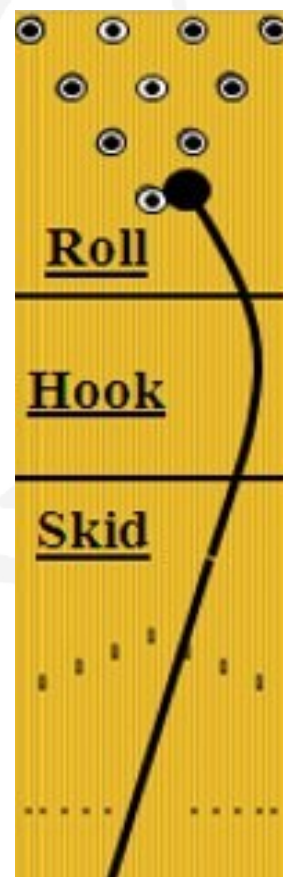
Ball Motion – Part 1

Bowling ball motion is important for bowlers to understand so that they recognize what their ball is doing on the lane. There are 3 phases that the ball goes through before it hits the pins.

The first phase is called the skid phase. The characteristics of this phase are: ball speed is at its highest, the revolutions are at their lowest, and friction between the ball and the lane are also at its lowest. In the second phase, which is known as the hook phase, the ball speed decreases, revolutions increase, and friction between the ball and the lane increases. The ball, in this phase, changes direction. Lastly, the final phase is called the roll phase. In the roll phase, the ball speed is at its lowest, revolutions are at their highest, and friction between the ball and the lane are at its maximum. At this point, it is rolling in a straight line therefore losing its hitting power.

There is a myth about the roll phase - that the ball rolls before it hooks. However, it has been proven through video research that the roll phase occurs after the hook phase.

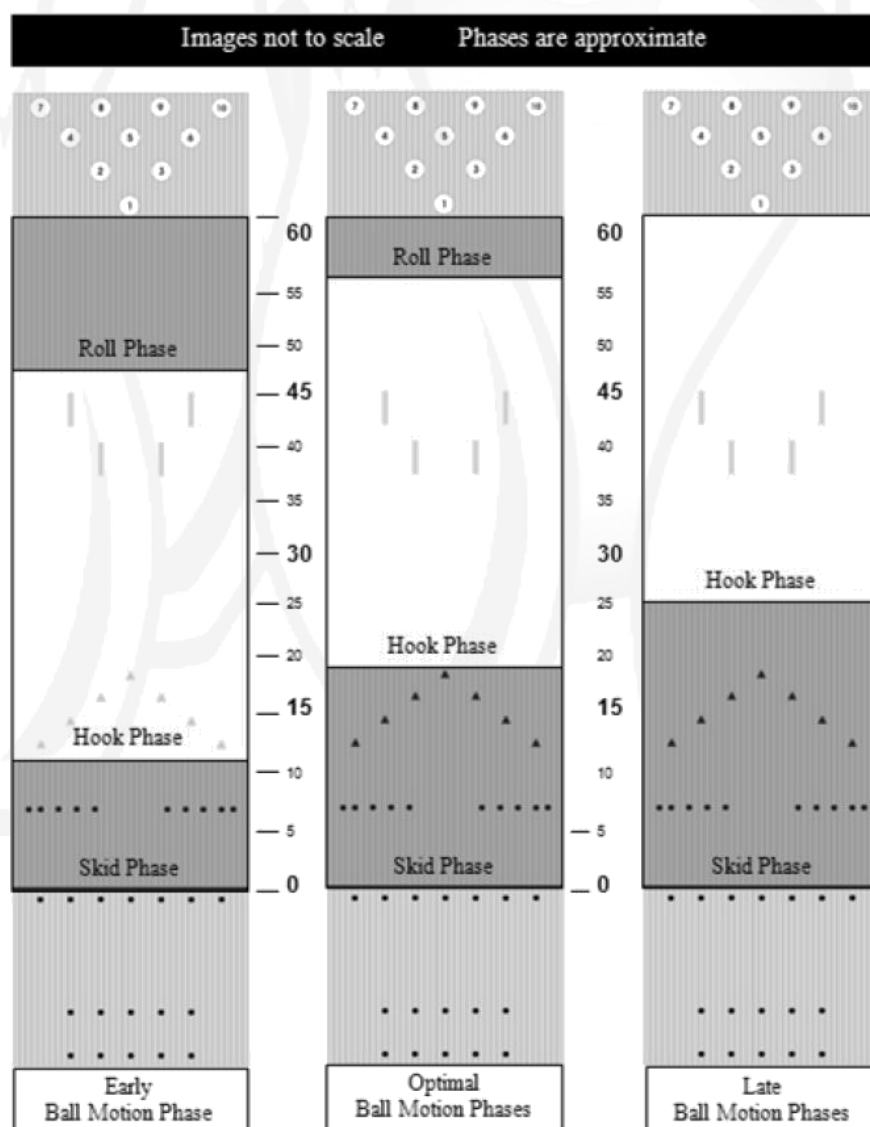
Understanding ball motion will help bowlers understand what their ball is doing when it travels down the lane.



At right: The 3 phases of ball motion: skid, hook and roll.

Ball Motion – Part 2

A bowler must select the right phase for the length of the pattern. These three different phases will help the bowler decide what they want to accomplish. In the early phase, the ball's motion has more hook, less skid, and more roll. This phase would be best for the Badger pattern. The next phase is called the late ball motion phase which has more skid and more hook. It has little to no roll at all. This phase would be good for the Wolf pattern. The bowler would want the ball to skid more and be more angular at the backend. The last one is called the optimal phase, being a combination of all three. This would be best used for a medium length condition where a bowler would encounter all three of these features. For more information, bowlers are encouraged to discuss ball motion with their pro-shop operator.



Speed v. Rev Rate

It does not matter if a bowler has a high speed or low speed. It only matters that the bowler matches the rpm with the speed. (see chart to the side) If a ball has too much speed compared to the rpms, it will have a straighter path and won't be able to hook down the lane. However, if the bowler doesn't have much speed, he or she doesn't want to have a high rpm because will hook to early.

First, you need to measure your speed. Hopefully your bowling center will display it on the score board. If not, this is how you can find it. Measure the time it takes for the ball to go from the foul line to the head pin. Next, divide 41.14 by your time which will give your mph.

To find the rpm, put a piece of tape on the positive axis point, or PAP. Then count how many times the tape goes around in one second. Take this number and multiple by 60. This will give bowlers their RPMs. In order to perform this step accurately, the bowler will want to use a camera.

5 Types of Bowlers

1. Revs dominate ball speed
2. Revs slightly dominate ball speed
3. Revs and ball speed match up
4. Ball speed slightly dominates revs
5. Ball speed dominates revs

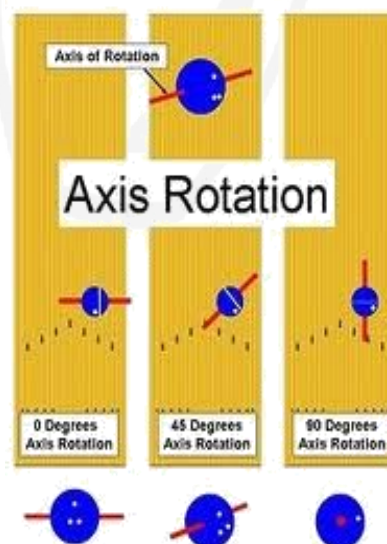
BALL SPEED	REV RATE
15-16 mph	200-250 rpm
16-17 mph	250-300 rpm
17-18 mph	300-350 rpm
18-19 mph	350-400 rpm
19+ mph	400+ rpm

Understanding Axis Rotation

This topic will be on axis rotation, which is the horizontal measure of the angle of the ball's revolutions. Closely associated, and often confused with axis rotation, is axis tilt. Axis tilt is defined as the vertical angle at which the ball rotates. I will cover axis tilt in the November newsletter.

The release position of the fingers dictates the amount of axis rotation, known also as side roll. A 0-degree axis rotation is when the fingers exit the ball at a 6 o'clock position, and the ball rolls end-over-end. This creates minimal or no hook.

If the fingers exit the ball at the 3 o'clock position, the result



Understanding Axis Rotation-Continued

will be a 90-degree axis rotation. This will introduce more hook.

Right-handed bowlers rotate their hand at release in a counter-clockwise motion; while left-handers release the ball in a clockwise motion.

Most bowlers have a release somewhere in between 0-90 degrees. The halfway point would be 45 degrees which is considered the most versatile release position. As a bowler, knowing the amount of your axis rotation can help you determine what your ball's drilling needs are.

Axis Tilt

Axis tilt is the vertical angle at which the ball rotates prompting the ball to skid as it rolls down the lane. As a result, backend hook potential is reduced.

As the bowler watches the ball go down the lane, the bowler will see the opposite in axis rotation and tilt to what you see on paper regarding the vertical and horizontal axis. The more tilt the bowler employs, the more spin he creates on the ball.

Axis tilt will be bad if the ball track is further from the finger holes. Axis tilt is created by either cocking or collapsing the wrist at release.

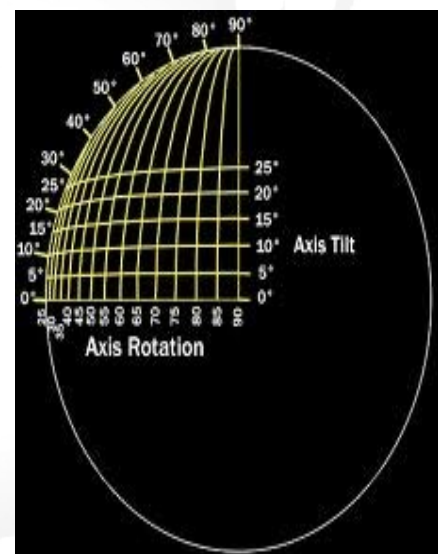
At 90 degrees, the axis will be straight up. At zero degrees the axis is on the horizontal plane.

The higher the tilt the smaller the ball will track and the longer the ball will go down the lane before hooking. The lower the tilt the larger the ball track and the sooner the ball will hook on the lane.

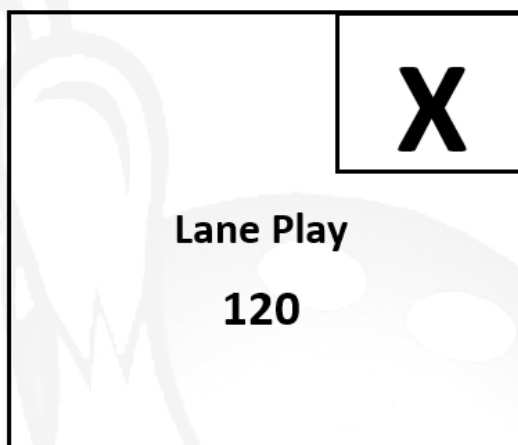
A bowler can change their axis tilt by releasing the ball in different ways. If the bowler overturns the ball it will spin like a top. However if the bowler releases where the thumb comes out first, then the ball will have a chance to react like it is supposed to.

When the bowler is looking at axis tilt on paper and on the lane it looks different. On paper it is one dimensional and the lane is three dimensional.

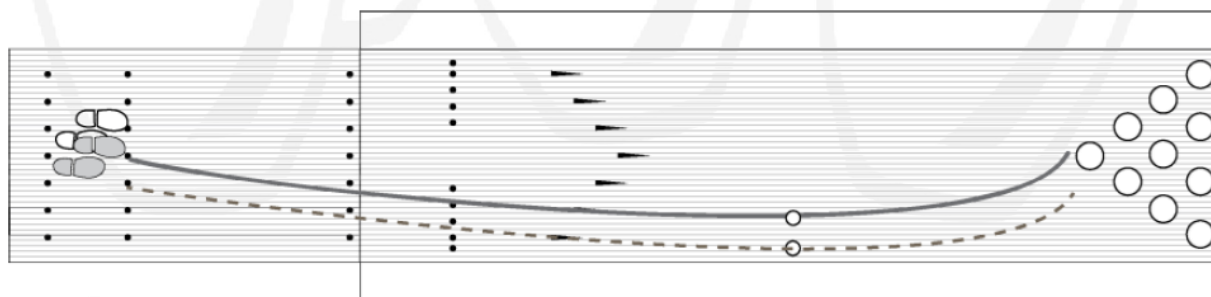
The diagram above indicates the degrees of axis tilt and axis rotation that a bowler can have. Tilt is vertical and axis rotation is horizontal.



Frame 4



	X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300							



Right-handed bowler misses the 1-3 pocket to the left

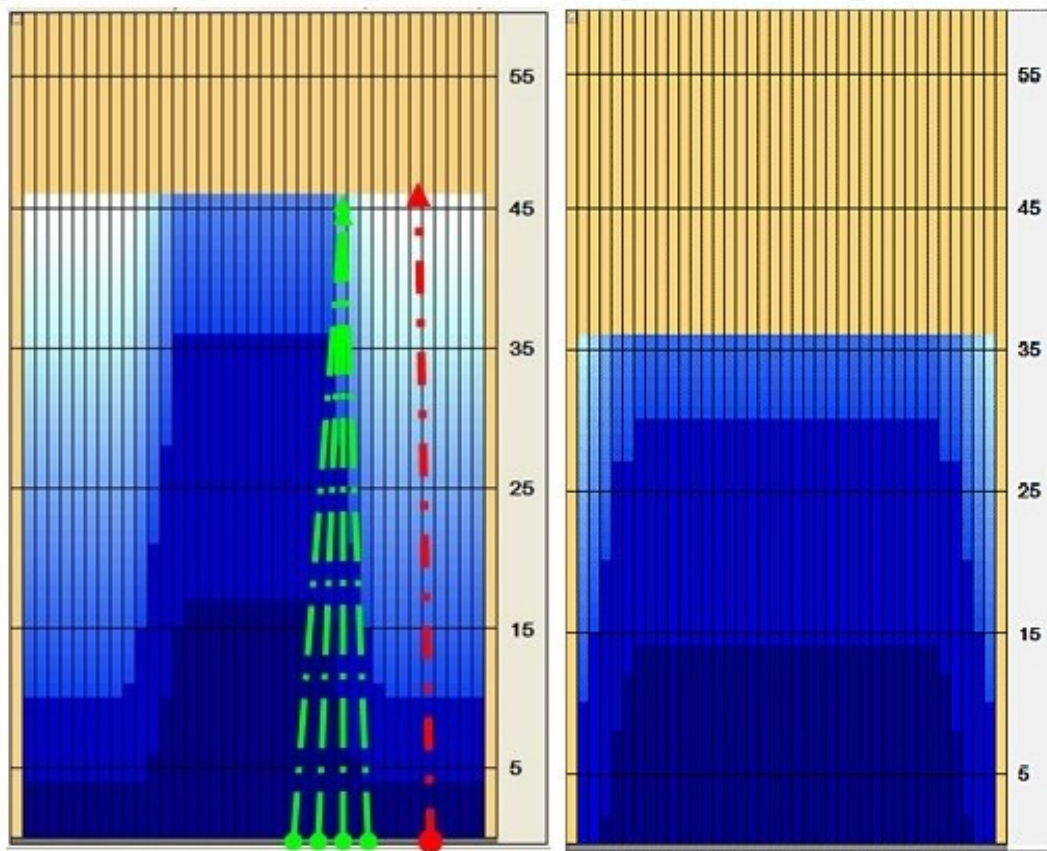


Bowler moves their feet and eyes (target arrows and breakpoint) equally to the right

Bowling is a Surface Sport

Bowling is a sport where outcomes are dependent on a surface. The more friction the lane has, the more the ball can hook. The less surface a bowler has on the lane, the less the ball can hook. In sports where, the balls are in the air as soon as the ball sees the friction, it is going to hook. Surface dictates how the ball is going to react on the lane. The longer the oil on the lane is, the longer the ball will not see the friction. As soon as the ball can get into a roll or see the friction, the bowling ball will be able to hook. Bowlers are allowed to change surfaces on their ball prior to competition. This will help the bowler's ball to have more or less surface, therefore it is able to hook sooner or less if desired. The less surface that a ball has, the more it will go down the lane and will not be able to hook. When the oil is longer on the lane surface, a bowler's ball is not able to see the surface, and will not hook until it sees the friction on the lane. Surface is a major factor in the sport of bowling.

These pictures show two examples of a long and short oil pattern.



Reading a Lane Pattern Graph

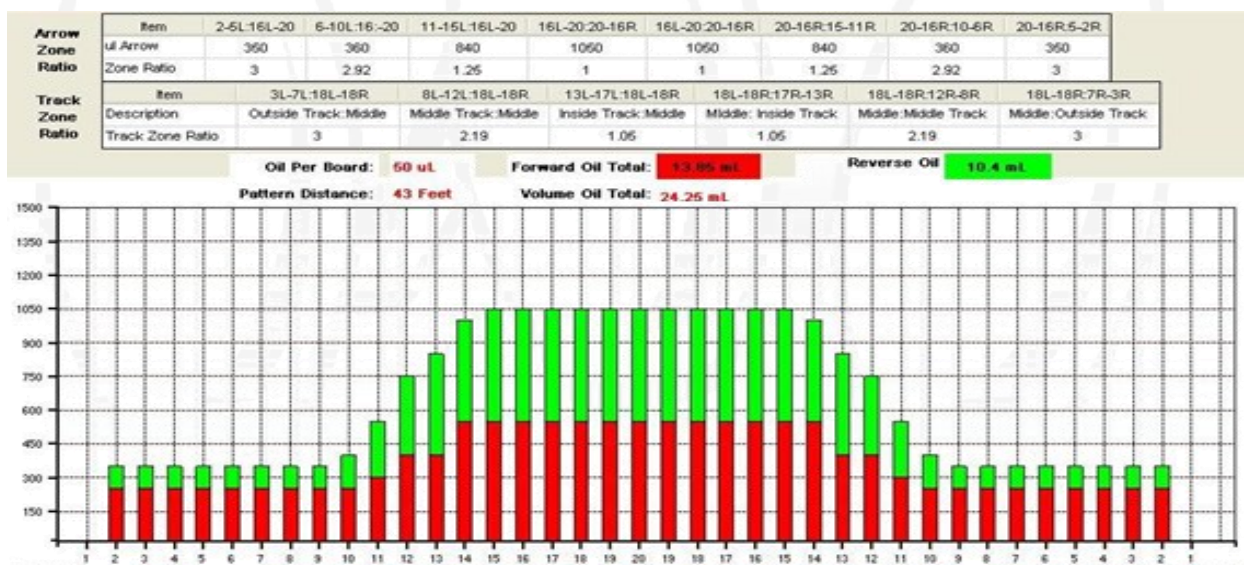
The tournament host occasionally posts a graph to tell the bowlers how long the pattern is, how much oil volume is on the lane, and what the pattern looks like. So, what does all of this mean? Well, for starters, the bottom numbers (refer to graph at right) are the board numbers of the lane.

Forward oil (the red area of the graph) is laid down the first 16 feet of the lane, then buffed out to 44 feet. That means the oil tapers out, like down a hill. With reverse oil (green area of the graph) starting at 32 feet and continues to the heads. Bowlers will bowl down the lane from heavier oil into light oil into the backend.

Volume is how much oil is on the lane and is measured in milliliters. Pattern shape is the shape of the oil on the lane. The chart at the right is similar to a top hat. Other shapes are: Christmas tree, block, and flat.

The white area of the graph (no green or red color) indicates the dry area of the lane where the friction is higher.

Below: Reverse block oil pattern
Bottom Left: Top Hat oil pattern



Adjusting—Part 1 Continued

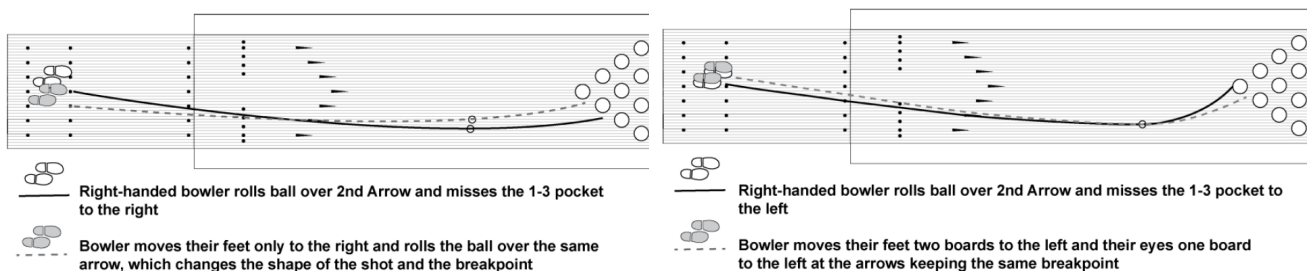
Bowlers go through transitions during league or tournament play. More than likely they are going to have to make some adjustments to get their ball to get into the 1-3 pocket. Adjusting is somewhat simple. If a bowler misses left, he or she will move left. Bowling fans often hear bowlers talk about moving 2-and-1, but what does this mean?

The first number is the feet of the bowler and the second number is the ball or the target. Pro bowlers however, might have to make bigger adjustments so the ball can go through the pins better. When a bowler says they made a 2-and-1 move, they mean that they moved two boards with their feet, and one board with their target. Adjusting is something that is essential to a great bowler. Without adjusting, bowlers are going to have a harder time hitting the 1-3 pocket. In essence, they will have lower scores and likely will miss the cut. Amateur tend to go to a different ball rather than trying to change their target with their target with their feet and/or the ball. This is another way to score higher.

The pros may make a bigger adjustment. Rather than 2-and-1, they may go 10-5. This way, they can find something a little sooner, giving them a chance to score higher. If they make too small of an adjustment, it might take them longer to score. If they make a bigger adjustment, they can find the line a lot faster.

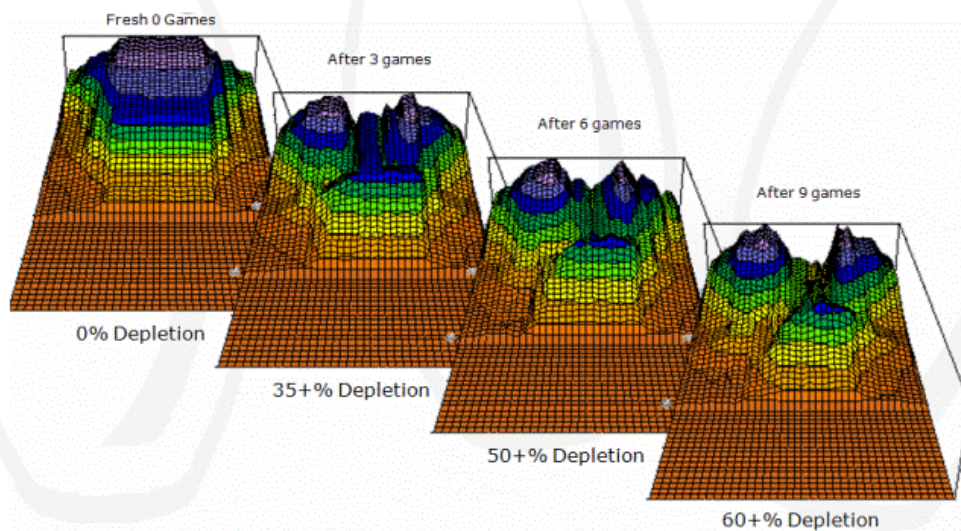
Adjusting—Part 2

In adjusting there are three different approaches that a bowler can make. First one is commonly known to bowlers as the 2:1 move however this adjustment is formally called the diagonal move. The bowler will move two boards with their feet and one board with their target. Second adjustment is called the abstract. Bowlers only move their feet and not their target. The final adjustment is called the parallel move this is where they move their feet and the target the same amount of boards. These adjustments will help bowlers in finding the pocket more often than just playing a guessing game. Which bowlers will experience less frustration.



Oil Breakdown

Lane breakdown is when the oil pattern starts evaporating or being absorbed by the bowling ball, thus causing the oil to disappear. At the start of the day in a tournament or league, the oil pattern is fresh. As bowlers bowl on the pattern with each shot that is thrown, the oil changes slightly. This is caused by the bowling ball going down the lane and its friction moving the oil in the direction it is going. When a bowler is bowling in a league, they typically bowl on the same pair of lanes throughout the entire three-game session. However, in a tournament, bowlers are going to go from pair to pair, so it varies for how each bowler breaks down the oil pattern. The fresh lane is typically only going to hold up for five frames. The graph below shows the fresh shot, after three games, after six games, and after nine games. As you can see, after nine games, the oil pattern is very different from the start. This is due to bowling ball traffic on the lane. To be ahead of the game, a bowler should arrive early at the tournament to watch how the lanes are transitioning. During their qualifying block, they can even go down to the next pair of lanes near the end of the current game. This will help the bowler determine what to do and what not to do. Remember, bowling is a surface sport. Bowlers are going to have to adapt to the pattern and the transition of that pattern in order to be successful.



Oil Absorption

Bowling is a surface sport. When the bowling ball goes across a lane, it picks up oil from it. This oil is eventually absorbed into the bowling ball. The rate of absorption depends on the surface of the ball. The more surface a bowler has on a ball, the faster the oil will absorb into the ball.

The four pictures below illustrate how oil on a ball was absorbed over the course of under four minutes after one thrown ball. In this case, the first picture indicates 100 percent of the oil removed from the lane. In the second picture, approximately 60 percent of the oil is absorbed into the ball after one minute. The third picture shows that after two minutes, approximately 80 percent of the oil is absorbed. In the fourth and final picture, nearly all the oil is completely absorbed after just over three minutes of elapsed time.

The less surface that is on the ball, the slower the process takes. There are a lot of other variables that go in this process. Some of these are: the surface of the bowling ball, how fresh the lane oil is, how many games the ball has been used, and chemical makeup of the ball's coverstock.



L to R: (1) When the ball returns, (2) A minute after, (3) Two minutes after, (4) Three minutes

Oil Carry Down

Bowlers have to understand that the lane conditions change after every shot is thrown. This is due largely to the oil on the lane. There are two main factors that cause oil conditions to change: oil carry-down and oil break-down.

The heaviest volume of oil is toward the foul line. When a bowler throws his/her ball down the lane, the lane conditions are continually changing.

Plastic bowling balls will carry more oil down the lane than today's reactive bowling balls. The reason this occurs is because oil clings to plastic and spreads it out more. The resin-reactive and particle balls are more porous which soaks up more oil directly off the lane. However, there is still a degree of oil carry-down. Carry-down is going to make the heads drier and the back ends tighter.

When carry-down occurs, it is a part of transition, thus bowlers are going to have to adjust their game accordingly.



From to left to right: Fresh oil example, after one game, after three games.

Topography

No two bowling lanes are the same.

The lane mechanic could oil the same pattern on every lane, yet depending on how the lane lies, the ball could react differently. This is topography. The three examples of topography are crown v. depression, length, and crosswise tilt. All play a major factor in ball reaction to oil.

A crown (top, left) is where the lane is slightly more elevated in the center.

These changes in the lanes are not huge—the USBC specifications for crowns, depressions, or tilt are ± 0.040 of an inch (about one millimeter)—but are still notable.

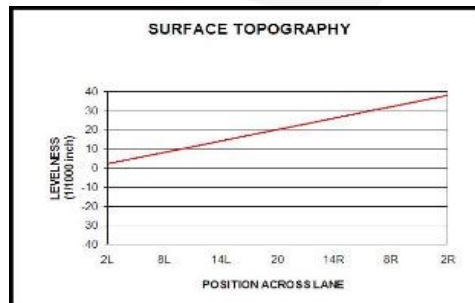
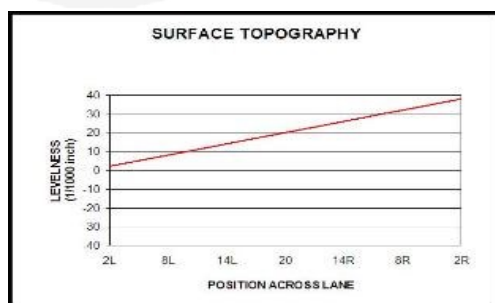
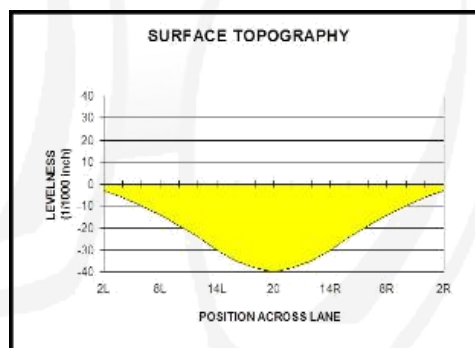
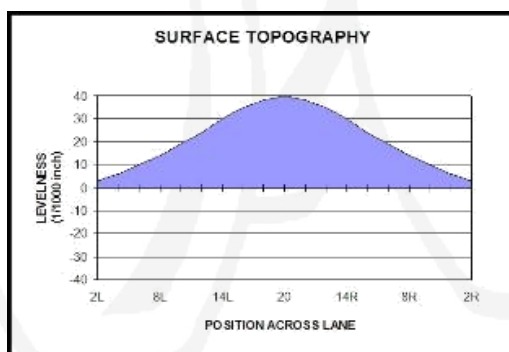
A depression (bottom, left) is where the lane is slightly lower in the center of the lane. These changes affect the lane width-wise. A crown will tend to make the lane tighter, whereas a depression will make a lane dryer.

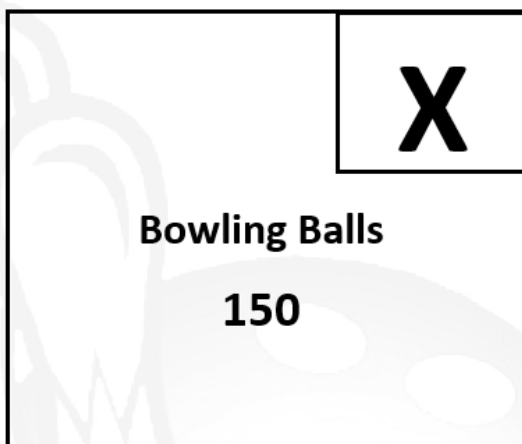
The second example of topography is when the lane is slightly inclined or slightly declined (or a combination of both) across the length of the lane. If the lane is more downhill, it will play tighter.

The final example of topography is tilt in a lane (crosswise tilt-high left is the upper right diagram; crosswise tilt-high right is the lower right diagram), which most lanes have to some degree. If one side of a lane is slightly raised, the lane will play harder toward the lower side of the tilt. Tilt may only be a certain area of the lane.

Just as no two bowling lanes are exactly alike, different parts of the lane may be affected differently than other parts. All of these factors can dictate how a ball is going to react on the lane. Some may even enhance each other, or work to cancel each other out.

This is why there is no perfect bowling lane.



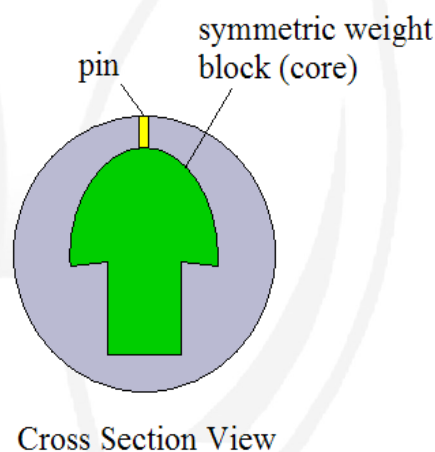
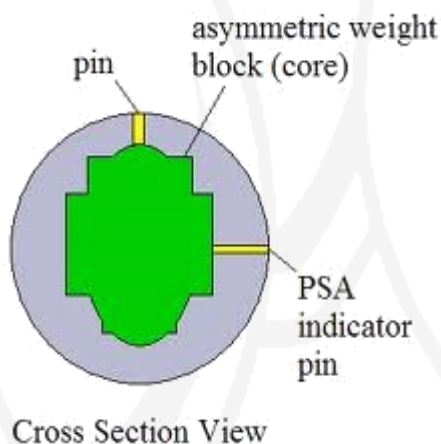
Frame 5

	X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300							



Bowling Ball Anatomy

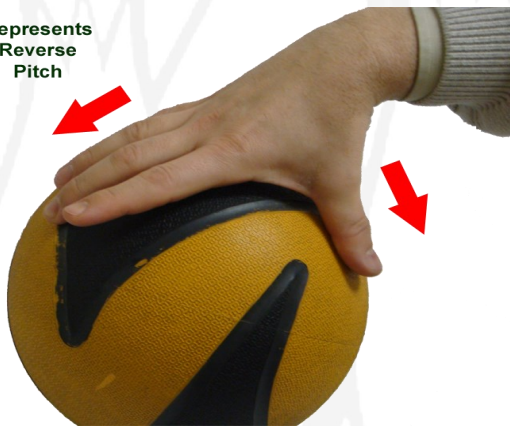
The bowling ball is very complicated in its structure. It is not just a ball going down the lane. There are many different parts to a ball. What a bowler sees on the outside layer is called cover stock. This is made up of rubber, plastic, urethane, resin reactive and particle. Rubber was introduced in the mid 19th century to the 1950s. Plastic came about from the 1970s to the 1980s. Urethane was popular in the 1980s thru the early 90s. Resin reactive was used often in the 90s thru 2000s. Particle balls are most often used today. The weight block is the “steering wheel” of the ball. There are two different types of weight blocks asymmetrical and symmetrical. Asymmetrical will tend to go long and make a snap at the back end. Whereas symmetrical will tend to hook earlier. The weight block is a puck or paddle shape, made of dense material inside the ball. It helps with balance. The pin tells where the weight is positioned in the ball. The center of gravity is the heaviest part of the ball, it is located in the center of the ball. The mass bias is the heaviest part of the weight block. A bowler can consult the pro shop operator to determine where they want the mass bias, pin CG and a weight hole in order to have the best ball reaction for that particular bowler.



Pitches

To get a better feel, bowler's can put holes in their ball in which it can properly feel comfortable. If bowlers are having trouble, getting out of the ball, a reverse pitch might be helpful. Chris Barnes uses a forward pitch and that makes it possible for him to have a larger thumb hole. If a bowler wants to get out of the ball quicker, than a reverse pitch is another answer. A bowler is hanging to much in the ball, this will allow them to exit the ball cleanly and if they are having to much trouble with having to much finger rotation, a reverse pitch will help solve this problem. Forward and reverse pitch can make a bowler's span longer or shorter. A forward pitch will make a bowler's span shorter while a reverse pitch will make the bowler's span longer. A bowler must consult their pro-shop operator that can assist with the best pitch that the bowler needs.

Represents
Reverse
Pitch



Represents
Forward Pitch



Understanding Bowling Ball Surfaces

What does understanding ball surfaces mean, you may ask? Well, in golf, the ball is in the air. In football, the ball is in the air. However, in bowling, the ball is going to touch the lane causing friction between the ball and the lane. Of course, the entire ball surface is not in contact with the lane at any one time.

A bowler can do lots of things to make the ball hook more or less on the lane. They can drill their holes in different places to make it go longer or hook earlier down the lane. One of the ways they can accomplish this is by sanding or polishing the ball. Now, there are Abralon pads so that a bowler can alter the surface of the ball. As you can see below, the higher the grit, the less friction it creates on the lane. Conversely, the lower the grit, the more friction it creates on the lane.

A bowler can alter the surface of the ball all the way up until the first frame of the competition. When the lanes are fresh—that is when bowlers are going to desire more ball surface contact with the lane. When the lanes are dry—this is when bowlers use a more polished ball.

During transition, they might go to a matte ball, which reacts somewhere between a sanded and a polished ball.

180 for deepest scratches

360 for deep scratches

500 for medium scratches

1000 to return to average factory sanded finish

2000 for a mild luster with texture underneath

4000 for a high luster with smooth texture

At right:
Example of a
sanded bowl-
ing ball.



At right:
Example of a
matte bowl-
ing ball.



At right:
Example of a
polished
bowling ball.



Bowling Ball Evolution

Bowling balls have come a long way since the 1950's. It used to be that bowlers had only one ball to carry in their bowling bag. The lanes were made of lacquer which was a soft wood. In order for bowlers to score, bowlers had to play straight down and in to hit the one-three-five pocket in order to strike. The bowling centers used a bug sprayer to oil the lanes, and a board would be marked to provide a guide for the bowlers. During this era, it was very hard to score. The pins were made out of solid wood. Bowling fans did not see a pin flying across the pin deck to take out the ten pin for a strike. This is how bowlers learned to bowl in the 50's thru the 70's. Bowling balls today are very advanced with regard to their technology and how a pro-shop operator can drill a bowler's ball. A bowler must recognize three things about their bowling game: where their positive axis point is, their axis tilt, and their axis rotation. Additionally, they should be aware of how their ball reacts on the lanes at their local bowling center.

A bowler may want to drill their ball the same way that Jason Belmonte drills his ball in an effort to improve their game. That desired outcome will not likely result as they do not have the same rotation that Jason Belmonte has. Drilling extra holes in a bowling ball took place in the mid-to-late 80's so that a bowler could change the dynamics of the ball to get more strikes. Back in 1973, Don McCune soaked his ball in MEK so his ball would hook more. He would win six titles that year becoming PBA Player of the Year. Soon thereafter, the PBA discovered what he was doing and added hardness specs to the ball. Pictured below are some of the top bowling balls of all time. Over the years, bowling balls have become increasingly innovative to strike more. As a result, there have been more and more 300 games bowled. The balls of today keep getting better and better each year.



Solid vs. Pearl Bowling Balls

In today's game, the sport of bowling is very complex with various bowling styles, different lane surfaces and lane oils, along with a wide variety of lane conditions. For a bowler to combat this complexity, the bowling ball manufacturers are continually striving to make better balls that provide a wider range of ball motion and that strike more. In the 70s, it was the Plastic ball. In the 80s, it was the Urethane ball. In the early 90s, it was the Resin Reactive ball. Later in the 90s, they introduced the Particle ball. Remember — bowling is about having friction in the right part of the lane, and when it comes to the bowling ball, it is all about the ball's surface. In recent years, the bowling ball industry has amped up their cover technology and done more to expand the overage range of motion with Solid and Pearl bowling balls. When something is contacting the surface, it creates friction. Generally, Solid bowling balls tend to have a sanded finish, and Pearl balls tend to have a polished/shiny finish. However, bowlers need to understand that factory-finish does not necessarily mean that the bowler needs to keep it that way. In most cases, bowlers can greatly benefit by changing the factory finish of a bowling ball, and many times, bowler choosing to keep their ball with the factory-finish will have a tougher time controlling the ball motion and creating the right ball motion to throw more strikes. There are many times when adding surface to the ball will enhance the ball motion and allow for higher scores. By manipulating the ball surface, corner pins and pocket splits can be greatly reduced. If the ball does not get into the hook phase quick enough, right-handed bowlers are more likely to leave a 2-4-8-10 split or a wash-out. Pictures below are examples of a solid ball and a pearl ball. By using a lower grit Abralon pad, bowlers are bringing the breakpoint closer to the bowler. A lower grit abrasive pad will create earlier hook motion while a higher grit abrasive pad will delay the breakpoint. For more information, bowlers need to spend more time talking with their Pro Shop operator discussing the right ball, the right surface and the right layout.



Finding a Bowler's Positive Axis Point

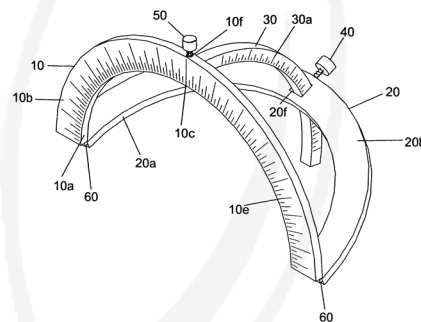
In order for a bowler to get a correct drilling layout they must figure out where their positive axis point is. I will be describing this process months Bowlology.

To do this accurately the bowler is going to have to throw the ball where there is oil on the lane, usually toward the center of the lane. Once the ball comes back through the ball return the bowler will mark the oil track around the surface of the ball.

If there are multiple rings around the ball, mark the one closest to the finger and thumb holes. Put the ball in the ball cup so the track is below the center of the ball and level with the table. At that point the bowler or pro shop operator will mark the top of the ball. The bowler will then throw another shot to see if the mark is stationary with the ball rotating around the mark when it is released.

Most bowler's axis point will be between 4 1/2 and 5 1/2 inches right of the grip center, left of grip center if you are left-handed, and even to one inch above the center line. If you can't see the oil track on the surface of the ball, start with the tape in this area and move it around on successive shots until its steady off your hand when the ball hits the lane.

Once you have found your release axis you can measure the distance your axis is right or left of the grip center and how far up or down from the center line it is.



Sample oil rings around a bowling ball to help a bowler find their positive axis point

Maximizing a Bowler's PAP

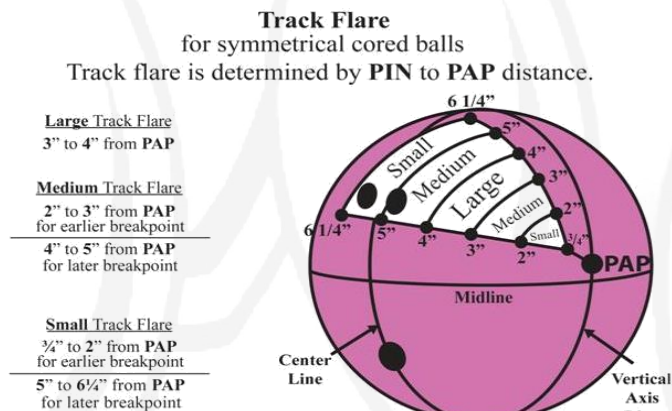
Understanding the bowler's positive axis point (PAP) is vital in understanding the ball reaction and pin placement in relation to the PAP.

If a bowler drills a strong pin and does not have very much surface on the ball, it still will not react strongly because there is not much surface on the ball. To get the strongest drilling layout, a bowler must understand all three of these elements to get the proper ball motion.

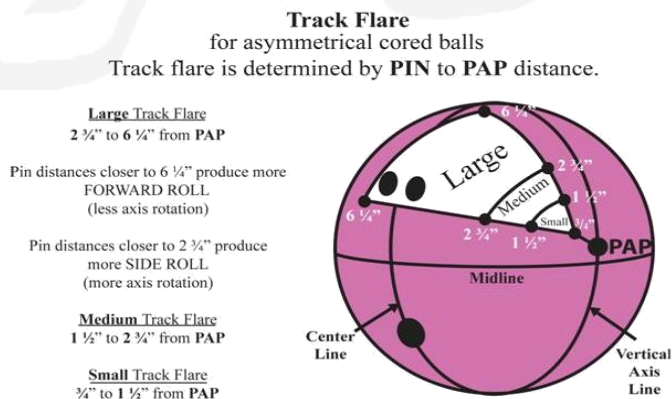
The closer the pin is to the PAP, the less back end reaction the ball will have. The strongest layout is 3 3/8" from a bowler's PAP. This layout will give the ball the most flare potential. The closer the pin is to the PAP, the earlier the ball will get into a roll and the less reaction the ball will have on the back end on the lane.

A 6" pin will result in a ball storing more energy, going longer, and being more angular, provided the ball sees friction down the lane. Drilling a 5" pin from a bowler's PAP will result in more flare than a 6" pin drilling, which equates to a slightly earlier roll and the closer the pin is from the PAP (down to 3 3/8"), the more flare the ball has given friction, so the 3 3/8" drilling has the most flare potential.

Friction is the main component that controls how much a ball hooks and flares. The surface plays a big part in how strong a ball will react. If a bowler wants to see their ball hook earlier they must put the pin as close to the PAP as they can so it uses its energy at the front of the lane. The surface of the ball also influences the amount of friction that the ball can react.



This picture shows two examples of track flare: the top a symmetrical PAP layout, the bottom asymmetrical PAP layout



Bowling Ball Layouts

By Dennis Bergendorf

Ball layouts are built around one fact: the ball will eventually roll over the “heaviest” part of its core, and in a reactive resin, that pretty much means what’s directly beneath the pin. After all, the pin is placed by the manufacturer at the point where the ball’s highest radius of gyration (RG) is located. So the closer the pin is to the bowler’s initial track, the less the “heavier” part of the ball needs to move to get into an end-over-end roll, what’s sometimes called “standing up.” But when the pin is midway between the track and the positive axis point (PAP), the “heavier” part of the ball has farther to go to “stand up.” This means the core of a ball with its pin about 4” from the PAP will move more and create more track flare, which means more “fresh” ball surface is rolling over the lane. That usually produces more hook. With the pin 5-6” from the PAP, there will be less flare and less hook.

One other consideration is whether the ball is symmetrical or asymmetrical. For most bowlers, asymmetricals have a stronger reaction, so the mass bias must be considered.

For most bowlers, it comes down to this - putting the pin above the finger holes will cause the ball to delay its hooking motion. That’s called “pin-up.” Putting the pin below the fingers holes will make the ball start to hook a little earlier, but will make the hook a little smoother. This is called “pin-down.” A ball with a pin about 4” from the PAP and above the finger holes will tend to have a strong, angular hook more like a hockey stick. But putting the pin 5-6” from the PAP will decrease flair and produce a less angular hook in the shape of a banana. Putting the pin about 3” from the PAP and BELOW the finger holes will produce a strong but smooth reaction, and it won’t be as angular. Moving the pin closer to the track (but below the holes), will tame the reaction down even more. With pin-down, few drillers want to go left of the grip center line (for right-handers).

With asymmetrical balls, the mass bias position will enhance hook, or reduce it. Drilling the thumb hole into the MB mark, or putting the mass bias left of the hole, will produce a tamer reaction. Stronger reaction comes from putting the MB hole an inch or more to the right (for right-handers). Symmetrical balls don’t have a mass bias, so the layout must account for the ball’s center of gravity (CG). USBC balance rules must be followed.

Cleaning a Bowling Ball

It is important to clean a bowling ball because the ball will lose its reaction as it is being used. The recommended time to clean the ball is every 60-80 games. To do this, a bowler will need a ball spinner, ball cleaner, and Abralon pads.

To start, place the ball in the spinner with the pin up. Start sanding the ball with 180 grit for about 30 seconds. Time is important so the ball can be sanded evenly from side to side. Turn the ball 180 degrees and sand for the same amount of time. Turn the ball back to the pin up position. Repeat the same steps, but with 360 grit.



Sanding the ball smoother than 360 grit Abralon will negatively affect the ball's reaction. When the surface of the ball is too smooth, the ball will skid through the oil and will react more strongly to the dry.

Next, apply a small amount of *Remove All* (by Brunswick) ball cleaner to remove the excess oil from the pores of the coverstock. Repeat these processes until the ball reaches the bowler's desired surface.

For more information on this process, the bowler needs to consult their pro shop operator.



Frame 6



X

**Greatest Minds &
Innovators of Bowling**

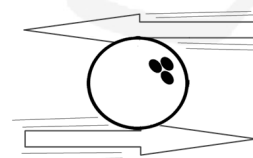
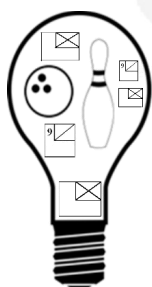
180

X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	60	90	120	150	180	210	240	270	300				

Greatest Minds & Innovators in Bowling

On the following pages are greatest minds and innovators in bowling. These individuals have contributed to the sport of bowling. Rather it is inventing bowling balls or coming up with different scoring methods to help bowling fans understand their favorite pro-bowlers in a tournament. I can pick their brains and increase my knowledge about the sport I love. A couple of them have passed on, but continue to be an influence in my bowling career. These bowlers and coaches have made bowlers better—the end result: to hit the pocket and strike/spare more frequently. When I was at Parker Bohn III's PBA Hall of Fame induction, he had said that Johnny Petraglia was the smartest person he knew in bowling. I had done an *In the Pocket* piece titled "The Greatest Minds in Bowling".

In this chapter of Bowlology, bowlers and bowling fans will have opportunity to see how bowling has evolved in the last 5,000 years. These people are highly regarded in the bowling community industry or individuals who have revolutionized the sport of bowling. Some bowlers have not heard of Eddie Elias, but Eddie founded the PBA, the pinnacle of bowling. Other bowlers may not have heard of Bill Chrisman, but they know what a Storm bowling ball is. Or who Glenn Allison— "Mr.900" is the first person who shot the first 900 series back in 1982. Bowlers and bowling fans will more than likely know who Jason Belmonte and Walter Ray Williams Jr are. Bowlers also may not know the top 10 events in the history of the sport. Bowlers have the opportunity to bowl in a competitive environment. Bowlers have may not been happy in recent years in regards to the USBC. Along the way these individuals have made a bowling better in a competitive environment. As an example when ABC known as USBC today in 1895 the bowling community wanted to make the bowling playing field wherever bowlers would go. They knew they would be bowling on a 60 foot lane where they bowled in the United States. This is what the intent of the USBC back in the that day. They did not have a crystal bowling ball to see all the different aspects of the modern game today. The USBC also conducted tournaments with team doubles and single events. This is how they started the bowling tournaments in the mid-20th century. There was no organized form of bowling. How could they have know that there was going to be a formation of professional bowling such as the PBA. In this chapter bowlers and bowling fans can get some ideas on how the greatest minds and innovators have made the sport of bowling is today. Bowling enthusiasts are hoping that bowling will one day be an Olympic Sport. This chapter will look at somebody who really tried to push bowling past the final hurdle into the Olympics. The legends of the sport are pivotal to the sport of bowling. These bowlers paved the way to the PBA Hall of Fame as mentors to future generations of bowlers .



Revolutionize Bowling

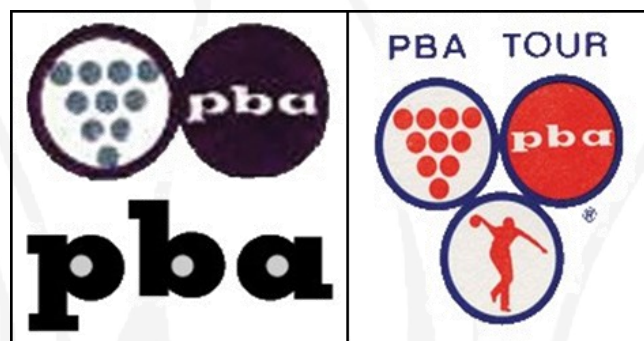


Greatest Minds & Innovators in Bowling

Eddie Elias— PBA Founder



At the 1958 USBC Masters, an attorney from Akron, Ohio, went and watched one of the finest bowling tournaments of the United States at that time. He found some of the greatest bowlers at the Masters. Notable names were Don Carter & Carmen Salvino. He asked them to put up the \$50.00 as seed money. The next year there were three PBA Tournaments that were held. One was won by Lou “Wrongfoot” Campi. The other two were won by Dick Weber. In the first year of the PBA Tour, the total prize money was \$49,500. Eddie Elias was the father of the PBA. He got a contract with ABC TV to put bowling on every Saturday during the winter. This would be the longest running show in bowling history lasting 35 years.



Greatest Minds & Innovators in Bowling

Jack Reichert— CEO of Brunswick

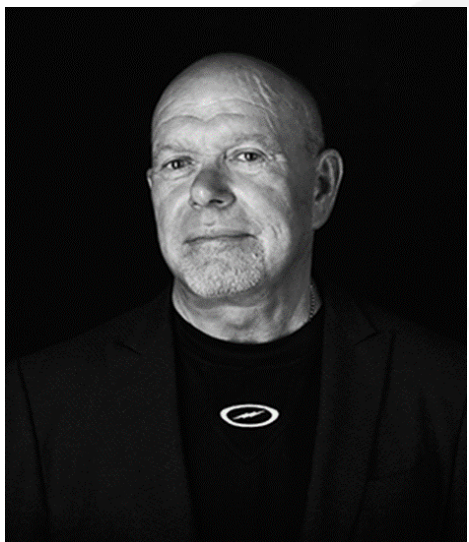


Jack Reichert was an innovator because he wanted bowling to become an Olympic sport. During the Barcelona Spain Olympics, he built a bowling center in the Olympic village for recreation and as an exhibition sport. Jack also saved the PBA Tour when Bridgestone ended their sponsorship of the Tournament of Champions. Jack and Brunswick stepped up with a three year agreement to sponsor the tournament and the PBA. When he was the CEO of Brunswick, he had a sign on his desk that read “If it’s good for bowling, it’s good for Brunswick”.



Greatest Minds & Innovators in Bowling

Bill Chrisman— Co-Founder of Storm Bowling



Bill Chrisman started making bowling ball cleaner in the early 1980s and co-founded Storm Bowling. He made his first bowling ball in a KFC chicken bucket. One of his first Storm staffers was Pete Weber who was winning with Storm bowling balls at the Majors. Bill revolutionized the sport of bowling. His next major staffer was Jason Belmonte who has dominated the PBA and the Majors. Bill was a bowler and a pioneer in the sport of bowling. His company is one of the three leaders in the bowling ball industry. This includes Storm, Roto Grip, and 900 Global.



Greatest Minds & Innovators in Bowling

Louis Petersen—Founder of the Petersen Classic



Louis Petersen came up with a unique tournament where bowlers did not get practice balls before the tournament. There was no oil on one lane and nothing but oil on the other lane down to 60 feet. Bowlers would have to use a shopping cart to get their bowling equipment in the bowling center. Bowlers would have to bend down to know what they struck or knocked down. It is a hard scoring environment to bowl a high score. Louis Petersen also developed the Petersen scoring system and the PBA uses that scoring system. He was very instrumental in developing bowling tournaments.



Greatest Minds & Innovators in Bowling

John Davis—Founder of Kegel



In 1981, John Davis founded Kegel Company. They do great research and develop lane machines to put out competitive scoring. John's goal was to make two lanes play the same. This is hard to do because bowlers may or may not know this lane. Every lane is different. He really tried to make this an attainable goal. His last invention was the lane mapper where he could measure lane topography. Kegel was the first company to oil the lanes on the PBA Tour in 1997. Also in 1997, Kegel opened a training center for bowlers to improve their game. Davis also served as Chairman of the World Tenpin Bowling Association Technical Committee. John Davis came up with the foundation games which had bowlers crossing on short oil and long oil patterns. His foundation was One World One Sport which promoted the sport on fair and equal lane conditions.



Greatest Minds & Innovators in Bowling

John Archibald—Bowling Journalist



John Archibald was one of the greatest bowling writers in the history of the sport. He covered tournaments such as the BPAA All-Star (currently known as the US Open), World Invitational and the Tournament of Champions. Archibald was a history buff in the sport of bowling. He paved the way for bowling writers. Archibald is in the USBC & PBA Hall of Fame for meritorious service. He served for 25 years as the writer for Encyclopedia Britannica for the sport of bowling.

He won a total of 50 bowling writing awards of which six were of the PBA. Archibald also served as the President for the IBMA International Bowling Media Association in 1970. Now, it is known as Bowling Writers Association of America.



IBMA
INTERNATIONAL BOWLING MEDIA ASSOCIATION

Greatest Minds & Innovators in Bowling

Mort Luby, Sr.—Founder of the Bowler's Journal International



He really put bowling writing on the map by starting ***Bowlers Journal International***. In order for bowling to survive, Luby knew that bowling needed a bowling magazine. He founded the ***Bowlers Journal International*** in 1913 making it the oldest bowling publication. Luby is one of the pioneers in bowling writing. Luby also suggested the creation of a bowling hall of fame. His son and grandson are the only three generations that have been inducted into the hall of fame. Luby was also the founding

father of the Bowling Writers Association of America (currently known as the International Bowling Media Association). He also developed the Bowlers Journal Sweeper at the USBC Open Championships. Each participant would receive a free subscription to the ***Bowlers Journal International*** magazine. The IBMA recognized Luby's contributions to bowling and named the Hall of Fame award after him—the LFor bowling writers, it is the IBMA correctly named the Hall of Fame the IBMA Luby Hall of Fame award.



Greatest Minds & Innovators in Bowling

Bruce Pluckhahn—First curator of the Bowling Hall of Fame

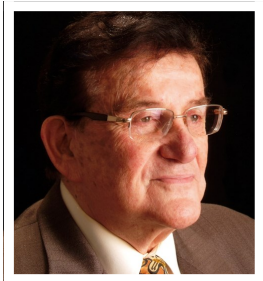


Pluckhahn was instrumental in forming the National Bowling Hall of Fame. He also was very knowledgeable about the international aspect of bowling. He is often regarded as one of the top experts on the sport. For nearly 40 years, Pluckhahn was a driving force in the bowling industry—from a newspaperman to the ABC (currently known as the USBC) Public Relations Department and the National Bowling Hall of Fame and Museum. The establishment of the Pioneer section of the USBC Hall of Fame was largely due to his research and dedication.



Greatest Minds & Innovators in Bowling

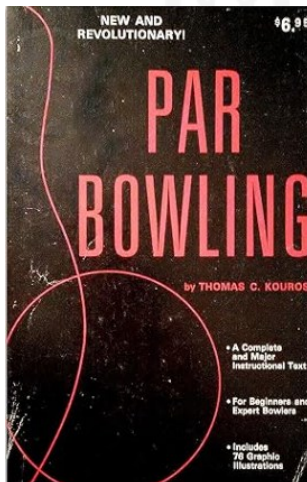
Tom Kouros—Bowling Coach



In 1976 Tom Kouros wrote his best selling book “Par Bowling” and it’s sequel book “Par Bowling: The Challenge” sold hundreds of thousands of copies. Tom was a world class bowling instructor of seasoned professionals to top amateurs and a bowling center owner of the River Rand Bowl in Des Plaines, Ill. He was also founder of the Institute of Professional Bowling Instruction was accredited by the Department of Education, State of Illinois, and is the only course of its kind. In addition

Tom has served as technical adviser to the World Tenpin Bowling Association and cofounder and past president of the Mid-America Bowling Writers. A 30 year veteran writer for the Bowlers Journal International. Kouros was named 2002 International Coach of the Year Award (first recipient) by the

World Bowling Writers. Kouros started out as a pinboy in his youth being named one of the best pinboys in the nation from 1939 to 1941. He then went on to become a member of DePaul University's 1953 Midwest Intercollegiate Championship team and won 11 singles and doubles events from 1949-55. Tom’s career over the decades can be best described as an example of what a “Bowlologist” would do before the term was even invented.



Greatest Minds & Innovators in Bowling

Harry Golden—PBA Tournament Director



Harry Golden was a bowler back in the early days of the PBA. Golden was not a superstar on the PBA Tour. He started his career as a pro-bowler as the tournament director in the PBA. Harry Golden knew the ins and outs of the PBA Tour. The PBA Rookie of the Year is named after Harry Golden because he would help out the bowlers in their Rookie season. Golden also came up with the phrase let your ball be your guide. He served the PBA as tournament director for 29 years.

Mark Gerberich

Mark Gerberich became involved in the PBA during the 1980's as a PBA Membership Director. In his tenure he was trying to grow the PBA as Eddie Elias. One of the highlights of his involvement being the acting commissioner in 1995. In this time the PBA was losing sponsorship in the national television deal with ABC's wide world of sports. The Brunswick corporation jumped on board and saved the PBA Tour. In late 1999 Mark Gerberich received a phone call from Chris Peters an ex-Microsoft CEO who wanted to save the PBA. Mark Gerberich was elated to hear the good news for the PBA.



Greatest Minds & Innovators in Bowling

Chuck Pezzano—PBA Secretary

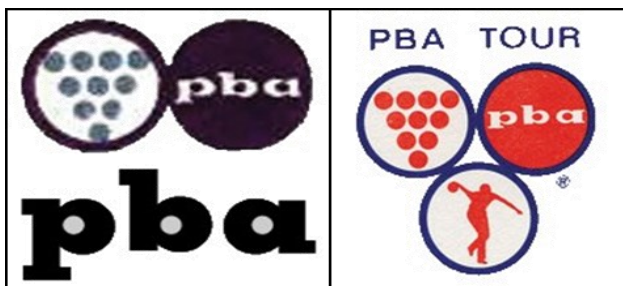


Chuck Pezzano was a press director for the PBA for a number of years. Pezzano also founded the East Region. There is the IBMA Chuck Pezzano Scholarship. In 1973 the Junior Bowler's Tour was formed he started at the Oregon and its been going strong for 50 years. Chuck is a member of the USBC and PBA Hall of Fame for Meritorious Service. Pezzano was named a member of the PBA Hall of Fame Inaugural class of 1975. Pezzano knew the history of the sport serving as a sports writer for six decades. Pezzano was also a competitive bowler for over 23 years. He also served as a commissioner of the Eastern Professional Bowling League and a co-founder of the PBA Regional program. Pezzano would serve as PBA secretary for 20 years and become its historian.

Tom Clark— Commissioner of the PBA



In the early 2000's Tom was a sports writer for USA Today by the late 2000's he joined the PBA staff. Tom is responsible for the innovation of the World Series of Bowling tournament. Clark also came up with the idea of the PBA League. This tournament was designed where the greatest bowlers could compete in one different venue and bowl for multiple titles and increase prize funds. This helps the bowlers cut down on travel costs and keep as much prize money as possible. Clark also developed the PBA League competition where players would compete in a team environment. The PBA League offers the Elias Cup named after PBA founder Eddie Elias as trophy for the winning team. Clark latest endeavor is the PBA Junior program. Where PBA junior players are able to compete in regionals and a national championship.



Greatest Minds & Innovators in Bowling

Frank Baker—First Executive Director of the USBC



Frank would always ask the question “Is it good for the sport?” and always expected an answer. Baker served the USBC for 22 years and helped the sport grow. The membership grew from 1.3 million to 4 million members during his oversight. Baker also served as the leader for International Bowling from 1977-1985. He encouraged revolution to the sport of bowling. He was ranked the 4th most import leader in the bowling industry.



Greatest Minds & Innovators in Bowling

Alberta Crowe—President of WIBC



Alberta Crowe devoted her life to bowling. She had enthusiasm and focus towards resolving problems for the betterment of bowling. Just like Baker, she served the WIBC for 22 years and grew it from 1.5 million bowlers to 4.2 million bowlers. Crowe served on the National Bowling Council. She joined the WIBC Board of Directors in 1939 and moved up the ranks until she was President in 1960. Crowe was also the Bowling Hall of Fame chairman from 1976-1978. The IMBA named an award for achieving outstanding long-term accomplishments after Alberta.



Revolutionizers in Bowling

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In this last section we will look at the revolutionizers who changed how the game is played throughout the years there has always been someone who has bowled differently. These are the bowlers who have revolutionized the sport of bowling starting with Don McCune.

In 1973, pro-bowlers could not get the bowl to hook on the lanes. Don McCune decided to use MEK-methyl ethyl ketone. This made the bowling ball softer. By doing this, he would win six titles and be PBA Player of the Year in 1973. PBA outlawed bowlers from using the chemical on the bowling ball. It revolutionized the sport of bowling because bowlers thought about sanding the ball to manipulate the lane surface to get their ball to hook more. Mark Roth came out in 1974 hooking the bowling ball. Fellow competitors thought he did not have a chance in winning in how he played. Four years later, he set a record for winning the most titles in a single season. Roth would go on to win four Player of the Year honors and 34 PBA Tour titles capturing only two majors in his career. He would also become the second player to surpass the one million dollar mark in career earnings.

When Marshall Holman came out on tour, he was a player like Mark Roth. Holman hooked the ball and could win on the PBA Tour. Bowling fans either loved him or hated him for his antics on the lanes. Holman was a power player just like Roth. They were doubles partners in the PBA Doubles they won their fair share of doubles titles. Holman was the first bowler to slap shots out as the ball struck. Holman won two US Opens and two Tournament of Champion titles. He would become the third player to surpass the one million dollar mark in career earnings.

Wayne Webb was the 1980 PBA Player of the Year winning the Tournament of Champions and the Brunswick World Memorial Open. Bowling fans might be asking why is on this list. During the late 70's, Wayne Webb asked PBA Players services director Larry Lichstein if he would put extra holes in the ball. How would the ball react differently? Larry did not have answer as players had never tried this technique before. Webb would later try this and have success. He would become the sixth player in PBA history to surpass a million dollars in career earnings.

In the early 90s, a bowler by the name of Mike Miller came along without having a thumbhole in the bowling ball. Miller could throw a fascinating ball with no thumb. He would set a record by having consecutive tournaments with a high game of 300. In 1991, he would win his first PBA title at the PBA World Championship by defeating Norm Duke. Even though he did not win a number of titles, he was still a revolutionary bowler. In 1999, he would bowl a perfect game on national television. Bowling fans were amazed with his no thumb release.



Revolutionizers in Bowling

75

In the 2004 US Open, a bowler from Finland showed up with a unique style of bowling. It was Osku Palermaa. Osku was not a traditional bowler. Instead he was using two hands. With this method he could maximize the revolutions on the bowling ball. Palermaa was the first two-handed bowler in PBA history to win a Major at the 2011 PBA World Championship. The standard way of bowling is to use a single hand to deliver a ball. The alternative way is use both hands to achieve more revolutions which allow better pin carry.

A few years later another bowler from down under started to dominate the PBA. His name is Jason Belmonte. Belmonte would become the first bowler to three-peat the USBC Masters. He is also the second bowler to successfully defend the Tournament of Champions. Currently, he has the record for the most Majors with a total of 15.

In 2016 a third two-handed bowler would shock the bowling world. He was the youngest bowler to win a PBA Major at the age of 19. He is also the youngest bowler to win 2, 3, 4, and 5 Majors and the third bowler to defend his USBC Masters.

The younger generation of new bowlers have noticed the difference and are attempting to modify the way they bowl.

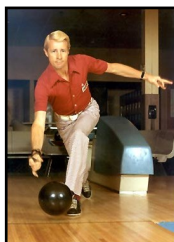


Legends of the Sport

The three legends of the PBA Tour are Dick Weber, Earl Anthony and Walter Ray Williams, Jr. All three bowlers dominated the PBA Tour. When the PBA was in the early stages. Dick Weber became the first bowler to win milestones on the PBA Tour. Weber's only misfortune was winning multiple majors and multiple Player of the Year honors. He was the money leader in the early 60's year after year.

The next super star came out in the 70's he won multiple majors. This bowler three-peated the PBA World Championship not once but twice. His name is Earl Anthony. Earl was a dominant player in the 70's and early 80's. When Anthony won a major he won it twice. Anthony also became the first bowler to earn a million dollars in career earnings. Anthony was voted bowler of the decade in the 70's.

The GOAT –Walter Ray Williams Jr. He won a total of 47 titles. Walter Ray Williams, Jr was the first bowler two million and three million dollars in career earnings. He would win a total of forty-seven PBA Tour titles. In the 90's bowling fans could count on seeing Walter Ray Williams Jr week in and week out.



Greatest Minds & Innovators in Bowling—

Josh Hyde

Josh Hyde has been a friend of mine for the past 30 years. He is one of the most passionate bowlers I have ever met in my lifetime. He is the founder of JoshHydeBowling.com, a great website that is loaded with all kinds of bowling information. He publishes a monthly newsletter that I look forward to every month and is very well written. Not only is he a great ambassador for the sport of bowling, a very good writer but Josh can flat out bowl. He has a high game of 300 and a high series of 789. Josh is known by the entire bowling industry and is a friend to many in the industry. I recently had the opportunity to ask Josh ten questions about the bowling industry. Enjoy the read...

1. What got you started in bowling?

My dad was a regional pro-bowler and dropped his card in 89. Two years later I was on ESPN doing a tip of the week with Mike Durbin on Ramp Bowling.

2. What is the highlight of your bowling career?

Becoming an honorary member of the PBA in 2001, a Hall of Fame Committee member in 2014, and bowling a 300 game.

3. Who is the greatest bowler fundamentally and why?

I think David Ozio, he is very knowledgeable about the game. Pete Weber being able to win 10 titles with each different bowling ball technology. Parker Bohn III, in the 1997 AV Delco Classic he won by hooking the ball and he can repeat shots over and over again.

4. What is maybe your weakest area about the sport of bowling?

Ball Layouts. I am getting better as time goes on.

5. How long have you done your monthly newsletter?

I started in May 2008.

6. Do you have any certifications?

I am Bronze & Silver level USBC Certified Coach.

7. What is your highest scoring game, high series, and what is highest average?

300 game, 837 high series, and 220 highest league average.

8. What are your bowling goals?

I would like to bowl a PBA Regional or National Tournament of some sort. Bowlology, Ten Pin Staffer and Striking Mastermind are my coaching programs, getting it recognized as an inexpensive alternative to coaching certifications.

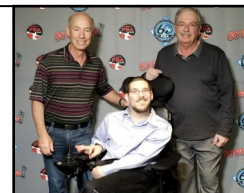
9. What do I think is important in the sport of bowling and why?

I think that strikes are important but I do really think if a bowler is going to improve on their average, they need to convert their spares and learn to throw the ball straight at spares.

10. Comment on the current state of bowling.

First we need to get the PBA recognized as the pinnacle of bowling. The Fox Television deal is a major win for bowling and the PBA will get the needed visibility it deserves.

Below:
Marshall Holman, Josh Hyde,
and Johnny Petraglia



Greatest Minds & Bowling in Bowling—

Ray Edwards

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1. How long have been designing bowling balls for Brunswick?

I started working with Brunswick in 1989 as a consultant on the Phantom project. My background as a Chemical Engineer coupled with my bowling experience allowed me to "translate" the physics involved into language that bowlers

could understand. This work led into becoming the PBA and LPBT Tour Rep for Brunswick which I did from 1990 through 1998. Since that point, I have been in the office in Muskegon working originally as a Design Engineer and am now the Director of Consumer Products R&D with responsibilities for bowling balls and lane maintenance supplies.



At left:
Ray Edwards,
Brunswick Director
Consumer
Products R & D.

2. What is the Highlight of your career?

I would say that the highlight had to be when Johnny Petraglia shot 300 at the 1994 PBA National Championship in Toledo. When practice started, the lanes looked ok for the Purple Rhino Pro that he had been using during the week, but as practice continued the lanes got tighter and tighter. Earlier in the week, we had drilled a Forest Green Quantum that hooked a ton. I asked him where that ball was, and he said it was in the paddock that was 30 lanes away. I ran and got the ball and got back just in time for him to have two shots with it before the show started. He moved in five deeper on the first shot and then another two deeper on the second shot and left a half seven. He used the ball for the first game and shot 236 and won. Then, he shot 300 the second game. He ended up not winning the tournament as he needed a strike in the final frame. He made the best shot of the day to leave a solid 9. Much better to leave it there than if it would have been the 12th ball of the previous game.

3. How did you become involved in the bowling industry?

I bowled junior leagues growing up. The summer after my senior year I attended the Don Johnson Bowling Camp in Issaquah, WA. Working with the staff at the camp and seeing how much the training helped the bowlers got me hooked on learning as much as I could about bowling balls. I bowled for the Purdue team as I was getting my degree and continued to work with the Camps in the summers when I could.

4. What general advice would you give for bowlers trying to improve their game?

Make sure to find a good pro shop that can fit your hand properly. You can learn everything possible about bowling balls and have balls for lots of different conditions, but if they don't fit your hand you won't be able to throw them effectively, and you won't enjoy the game as much as you should.

5. Do you still bowl in league?

I bowl one league a week with some friends from town and try to be competitive, but realize that I need a lot more than 3 games a week to be sharp. I also have bowled in 31 of the ABC National Tournaments and would like to bowl in enough of them to get to 50 years of participation.

Ray Edwards –Continued

6. What is the greatest change that you have seen in bowling ball design over the years?

In my opinion, the thing that has made the biggest difference in bowling ball design is the availability of low cost computers and the development of 3D Solids Modeling programs that can calculate the physical mass properties of the bowling balls. When this technology first became available in the 1990's, we were able to go back and model balls from the past that were successful and learn what was driving the differences in reaction. This allowed us to create balls with varying, controlled dynamic properties to control where on the lane and how much they could hook. Going forward, the continuing development of materials for the coverstocks of the bowling balls is where the biggest changes will come from in the future.

Parker Bohn III

Parker Bohn III was coached by three legends of the PBA Tour - Mark Roth, Johnny Petraglia, and Dave Davis. He has won three major titles on the PBA Tour - the 2001 USBC Masters, the 2012 World Championship and the 2015 PBA Players Championship. Bohn was voted #10 of Fifty Greatest PBA Players history back in 2008. He has won the Japan Cup three consecutive years. He currently holds the most 300s in the PBA. He was voted the Chris Schenkel PBA Player of the Year in 1999 and the '01-'02 season, winning five titles in each of those seasons. He is definitely one of the PBA's top talents. He is one of the few bowlers that has won thirty plus PBA Tour Titles. He received the Steve Nagy Sportsmanship award four times in a row and he was the inaugural winner of the Tony Reyes Service award. He also set an average record in the 1999 PBA Tour Season.

Parker Bohn III 35 time PBA Titlist 4 time PBA50 Titlist USBC & PBA Hall of Famer
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Parker Bohn III possesses a great deal of bowling knowledge. One of his main tips for successful bowling is getting to the *"foul line in a consistent motion time and time again."* If a bowler *"drifts 10 boards to the left in one frame and 5 boards to the right in the next frame"*, the bowler will not have a chance at winning or even scoring a decent game. Parker also stated that getting the right ball and getting to the foul line consistently, even if the bowler is not a good spare shooter, can result in a good game. Another tip is *"working the inside of the ball allows you to hook the ball better"*. Working on the inside part of a ball is essential to striking more. If a bowler is only using 0-35% of the ball, the ball is likely only touching the lane surface. It cannot hook as much as a player that uses 60-75% of the ball. Like many other bowling coaches working the inside of the bowling ball is a must. Parker has written a book entitled ***Mastering the Game*** and he co-produced a DVD with Brad Angelo.

Greatest Minds & Innovators in Bowling—

Mark Baker

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Mark Baker was a dominant force on the PBA Tour in the mid-to-late 80's winning five PBA titles. Unfortunately, he underwent back injury which prevented him from being on the PBA Tour. However, because of his knowledge of bowling on the tour, he became one of the greatest coaches of our time. He is like the John Jowdy of today.

He was a ball rep that worked with the greatest player of all time - Walter Ray Williams, Jr. In his book, he breaks down what a bowler needs to work on, for instance, their foot work from the start of the approach to the foul line. He can change a bowler's game without them even realizing it. Mark coached some of the best bowlers of today such, as Chris Barnes, Bill O'Neill, Tommy Jones and Jason Couch. Mark has been an instrumental part of coaching for today's game. In his book **The Game Changer**, he talks about how Pete Weber changed his game from throwing urethane to resin reactive. Pete had to modify his swing, release, and hip rotation. Pete was able to "improve his direction and speed control while altering his rev and tilt". It was just a matter of Weber's setup. The resin reactive balls added hook to Walter Ray's game. Had the bowling ball companies not introduced resin reactive, Walter Ray would have still been one of the greatest bowlers of all time.

I would argue with Mark that Pete Weber would have won more titles than Walter Ray Williams, Jr. I learned how bowling should be taught from the back of the approach to the foul line. Mark has been a dominant player on the PBA Tour and his coaching style is a proven point that supports this fact.



Greatest Minds & Innovators in Bowling— **Del Ballard, Jr.**

1. Do you still bowl in league?

No, I do not still bowl in a league. I travel way too much for Storm Bowling products as their tour rep on PBA and PWBA tours.

2. What was the highlight of your PBA Career?

My greatest accomplishment to me really was my career. Not one tournament sticks out more except maybe my first. 1987 U.S. Open.

3. What is the best advice that you can give to bowlers and Why?

To me the greatest revolution in bowling is the 2 handed style. Even though at release it is done with one hand.

4. What is the best advice you can give to bowlers and Why?

Today's bowlers need to know the basics. Good fundamentals. Including making spares. Closing comment. "The most amazing performance at a tour stop was by WRW Jr. 1993 U.S Open. They were hard and you had to play fall back from left of 20 long ball returns. But he led by 500 pins going into the show by playing 12. All the finalists got out there on practice pairs and tried it. NONE OF US could hit the 1-3. And he led by 500!!! It was an amazing performance. On TV, he had to play inside and I won. He really won that event, I just won on tv.



Mo Pinel is the 6th greatest mind in bowling. He had designed numerous bowling balls. In his opinion, there are five parts of ball motion. He thinks the transition is part of ball motion. Most bowlers would think it would be skid, hook and roll. He thinks from skid to hook is actually the second phase of ball motion. The fourth phase would be from hook to roll. Pinel has come up with another technique to drill bowling balls is a dual drilling system. This enables bowlers to have more options in their arsenal. Late in the 90's, he helped to design the second Pink Hammer 3D Offset.



Many bowlers had success with that ball. He had his own ball company named Mo Rich. One of his pro-staffers was Walter Ray Williams Jr the greatest bowler of all time. He has designed multiple balls at Brunswick, Fabbal, MoRich, Radical, and AMF. He developed the Shift Bowl Technique which is a way for a bowler to smoothly get their body and ball in motion.

Mo has hosted numerous seminars on drilling bowling balls with the Dual Angle Technique. He also developed the Mass Bias concept which is another part of the bowling ball. Mo knows balance holes to get the ball to react differently on the lane. This way a bowler can experiment with putting different sizes of holes and depths to get the ball to match the bowler and the lane pattern. He theory is that the coverstock is the important thing on the ball followed by the mass properties and then the static weight. He says, "Once an oil pattern is applied to the lane, the decisions made by the ball driller are the single most important factor in how much a bowler enjoys bowling on the lane conditions." If bowler wants to understand the physics of the bowling ball, they only need to study what Mo writes.

Greatest Minds & Innovators in Bowling— **Norm Duke**

Norm Duke has one of the greatest minds in Bowling. He has won two US Opens, three PBA World Championships, one USBC Masters, and one Tournament of Champions title. In his DVD, Learning to Bowl Competitively, he talks about the sport in which bowlers can relate and discusses how bowlers can improve their game. Norm Duke can play up the gutter and hook the lane just as much as Jason Belmonte. Duke has a great insight on the game when it comes to being knowledgeable about getting to the foul line, understanding what ball motion a bowler needs to adjust, and to reading different lane conditions.

Duke has bowled a 300 on National television in 2003 against the great Walter Ray Williams Jr. He is still the youngest player to win a PBA title 1983 when he was only 18 years old. In 2008, he became the 4th player in PBA history to complete the Triple Crown and the second player to complete the Grand Slam. He made a tough 2-4-5-8 bucket spare to win the 2008 US Open. He is the only player to win Majors in one year. Duke has a great talent and is very knowledgeable about the sport of bowling.

Duke's knowledge of the game is exceptional when comes to different types of releases of the ball. Duke can get other bowlers to release the ball differently for various types of shots. Duke can master throwing his strike ball at a single pin spare just by his expertise on releasing the ball with strike ball instead of going to a plastic ball. He feels doing the low ball drill can give an advantage of shooting a six seven ten split by doing the low ball drill when he is doing the low ball drill he is seeing how the margin of error works so if he leaves a difficult split. Norm is good at manipulating his releases. Norm does not like to use a plastic ball because the ball will feel differently on his hand. Bowlers are going to leave more spares than they will strike. Bowlers must learn to make their spares if they want to win bowling's toughest tournament the U.S. Open. In Norm's DVD he talks about how crucial spare making is to be one of the best bowlers in the world.



Greatest Minds in Bowling— **Johnny Petraglia**



Johnny Petraglia is the only bowler to have won a PBA or PB50 Tour Title in six different decades. He has become the second player in PBA history to complete the Triple Crown in the 1980 PBA National/World Championship. One of the highlights of his career was when he shot on national television which paid for his kid's college tuition. One of the icons that Brunswick is Johnny Petraglia LT-48 bowling ball. Back in 1997 Brunswick made the Johnny Petraglia LT-48 Gold. Most bowlers love had the LT-48 bowling ball when talking to the legend. I always learned something about the game that will be of use to me. He was the sixth player to shoot a perfect game on national television.

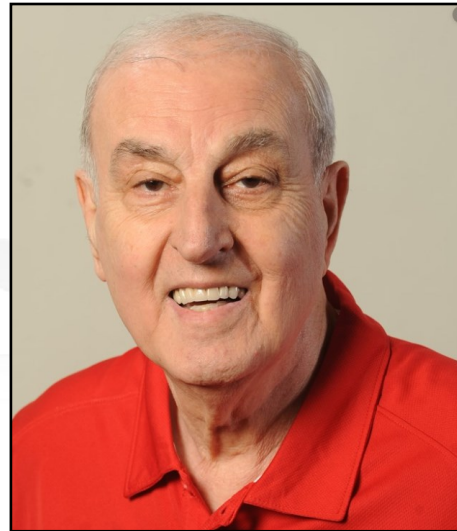
He is also a member of the USBC & PBA Hall of Fame's. When Parker Bohn the III was inducted into the PBA Hall of Fame. Johnny was the speaker who gave opening remarks before Parker's acceptance speech. One of Parker's statements was that Johnny was the smartest man about the sport of bowling.

Johnny knows the game like the back of his hand. He knows what bowlers need to execute for their game to be a success. Johnny has adapted his game to become competitive back in 2013. He did well at the Masters and had a chance to become the third bowler to win the Grand Slam. The only bowler who has held the PBA President position three times. He has sat in meetings trying to get contracts extended to have the PBA televised.

Petraglia has been a great ambassador for the sport of bowling. Bowling is lucky to have him as an ambassador for the game.

Greatest Minds in Bowling— **Carmen Salvino**

Carmen Salvino was one of the charter members of the PBA. He became one of the first recipients of the PBA Hall of Fame. In his interview he says that bowling has changed over the course of the years. He has designed a number of bowling balls in his career. Salvino has won seventeen PBA titles along with a 1962 PBA World championship. He was the original showman for bowling. Carmen has held numerous positions with PBA management such as Second and Third VP as well as Regional Director, Tournament Committee and Executive Board. In his opinion to improve the sport of bowling. His thoughts are of a new cover for the ball. He thinks that some kid will be studying the physics and the sport of bowling. His greatest achievement was longevity in the sport. When I interviewed him he did not want to “flaunt his accomplishments”. He has designed a number of balls for Brunswick and even had his own bowling ball company. He has a great deal of knowledge that is benefiting this sport of bowling. Pro-bowlers do not win 17 PBA Tour Titles without having a little bit of knowledge on the sport of bowling. Salvino was ranked 17th out of the top 50 greatest PBA Players in 2009. Carmen Salvino was a great player on the PBA Tour.



Greatest Minds in Bowling—

John Jowdy

John Jowdy worked for Columbia 300 for over 20 years starting back in 1962. During those two decades “ he instructed and trained some of the top performers on the PBA Tour” according the Bowl.com. His knowledge of the game He knew yesterday’s game. Bowlers might fear that, but getting to the line frame-in and frame-out is a good starting point. Having a good starting position can effect a bowler in a positive way. Even though bowling equipment is now high tech, Jowdy was still a great teacher of the game.

Adjusting hand positions, ball speed, moving left-to-right on the approach are all key elements of how to attack the lane and score. He wrote about hand positions noting that Earl Anthony mastered that skill as well as ball speed. Jowdy also mentioned that Mike Aulby used proper hand position despite not having an overpowering strike ball. On today’s PBA Tour, Chris Barnes and Norm Duke are the best players that utilize proper hand position according to Jowdy’s observation.



Jowdy brilliantly pointed out the importance of a free arm swing. In the Bowlology column, there was an article on the pendulum arm swing. He also emphasized a great pendulum arm swing. Jowdy gave examples of current bowlers who have proper arm swing:

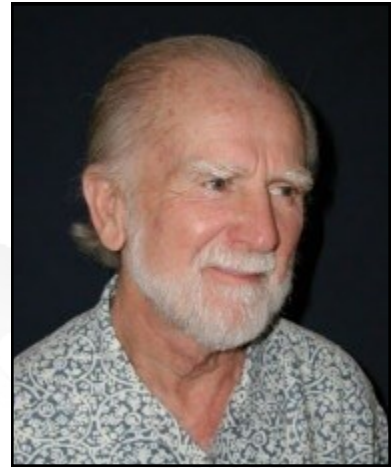
Parker Bohn, Pete Weber, and Walter Ray Williams, Jr. In the early years of the PBA, Don Johnson, Jim Stefanich, and Dave Davis were heralded among those having great arm swing.

Jowdy wanted every bowler to have a good starting point as well as a quality follow through. He describes the ideal follow through as “delivering the ball with a fully extended arm; out and toward the pins with minimum arm bend”.

Jowdy may not have known bowling ball layouts and ball surfaces; however, he did know a great deal about good bowling body mechanics.

Greatest Minds in Bowling— **Bill Taylor**

Bill Taylor was a great bowler during the 1940s with an average of 185. He studied the game of bowling and even wrote a few books on the game—***Fitting and Drilling a Bowling Ball; Balance*** (a study on the influences of imbalance and gyroscopic inertia upon the performances of bowling balls in rotational motion); ***What Really Happened to Don Carter***; and ***Target Lines: An Alignment System for Better Bowlers***. Along with writing his books, he has conducted thousands of seminars and clinics on the game and the physics of bowling. Bill Taylor was the first person to come up with the idea of oil-less lane. He laid down the panels of wood on top of the lane without oiling the lane. Then, the lane hooked more greatly than before. He was one of the first people to try to educate bowlers about the physics of bowling. Bill coached Steve Nagy, Glenn Allison, Dick Hoover, Harry Smith, Nelson Burton Jr., Mike Durbin, Dave Davis, Dick Weber, David Ozio and Brian Voss.



At the 1958 BPAA All-Star, currently known as the US Open, he noticed that the pins were reacting differently than usual. He stole one of the pins and cut it in half to study what was causing the difference. He found a second hole under the center of gravity. He discovered that this was the reason why the conditions were easier and the scores were higher. This really upset Bill and started him on a lifelong quest to make bowling into more of a challenge. He went up against everyone in the bowling industry and made it his mission to bring the integrity back into the sport.

He had a number of different ideas on how to reintroduce challenge in to bowling. Some of these include uniform equipment for all bowlers, smaller-sized bowling balls, shorter pins, and shorter/narrower lanes. Bill was constantly testing different rules and regulations to make bowling challenging.

Greatest Minds in Bowling—

Fred Borden



Don Johnson once said that if a bowler was bowling bad and they went to see Fred Borden, he would make them feel like they were the number one bowler in the world. Borden's teaching of the game to others was down to a science and an art with the fundamentals of making strikes to spares to getting the best result from beginning to end. He was able to teach from the beginner to the advanced bowler. Even when he discusses the dynamics of the ball, he can break it down into laymen's terms for a general audience. Fred breaks down the fundamentals of the swing, approach and footwork into terms that are easy enough to under-

stand even for the first time bowler. Fred's tips for a good release of the ball is to pretend the ball is an airplane taking off on the last part of the swing. Your arm and hand should be "reaching for the sky" after the ball has been released.

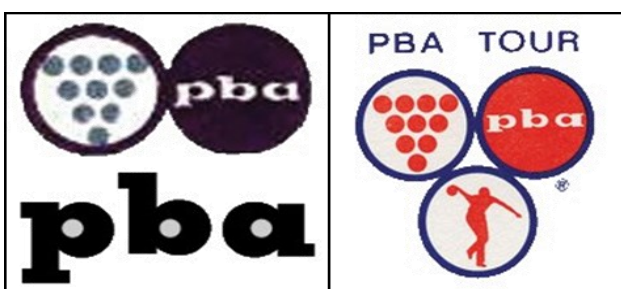
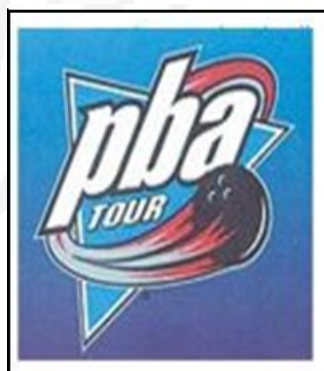
Fred had coached Team USA for a number of years and has won numerous medals for Team USA as the coach. Fred Borden has written a number of bowling books and produced a number of bowling videos. One of his first videos was ***Going for the Gold*** with Leila Wagner and Mike Aulby. Another video title is ***Bowl to Win***. Some of his books are—***Bowling: Knowledge is the Key***, ***The Bowling Secrets of the Big-Money Pros*** and ***Bowling: Ten Keys to Succe***. He has also developed the USBC Coaching Program and written ***USA Bowling Bronze Level Student Manual*** among others. He was on the PBA Tour and he even cashed a couple of times. Fred also threw a 300 game at the USBC Nationals. Borden had designed a couple of bowling balls. He currently has his own company, Lane Masters, which makes bowling balls. He has been a representative for Brunswick, PWBA and PBA. Borden has been a student of the game for over 50 years. He was even featured on the Bowling World News with Denny Schreiner with the tip of the week.

Fred's tips for the Six Movements of the Approach are broken down into footwork, lowering of the hip, clearing of the leg, swinging of the bowling arm, using the non-bowling arm for balance, and rotation of the hand. Beginner bowlers to advanced can learn anything from Fred's programs. His books and YouTube videos have been a great help to many due to the simplicity and clear explanation of bowling fundamentals.

Greatest Minds & Innovators in Bowling

There is a number of bowlers and bowling fans who can always come up with somebody else. For an example Chris Peters, Rob Glaser and Mike Slade who saved the PBA in 2000. However these three ex-Microsoft executives did not bring any major innovations to the sport of bowling. Other bowling industry leaders that can be mentioned are Darrel Dobbs who had a short career with the United States Bowling Congress. Unfortunately for Dobbs' tenure was not very long as he was battling cancer while serving the USBC.

There are different ways that bowling needs people to serve. In this chapter bowlers can identify who are and were the industry leaders of the sport.



Greatest Minds & Innovators in Bowling

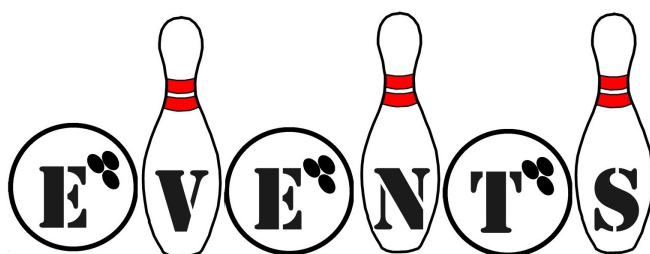
“Mr. 900” Glenn Allison



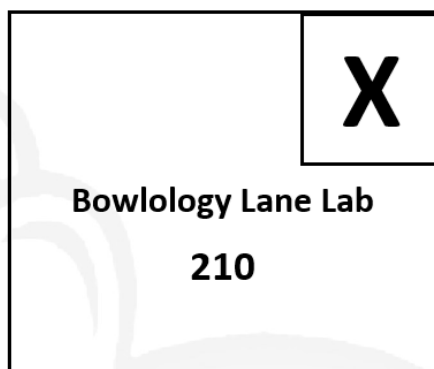
Glen Allison is the first bowler to shoot a 900 series back in 1982. When the ABC first tested the lanes, they said that the lanes were not legal to their standards at the time in 1982 and therefore would not sanction his 900 score into the record books. There were no 900's until almost 15 years later. After receiving multiple petitions, the USBC said that they could not recognize his 900 score officially, but stated they had the “highest respect and admiration” for Glen’s achievement. They felt the rules from 1982 could not be changed as it could potentially open up multiple lawsuits and disputes over the scores that were disregarded over the years. They felt it was best to “close this chapter and move forward.” Glen’s 900 score is known as the True 900 due to the conditions of the lanes and balls of that era.

Top Ten Events in Bowling History

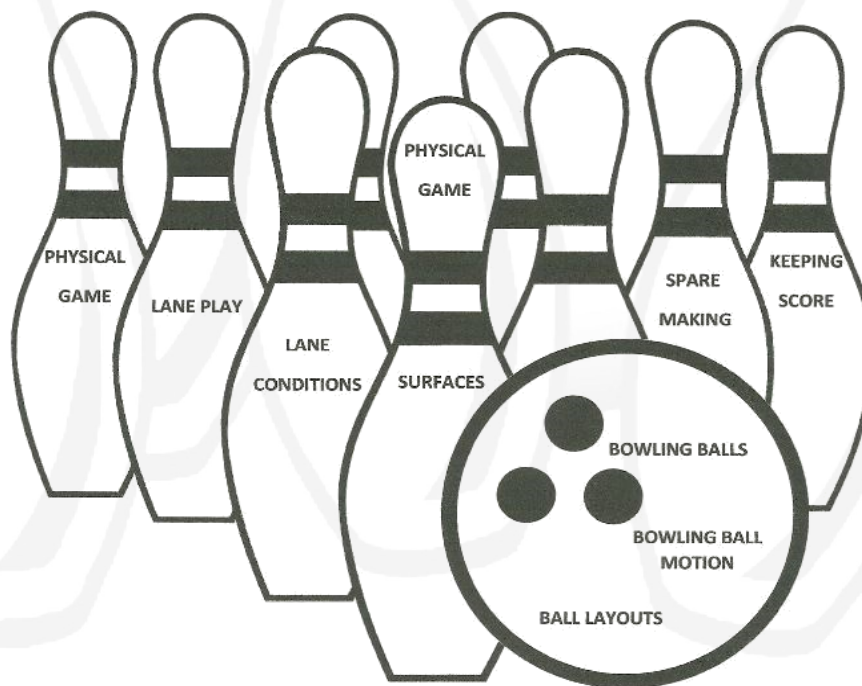
- 1895 - The ABC was founded, currently known as the USBC.
- In 1913 the Bowler's Journal was founded.
- 1932 Bowling was an exhibition sport in the Olympics.
- In 1936 AMF designed the first mechanical pin setter.
- 1995 The National Bowling Stadium opened .
- In 2000, Rob Glaser, Mike Slade, and Chris Peters purchased the PBA for \$5 million saving the PBA from bankruptcy.
- At the 2010 Tournament of Champions, Kelly Kulick became the first woman to win a PBA Title and a Major Title at the same tournament.
- Anthony Simonsen becomes the youngest to win a Major.
- In 1958 an attorney from Akron, Ohio founded the PBA.
- The first 300 game in tournament history was rolled by William Knox of Philadelphia at the 1913 event in Toledo, Ohio.



Frame 7



	X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300							



BOWLOLOGY

A Note from a Bowlologist

The Mount Rushmore of Bowling is Dick Weber, Earl Anthony, Walter Ray Williams, Jr. and Jason Belmonte. All four of these bowlers know how to throw strikes when needed. Over the years, I have studied the game in depth. I have been fortunate to know the greatest bowlers on Earth. In writing this book, I had the opportunity to receive my bronze and silver certifications from the USBC. I would like to thank the USBC coaching staff for allowing me to obtain these two coaching certifications. Every bowler wants to get ten pins down in one shot—this is called a strike. Then, they would like to get a 300-game. A few years ago, I came up with a number: 10-30-300. This number represents the three main numbers that a bowler would like to attain. A bowler strives to get ten pins down in one shot on the first ball. Then, the bowler would like to get 30 in the first frame. Finally, but certainly not least, they would like to get a score of 300. Therefore, 10-30-300 represents the bowling number. In becoming a Bowlologist, a person must have the knowledge to coach a fellow bowler about bowling ball dynamics and the history of bowling. From gutter balls to strikes, bowlers want to get better. A bowler may ask themselves this question: How can I get better? The answer is both simple and complicated. It depends where they are in their bowling game. It takes one more spare to increase their average by ten pins, rather they want to win the league championship or win the U.S Open. It all comes down to making repeatable shots.

Writing this book has been the biggest project in my bowling career. I really want bowlers to understand the game, advancing their personal game to a higher level. Watching bowling tournaments and bowling at my local center has given me experience and helped me write about the sport of bowling. Growing up there were a number of bowling manufacturers that made their own bowling balls. Today bowling ball manufacturers are making bowling balls stronger and more powerful.

If bowlers looked back throughout the 20th Century, they would see how scores have drastically skyrocketed. It was a different surface and different oils. Bowling centers would use an old bug sprayer to oil the lanes. Bowlers would know where to throw the ball. A board would be marked to have a decent score. If bowlers did not play that the area of the lane, they were not going to score that night. It was a tougher game back then. It was very rare for a bowler to throw an 800 series. Now days, 800 is easier to shoot with the bowling ball and lane technology that a bowling center mechanic applies. Bowlers need to know their equipment in order to score. When a bowling center has a house shot, it is easy to score. However, there is still going to be pins left on the pin deck after the first ball. Bowling a 300 is still an art and an achievement. Bowlers that have been bowling for 40 years might say there is a scoring epidemic, in that the bowling ball technology makes bowling easier. However, when a bowler does not have the correct form and does not have the proper ball in their hand, they are not likely to have high scores.

Becoming a Bowlologist

Back in 1997, my mom and I went to the Bowling Hall of Fame & Museum in St. Louis, Missouri. This was my second visit there. I had always wanted to see old bowling films and talk with the curator about bowling history. He said that he would give me a tape to watch anytime I wanted to. On the way back home, I had told my mom that I really wanted to be a bowling specialist. Then she preceded to make up a word for me, Bowlologist. I totally believed that it is what I have become. Back in November of 2011 of this publication, I had started the Bowlology column. It highlighted my knowledge about the sport I passionately loved.

When I was growing up, I was going to amateur and professional tournaments. By going to both of these types of tournaments over the years, I was able to observe a number of bowlers bowl, study how they played the lanes, and analyze their physical game. I also studied bowling ball dynamics, learned the history of the game including PBA Trivia, and attended over a 100 PBA tournaments. I became an honorary member of the PBA. Throughout the years, I have studied the game. When I was growing up I would watch the video by Don Johnson titled **“A Pro’s Guide to Better Bowling”**. Going to countless pro and amateur bowling tournaments has helped me along the way as I watched the greatest bowlers. I also had a mock pro-shop and would bowl mock PBA tournaments. This helped me throughout my entire bowling career. I have been to a number of pro-shops and bowling centers around the Midwest and East Coast in the USA.

I am so thankful to my Mom and Dad for taking me to these tournaments. Roger Hyde, my Dad, was the most skilled pro-shop operator and ball driller in the area. He knew the dynamics of the bowling ball and was adept at drilling for the ABC (currently known as the USBC). He helped me understand a great deal about the bowling ball. This is what my Dad taught me.

To fully become a Bowlologist, a person has to get to a bowling center and start applying their skills and knowledge to see what works and what does not. In the past, I have written about how to make adjustments from changing balls to moving a bowler’s feet. There have been a number of times in which I have made adjustments with my ramp, and I have changed balls to get the correct ball motion in order to score higher. On December 2, 2018, I was using the Quantum Edge® ball and could barely shoot over 150, but then I switched to my Forest Green Quantum® and averaged 219. Another time, I changed zones but used the same ball and was able to score higher. The knowledge that I have learned over the years is through my Dad (Roger Hyde) and Parker Bohn III. These individuals have strengthened my knowledge of the sport that I love.

Back when I was a kid, I would imitate the greatest bowlers of all time. I watched Mike Miller who was a two-finger bowler and saw him win the PBA National Championship in 1991 beating PBA Hall of Famer Norm Duke for the title. Now that was impressive! Kelly Coffman was a bowler who had an impressive strike ball. I watched Jason Belmonte using a two-handed style to knock over ten pins with a bowling ball. Here are some of the pros that I have seen throughout my career as a Bowlologist. Walter Ray Williams, Jr. is perhaps the greatest of all time. He moved from playing inside to moving outside. He was still able to have the same ball reaction to score. Pete Weber is perhaps the greatest bowler to have never won the Chris Schenkel Player of the Year honor. He won ten titles with various types of bowling ball technology. Early on (’95-’96), he had a difficult time with resin reactive balls. Weber then retooled and discovered what he needed to do with these balls in order to compete on the PBA Tour. It does not get any better than that. This is what a Bowlologist should be striving for.

Bowling Essentials

Throughout my bowling career, there have been two main elements that I have tried to cover. Since 1989, I have been a PBA fan. When Mike Aulby won the 1989 Showboat in Atlantic City, New Jersey, I was hooked. The very next week, he would go on to win the Budweiser Open in North Olmsted, Ohio. By 1990, I attended my first major tournament which was the Seagrams Cooler U.S. Open when Ron Palombi Jr. won his first major. In 1989, Mike Aulby would win his second jewel of the Triple Crown of bowling at the U.S. Open by defeating Jim Pencak. That same year, Aulby would win the first of his three Masters titles. Learning how to keep score in bowling was probably the hardest fundamental to learn. By 1995, I became a pro at learning how to keep score.

There are two binders that I have been working on. These bowling essentials are covered in these binders: one is PBA-related and the other is instruction on how to bowl. Even though I write the Josh Hyde's Bowling Newsletter, JHB covers both amateur and professional tournaments. I have also established Josh Hyde Bowling. I have three letters—I, T and P. They stand for Instruction, Tournament and Professional Bowling. These are the three main elements of bowling. These three key factors of bowling are what makes bowling a sport. In recent months, I have written about becoming a Bowlologist. I also know a great deal about the sport of bowling—how to throw the ball. Bowlology is my own bowling instruction to improve a bowler's skills, from the physical game to ball dynamics.

The USBC is the national governing body for bowling. They have created uniform rules and standards that apply from local to national tournaments for amateur and professional bowlers to gain a foundation as they aspire to become PBA members. USBC has rules and guidelines in which bowling can be regulated for every bowler in the United States. Other countries are modeling their own homegrown versions of the USBC after the success of the United States Bowling Congress. USBC promotes bowling for everyone—from the Joe Bowler that bowls his local league to the Jason Belmonte and other PBA greats. USBC offers tournaments at the local, state, and national levels. They even have different patterns red, white, and blue. The USBC honors scores are as follows 300, 299, and 298. The governing body of bowling allows bowlers to compete for national titles. This tournament is called the Open Championships. The United States Bowling Congress will build eighty lanes for the 20,000 teams that will participate in the tournament. In previous years, bowling centers used to be able to buy the actual lanes to add to the lanes in the bowling center.

The PBA Tour should be educational and interesting. When Joe Bowler fine-tunes his game, he can try out his talent on the PBA Tour. When I created the bowling tournament hierarchy, I wanted bowlers to understand what they are up against when they try the grass roots of bowling tournaments — local and PBA Regional tournaments.

Is Bowling a Sport?

[The word "sport" is defined as "an activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment."]

Some bowlers today may say that bowling is not a sport. This is because of the bowling ball technology. Another reason why they may say bowling cannot be considered a sport is because the athletes do not have to run or break into a sweat.

However, bowling is indeed a sport. If people do not think that bowling is a sport, I would like to ask them: "What do they call throwing a 16-pound ball down a lane and hitting ten targets?"

Bowling is indeed a difficult sport to come by, even if bowlers are able to drill a ball to do specific tasks at hand. If a ball does not see friction on the lane, no matter how much of a strong layout they have drilled into the ball, it will not hook. The bowlers still must have the skill to throw the ball to knock over pins. The ball cannot get a strike by itself.

Bowling is a sport because a bowler must make a delivery to knock over the pins. Until the bowling industry makes a remote control bowling ball, in my mind, bowling will always be a sport.

We all love to bowl. We love the competition. Whether it is in a league or a tournament, for a local-town trophy or the Tournament of Champions, bowlers are competing to win. Throwing a 16-pound ball to get down ten pins in one or two shots is not an easy task. Even though today it may be slightly easier to roll a 300 game now than it was in the 70s, a perfect game is still a perfect game and is still an extremely difficult feat.

For people who may think that bowling is not a sport, I would suggest they try a sport (local) bowling league. These are more challenging lane patterns and are used on the PBA Tour. When they can average 230 a game on these patterns, maybe I will rethink my stance. Until then, bowling is definitely a sport.

Regulating Bowling Equipment for Professionals

The PBA is the greatest entity in the sport of bowling. Yet it affects everything from how different bowling balls are marketed to which shoes and gloves are acceptable on the tour.

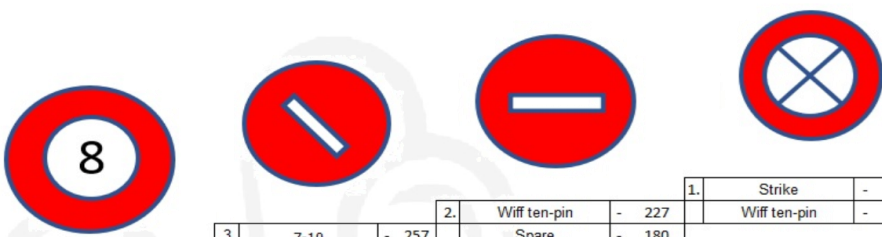
In 2011, Lenny Nicholson was on Xtra Frame, talking about how one of the traditions of bowling was not letting pros use high-tech bowling balls. This may sound like a good idea, but in reality, bowling fans do not want to see low-tech balls going down the lane. For all the scratch bowlers that watch the PBA Tour, this would not let them see the type of ball motion they are considering when purchasing a new ball.

What might be a better answer is not regulating the angles which a PBA player can drill. Making regulations on drilling layouts limits the excitement of bowling. This could be one of the areas that the PBA could look into, enabling players to know what they need to do in order to hit the pocket in a direct way.

Johnny Petraglia told bowling digest that in making the lanes harder, the USBC could regulate how much adaptation a bowler could do to their ball. This is one area that makes bowling more of a challenge. If the PBA could investigate in this procedure, more people might consider bowling more a sport due to the added difficulty.

The plastic ball championship was a good tournament, but some players were not as happy because they could not use their full “arsenal.” This would be like NASCAR race only allowing cars to go a certain speed or MLB players only being able to use one weight of bat. Sports fans want to see the best players face all possible variables.

Bowling Tournament Analysis



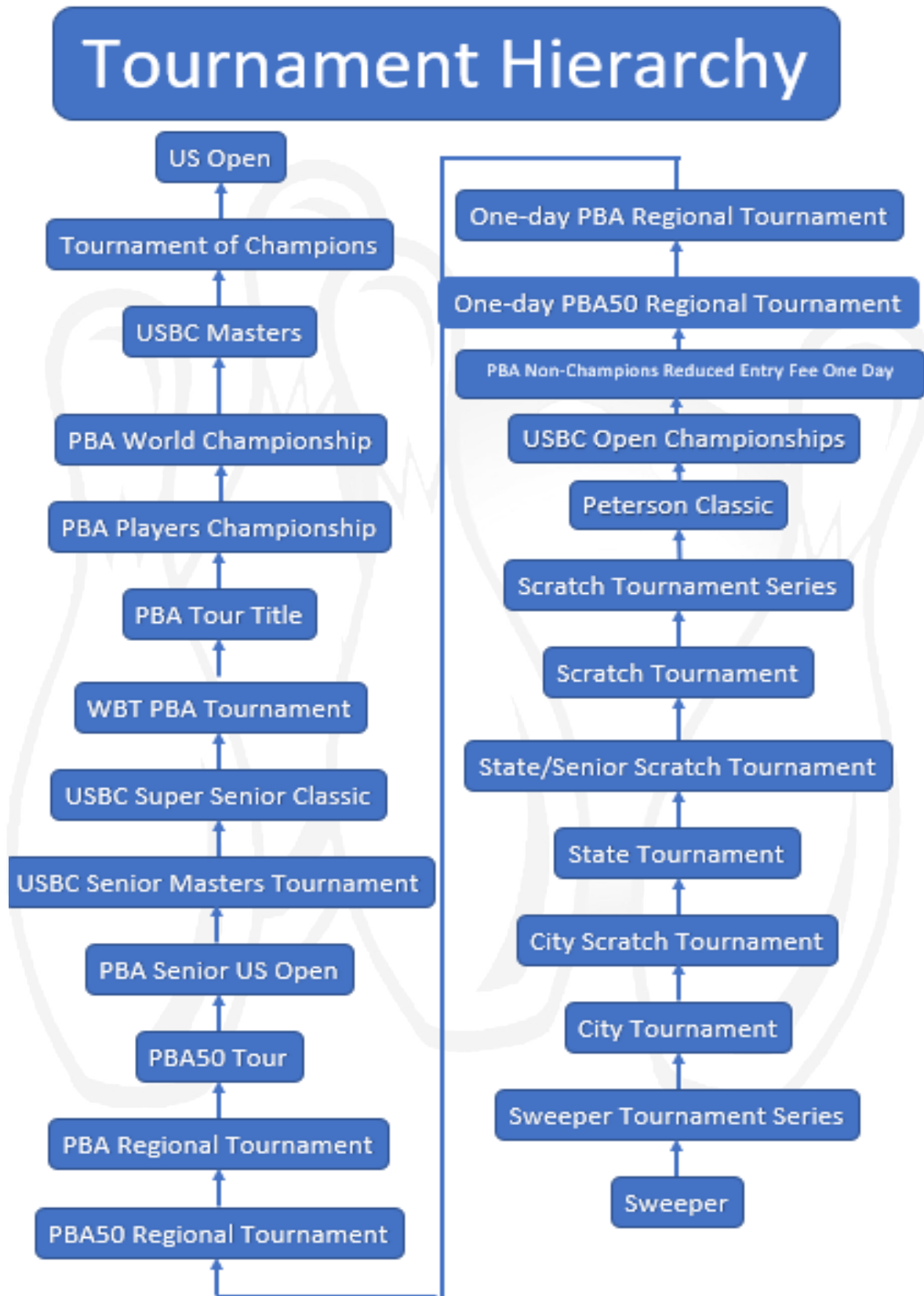
4.	Spare	-	248	3.	7-10	-	257	2.	Wiff ten-pin	-	227	1.	Strike	-	267	Strike Champion
5.	Split	-	244		Spare	-	278		Spare	-	180		Wiff ten-pin	-	204	

Bowling Tournament Analysis Description-

For nearly a decade on a monthly basis, I have been composing the Josh Hyde's Bowling Newsletter. I have developed a new innovative way of reporting on bowling tournament formats including stepladder, elimination, round robin, and/or bracket finals. This product would be best using the last portion of a tournament where there is one of the previously mentioned finals at the end. Using this product, bowlers, bowling fans & writers are able to keep score providing statistics and comments, as far as bowlers switching balls or adjusting on the lanes. As doing a Bowling Tournament Analysis for sweepers, state, city, and the USBC Open Championship it would be hard to compile these statistics as the bowling writer would need every bowler's tournament participants bowling scores. This would be a time consuming task. Bowling fans could see in these Bowling Tournament Analysis what went on during the portion of the tournament.

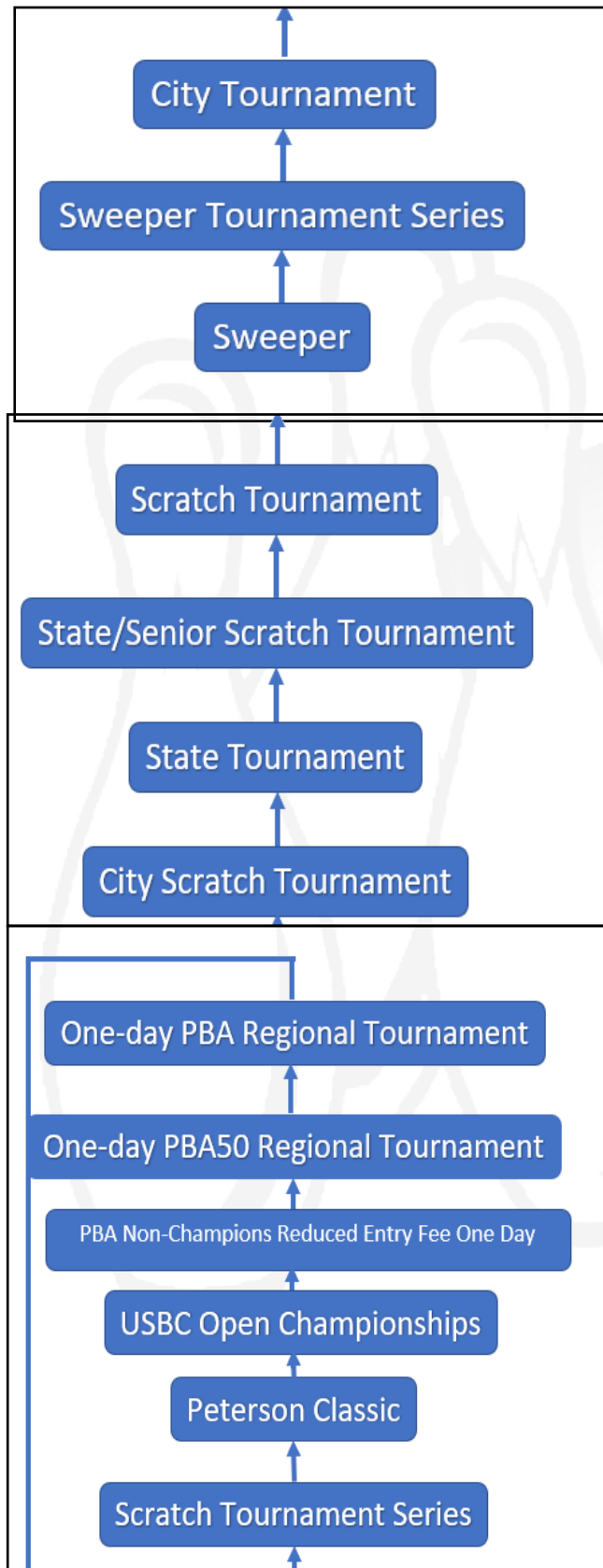
A Bowlologist View of Tournaments

Whether Pete Weber is winning his fifth U.S Open or Joe Bowler needs a double in the tenth to win \$500.00 to claim the sweeper title, every bowler wants to win a tournament. However, in each tournament there is only one winner that claims the tournament title. If a bowler is not able to win he or she wants to make some money for bowling half way decent. As a former tournament director, it is very hard to make sure that a majority of bowlers make a little something back in there pocket. For my tournament, my dad always said a bowler could bring one bill and get in everything including pot games and brackets. The difference between a pot game and bracket is the pot game is the high score of the entire tournament that paid the five dollar or ten dollar side pot fee. If a bowler shoots a 280 game but did not get in the side pot. It would go to the next guy. Who did get in the side pot, brackets are like the NCAA March Madness brackets. Bowlers can enter in as many as they want. However a tournament should limit the number of brackets that bowlers can get into and they should run unlimited of number of brackets. The bowler that shot the 280 would survive in all his brackets. If forty bowlers got in the ten dollar pot game. In a three game qualifier each winner would receive a \$100.00 because the tournament director probably pays the high three game total. Limiting the number of brackets that a bowler can get into does not allow one bowler to win all the money. However tournament directors need to consider what bowlers are coming. Do these bowlers bowl tournaments all the time. Is there going to be some PBA members what lane pattern do I want to have. If they want higher scores then they will want to have a house shot. If they want to have lower scores then they will want to have a PBA pattern. Tournament directors should talk about this with proprietor about a month or so out before the tournament, guaranteeing a first place prize to do. This is why bowlers see based on x amount of entries. First place will get a certain amount of money. This is how both bowlers in the tournament director's can make money. It should not cost a tournament director a arm & leg to run the tournament. Tournaments are fairly inexpensive to run. The bowling center is what drives the tournament prize fund down. The tournament director has to take two dollars per game for a \$50.00 entry fee. The number of games can dictate what the payout will absolutely do.



Bowling Tournament Hierarchy Continued

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Tournament Bowlers always want to have to strike in order to win a tournament regardless if it is a five game sweeper or the prestigious U.S Open Tournament. In this section I have designed a bowling tournament hierarchy and will explain the different levels.

Going from the bottom up when a local pro-shop operator might offer a \$300.00 guarantee to the winner for a low entry fee. This may be hard to achieve because the tournament director is guaranteeing the top prize and they may not get entries that they need to pay the 300.00. They would have to come up with that money themselves. However if the tournament flier says based on so many entries of \$500.00 to first place is not guaranteed anything. A tournament director has obligations to bowling center to pay them per game. I selling point that a tournament director can tell the proprietors that they will be making large sales and food sales. A proprietor might give the discounted rate on the lineage because of food and bar sales that they will make. At these tournaments the bowlers are moving pairs after each game so the bowlers will be crossing the entire bowling center.

Sweeper tournament series—these tournaments are a small In this section Scratch Tournament will be describing scratch tournaments and the bowling tournament hierarchy. If a local association has enough bowlers that average between 190 and 240. They may a local scratch masters tournament. Having a local masters tournament might entice the higher average bowler to join a league so they can bowl in the local masters tournament. If the local association gives an entry into the regular USBC Masters or the State Masters Tournament. There will be a number of entries that will be bowling. Each state association has a state tournament. This tournament has three different tournaments that consist of doubles, singles, and teams events. However in the state tournament, bowlers will have to go up against lower average bowlers because they have handicap and scratch prize funds. If a state association offers a state masters tournament title. This is where tournament bowlers realize that they must bowl in a league within that state. Winning the state masters title will not guarantee a spot into the USBC Masters. There is a good probability that the winner will get a spot into the USBC Masters in order to qualify for this tournament. A bowler will have to obtain 190 average. A scratch tournament is not geography based tournament. This tournament may include a PBA Tour format with qualifying, match play and a stepladder final. This tournament might have a guaranteed first place check of \$3,000 to \$10,000. Some of top pros might enter because it's practice for the PBA and a chance at

Bowling Tournament Hierarchy Continued

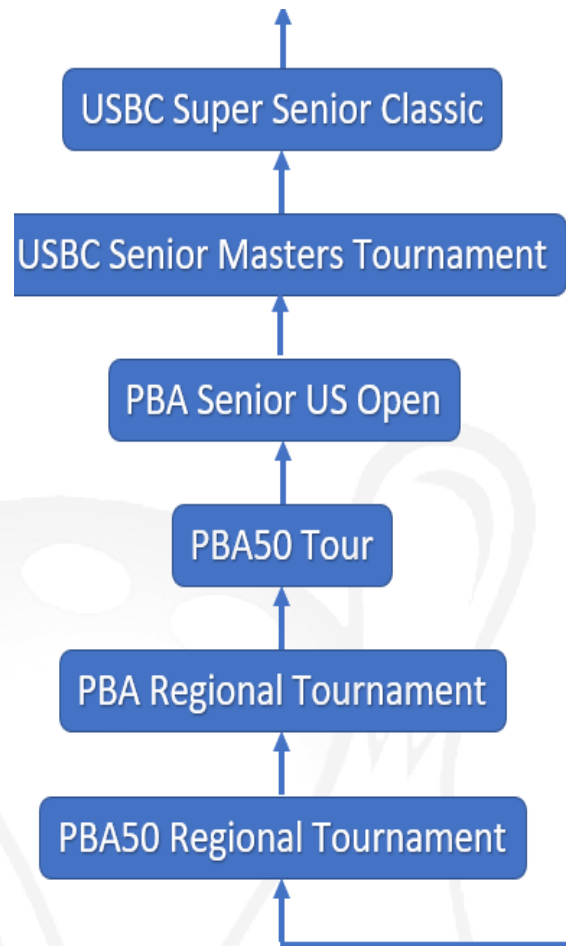
100

Scratch tournament series is great way for a tournament bowler to get their feet wet if they want to challenge themselves. These tournaments usually have points, higher average bowlers, some of the top pros in the local area and a tournament format like a PBA tournament.

There are two tournaments that mainly amateurs, and more recently pros, look forward to. It is just like a state and city tournament except the USBC Open Championship has one more event in the tournament that is team all event title. This tournament has the most participation for a sporting event with well over 20,000 teams. In this event, a team of five bowlers adds up all of their individual scores. However, it does not include prize money for the team that wins the team title. Bowl.com will post the top ten teams on the website at the end of each week. Tournament bowlers only get 9 games at the USBC Open championships. There is no match play or a second cut for a USBC Open Championship title. Participants bowl 3 games in singles, 3 games in doubles (each person bowls 3 games = 6 games scored), and 3 games in team events (each person on the 5 person team bowls 3 games = 15 games scored). All events for a single person are all games combined (a nine game total). For the team all events title, all five bowlers scores are combined (a 45-game total). Nelson Burton, Jr. has won the Super Slam of this event, meaning he has won singles, doubles, teams, the team All-Events, and the Masters. It starts in the middle of February to the beginning of July.

In the old days of PBA competition, a bowler would have to cash twice in a PBA Regional tournament. These are weekend tournaments, and some of the big name pros that bowl on national PBA Tournaments, bowl at these regionals. The PBA non- champions is a category for those members who have not won any PBA titles. If an amateur wins one of these tournaments, they do not receive the title. Even if they join the PBA after winning the tournament, these are the entry-level PBA tournaments that a bowler can compete in. All of the animal patterns in these tournaments are modified to give bowlers a chance to score higher. The PBA50 one day regional events are only one day and the PBA members are required to be 50 years of age or older.

If there is a U.S. Open for tournament bowlers, it is the Peterson Classic. Each entry can only have two bowling balls in their arsenal. It is an eight game sweeper that begins in the last stage of April and goes through Labor Day. This tournament has a number of low scores from the random lane conditions, heavy pin placement, lack of lane arrows, and off-spot pin rack. Usually between 10-20 people will average 200. It has one of the most demanding lane conditions that bowlers will ever face.



On the PBA50 Tour originally it was called the PBA Senior Tour. These tournaments were for guys that had jobs in their earlier days and could not compete on the regular PBA Tour. When bowlers turned 50 they could have a chance at the PBA Senior Tour. The PBA Senior Tour started in 1981. Bill Beach won the inaugural PBA Senior Championship. The PBA also added PBA Senior Regional Tournament as well. The PBA50 Tour has it's major tournaments as well as the PBA Tour. The PBA Senior US Open is probably the prestigious of the PBA50 Tour. However for the Player of the Year race it is on the point system instead of the PBA member vote. Pete Weber finally won his player of the year 50 tour when he captured six tournaments in one season. John Handegard has the most PBA50 victories with 14 titles. Walter Ray Williams Jr is the first Player to win multiple Player of the Year on the regular and PBA50 Tours. A long with PBA50 tour the PBA came out with a PBA60 tour. These tournaments are the Super Senior Classic and the Dick Weber PBA60 event. The bowlers have a chance to compete with some of today's stars.

Bowling Tournament Hierarchy Continued

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This is the last piece of the puzzle of the bowling tournament hierarchy. It is for the small elite players from the WBT PBA tournament to the US Open. There is also the area event and that is the regular PBA regional tournament. It started in the 1969 and this was for the bowlers that had other full time jobs but still felt like they could compete. These are weekend tournaments that pay anywhere from \$1,500-\$10,000 to the winner. Some of the big name pros might compete in these regional tournaments. The WBT PBA Tournament is an international event on the PBA schedule, counts as a PBA title, but is organized by the PBA. If a bowler throws a perfect game in these tournaments, they are not credited a PBA 300 because the event is not governed by the PBA. A regular PBA tour title is one that every PBA member aspires to win because this is an important step in becoming a professional bowler. It is at this point that the events become national and start to be broadcast on television. These are usually week long events with sponsors, manufacturers, and fans. This also means they have joined the other 359 elite bowlers that have won a PBA title.

There are five Majors in the PBA. They are the PBA Players Championship, the USBC Masters, the PBA World Championship, the Tournament of Champions, and the US Open. The PBA Players Championship was formerly known as the Touring Players Championship.

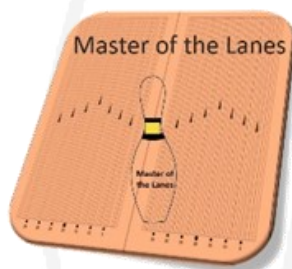
This tournament was for the PBA member that bowled 50% to 100% of the PBA tour schedule with PBA members only. Next is the USBC Masters and this tournament has both amateur and professional in the field. An amateur is eligible if they are a USBC member and have a minimum average of 180. It is current run inside the USBC Open Championship. Jason Belmonte as won the most of the event with a record of four.

The PBA World Championship is once again open to any PBA member. Earl Anthony won six of these tournaments and both times he three-peated this tournament, 1973-74-75 and 1981-82-83. Because of this, they named the World Championship trophy after him.

The Tournament of Champions was the pinnacle of bowling. Every PBA bowler wanted a regular Tour Title so they could enter this event. It is restricted Regional title winners if they get through the PTQ and all regular PBA Tour Title winners. The bowlers that win the Tournament of Champions earn a lifetime invitation to join future events as long as they remain a PBA member.

Last but not least is the US Open. This event has the hardest lane conditions that a PBA player needs to overcome. Pete Weber has won five US Opens along with his legendary father Dick Weber. Dick won four All Star tournaments, but this is currently known as the US

Finally but not in the least, is the tournament prize fund. Maybe I did not pay a thousand 102 dollars on top. Bowlers were able to make their money back in the three game qualifier. If they bowled 700 in the first three games they were surely going to make the first cut and make a little bit of money on the side action. Even if they had a high game. They would win the pot game. Pot games are hard to win. It is only the top high score of a certain game that can win. Where as in brackets 240 game, they may not win the high game. But they would be able to survive in most of there brackets. So for example, for every bracket a bowler gets into they can win five times there money back. If they invest in a 100 dollars of worth of brackets, they could win up to five hundred dollars. By shooting a decent number of 690 series for three games they can perhaps double their money or triple their money. The prize fund is very tricky and time consuming to accomplish. The tournament director is looking at how much they need to pay the bowling center and the bowlers. One in four is a number that tournament directors ideally would like to achieve. However, for a tournament director it can be quite challenging. One in five is a good number to start. When I ran my tournaments I was paying one in four. The winner of the tournaments was not making thousands of dollars. Five to eight hundred dollars for a \$35.00 dollar entry fee tournament. I was able to pay almost six thousand dollars to about two-thirds of the bowlers. No one bowler could make all of the money in the tournament. This is how I think an amateur tournament should be paid, the same as the PBA bowlers. They should be making enough money to make a living by throwing a bowling ball. This is why Eddie Elias formed the PBA back in the 1958. Dick Weber was the first super star of the PBA Tour. He won a total of thirty PBA Tour Titles.



A Bowlologist is known as the Master of the Lanes who captains the Keglers and must know 80% of all the Kegler categories. A Kegler knows that they were specialists and knew what the expectations were. In Bowlology terminology, a Kegler is an expert in a specific bowling category and knows at least 80% of that category.

Equipment History GRAY	PBA History RED	BPAA History BROWN
Bowling History GREEN	USBC History BLUE	
PBA History 80% of the questions need to be answered correctly to be a specialist in this field	Equipment History-80% of the questions need to be answered correctly to be a specialist in this field.	BPAA History-80% of the questions need to be answered correctly to be
USBC History-80% of the questions need to be answered correctly to be a specialist in this field	Bowling History-80% of the questions need to be answered correctly to be specialist in this field.	

Bowlology Periodic Table

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Tournaments	PBA Majors	PBA Titles	PBA Stats	Awards			Event Patterns	Hof Patterns	Animal Patterns
Regional									Cheetah
PBA50 Tour	11 Majors Jason Belmonte							Johnny Petraligia	Chameleon
PBA Tour	3 TOC M Durbin and J Couch	6 decades with a title - Petraglia, D Weber	64-GAME BLOCK 14,924 Parker Bohn III					Don Carter	Scorpion
PBA World Championship	5 US Open P Weber	185 CRA TV Appearance	Youngest to win - Norm Duke				US Open	Don Johnson	Shark
PBA Players Championship	4 Masters - Belmonte	8 Titles in a season M Roth 1978	Oldest to win - John Handegard	Mark Roth MVP	Elias Cup PBA League	PBA50 Regional Player of the Year	TOC	Mark Roth	Wolf
TOC	6 Triple Crown	22 PBA50 Regional H Sullins	840 PBA tour events - Tom Baker	Career earnings	PBA Regional Rookie of the Year	PBA Regional Player of the year	Masters	Earl Anthony	Bear
Masters	2 Grand Slam - Aulby, N Duke	51 Regional Titles - Chris Warren , P Weber	107 Perfect games in Tournament Bohn	PBA High Average	PBA50 Rookie of the Year	PBA50 Player of the year	World Championship	Carmen Salvino	Badger
US Open	1 Super Slam Winner - M Aulby	107 titles Williams Jr.	Career Earnings - Walter Ray Williams Jr	Hall of Fame	PBA Rookie of the Year	PBA Player of the year	Players Championship	Dick Weber	Dragon

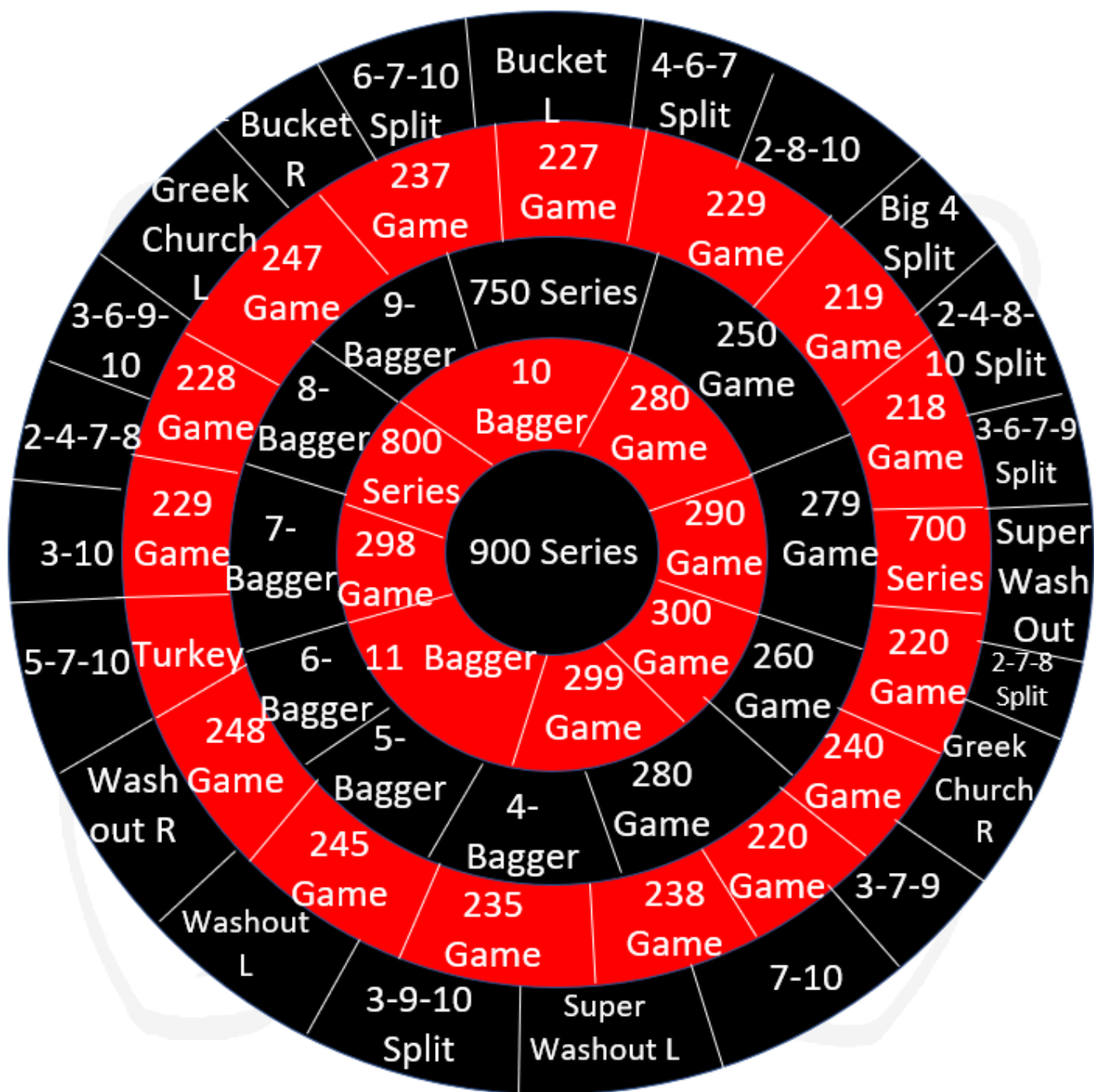
Bowlers HoF	Parker Bohn III	Marshall Holman	Don Johnson	Norm Duke	Mike Aulby	Mark Roth	Pete Weber	Dick Weber	Walter Ray Williams Jr	Earl Anthony
Bowlers HoF	Jason Couch	Dave Husted	Chris Barnes	Billy Hardwick	Mike Durbin	Dave Davis	Carmen Salvino	Don Carter	Johnnie Petraglia	Amelto Monacelli
Bowlers PBA Tour	Francis Lavoie	Kyle Troup	Wes Malott	Bill O'Neill	Anthony Simonsen	Jacob Butturff	Tommy Jones	Jesper Svesson	EJ Tackett	Jason Belmonte

I became a PBA fan in 1989 when Mike Aulby won the Showboat Tournament in Atlantic City, New Jersey. This book is mainly a bowling science book, and the above chart representing a periodic table. The elements represent Tournaments, Majors, Titles, Records, Awards, Event Patterns, Hall of Fame Patterns and Animal Patterns. The elements are called the Tenpins which are multi-colored columns and the grey-blueish columns are called Kingpins. The Kingpins represent the greatest bowlers on the PBA Tour. The PBA is the pinnacle of bowling.

The Bowlology periodic table above shows what the PBA is all about in a nutshell. It highlights many top PBA bowlers in history and their accomplishments.

Frame 9 breaks down the PBA - The Pinnacle of Bowling - telling of it's beginnings through it's current status.

Bowlers' Mark





Frame 8

X

History of Bowling

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	X		X		X		X		X		X		X		X	X	X	X
30		60		90		120		150		180		210		240		270		300

History of Bowling

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Bowling dates back about 7000 years. In 3200 BC, Sir Flinders Petrie, a British anthropologist found a rough form of bowling in an Egyptian child's grave. Even though bowling has no recorded history between 3200 BC and 1100 AD, historians believe that forms of bowling were still going on. In England, in the early 1100's, Parliament had to outlaw bowling for a while because the troops were bowling instead of practicing archery. Then again, in 1366, King Edward III of England had the same problem with his troops. Since England loved bowling so much, they couldn't keep the troops from bowling. In 1400, they built their first indoor alley. During the reign of Henry V III, in the early 1500's, bowling was still popular. Even Martin Luther built a bowling alley for himself and his kids. It was even said that Sir Francis Drake wanted to delay the attack of the Spanish Armada to finish the game he had started. As early as 1611, the settlers of the Plymouth Colony were playing a form of bowling called Skittles. Also, in the 1600's, Germans were using bowling as a religious ceremony. A person would roll a stone down the aisle and try to knock down the "HEATHEN", or club, to prove his faith. Even William Penn had a passion for the game of bowling in 1673.

The 1800's

In the early 1800's, Jonathan Swift wrote that Washington Irving awakened to the "sound of crashing nine pins". By 1820, America had their first bowling location for ten pin lawn bowling. It was in the New York Battery area, which they still call Bowling Green to this day. During the mid 1800's, bowling was known for its developmental era (1837- 1875). In this time period, bowling grew as a regular outdoor family activity for German immigrant social clubs. During this time Abraham Lincoln was the first president to bowl. Samuel Langhorne Clemens, Mark Twain, and Ulysses S. Grant even liked to bowl. In 1840, Manhattan opened their first commercial indoor nine pin bowling establishment called Knickerbocker Alley. By 1841, Connecticut had to outlaw nine pin because of gambling. That's why it was so popular. After Connecticut made that law, they decided to change it to ten pins instead of nine pin. By 1850, New York had over 400 lanes. Then during the Civil War they introduced a bigger pin so they could score higher. Then started the club era (1875-1895). Clubs made their own rules for people who wanted to bowl. The first bowling organization was formed in 1875. The National Bowling Association had twenty-seven members from nine clubs. They decided on rules for ball size, playing procedures, and lane dimensions. In 1884, the first bowling business, known as Brunswick, started. Then AMF, in 1889, entered the bowling business. The National Bowling Association changed its name to American Amateur Bowling Union in 1890. Then on September 9, 1895, in Beethoven Hall, the American Bowling Congress (ABC) started.

History of Bowling

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The 20th Century of Bowling

In the early 1900's, bowling establishments were smoke-filled, dimly lit, small places. Bowling establishments were not considered great places for families. There was a problem with the bowling centers as far as gambling goes. They would have matches in which bowlers or their sponsors could win money by betting for them. ABC had their first tournament in 1901. When the DoDo ball was introduced it became unfair to bowlers because of its lopsidedness. Therefore, in 1903 they outlawed the DoDo ball to make the game fairer and more competitive. In 1905, the first rubber ball was made. It was called the "Evertrue". In 1913, the Bowlers Journal was first printed. This was the first national magazine that wrote about bowling. In 1914, bowling sales were estimated at \$10 million. People were investing in bowling like never before. Brunswick had just made their rubber 'Mineralite' ball although the German soldiers thought it was a bomb. Instead they took all the "Mineralite" balls away in Germany. Bowling was considered to be the "sure cure" for cancer, paralysis, heart troubles, etc. in 1917. In 1916, Women's National Bowling Association was formed. Today it is called the Women's International Bowling Congress or WIBC. Dennis Sweeney held the first women's national tournament in Cincinnati, Ohio on March 11, 1918. Jimmy Smith, who was the best match game artist, lost to Floretta McCutcheon "Mrs. Mac" 680 to 672.

It was because of this match that women's bowling grew like never before. When World War I ended and the signing of the Versailles Treaty in 1919, a new bowling boom was created when the troops came home. Inflation was starting to happen when the price of bowling balls went from \$12 to \$15.50. In 1919 the WIBC would form their National Tournament for the doubles/singles/team events.

When the Prohibition Amendment was passed, ABC's membership went up 90% from the previous season. Ernest Hedenskog was the first person to get a patent for the first automatic pin-setting machine on January 28, 1922. Vic Lerner founded King Louie Apparel Company in Kansas City in 1923. Brunswick had showed their first pin-setter in 1924.

History of Bowling

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The 1920's. In 1921, the richest bowling tournament, the Petersen Classic, awarded \$1000 first prize. The World Classic Tournament, of 1922, helped form the Professional Bowlers Association by using their point system. The 1928 Olympics were in Holland. This was the first-time bowling was entered in the Olympics. As you can see, this was considered the competitive era between 1895 and 1961. In 1929 there was a slight pause in bowling because of the depression.

In the 1930's, bowling was beginning to really become organized. On June 7, 1932, in the Detroit Fort Shelby Hall, the Bowling Proprietor Association of America was formed as a not for profit trade association for bowling centers. The BPAA was founded by Don Campbell. He thought that bowling proprietors should work together to restore bowling. The BPAA motto was "United We Prosper". BPAA had some great promotional ideas for the sport of bowling. One of the promotional ideas that BPAA came up with was booking big name bowlers in a unique car and sending them all across the country to promote bowling. In 1933, bowling centers were air-conditioned. That made for a lot more bowlers coming into the center. The Petersen Match Game Tournament, which had started in 1933, had become the BPAA All-Star Tournament in 1943. Which later became the BPAA US Open in 1971. After the repeal of the prohibition on alcohol in 1934, brewery companies wanted to sponsor bowling teams. This was a huge success for bowling. Teams like the Stroh's, Pabst's, and the Hamm's were very popular. They would come out in their own unique uniforms. Blatz had the first women's beer team. Bowling was the first sport to have a team, the Pabst, fly together to competition. During this time, Andy Varipapa had made a movie for MGM called "Strikes and Spares". Also, in 1935, bowling had their first radio program called "Tenpin Tattler". The American Junior Bowling Congress was formed in 1936, in Chicago. This got the kids involved in the sport of bowling. American Bowling Congress made a rule that it was an all-white, male bowling organization. So, in 1938, the National Negro Bowling Association was formed. By 1939, bowling's annual revenue was \$87,450,000 compared to the Major League Baseball, which was \$29,150,000 according to the US Department of Commerce.

History of Bowling

Technology and the war effort played a very big part in bowling in the 40's.

BPAA started the first "Learn to Bowl" week, in 1940, by giving away things to bowlers who signed up for the "Learn to Bowl Week". It created one million new bowlers. Everybody had money, but there was nowhere to spend it, so why not go bowling? Bowling was war time's greatest sport. During WWII, proprietors couldn't get the shellac that they were using from the Far East. So, bowling had to come up with a new lane surface. The new lane surface was called lacquer, which was a synthetic coating. Also, rubber was in short supply and when a New York City sporting goods store advertised a sale on sixty bowling balls the police were called out to control the crowd. Bowling sold more war bonds than any other industry. WIBC raised \$100,000 and the US Army Air Force decided to buy a bomber and they named it "Miss WIBC". In 1941, ABC adopted its handicap system for bowling. This enabled bowlers, with a low average, to compete with the higher average bowlers. Also, in 1941, ABC introduced their Hall of Fame. Due to the war, ABC and WIBC had to cancel their tournaments in 1943 and restarted them again in 1946. Once bowling was ready again, American Machine & Foundry (AMF) was ready. They said goodbye to pin boys and hello to automatic pinsetters. By 1946, these pinsetters were used in sanctioned leagues and tournament play. In 1947, automatic pinsetters and television were made for each other. Technological advances continued when they added the single beam foul detector and laminated pins. ABC ruled out their rule on proprietors and their employees being able to bowl tournaments in their own houses. They finally realized that these people were not threats and that they usually were businessmen or people with good organizational skills. BPAA realized the need for a Women's All-Star tournament. They finally got one in 1949. This tournament would be renamed the BPAA Women's US Open in 1971. As you can see, the 40's played a big part in bowling technology despite the war.

History of Bowling

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In the 50's, bowling grew from both a social and a business standpoint. The first commercial automatic pinsetter was installed in Michigan in 1951. It became a production model in 1952. Tournaments were like never before. Television networks were fighting for the rights to televise the finals of these tournaments. These tournaments were big media coverages. NBC TV covered shows like "Championship Bowling", "Make That Spare", "Celebrity Bowling", and "Bowling For Dollars". In 1955-57, "Championship Bowling" was voted best-syndicated sports series by Billboard Magazine. Bowling became a one billion-dollar industry. A man named Eddie Elias, emphasizing scratch singles competition, founded the Professional Bowlers Association. It had thirty-three members who had to pay a fifty-dollar fee to join. The following year it had three tournaments with a prize fund of \$49,500. Also in this year, the Professional Women's Bowling Association was launched. Socially, centers put in a substantial of money in their centers. These centers had refreshment facilities and an image of clean play, suitable for teenagers of both sexes and a wholesome family participation. People wanted bowling for both pleasure and competition. America was able to export bowling to other countries. Bowling was welcomed, greatly, in the other countries. Bowling had really become a social and a businesslike sport.

Bowling was good and bad in the 1960's. It was good because professional bowling was becoming an organization. However, it was bad because bowling was starting to decline in ABC and WIBC membership and bowling centers were starting to close down. Another company was formed. Roger Zellner founded Columbia 300 in 1960 in Ephrata, WA. Professional Bowlers Association had seven tournaments worth a total of \$150,000. Also, in 1960, Professional Women's Bowlers Association was formed. By 1962, they had three tournaments of their own. The first TV competition, by the PBA, was held in 1961 by ABC Network. The tournament was called the National Invitational and it was held at Paramus, NJ. The winner was Roy Lown. The number of bowling centers had reached its peak in 1962. Billy Hardwick was the first Player of the Year in 1963. The first Firestone Tournament of Champions was held in 1965. It had a \$100,000 first place prize. By the mid to late sixties bowling was falling. ABC membership had fallen from 4.6 million to less than 4 million. BPAA membership had dropped 40%. In 1969, "Championship Bowling" ended its 15-year run on TV. To try to help this, ABC, AMF, BPAA, Brunswick, and WIBC got together, at \$200,000 each, to unite bowling. Some of the famous bowlers of the sixties were Don Carter, Dick Weber, Don Johnson, and Dave Soutar. These were definitely the sluggish 60's.

History of Bowling

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During the 1970's, there were two major technology advancements that helped bowling grow. One of these was the use of automatic scoring which also had bookkeeping and management chore programs. This was efficient and reliable to the proprietors and the customer. It was a big hit. The second technological advance was changing the lane surface from lacquer to polyurethane and epoxy. The con of lacquer is that it was flammable, and the pro of lacquer was that it was easy to maintain. The con of polyurethane was that it was not very playable, and the pro of polyurethane was that it was safer. In the year 1973, a number of things happened such as Don McCune "soaked" his ball in MEK to make it hook more. There were no rules against it at that time. He won six PBA titles that year. Also, PBA began using a lane analyzer to condition the lanes 'the pro way". They also came up with a "durometer" that measured the softness of the ball. Finally, the National Bowling Hall of Fame & Museum was opened in Greendale, WI. By 1974, the PWBA split from the LPBT and the top PWBA prize was \$12,500 per tournament. However, the PBA had four tournaments worth more than \$100,000 each. By 1975, Earl Anthony had become the first pro bowler to earn \$100,000 in a single season. The Hoinke Classic was the first mega-buck amateur tournament to pay over one million dollars. In 1976, PBA introduced the rabbit squads, which were the bowlers who weren't exempt. Also, ABC ruled out "blended" lane conditions, but the PBA stayed with it. ABC also ruled that you had to have at least a 72-minimum hardness ball so that made Don McCune's "soaker" ball illegal. The movie "Dreamer" was about a professional bowler. It came out in 1978 and it was a bomb. However, the PBA got 34 national tournaments, which were all, covered by ABC, CBS, ESPN, and NBC in 1979. Some of the best-known bowlers of the seventies were Nelson Burton Jr., Earl Anthony, Marshall Holman, and Mark Roth. The 1970's were really about professional bowling.

History of Bowling

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During the 1980's, ABC had expanded its coverage of the Pro Bowlers Tour with Chris Schenkel and Nelson Burton Jr. Television was a promotional tool for bowling with its coverage and money from sponsorship. In 1981, PBA paid out more than one million dollars on the Regional Tour. Several things happened in the year 1982. First of All, Young American Bowling Alliance replaced American Junior Bowling Congress. When Glen Allison shot his 900, ABC rejected it because they thought the lane condition was too easy. There was also another mega-buck tournament called the American Dream Classic. In 1983, Mat Karlson, from Australia, became the first foreign bowler to win a professional title. He won the AMF Grand Prix. The National Bowling Hall of Fame & Museum moved to Saint Louis, MO in 1984 where it is still standing today. Urethane bowling balls were banned from competition, by the PBA Tournament Committee, by a vote of 11-0 in 1985. By 1986, bowling was named as an exhibition game for the 1988 Olympic games. When Seagram's Coolers announced their sponsorship of the US Men's Open, in 1987, it was the first-time a pro tournament was worth \$500,000. By 1988, the LBPT top prize was more than \$40,000 but PBA's prize fund was more than \$188,000 per tournament. ABC and WIBC had lost over 2.8 million members in the last decade. However, bowling sales were estimated at \$5 billion, first to any other participant sport, even though members were declining. Some of the famous bowlers of the 80's were Mike Aulby, Ted Hannahs, Wayne Webb, Tish Johnson, Aleta Sill, and Glenn Allison. In the 80's, pro bowling was getting the sponsorship that they needed.

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During the 1990's, pro bowling was declining in regard to a loss of sponsorship. BPAA lost Seagram's Coolers \$500,000 sponsorship of the US Open. Also, it was the last tournament of the Firestone Tournament of Champions, after 28 years. General Tire picks up the sponsorship and renames it the Tournament of Champions. Then the next year, General Tire backed out of three-year contract with the PBA. In 1990, the International Bowling Pro Shop Association was formed for pro shop operators. Barcelona rejects bowling for 1992 Games. The Bowlers Journal is first to find out that the Games could have been bought for \$15 million. It was estimated that there were over 7,500 commercial bowling centers in the US, and more than 100 million people in more than 90 countries worldwide bowled. In 1991, a bowler named Del Ballard Jr., threw a gutter ball in the championship game and lost to Pete Weber. This formed lots of publicity for bowling. 1992 saw the introduction of reactive resin urethane bowling balls. The PWBA member, Anne Marie Duggan, tried to enter a PBA Qualifier for the Showboat Invitational, but got rejected. Women's rights were big headline news at this time. In 1995, Mike Aulby became the first bowler to win the Grand Slam title and arena finals were said to be "the format of the day". "Glow Bowling" and "Rock and Bowl" were growing in importance because of a relaxed level of competition. Seventy percent of leagues were mixed at this time. Bob Learn in his hometown of Erie, PA shot a four-game record. He shot 1129, with a 300 game in his opening match. He got a controversial in his third game when a bowling technician distracted him and he missed his spare. He was able to reshoot it and he won the game because of it. After being on the air for 36 years, ABC drops pro bowling. Some of the famous bowlers of the 90's were Walter Ray Williams Jr., Parker Bohn III, Marc McDowell, Anne Marie Duggan, and Leanne Barrette. Bowling has been in a state of changing for this decade.

History of Bowling

The 21st Century of Bowling

In 2000, Chris Peters, Rob Glaser, and Mike Slade bought the PBA for \$5 million.

These three guys were former Microsoft executives. Norm Duke won his second leg of the Triple Crown at the PBA National/World Championship. Later, he would have chance at making history at the US Open by becoming the fourth player in PBA history to win the Triple Crown. Jason Couch would be the first player in PBA history to successfully his Tournament of Champions title at the Brunswick World Tournament of Champions in Deer Park, Ill. Robby Portlating scored the fourth sanctioned 900-series on December 28, 2000. Late in 2000, Chris Peters hired former Nike employees, Steve Miller and Ian Hamilton, to be the commissioner and president of the PBA.

In 2001 Joe Norris, the USBC Open pinfall leader, passed away and the bowling community would greatly miss him. Bowling lost another great bowler when Earl Anthony passed away shortly after Joe. Jeff Carter set the all-time league average record of 261.7 in one league season for ABC competition. Carolyn Dorin-Ballard shocked the bowling world when she won almost every PWBA tournament. PBA made major changes to the structure of the tournament and prize fund. Kurt Pilon won the first new format and was awarded \$40,000. Mike Aulby was inducted in the ABC Hall of Fame. He would earn \$100,000 for his efforts under the new PBA management all the majors were worth a \$100,000 to the bowler that won these four tournaments. Kurt Pilon would win the first PBA Tournament under the new format. The PBA would go to a single elimination for match play in the tournaments. Pete Weber go undefeated on television under this new format. He would also shoot a 299 in Wyoming, Michigan tying his legendary father Dick Weber with 26 PBA Tour titles. Also in 2001 Carolyn Dorin-Ballard would claim seven PWBA Titles and claim the PWBA Player of the Year. Kelly Kulick would claim the PWBA Rookie of the Year honors.

History of Bowling

In 2002. Doug Kent won the PBA World Championship in 2002 which was worth \$120,000, the highest first place check in PBA history. Brett Wolfe would claim the ABC Masters with other bowling ball technology. The Brunswick World Tournament of Champions would pull their sponsorship due to 9/11. James Hylton became the fifth bowler to score a 900-series. Fred Schreyer was named the PBA Commissioner in 2003. In the 2002-03 season, Walter Ray Williams Jr. won two Majors and set the highest single season earning record.

In 2003, the PWBA would not host anymore professional women's bowling tournaments as they were not getting enough entries in each tournament. Almost all of the field would advance to match play. This was a rude awakening for players such as Kelly Kulick, Michelle Feldman, Liz Johnson, Carolyn Darrin-Ballard, as they women were becoming a force on the PWBA Tour. It would be four years later that the PBA would add a PBA Women's series. However it was not a PWBA Tour. In 2007 the Women's US Open have the match play finals on national television with a single elimination format. During the 2007 USBC Convention PBA Commissioner Fred Schulyer would announce the new PBA Women's series. Jeff Campbell would be the 6th bowler to bowl a perfect 900-series. At the start of 2003-04 PBA Tour season, the PBA announced that they would have an exempt tour for the top 50 in points and Major tournament titlist would get multi-season exemptions. Titlist would receive a one-year exemption.

In 2004, Pete Weber would join Dave Husted, Don Carter, and Dick Weber as the only bowler to have more than 2 U.S. Opens/All-Star titles. Baker won the PBA World Championship which gave him a five-year exemption on the PBA Tour. He would earn the PBA Senior Rookie of the Year award and PBA Senior Player of the Year. Baker would also tie Pete Couture's record of four titles in one season and three of those were back-to-back-to-back. Darin Pomije would be the seventh bowler to roll a 900-series. At the 2004 ABC National Championship, John Janawicz would set the singles champion mark by shooting 858 in the event. It would also be the 100th year of the ABC National Tournament.

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At the start of 2005, on January 1st, bowling history was being made as the ABC/WIBC/YABA/USA Bowling merged to form the USBC. Patrick Allen would win the 2005 PBA World Championship and become the Chris Schenkel PBA Player of the Year. He would contend in all four Majors on the PBA Tour. The bowling world lost two icons with Dick Weber and Chris Schenkel, two founding fathers of the PBA. Steve Miller would resign from the PBA in September, 2005. For the first time in PBA history, the PBA had a title sponsor—Denny's. In November, 9 months after the passing of Dick Weber, his son, Pete Weber, would win his first title at the 2005 Bowlersparadise.com Open, Hammond, IN. Later that year, Robert Mushtare would be the 8th bowler to accomplish a 900-series. Lonnie Billiter, Jr. became the ninth bowler to obtain a perfect 900-series and the first bowler to accomplish that feat under the new governing body of bowling—the USBC. Six days after that, Mushtare rolled his 2nd 900 series in just over 2 month's time. Robert became the first bowler in USBC history to have 2-900 series to his credit. Tommy Jones would join Mike Aulby as the only two bowlers to receive the Harry Golden PBA Rookie of the Year and the PBA Chris Schenkel Player of the Year. Liz Johnson would become the first woman to make a PBA televised final at the PBA Banquet Open.

At the 2006 Denny's PBA World Championship, Walter Ray Williams, Jr. would join Earl Anthony at 41 titles by defeating Pete Weber 236-213. Later on, in the Japan Cup Williams would surpass Anthony by defeating Weber once again 289-236. At the 2006 PBA Tour Trials, Kelly Kulick would become the first woman to receive an exemption on the PBA Tour. In the '06-'07 season, Doug Kent would claim his second USBC Master's Title and his second PBA World Championship Title to become the PBA Chris Schenkel Player of the Year.

At the beginning of the '07-'08 Denny's PBA Tour season, the PBA announced that the Player of the Year award would be based on points rather than a PBA membership vote. Prior to this season, it was always a vote among the PBA membership. Chris Barnes would be the first recipient based on points. He would join Mike Aulby and Tommy Jones as being the only players to receive both the Rookie of the Year and Player of the Year honors. Chris would win two PBA titles that season.

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In 2008, Erin Buss shot a 1705 series for 6 games setting the six-game record. Beginning of the 08-09 PBA Tour Season Lumber Liquidators would be the second title sponsor of the PBA. 2008 for the PBA was also a celebration of their 50-year anniversary where Earl Anthony was voted the greatest bowler of all time. Three PBA Hall of Fame bowlers Earl Anthony, Walter Ray Williams, Jr and Dick Weber were selected by bowling writers as the three greatest of all time at the 50 year Gala ceremony during the Tournament of Champions also selected were Norm Duke, Del Ballard, Jr and John Handegard who were inducted in the PBA Hall of Fame. Norm Duke would become the first bowler to win three majors in single calendar year as he won the 2008 PBA World Championship, 2008 U.S Open, and the first tournament of the 08-09 season the PBA World Championship won by Norm Duke. Duke would also become the fifth bowler in PBA history to complete the Triple Crown by winning the U.S. Open and the second bowler to win the Grand Slam. In 2008 a record was broken by Keith Glasgow for the highest 5-game series with a score of 1426. There was only one 900 shot for 3 games in 2008—by Rich Jerome Jr.

In 2009, there were 3-900s shot - by Andrew Mank, William Howell III, and Matt Latarski. It would take 2 years for another 900 series to be recorded—in 2011, by Bob Kammer Jr.

In the 2009-2010 PBA Tour season, PBA developed the PBA World Series of Bowling. Tom Smallwood would lose his job at GM; however, he would go on to win the PBA World Championship by defeating Wes Malott (2009). Kelly Kulick would become the first female bowler to earn a spot in the Tournament of Champions by defeating Shannon Pluhowsky 219-204 at the PBA World Championship. Kulick would go on to become the first female player to win PBA Major title at the Tournament of Champions by defeating Chris Barnes 265-195. The next season, the Tournament of Champions would offer a \$1,000,000 purse in 2011 with \$250,000 going to the winner. Mika Koivuniemi would win that title. The semifinals turned out to be a historical match where Koivuniemi beat Tom Daugherty 299-100. ABC Wide World of Sports gave the PBA the original time slot for airing the Tournament of Champions. The PBA introduced the Dick Weber playoff. Dick Allen would go on to claim that title in 2011 at Woodland Bowl in Indianapolis.

At the 2nd PBA WSOB, Eugene McCune shot the highest 9-game record of 2468. Also, at the 2011 PBA WSOB, Chris Barnes would become the 6th player to complete the Triple Crown at the PBA World Championships. Triple Crown.

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In 2012 U.S. Open, Pete Weber would become the player to win 5 U.S. Open titles he defeated Mike Fagan 215-214 and he would come up with a famous phrase “who do think you are I am”.

The next year, Pete Weber would become the first player in PBA history to complete the Triple Crown twice by winning the 2013 Tournament of Champions. Also, this would be the longest gap between winning 2 TOC titles. He defeated Jason Belmonte 224-179.

In 2013, Pete Weber would become the first player to receive PBA50 and PBA Rookie of the Year honors. Bowlers Journal International would celebrate their centennial anniversary.

In 2014, Jason Belmonte became the 2nd bowler to defend his USBC Masters title by going through the field in the championship round. In 2015, he would join Mike Aulby as being the only two players in Master’s history to win three Master’s titles, and the first player to three-peat the Masters in 2015. The next week, Belmonte would become the 2nd player to successfully defend his title at the 50th TOC.

In the 2008-2009 season, Lumber Liquidators would become the second official PBA Tour title sponsor. In the beginning of the 2008-2009 season, the PBA celebrated their Golden anniversary season and they came up with the top 50 greatest players of all time. Norm Duke and Del Ballard Jr. would get into the PBA Hall of Fame. At the end of the 2009 PBA Senior Tour Season, the PBA Announced it would rename the PBA Senior Tour to PBA50 Tour. In the 2009-2010 PBA Tour season, Walter Ray Williams Jr. would claim his seventh Chris Schenkel PBA Player of the Year honor. Walter would also claim his second consecutive title of Bowler of the Decade honor. Walter Ray Williams would become the second bowler to receive PBA50 and PBA Player of the Year honors.

In 2015, the USBC announced the return of the PWBA Tour with Liz Johnson winning the women’s US Open, the USBC Queen title, and claim the first PWBA Player of the Year honor. In 2016, Pete Weber would win five straight PBA50 titles and also became the first player in US Open History to win both multiple PBA and PBA50 tournaments.

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In 2016 a team would shoot a record of 3960 in a 5-team series. The low man on the team would shoot a 760 series and the man would be a woman. The year was 2016 it was between Walter Ray Williams Jr and Pete Weber. Both bowlers had a chance to reach 100 combined PBA titles. Walter Ray would complete by winning a PBA Regional with two other bowlers completing his 100th PBA Title. Francois Lavoie would be the first bowler to shoot a 300 at the US Open on National Television he would later go on to capture the title and claim the Harry Golden Rookie of the Year on the PBA Tour.

At the 2017 USBC Masters Jason Belmonte would his fourth Master's Titles. That same year he would go on to win two more majors at the Barbosol PBA Players Championship and the PBA World Championship. He would claim his fourth Chris Schenkel Player of the Year honor. In 2017 at the Don Hayes Insurance Open presented by Ebonite. The PBA50 would the most titles in the stepladder finals with Pete Weber, Norm Duke, Amleto Monacelli, Parker Bohn III, and Walter Ray Williams Jr. Pete Weber would his tenth PBA50 Tour Title and his 100th overall the PBA competition. At the PBA World Series of Bowling Liz Johnson would become the second woman to win a PBA Title at the Chameleon Championship.

In 2018 the PBA celebrated sixty years of the greatest entity in bowling. Don Johnson's 299 game in 1970 Firestone Tournament of Champions was the greatest moment in PBA History. Also, in 2018 Riviera Lanes hosted the Tournament of Champions. It had been 24 years since Riviera Lanes hosted the Tournament of Champions. Matt O'Grady would win the Tournament. The USBC decided to bring back the Master's at the USBC Open Championships. Andrew Anderson would win the Tournament and later become the Chris Schenkel Player of the Year Award. Fox and the PBA would announce televised schedule for the 2019 Go Bowling.com PBA Tour. They would also give out a million dollars to anybody that bowled a perfect game in the title match of the three majors and Indianapolis Open. Norm Duke would join Earl Anthony and Walter Ray Williams Jr. as being the only bowlers to win 40 PBA Tour titles.

Jim Novak would be the oldest player to bowl an 800 series at the age of 90. The USBC Open Championship allowed pros back in the Tournament again. Another milestone in 2018 the USBC Masters would return to where the USBC Championship was held. Andrew Anderson would win his first PBA Tour title and claim the Chris Schenkel Player of the Year honor. The USBC Open Championships allowed the pros to enter the tournament.

History of Bowling

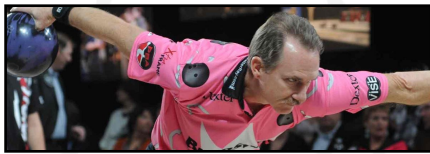
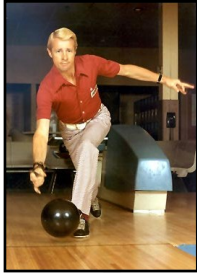
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The 2019 USBC Woman's Open celebrated their 100th year anniversary tournament.

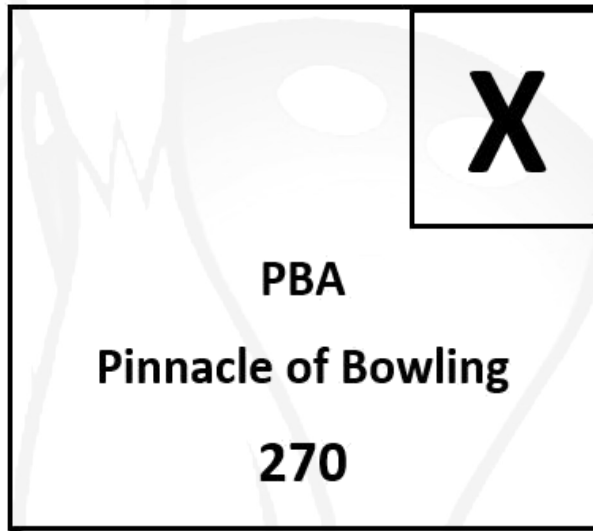
Tom Kuros passed away at the age of 92 who wrote par Bowling Challenge book and was a writer for Bowler's Journal International. In 2019 at the Tournament of Champions Jason Belmonte would join Mike Durbin and Jason Couch as the only three players to capture the Tournament of Champions three times at the tenth PBA World Series of Bowling he would surpass Pete Weber and Earl Anthony by winning the PBA World Championship as his 11th major. Anthony Simonsen to capture two majors at the PBA Player's Championship. Mika Koivuniemi and Bob Johnson would be inducted into the PBA and USBC Hall of Fame in the same year. Walter Ray Williams Jr would win the first three events of the PBA50 Tour Season. Kris Prather would win the inaugural PBA Playoff beating Bill O'Neill two games to zero. In the semi-finals O'Neill would have front ten against Sean Rash. Walter Ray would win the first three PBA50 events in the 2019 season. Ron Mohr would have the highest scoring match in PBA50 Tour history at 279 to 279 against Joel Carlson. Joel Carlson would win his first PBA50 Tour Title in the one ball roll-off. The USBC announced that they would sponsor the USBC Cup for the PBA Summer Swing. Which offered a \$20,000 bonus that had the most points at the end of the Summer Swing. At the Indianapolis Open PBA Hall of Famer would join Earl Anthony and Walter Ray Williams Jr as the only three bowlers with 40 or more PBA Tour titles.

A ten-year New Jersey boy became the second youngest person to bowl a 300. Kai Struthers bowled a 300 at Linden Bowling Alley in New Jersey. He had the opportunity to sit next to PBA Charter & Hall of Fame Member Carmen Salvino at the 2019 Tournament of Champions. Anthony Simonsen would be the youngest player to win two majors at the PBA Players Championship. Jason Belmonte would surpass Earl Anthony and Pete Weber with 11 PBA Majors at the PBA World Championship. The PBA would celebrate their tenth annual World Series of Bowling. For the first time ever, the PBA would hold Hall of Fame Ceremony at the Bowling Museum with Mika Koivuniemi, Patrick Allen, and Bob Johnson. Mika and Bob would also be inducted into the USBC Hall of Fame. Near the end of the 2018 the PBA announced the biggest television deal with Fox Sports. The PBA would also have a million-dollar bonus for any bowler throwing a perfect game in the title match. The top bowlers of the 2010-2019 decade are Jason Belmonte, EJ Tackett. Jesper Svensson, Pete Weber, Walter Ray Williams, Jr. Kelli Kulick, and Liz Johnson.

Brunswick bought Ebonite out in 2019. Brunswick makes Ebonite International, Hammer, Track, Columbia 300 and Powerhouse bowling equipment.



Frame 9



	X		X		X		X		X		X		X	X	X	X
30	60	90	120	150	180	210	240	270	300							

In this chapter, bowling fans will get a chance to know a little bit more about the PBA and why it is the pinnacle of bowling. When bowling had its boom, the USBC (ABC) had ten million members and when bowling leagues had an early and late shift along with the PBA being on every Saturday afternoon, bowlers wanted to go out and be the best that they could be. Earl Anthony, Dick Weber, Mark Roth, Don Johnson, Marshall Holman, Johnny Petraglia, and Don Carter were some of the greatest in the PBA at that time. In the early 70s, the BPAA All-Star became the U.S. Open. Every pro-bowler wanted to go to Riviera Lanes. The Tournament of Champions was the pinnacle of the PBA. If a bowler won a PBA Title, they knew they had a chance to bowl with the greatest bowlers at this prestigious event. If they won the tournament they knew that they had an exemption to bowl at the TOC for rest of their life as long as they were a PBA member. To qualify getting into the PBA, a bowler had to average 200 for two league seasons and obtain a letter of recommendation from a current PBA member. This is how a bowler could get their foot in the door for the greatest spectacle of bowling.

In this chapter, the PBA (the pinnacle of bowling) will be discussed. At the 1958 ABC Masters (currently called the USBC Masters), a former attorney named Eddie Elias had a meeting with 33 bowlers who would become the charter members of the PBA. They each donated \$50 as seed money to get the organization started. With this, Eddie Elias formed the PBA. The first year (1959) consisted of 3 tournaments with the bowlers vying for \$49,500 in total prize money. In Albany, NY, Lou Campi would win the inaugural PBA Tournament. The second and third tournaments were won by Dick Weber. Three years later, Eddie would have a TV contract with ABC Sports that would last 35 years. It would be the longest syndicated series in bowling history.

There had to be a professional bowling tour. Other major sports were becoming a way for the best athletes to make a living and this was the case for bowling as well. To start a professional sport, you have to have a foundation. Eddie Elias, Chris Schenkel, and Dick Weber were the founding fathers of professional bowling.

When you think of professional sports - like football, baseball, and basketball - they all have some of the same components. They each have a famous founder, a superstar, and a voice of the sport. Eddie Elias was the founder of the PBA. This was a major role for professional bowling. Eddie paved the way so that the best bowlers in the world could compete for a living by throwing a bowling ball.

Eddie Elias wanted the best bowlers to compete at the highest level of bowling. Lou Campi would win the inaugural first PBA Tournament in 1959. The other two tournaments were won by PBA Hall of Famer Dick Weber. Dick Weber was the first superstar of the PBA Tour. The first year that the PBA had tournaments, he won the last two tournaments. He won two out of the three tournaments that the PBA had. He was making a statement when he did this. If a bowler wins the last two events of the season, the bowler is saying you have to come and beat me. Chris Schenkel was the voice of pro bowling for more than three decades. When people think of pro bowling, they immediately think of Chris Schenkel. He announced professional bowling for many years.

The Pinnacle of Bowling-PBA

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Three years later Eddie would sign a contract with ABC Television in order to showcase these best bowlers in the world. A sportscaster named Chris Schenkel would be the voice of bowling. At first it was Schenkel and Billie Welu who was the color commentator for the PBT/PBA. Every household was turning on the ABC television series every Saturday afternoon. The PBA was booming and Dick Weber was a household name during the early years. In 1967 at the Firestone Tournament of Champions Jack Bindillo would make history by bowling the first perfect game on national television. It was an amazing feat to bowl a perfect game in the preliminary rounds as bowling was a hard sport to overcome because the bowling ball technology is not like it is today.

Without all three of these individuals, the PBA Tour would not be what it is today. You have the founder of the PBA, then you have the first superstar of the PBA, and then you have the voice of pro bowling. These guys are the pioneers of professional bowling. One of the other components is having a major sponsor. The athletes must be able to make a decent living at a professional sport. Although sponsorship has always been a struggle for the PBA, they still do have sponsors. Some of the most well-known sponsors were Denny's and Lumber Liquidators.

To gain momentum as a professional sport, the sport has to be televised so that it is available for sports fans. For 35 years, bowling was televised on ABC TV. For the past 18 years, it has been

PBA Logos Through the Years:



televised on ESPN. Now, with the growth of the internet, Flo Bowling (formerly Xtra Frame) has been showing bowling tournaments online. For the first time in 2012, the PBA had 3 tournaments exclusively shown on Xtra Frame.

The BPAA All Star is currently known as the U.S. Open, and the ABC Masters is currently known as the USBC Masters. BPAA and ABC already had their major tournaments for their organizations. In 1960, Eddie would add the PBA National Championship (currently known as the PBA World Championship). Don Carter would win the inaugural PBA National Championship. In 2008, the PBA would recognize the All-Star and Masters Tournament as major titles. After 1958, the All-Star and Masters would be considered major titles. For instance, had Dick Weber won the ABC Masters in 1959, he could have added this victory to his PBA titles. In the mid-80s, if a PBA Member won the ABC Masters, that title would not count as a PBA title; however, he would receive a 3-year exemption for the Tournament of Champions. This was the case for Mark Fayh in 1986. Twenty-three years later he would receive his Masters Title as a PBA Tour title. In 1962, Eddie Elias formed the Tournament of Champions where Joe Joseph would win the inaugural tournament. These tournaments had demanding lane conditions which made it difficult for PBA to strike. It is about shot-making and bow-

lers need to make their spares. Not very often would bowling fans see high games at these major tournaments.

In the late 60s, the PBA introduced the Regional program which enabled bowlers to have a regular job and be able to compete with some of the best bowlers in the world. They would find it difficult to make a living as a pro-bowler if they were unable to compete and cash consistently. It would be similar to a triple A ball club for professional bowling. Some of the stars might even bowl at these tournaments and it would also be a criteria for bowlers to gain their PBA Tour cards by cashing in two regional tournaments.

Before an exempt tour event, there are usually PTQ or "rabbit squads" to fill any empty slots after the exempt players take their positions. Exempt players can miss an event for various reasons and non-exempt players can attempt to earn a position in the tournament by competing in the PTQ. The number advancing would depend on the number of empty slots. The rabbit squads would bowl 2 squads of five games with the top players advancing. To host a tour event, a bowling center owner would need to put up \$30,000 for a national stop and \$5,000 for a regional stop. The bowling center owner is encouraged to find local and national sponsors to promote the tournament.

The PBA Awards include the Chris Schenkel Player of the Year, the Harry Golden Rookie of the Year, the George Young Memorial High Average Award, Steve Nagy Sportsmanship Award, Tony Reyes Service Award and the Harry Smith Point Leader Award. These awards are announced and given every season/year to the bowlers who perform on the biggest stage in bowling. In order to get the PBA Player of the Year Award, a bowler must receive a majority of votes by PBA membership. The PBA membership looks at the high average, earnings, the number of titles won and the points to help determine the winner. In 1987, Marshall Holman became the Player of the Year without winning any titles. He is the only player to achieve that feat. In the '07-'08 season, the PBA started applying a point system to determine the Player of the Year. Chris Barnes would get the inaugural award. The last year using the points system was the year that Walter Ray Williams, Jr. would receive his seventh Chris Schenkel award. The George Young High Average Award winner is the bowler who has bowled at least 200 games in PBA Tour competition and has had the highest average during that entire season. The PBA Hall of Fame was founded in 1975. The criteria to get into the PBA Hall of Fame was to win ten PBA Titles. In 1975, Dick Weber, Don Carter, Carmen Salvino, Harry Smith and Billy Welu made up the inaugural class of the PBA Hall of Fame, along with Chuck Pezzano and Frank Esposito both honored for Meritorious Service.

PBA Majors-

The PBA has five major tournaments these tournaments are as follows. Tournament of Champions, U.S. Open, The USBC Masters, the PBA Players Championship, the PBA World Championship, all of five of these tournaments are hard to win because of the demanding lane conditions. There has only been one player in the history of the PBA who has won all five major tournaments and that is Mike Aulby. There are three bowlers that have won at least ten majors Earl Anthony, Pete Weber, and Jason Belmonte. In 2019 Jason Belmonte would win his tenth major at the 2019 Tournament of Champions

and the eleventh major at the PBA World Championship. The Triple Crown consists of the U.S Open, PBA World Championship and the Tournament of Champions. The Grand Slam of Bowling is the Triple Crown plus the USBC Masters Tournament. Finally the Super Slam of Bowling is the Grand Slam plus the PBA Players Championship. There have been three players that have won the Tournament of Champions three times. Mike Durbin, Jason Couch, and Jason Belmonte.

There has been one player that has won five U.S Open titles. Pete Weber and his legendary father Dick Weber won four BPAA All-Star which is currently known as the U.S Open. Don Carter also won the All-Star Titles four times back in 1996. Dave Husted became the first player to successfully defend his U.S Open title in 1996. It was also the first time in 26 years that the men's and women's U.S Open were contested at the same time in 26 years. When PBA had its heyday back in 60's & 70's every PBA member wanted to go to Riveria Lanes to bowl the Tournament of Champions. It was a special tournament for the PBA membership only national tour titlist could be allowed to bowl in the tournament. If a bowler won the tournament. They would receive a lifetime exemption in the tournament. The PBA World Championship was formerly known as the PBA National Championship. It is only open to PBA members. Earl Anthony won it a record six times through 73-83. They have named the PBA World Championship trophy. There has been six players that have completed the Triple Crown Billy Hardwick, Johnny Petraglia, Pete Weber, Mike Aulby, Norm Duke, and Chris Barnes. Pete Weber has completed the Triple Crown twice. There have only been two players who have completed the Grand Slam. Mike Aulby and Norm Duke. Finally and certainly but not least there has been one player that has won all five major titles Mike Aulby.

Ten years later would go by and the PBA would announce the top 60 greatest moments. In two chapters bowling fans will get to read about these great moments. The top moments in PBA History that infamous 299 at the 1970 Tournament of Champions. Between 2008 and 2018, a super star would come along from down under. Jason Belmonte he would revolutionize the sport of bowling by throwing the ball with two hands and win a record 8 majors in that short space of time. He would also join Jason Couch as he would be the second player in PBA History to successfully defend his TOC title at the 50th Tournament of Championships. He would also win four Chris Schenkel player of the year honors. A year later he would join Mike Durbin and Jason Couch as the only bowlers to win the TOC three times. He has won a total of 22 PBA tour titles. At the start of the 2009 and 2010 PBA Tour Season the PBA would introduce the PBA World Series of Bowling. This would be held at Thunder Bowl in Alan Park, Michigan. Tom Smallwood would lose his job at General Motors and win the PBA World Championship was a great accomplishment. A couple of months later Kelli Kulick would make PBA History as she would become the first women to win a PBA Major title at the Tournament of Champions by defeating Chris Barnes 265 to 195. A few years earlier she would become the first woman to get a PBA exemption at the PBA Tour Trials. In 2005 Liz Johnson at the Banquet Open in Wyoming, Michigan would become the first woman to make the championship round.

When Edie Elias founded the PBA in 1958 the next year. The PBA had three tournaments the last two tournaments were won by Dick Weber who was the first legend of the PBA. Then in the 1970's and early 80's Earl Anthony would dominate the PBA Tour winning six PBA World Championships. During this era there would be another player named Mark Roth who would revolutionize by throwing a big powerful hook ball. In 1978 he would win a record eight titles in one season and win the Player of the Year four times winning thirty-four PBA Tour titles in all. Roth only won two majors in his career. The 1984 U.S. Open and the 1984 Touring Players Championship. He would be voted the fifth bowler of all time in 2008.

Marshall Holman was another power player in the mid 70's and 80's. He would win four majors at the 76 Tournament of Champions and the 1985 U.S. Open & 1986 Tournament of Champions. He would become the third to reach the one million career earnings by win he won his second TOC. In 1987 he would his earn only Player of the Year and not winning any titles in that season.

In 1986 Walter Ray Williams Jr would win his first Player of the Year honor. When he accomplished this he won his first title in Peoria, Illinois. He would become a PBA Super Star in the 1990's. In 1993 he earned his second Player of the Year honor and he would win seven titles. The Walter Ray Williams, Jr. would surpass Earl Anthony's 43 PBA Tour Titles by winning 47. He would also earn seven Player of the Year awards.

By the mid-80's to the late 90's Mike Aulby would become one of the top stars of the PBA. During Mike Aulby's career he won every major. He would become the first player in PBA history to get the Player of the Year award and the Rookie of the Year honors. In 1995 he would receive his second player of the year honor. Three years later Aulby would become the first bowler to win three USBC Master titles.

Pete Weber was a super star in the 80's. In 1987 at the Tournament of Champions. He would capture his tenth career PBA title. Pete Weber is perhaps the greatest bowler without a Player of the Year honor. He has won five US Open Titles. Two TOC titles, two PBA World Championship titles and a touring Player Championship tying him with Earl Anthony with ten major titles. Pete Weber is the son of the PBA Hall of Famer and bowling legend Dick Weber. Pete Weber was the superstar when the new ownership took over in the early 2000's.

Norm Duke won his first title as the 1983 Cleveland Open. He was the youngest to accomplish that feat. Duke became the fifth player to complete the Triple Crown at the 2008 U.S. Open. Three years later he would win his second U.S. Open when Mika Koivuniemi. Duke is one of the three players to win forty PBA Tour Titles. Duke has won his three PBA World Championships. He is the first bowler to win three majors in the single year. However it did not count as three majors in a single season since the PBA would be a season and not a calendar year. Duke has earned the Player of the Year twice. He has won three PBA World Championship titles. He is one of the bowlers that had bowled a perfect game on national television.

Chris Barnes is another great bowler in the PBA he would earn both rookie and Player of the Year honors. In 2011 he would become sixth player to complete the Triple Crown. At the 2011 PBA World Championship. In the 2005 he would become the U.S. Open Champion by striking the last ball to win by one pin. Chris Barnes has had a stellar career as a Pro-Bowler.

At the end of Walter Ray Williams, Jr. dominance a two handed star would rise to the occasion from down under. In the 2009-2010 season Jason Belmonte would earn the Harry Golden Rookie of the Year Award. The two-handed star would start winning titles left and right. He did not waste anytime by becoming the fifth bowler to earn Player of the Year and Rookie of the Year. In 2017 he would become the first Player to win three majors in single season by 2019 he would surpass Earl Anthony and Pete Weber by winning his eleventh major at the 2019 PBA World Championship.

For a player to become eligible for the PBA Hall of Fame they must have five PBA Tour Titles and 20 years of PBA membership. A past player of the year can be shoe-in for the PBA Hall of Fame. When the PBA Hall of Fame started in 1975. The rule was a player had to have at least ten PBA Tour titles. Any bowling hall of fame is the elite for outstanding bowlers. Dick Weber, Don Carter, and Harry "The Tiger" Smith were the first ones to go into the PBA Hall of Fame.

The pinnacle of bowling is the PBA. It is the one thing bowlers aspire to. When bowling was on every Saturday for thirty-five years, the PBA was at its peak. PBA members wanted to win a PBA Tour Title in order to qualify for the Tournament of Champions. In order to obtain a PBA membership card a bowler had to have an average of two hundred for sixty-six games. Have two letters of recommendation from current PBA members. These members do not need to be the names above that were just mentioned. Once they established PBA membership, they had to cash in the two PBA regional tournaments. At one time the PBA did have a PBA membership school that the PBA membership attended. The dress code was a name on the back of a bowler's shirt and dress slacks with a belt. The shirt had to be tucked in during PBA competition. These were the standards that the PBA stood by. If a bowler won a PBA Regional or PBA Tour Title they would receive a banner with their name. They would have options of the colors of their letters and the banner. When they would bowl the banner would be hanging on the masking unit. The PBA provides a mobile pro-shop truck for the PBA Members at tournaments. A player can a new ball that is drilled out after providing the hand measurements to the pro-shop staff. Then a player must finish sanding the holes or put the grips in. The truck offers balls and bags for sale. Players can rent shelf space of their equipment. This is what it means to be a pro-bowler on the PBA Tour.

Frame 10



X	X	X
60 Greatest PBA Moments 300		

	X		X		X		X		X		X		X		X		X	X	X
30		60		90		120		150		180		210		240		270		300	

60 Greatest Moments of the PBA

#1– Don Johnson Infamous 299 Game–

In 1970, Don Johnson had another chance to make PBA history. Both Don and Dick Ritger were striking quite nicely. However, Don was not going to stop striking while Ritger finished strong with a 268 game. All that Don had to do was get a good mark to win the title. He stepped up in the tenth and threw a strike. He got the eleventh one but failed on the last ball by leaving a ten pin. It would be a record that would hold up for 23 years. Had Johnson got the last one in the tenth, he would have earned a \$10,000 bonus for bowling a perfect game on television.

#2- Eddie Elias Becomes Founder of PBA with 33 Members-

In 1946, there were early proposals for a professional bowling tour. At the BPAA National Doubles Tournament in Mountainside, NJ, in 1958, Eddie Elias (an Akron, OH, lawyer and sportscaster) asked some of the best bowlers to meet with him. Carmen Salvino said, "Let's give him the courtesy of listening." Later that year, in Syracuse, NY, at the ABC Masters, some 75 bowlers attended a meeting in a hotel banquet room. Before the session ended, 33 men (including Salvino, Don Carter, Dick Weber, Pat Patterson, and Steve Nagy) agreed to put up \$50 each to start a Professional Bowlers Association. These men would become the charter members of the PBA.

The next year, 3 tournaments were held. Lou Campi won the first one; Dick Weber won the next 2. With the collapse of the NBL, the PBA lost its only serious competition. With the BPAA All-Star and the ABC Masters, there were already 2 professional tournaments. In the first year, there were 3 tournaments having a combined purse of \$49,500. Dick Weber would go on to win the first tournament in 1960 (after winning the last 2 in 1959), making him the first bowler to win 3 consecutive tournaments. He was truly the first superstar of the PBA.

#3-Kelly Kulick Wins the 2010 TOC Becoming the First Woman to Win a PBA Title and Major

In September of 2009, Kelly Kulick won the PBA Women's World Championship by defeating Shannon Pluhowsky 219-204. The win gave her spot into the Tournament of Champions. She had nothing to lose and everything to gain. Five season prior Liz Johnson became the first woman to make a championship round in a PBA Tournament. Prior to Kelly winning at the PBA Women's World Championship she became the first woman to get an exemption on the PBA Tour at the 2006 Tour Trials. She had the played on the PBA Tour before. She was going to have her hands full at the PBA's premier event the Tournament of Champions.

#4-Pete McCordic 300 Game at the Greater Los Angeles Open in 1987 for \$100,000

In 1987, Pete McCordic had the highest earnings without winning a PBA Title. One of the ways he did this was becoming the fourth bowler in PBA history to bowl a perfect game on national television. All three balls in the tenth were perfect as Pete became the fourth bowler in PBA history to shoot a perfect game on television. True Value Hardware offered \$100,000 for any bowler that shot a 300 on television.

#5-Pete Weber's Strike to Win His Fifth U.S. Open

The 2012 US Open was a historic event with Pete Weber surpassing his father. His father won four BPAA All-Star tournaments, which is known as the US Open today. Weber bowled three 255+ games in the last round of match play. Overall, he shot +188 in the last round of match play and averaged 223.5. This enabled him to get in the top four for the stepladder finals. However, he would have to climb up from the fourth position. In the championship match, Weber still had some work to do, needing to strike his last ball. Weber did, and won his 35th PBA Tour title, his ninth major title, and his fifth US Open title.

#6-Earl Anthony's \$1,000,000 in Career Earnings in 1982

In the 1982 PBA National Championship, the PBA had a chance to have history made. If Earl Anthony won his fifth PBA National Championship, he would become the first player to surpass \$1 million in career earnings. Anthony would have his hands full with Charlie Tapp to do so. Tapp had won three games and was trying to win his first career major. Tapp had averaged 215 for his previous games heading into the championship match. Anthony was the superstar of the PBA Tour at this time. Anthony needed a strike to shut out Tapp in the tenth frame. Just as a great bowler does, he prevailed. Earlier in the season, Anthony had a couple third place finishes, a few cashes, and a win on the season. He bowled a 233 to become the first millionaire in PBA history. This was an astonishing achievement for a professional bowler to make because no one in sports was making seven figures. At the time, it was not only a PBA feat, but a great sports moment.

#7-Del Ballard's Gutter Ball at the Fair lane's in 1991

At the 1991 Fair Lanes Open, Del Ballard Jr. made history with his gutter ball. Entering the final frame, he needed a double and 7-count to win the title. Ballard got the double, but he was dangerously playing the outside part of the lane. On his last throw, the ball went down the lane about 40 feet before heading into the gutter. Ballard, and consequently, the PBA, made national news. It was amazing that Pete Weber won after leaving a 4-7-10 split in the tenth frame. Weber's and Ballard's reactions to Ballard's gutter ball were the same—shock. Prior to Ballard's throw, Nelson Burton Jr., color commentating the event, warned that seven pins was not a guarantee. Ironically enough, it was not.

#8-Mark Roth 7-10 Conversion at the 1980 ARC Alameda Open

Bill Straub had a chance to put some pressure on Roth to strike but instead he left the 2-8 spare without converting the spare leaving the two pin. Giving Roth a great opening to shut out Straub with marking out. However Roth did not make easy for him self as he left the seven ten split on a good hit. It was a little bit light in the pocket. Then Roth would do the impossible of making the 7-10 split the bowling fans were ecstatic at the play. Had Roth not made that seven-ten split Bill Straub could have doubled in the tenth to beat Roth. After making the 7-10 split he still needed to mark the tenth frame. Roth got the best kind of Mark which was a strike.

#9-Bob Learn Jr's 1129 Series at Erie 1996

The year was 1996 at the Flagship Open in Erie, Pennsylvania. What was significant about this show was that the hometown pro-bowler, Bob Learn Jr., shot a 300 his first game and a record for four games of 1129. For the day, he averaged 282.25. Even his opponents averaged 270.5! It was such a close show that Learn only outscored his opponent by an average of 11 pins a game. It was an amazing show. In the third match, Bob Learn Jr. got to re-shoot his ten-pin because there was a distraction and his opponent lost by one pin. It seemed like anybody could shoot a 300 game at any moment.

#10-(Tie) Randy Pedersen's Stone 8 to Lose the 1995 TPC

At the 1995 Bayer/Brunswick, Randy Pedersen had a never lost a title game while seated in the number one spot. Ernie Schlegel had made Randy strike on the first shot of the tenth frame. Randy threw and excellent ball but it left a stone 8 pin giving Schlegel is first major title. Ernie needed to strike out in the 10th to shut out Randy. On the first ball in the 10th, Schlegel left a ringing 10 pin to give Pedersen a chance to strike in the 10th. Randy responded with a stone 8 giving Schlegel his first major title.

#10-(Tie) Tom Daugherty's 100 Game at the 2011 TOC and Mika Koivuniemi's 299

The final four who made the Championship Round were Tom Smallwood, Tom Daugherty, Andres Gomez, and Mika Koivuniemi. Only two finalist previously won a PBA Tour title. For a Tournament of Champions, it was one of the weakest championship round in TOC History. Vintage bowling fans who had not followed the PBA since the ABC days had expectation of big stars in the championship round. What made this tournament memorable was the semi-final match between Mika Koivuniemi and Tom Daugherty. In the match, Mika was the man on fire, but Tom was the complete opposite with 7 splits and 8 open frames. He only had two strikes for two clean frames. Mika had the match won by the fourth frame and had nothing but strikes until the last ball when he left the 10-pin. The final 299-100 was the largest margin of victory on

60 Greatest Moments of the PBA (cont'd)

the PBA Tour. Mika would go on to win his third Major beating Tom Smallwood 269-207 in the final.

#12-1976 Jack Biondolillo first bowler to bowl perfect game on National Television and in PBA History at the Tournament of Champions.

The PBA reached a milestone during the televised Firestone Tournament of Champions on April 1st, 1967, when Jack Biondolillo tried to become the first bowler to bowl a 300 on TV. The match was against Glen Carlson who could only muster up a 216. Jack started the match, so he was going to be the last one to finish the match. He had nine consecutive strikes. The first ball in the tenth went right to the pocket. It took them straight back for a flush strike. The next ball got a little bit lucky as it tripped the four pin. On the final ball he got it a little bit inside; however, he was still able to strike for the first 300 on national television.

#13-Weber Drops the U.S. Open Trophy

In 1991 Pete Weber climbed the ladder from the fifth spot to the win his second U.S Open for winning the U.S. Open he got his second green blazer and a trophy with the U.S Open Eagle. Unfortunately the television cameras were still on when he raised the trophy and the Eagle fell off the trophy stand. Despite his second U.S Open victory Weber was embarrassed. In the title game with a 289 which was the highest game for the U.S Open in the championship round. The 289 would be the highest game for 25 years.

#14 ABC Sports Begins Pro Bowlers' Tour Coverage

In 1962, ABC Wide World of Sports introduced the Pro Bowlers' Tour on ABC. It was the longest syndicated series on television to date. Chris Schenkel was the voice of Pro Bowling along with his color analyst Billy Welu. Billy came up with the phrase "Hit them thin and watch them spin!" Sadly Welu died in 1975. Nelson Burton, Jr. would take his place. Welu was one of the charter members of the PBA. Twenty-two years later, ABC would cancel the Pro Bowlers Tour. During the early years of the PBA, Dick Weber, Don Carter, and Carmen Salvino became household names.

#15-Peters, Glaser, Slade Purchase PBA

At the 1999 Track/Dexter Open, Kevin Shippy was having a phone conversation with someone about getting more tournaments for the 2000 season. A couple of months later, an article appeared in the Wall Street Journal about Chris Peters buying the PBA. Chris, Rob Glaser, and Mike Slade had bought the PBA for about the same price as a minor league baseball franchise. This was going to be a great investment for the PBA. A business broadcaster stated that Chris would rather try to pick up a 7-10 split than to continue his career making new computer programs—a reference to him buying the PBA. Chris, Rob, and Mike were all ex-Microsoft employees who worked for Bill Gates. Their goal was to make the PBA better. Chris did get things rolling at the helm of the PBA, wasting no time by hiring Ian Hamilton and Steve Miller to become the Commissioner and President of the PBA.

#16-Mark Roth Wins 8 Titles in One Season

It was a season that's never been duplicated, and one that will probably never be duplicated. In 1978, Mark Roth won an astounding eight PBA tournaments, a whopping 21% of the season's 37 events. Roth's year to remember started appropriately enough at the first stop (in Torrance, CA), something that provided a pretty good foundation: a first place check of \$15,000. Three weeks later, he would find the winner's circle again—and then again—as he claimed the Quaker State and King Louie titles. To put Roth's feat in perspective, the legendary Earl Anthony never won more than seven titles in one season.

Editor's Note: Dennis Bergendorf, Sr. Writer for Bowler's Journal International, was kind enough to allow me to use his article in this book.

#17-Belmonte Wins with Two-Handed Style

At the Bowling Foundation classic in 2009, Jason Belmonte would shock bowling fans as he would win his title with a two-handed bowling style. This had never been done in the history of the PBA. He would go on to be the Harry Golden Rookie-of-the-Year recipient for that season. It was a different approach on how

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to throw a bowling ball.

#18-Hardwick Completes the Triple Crown

At the 1969 BPAA All-Star currently known as the US Open Billy Hardwick would complete the Triple Crown he would be the first bowler in PBA history winning the PBA Nationals World Championship. Tournament of Champions and the All-Star. It was a hundred game tournament. The very next year the BPAA would change the name of the Tournament to the U.S Open.

#19-Walter Ray Williams, Jr Breaks Titles Record

At the 2006 Dydo Japan Cup Walter Ray would break Earl Anthony's Record by defeating Pete Weber with the front ten strike in a row. He would shoot a 289 game it was a definite historic game. Five months prior he would tie Earl at the 2006 PBA World Championship once again defeating Weber 289 to 236. Both players with the front 5. There were a total of nine players that would make the show. The players that were trying to hook the lane could not get the job done. Even Walter Ray Williams, Jr first match against Ryan Schafer. Williams gave Ryan a chance in the tenth to throw a strike on the first ball. However Ryan could not strike. It was one of the greatest matches in PBA History.

#20-Aulby Defeats Ozio, 300-279

Every PBA member wants to be a part of PBA history. It doesn't matter if it is for the lowest game on television or for a 300 in the championship game. This game was between two of the greatest bowlers of all time—David Ozio and Mike Aulby. Both of these players have lots of titles, and they know how to win PBA tournaments.

This match was going to be a tough one to win. They both started out with the front 7 strikes in a row. Either way a great player was going to win.

As I recall watching this great match take place, Aulby was one of my favorite bowlers. I thought to myself, when was Ozio going to stop striking. In my heart, I knew that Ozio would probably never stop striking because how great of a bowler he is. I knew that Aulby going to have his hands full. However, I also knew that Mike could handle it because he was a great bowler. Ozio finally left a 7 pin in the 8th frame. Just like a great champion, he made his spare. He then went on to strike out and ended up with a 279. Mike, however, was still striking.

The biggest ball was the first ball in the 10th. Ozio had made Mike strike the first ball in the 10th and get good count to win the title. Mike not only struck in the 10th, but he finished the game with a 300. Early on, Ozio tripped the 4-9 to get a strike; as well, Aulby crumbled the bucket.

This is what professional bowling is all about. Taking advantage of the breaks and making better shots. Every PBA member wants to get up in the 10th and strike the first ball to win a title. Ozio made Mike do this to win the '93 Wichita Open. Mike also stated that the first one in the 10th clenched the title. The last two weren't so bad. However, Mike did want to shoot a 300 game. He did. This was Aulby's 22nd title and Bo Burton Jr said that Aulby has done it all. I agree with Burton except that he had not won the Tournament of Champions.

That would come two years later. To beat a great player, throw a perfect game at them and answer

#21-Final ABC Broadcast

In 1997, the PBA ended its 35th year with ABC Television. It was ironic because Dick Weber was on the very first show that ABC telecast for the pro bowling tour. Pete Weber ended up making the Championship round for the last show. In fact, he threw the last ball.

The Championship match featured the #1 and #2 bowlers in the world—Walter Ray Williams, Jr. and Pete Weber. Walter Ray forced Weber to double and get 8 on his fill ball to win the title. Weber came up short by coming a little high on the head pin and leaving a 3-6-10 spare. Both Weber and Williams were chasing the 2 million dollar in career earnings mark at that time. Both fell short in this tournament.

During qualifying match play, the tournament leader only averaged 217. Walter Ray was the tournament leader. The show featured Walter Ray, Weber, Doug Kent, and Steve Jaros. They also had a King of

60 Greatest Moments of the PBA (cont'd)

the Hill match where Ricky Ward and Brian Voss faced off. Ward defeated Voss 194-167. Ward earned \$10,000 for winning the game. Brian Voss and Amleto Monacelli were top ten finishers in the tournament. Norm Duke was just outside the top ten at 11th place. The lowest average in the top 24 was Dave D'Entremont with a 197. Many of the bowlers were averaging 2'0. Shooting a 200 was a great score that week.

Why was this the saddest day in pro bowling? Chris Schenkel was known as the "Voice of Pro Bowling", and this was to be the last tournament in which he announced. His distinctive voice and enthusiasm for the sport was evident in each of his broadcasts. He was also one of the pioneers of professional bowling. Schenkel was going to be sorely missed as he was widely respected and admired. June 21, 1997, was definitely the saddest day in professional bowling.

#22-Dick Weber Wins in Six Decades

On January 20, 2002, at the age of 72, Dick Weber won his first PBA Senior Regional championship at New North Lanes in Taylorville, Illinois, to become the first player to win a PBA event in six consecutive decades. Weber defeated Richard Hunt of Valparaiso 226 to 159 in the championship round. Dick Weber would be the only bowler of the tournament who would shoot a 300. The perfect game came in the fifth game of qualifying. He took the lead in the position round, which was prior to the stepladder finals. It was a special win for Dick Weber.

#23-Petraglia Rolls 300 at 1994 National Championship

In the 1994 PBA World/National Championship a couple things happened during that show. One, it was the first time two brothers were in the championship match going for a PBA Major Title. The brothers were David and Dale Traber. The second thing that happened was that Johnny Petraglia would shoot a perfect game on National Television. He did it against Walter Ray Williams, Jr. Every shot was in the pocket, and Johnny would be the only bowler to shoot a 200 game on the show. In the first game, Petraglia scored 237 while defeating Eric Forkel's score of 181.

Petraglia earned \$100,000 for throwing a perfect game. When they interviewed him afterward, he said that his kids do not have to worry about going to college because that money would go toward his children's' education. Johnny had the best line of the day. If he would have beat Dale Traber in the next game, he would have won his second PBA National/World Championship and his 15th career PBA tour title.

#24-Branham is First African-American Major Champion

In 1993 George Branham III became the first African-American to win a major at the 1993 Firestone Tournament of Champions. He would have to go up against Parker Bohn III who had averaged 250 in his previous matches. Parker would defeat the 1982 BPAA U.S Open and the 1990 Firestone of Tournament of Champions winner Dave Ferrao. Both in the previous matches the right-handers would have a hard time stringing strikes. However George Branham was able to give Parker a match. Parker needed to double in the tenth to win his first major title. However he came up a little bit short, giving George Branham III his first major.

#25-Couch Wins Third Straight Tournament of Champions

The PBA did not have a Tournament of Champions in the year 2001. Jason Couch had won the previous two tournaments. He bowled great all week it was a different format. This time it was completely match play. Before completion started, the players drew to discover the opening matchup. The Round of 32, 16, and 8 would all be the best of five games. Back in 2000, Ryan Shaffer lost to Couch who successfully defended his 1999 title. They both made the championship round in 2002. It was another chance for Shaffer to get revenge at this tournament against Couch. If they could win their opening game, except this time the scores were much higher. Back in 2000, the scores were low. Couch only had a 212 against Robert Smith in the Semi-final. Shaffer on the other hand had a 234 against Patrick Healy Jr. Things were looking good for Shaffer as Couch could not get anything going in his semifinal. Fortunately, Couch made a move and started to strike. Shaffer to struggle to hit the pocket. Couch started with the front five in the championship game.

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This gave him an opportunity to take advantage and claim his third consecutive TOC title. The final score was 266-224.

#26-Inaugural PBA Hall of Fame Class

In 1975 at the Firestone Tournament of Champions, the PBA would introduce the PBA Hall of Fame. Inductees were Don Carter, Harry "The Tiger" Smith, Carmen Salvino and Dick Weber. The PBA Hall of Fame was the pinnacle of bowling, and each great bowler aspired to be in the Hall of Fame. It would be a tradition on the eve of the practice session for the Tournament of Champions. Each year, they would induct three to five PBA members into the Hall of Fame.

#27-Benoit Rolls 300 in First Television Appearance

In the late 70s and early 80s, Bob Benoit came out on the PBA tour ready to compete. However, he could not hook the bowling ball. He went back home and learned to hook the bowling ball. By the 1987 season, he was ready to come out and bowl on the PBA tour again. At the 1988 Quaker State Open, he would be the tournament leader going into Saturday's live championship round finals. However, a legendary bowler named Mark Roth, advanced to the title match and was making a statement by initiating the statement "you have to be the best, to beat the best". The first ball that Bob bowled was like any other strike. By the 10th frame, he had a chance to make history by becoming the first bowler to bowl a perfect game in the championship match. He also made history by winning his first title by bowling a 300 on television. Bob Benoit looked like no pro bowler could beat him. Earlier in the match, Nelson Burton Jr. made the comment that "Bob was probably being bullied on a playground but put a bowling ball in his hands and he is Super Man." Along with that, he also earned \$100,000 for bowling a perfect game on television. He became the 5th player in PBA history to bowl a perfect game on television.

#28-Petraglia Wins in Sixth Decade

Dick Weber did it, however, he won a regional title not a PBA Tour title. Johnny became the first player to win a PBA Tour title in six different decades.

He did this by defeating Ron Mohr 220 to 204 in the PBA Senior Dayton Classic sponsored by Roto Grip. Brunswick is definitely back on top finishing first and second at the Tournament of Champions last month and now Johnny becoming the first player to win a PBA title in six different decades.

"I guess it shows how old I am. But this is very special to me because it's a part of history and that makes it all worth it." - Petraglia. Johnny led the tournament going into the step ladder finals.

Petraglia won 14 PBA titles and became the second player to win the Triple Crown. He also became the seventh player to bowl a perfect game on television during the 1994 PBA National Championship.

To his resume, Petraglia added three PBA title wins in a row. Petraglia is definitely one of the greatest bowlers in the history of the PBA. His first title came at a National Tour stop in Ft. Smith Arkansas in 1966 at the age of 19. His last Senior Tour title was at the Sun Bowl in the Villages in 2009.

This was Johnny's eighth career Senior Tour title. It ended a three year drought.

#29-Duke is Youngest to Win PBA Title

In the 1983 Cleveland Open, Norm Duke qualified for the televised finals on ABC Sports. He would have to beat Earl Anthony, Steve Cook, John Wilcox, and Tom Milton for the title. In the first game he beat his long-time idol, Earl Anthony, 244-212. In the next match, he faced Steve Cook. Who he defeated easily by a score of 247 to 187. In the semi-finals, he would face John Wilcox who he took down by a score of 237 to 192. He would then take on the tournament leader. Tom Milton. Once again, Duke would take him down 238-204. This made him the youngest bowler to win the PBA Tour title. He had a very bright future on the Pro Bowler's Tour, however it would take him 8 years to win again. For his first title he averaged 241.25, beating four great bowlers on the PBA Tour. His closest opponent was the great Earl Anthony. He would beat his opponents by a total of 171 pins an average of 42.75 per game. He was proud, elated, and even a little shocked.

60 Greatest Moments of the PBA (cont'd)

#30-Firestone Sponsors TOC for First Time

In 1965 Firestone Tire Company would sponsor the Firestone Tournament of Champions at Riveria Lanes in Fairlawn, Ohio. Billy Hardwick would win the inaugural championship. Each winner would receive a seven year exemption in this tournament as well as a lifetime exemption for PBA membership. Every PBA member would aspire to win a PBA national tour title to earn a spot at the Firestone Tournament of Champions. They would also receive a white blazer.

#31-Mike Aulby wins the 1996 Bayer/Brunswick Touring Players Championship to become the only player to win bowling's "Super Slam".

The Super Slam is still available for the PBA bowlers today after an 12 year hiatus. However, if Pete Weber won the USBC Masters and Walter Ray William Jr. won the Tournament of Champions, then they would have the Super Slam title. Mike Aulby is the only player to accomplish this feat. He has won every Major on the PBA Tour that there is to win. To do this is extremely rare. To be the one bowler that has accomplished this title defines him as one of the best players.

In the 1996 Touring Player Championship, Mike Aulby had to double in the 10th to win and he did. He became the only bowler to win every Major tournament that a bowler could win. This made him one of the greatest bowlers in the history of the PBA. Winning one Major is a hard task for a pro bowler. Winning all five Majors proves a great level of skill. The Major Tournaments are difficult tournaments to win because of the demanding lane conditions.

Mike Aulby won his 3rd Masters on May 9, 1998. He was going to have his hands full as Parker Bohn III bowled a 300 in the semi-finals. In the semi-finals, Parker Bohn III (300) defeated Mike Mullen (246) and Chris Sand (191). All three players started out strong, except Bohn could not stop striking.

While it looked like Bohn had it under control, he started out in the championship game with two opens back to back. This gave Aulby an early advantage; and just like a great champion, he started off with a double in the championship game. However, Aulby ran into transition during the middle of the championship game. In the 8th frame, he left the 6/7 split, but then he recovered by making it. This gave him a good lead going into the 10th frame. He was then able to seal the deal by shutting out Bohn with the score of 224-192. This gave Aulby his 3rd Masters title and his 26th PBA Tour title.

It looked like Bohn had the advantage when he entered the championship game of the 1998 ABC Master's. He had just bowled a 300, and his line to the pocket was a great line. However, Mike Aulby being Mike Aulby had something to say about that. Time and time again, I saw Aulby strike when he needed to win a title, and I knew Bohn was going to have his hands full.

#32-Jason Belmonte Becomes Only Player to Win USBC Masters 4 Times in 2017

In 2015, Jason Belmonte became the third player in PBA History to win three consecutive majors in a row. At the USBC Masters, he would join Mike Aulby as the only bowlers to win three Masters. Two years later, he would make history by winning his fourth Masters Title by shooting a 279. He would qualify as the top seed. In his first Masters title, he would also be undefeated in match play as he would claim the #1 seed for the stepladder finals.

#33-PBA Senior Tour Launched in 1981

In 1981, the PBA launched the PBA Senior Tour. This gave bowlers a second chance at becoming a pro-bowler in their latter years. In order to bowl in these tournaments, a player had to be 50 years of age or older. Just like when Eddie Elias founded the PBA in 1958, Dick Weber was paving the way for senior players to obtain their PBA cards. He would win six PBA Senior National titles. Today, the PBA Senior Tour is called the PBA50 Tour.

#34-Anthony is First to Earn \$100,000 in a Season

Earl Anthony becomes the first bowler to earn a \$100,000 in a single season. In the first event he would win setting the bar for the 75 tour. He would also win a major at the PBA National World Championship. He would win six titles in a single year. Anthony had a total of 18 top five finishes and cashed in 25 tournaments. This would make him the first bowler to earn a \$100,000 in a single season.

#35-Lou Campi Wins PBA' First Event

In 1959, Eddie Elias organized the first PBA Tournament. It was called the Empire State Open. There were bowlers from all-over the US. There were twenty-eight bowlers that cashed in the very first PBA Tournament and Lou Campi would win inaugural first tournament. Lou Campi, aka Wrongfoot, would be remembered by that name since he slide on his right foot since he was right-handed. Lou Campi would also take home \$2500.00 for winning the title and Dick Weber would place second.

#36-Walter Ray Williams. Jr. Wins 7th Player of the Year Award

In the beginning of the 2009/2010 PBA Tour Season, Walter Ray Williams Jr. would win the first title of the season at the Inaugural WSOB at the Motor City Open. He would win another title at the USBC Masters by bowling a 290 in the championship game against Chris Barnes denying Barnes his Masters Title. His last Player of the Year Honor would come by earning enough points to obtain the honor. Points were awarded just to the top five that made the championship round. This would surpass Earl Anthony who would earn six Player of the Year Awards. Walter Ray would be the bowler of the decade for two consecutive decades.

#37-Weber completes second Triple Crown

Pete Weber lead the 2013 Tournament of Champions going into the televised final.

About a year earlier, he won his fifth U.S. Open and his ninth career major title. In his fifth U.S. Open, he had to strike on the final ball in order to win his fifth U.S. Open. In this TOC, he would have to battle through the defending champion and a past champion. Indeed, he was going to have his hands full. On top of that, he was trying to get the record for longest time between TOC Titles.

During the qualifying and match play of the tournament, Weber had solid performance as he only had one game under 200. During the whole tournament, he only had two games under 200. He even had a perfect game in the second round of qualifying. He averaged 236.44 during the course of the tournament.

As it turned out, he was bowling Jason Belmonte for the title when bowling fans thought that Belmonte had a good ball reaction, he ran into transition while bowling Weber. Weber was able to put on a bowling clinic by striking and making his spares.

Weber was thus able to claim his tenth career Major and his second completion of the Triple Crown. This put Weber into one of the greatest bowlers of all time. This win ties him with Earl Anthony by winning ten career Major Titles.

#38-1991 TOC Delayed Due to Bomb Threat

In 1991, at the Firestone Tournament of Champions a couple minutes before the start of the television finals, tournament director Johnny Campos announced over the PA system that there had been a bomb threat. Everyone needed to evacuate immediately.

A week earlier, there had been an actual bomb in the championship round that was at the tournament; however, no one was hurt. The show came on and Chris Schenkel and Bo Burton Jr. interviewed the top five finalists. They had showed the perfect game on national television by Jack Biondolio.

When everything had settled down, the players were able to go back inside and take their positions to bowl. Scott Devers and Chris Warren tried to get their equipment because they were the first two players to bowl, but the room was locked up due to the bomb threat. Amleto Monacelli was the bowler who was most effected. He missed a five-pin to lost the tournament to David Ozio 236-203. This was Ozio's first career major and third title of the year. He would go on to receive Player of the Year honors.

#39-Holman Becomes Youngest to Win TOC

In 1976 a new bowler would make his mark at the Tournament of Champions. Marshall Holman would become the youngest player to win the prestigious Tournament of Champions. He would defeat Tim Harhan in the semi-finals and Billy Hardwick in the Championship Match. Had Hardwick won he would have been the second two time champion of the Tournament of Champions. It was the second year of the PBA Hall of Fame ceremony.

#40-Goebel Defeats Duke, 296-280, For Title

In 1994 Norm Duke had shot the 18-game record at the TrueValue Open. Duke was the Tournament Leader. Bryan Goebel would advance to the championship match. Norm Duke who had finished the match first by striking out and shooting a game 280 would force Goebel to get the first strike in the tenth. Goebel got the first one and the second one to claim the title. If Goebel would have the 12th strike. He would have additionally earned \$200,000 for his perfect game. On the final ball it would go high leaving 3-6-9-10. Duke would have the highest losing game on National Television of 280.

#41-Duke Wins Three Consecutive Majors

During the 2007-08 PBA season was struggling to keep his exempt status and remain on the PBA Tour. When the World Champions arrived at Indianapolis turned up his game and was able to beat Ryan Shafer. This was his second World Championship title. A few weeks later at the 2008 US Open, he was in the championship game against Mika Koivuniemi and needed to pick up the 2-4-5-8 in the 10th frame in order to claim the title. He did and won his first US Open, became the fifth player to complete the Triple Crown, and the second player to complete the Grand Slam. The first event of the 2008-09 PBA Tour season was the PBA World Championship. This time he would defeat Chris Barnes after working his way through the brackets.

#42-PBA Launches Xtra Frame

In 2009 the PBA would launch Xtra Frame which would allow bowling fans to watch the preliminary rounds of qualifying and match play. It would only cost bowling fans \$7.99 per month or \$64.99 annually. It was kicked off at the 2009 PBA World Series of bowling in Allen Park, MI. Bowling fans could see a number of different competitors during the entire tournament.

#43-Johnson is First Woman to Qualify for TV Finals

Liz Johnson had to be in the top 6 in the TQR in order to bowl in the PBA tournament. She posted +227 for her nine game block in the TQR, this made the cut to qualify her for the tournament. In the first round of qualifying, Johnson opened the block up with a game of 254. She then followed it up with a 231. She would end up having a score of +213 for her first 7 games.

The second round of qualifying, she did not do as well. She managed to remain in the cut number by qualifying 31st. Liz Johnson was facing Chris Barnes in the round of 32. Barnes bowled an 808 in his first 3 games. He had games of 290 & 300. This did not faze Liz, as she was able to score in the 260s in games 4 & 5. In game 6, both Chris and Liz tied at 216, with Liz winning the roll off allowing Liz to advance to the round of 16. She would face Mike DeVaney; this match would go to 7 games. After game 4, the match was tied 2 games a piece. She would lose the next 2 games with scores of 208 & 209. Mike got lined up bowling games of 286 & 240 in games 4 & 5. In game 7, she would bowl a 233, while Mike could only muster up a 214.

The round of 8 saw Liz take on Richard Wolf. Just like the round of 32, Richard started off quickly with games of 268 & 299 in the first and third. Once again, this did not faze Liz, as she had a 266 in the second game. After game 3, Richard was only able to win one more game. Liz came through, bowling a 236 in game 5, while Richard was struggling. Liz made history by becoming the first female bowler to make a televised final on the PBA Tour. In the first match, she beat Wes Malott 235-228 after Wes fouled. The championship match saw Johnson and Tommy Jones vie for the title. Unfortunately, Johnson fell a little short as she only bowled a 192 to Jones's 219.

#44-Year of the Soaker

In 1973, Don McCune wanted the ball to hook more. He decided to soak his ball in MEK or Methyl Ethyl Ketone which is an industrial strength solvent that is highly flammable. He would go on to win six titles for one season and become the PBA Player of the Year. He revolutionized the game. The PBA banned this and forced the ball to be a hardness of 75 on the Durometer Scale. He would also go on to win nearly \$90,000.

#45- Ballard, Jr Wins Then-Record \$100,000 Prize

In 1987, at the Seagram's Coors U.S Open, Del Ballard, Jr. would win \$100,000 by defeating Pete Weber for his first title. It was the richest payday to date for winning a title. Weber would be the tournament leader but then

would be defeated by Del Ballard, Jr. Marshall Holman, Gary Dickinson and Ron Bell would be other competitors on the stepladder finals of the Championship round.

#46-PBA Holds First Outdoor Finals-Eric Forkel Wins

In 1999, the PBA decided to have outdoor finals for the live television show. The four bowlers that would be in the championship round would be Rudy Kasimakis, John Mazza, Eric Forkel and Mark Masabi. Masabi would be the tournament leader needing only a mark to win his first PBA National title. However, he would leave a six-seven-ten split to lose the match. Eric Forkel would claim the title.

#47-Smallwood Wins 2009 World Championship

Back in 2009, Tom Smallwood lost his job at GM, but he had an ambition of being a pro bowler. He was from Saginaw, Michigan. The first World Series of Bowling tournament was coming up, and it was near his hometown. What a great opportunity for him to pursue his dream, plus it was a chance to earn money for something he enjoyed doing. Smallwood had a golden opportunity to make a great deal of money in a short amount of time.

In the PBA World Championship, Smallwood averaged 228 in the first round of qualifying. In the second round, his block was not as good. However, he still averaged 219. In the third round, Smallwood shot a 1400 for 6 games. This was making a statement—that he was ready to bowl on the PBA Tour.

In the Cashers Round, he stumbled a bit but was able to hang on making the cut to the Top 40. He was the 11th qualifier but unable to get a second round bye for the early rounds of Match Play. In Match Play, Tom was able to dominate as he only had one match go to 6 games in the best of 7. In the round of 32, he did not bowl very well, but his opponent was also struggling. He was able to win his first match. The next round (16) saw Smallwood start out strong with a 260 game. He struggled in the middle of the match. In game 5, his opponent shot a blistering 279. In the deciding game 6, Smallwood rolled a 207 taming his opponent who shot a 200. In the Super 16 round, Tom ousted Chris Barnes four games to one. In the round of 8, he beat D'Entremont 4-2. Both bowlers were having a hard time of it. Smallwood was able to win his match to advance to the Championship round.

The Championship round saw Smallwood take on Bill O'Neill. Smallwood was able to advance with only a 211, while O'Neill could only muster a 159. The second semi-final match, Wes Malott beat Rhino Page. In the Championship game, it was a little higher scoring. Both players started out strong. Tom had an open frame late in the game, except Malott could not capitalize. Tom was able to come back and strike. This gave him his first career PBA Tour title and first Major.

#48-PBA Launches the PBA Regional Program

In 1969 the PBA launched a satellite tournament system in which higher average bowlers could hone their skills at the PBA Regional Program. Some of the big names pros would enter these tournaments as a practice. These tournaments would be over a weekend. Which enable bowlers to still have a forty hour job during the week. Later on the PBA will introduce seven regions would be geographically centered. If a bowler lived in Texas they would be in SouthWest region. Tom Hensey would win the inaugural one. Today the PBA has six regions instead of seven. They also have added a China region back in 2014.

#49-Burton Sets Four-Game TV Total Record

The sixth stop on the PBA tour was held at Dick Weber Lanes in suburban St Louis. Nelson Burton, Jr. was a color commentator for the pro-bowlers tour on ABC-TV. However, he was still competing on the PBA Tour and had qualified for the show. This put proprietor, Dick Weber, in the color commentator seat. Dick's son, Pete, qualified as the top seed for the step ladder finals. Marshall Holman, Pete Couture, and Paul Gibson were the other finalists. In the first match, Burton defeated Paul Gibson 278 to 218. In the next match, Marshall Holman was defeated by Burton 279 to 217. The semi-finals was the closest match of them all, as Burton defeated Pete Couture 257 to 249. Burton had shot 814, averaging 271.3 for his first 3 games. In the championship match, the game would feature two local bowlers—Pete Weber and Nelson Burton, Jr. Burton was starting to leave 10 pins in the last game but then pulled away striking in the latter half of the game. Weber could only muster a 184, while Burton shot a 236 for his 17th career PBA tour title. His 4-game total score was 1,050 which was an average

60 Greatest Moments of the PBA (cont'd)

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of 262.5. This record would hold up for 11 years before Ozio shot 1,070 in the Dick Weber Classic. A few months later, Bob Leans Jr. would shoot his unbelievable record of 1,129 on national television.

#50-Monacelli is First Foreign Born Player of the Year

In 1989, Amleto Monacelli became the first foreign bowler to ever become the Player of the Year. He would win his one Major at the 1989 Touring Players Championship. He would defeat Husted in the Tucson Open. The way he would release the ball was like starting a lawnmower. He would be able to add more revolutions resulting in pins exploding everywhere. No bowler had the amount of revolutions Amleto could create. He is from Venezuela. He would win a total of three titles.

#51-Jim Stefanich Bowls 3rd Ever Televised 300

At the 1974 Midas Open, just a few minutes before airtime, lane 29 broke down. The automatic pinsetter was having issues. PBA Tournament director Harry Golden had to make a crucial decision. He chose to have bowlers bowl on lanes 28 and 30. In the first game, Jim Stefanich defeated Earl Anthony 256 to 230. In the second match, Stefanich kept on striking as he scored a perfect game by tripping out the 4-7. He tugged the final ball, but the ball held the pocket. He defeated Glen Carlson 300 to 243. He would receive a Lincoln-Mercury Cougar car. The next game, he came up short against Bob Strampe 246 to 244. Jim shot 800 for three games—not even good enough to win the tournament. Dick Ritger won the tournament. Four out of five bowlers would end up in the PBA Hall of Fame.

#52-John Handegard, Age 57, is Oldest to Win PBA Title

Twelve years later at the Northwest Classic the oldest bowler won a PBA Tour Title John Handegard he would have to climb the ladder. Mike Aulby had just won back to back majors. Aulby was looking to win 3 straight tournaments in a row. Handegard was going to have to face Aulby in the opening game. He defeated Aulby by ten pins 215 to 205. The next match was against Norm Duke. Duke was hooking the lane however Handegard was playing up the gutter. This favored Handegard as he took down 239 to 225. Once again Bryan Goebel was trying to hook the lane. John Handegard just did what he does best going down the boards in playing straight. It worked again as Handegard defeated Goebel by only two pins 237 to 235. The tournament leader was two time champion of the TOC Mark Williams. This match would be a high scoring affair with Handegard winning over Williams 278 to 247. Again Mark Williams was hooking the lanes, but hooking the ball was not working this night as Handegard could play straight and outscore his opponents, which made him the oldest player to win a PBA Tour Title.

#53-Michael Haugen Jr. Overcomes Deficit, Wins TOC

In 2008, the greatest comeback game was about to happen. In the TOC. Chris Barnes was leading over Michael Haugen Jr. by 52 pins with 5 frames to go. Barnes started off with a turkey following by a spare and then doubled. Bowling fans thought it was certain that he would win his second TOC. However, Michael had something to say about that. Michael started off slow with a couple early splits in the game. In the second frame, he left the 4,6,7 got the count by picking up the 4 and the 7. He went spare strike after that. Then last, another split 4,7,10. He got the 4 and 7, getting the count. From the 7 frame on, he started striking. Barnes went spare, spare and missed the 10 pin in the 9 frame. This gave Michael a little breathing room. As he posted a 215. Barnes needed to step up and fill 20 in the 10 frame. However, Barnes could only fill 19 giving Haugen the title. It was the greatest comeback in the history of the TOC. The final score was 215-214. This was Michael's first appearance in the TOC. It was his second career PBA third title. It was an amazing feat being down 52 pins at the half way point of the match.

#54-Don Carter Wins Four Titles in 1962

Don Carter would be "setting the bar" for the 1962 PBA tour season. He would claim 4 PBA tour titles in one year. Carter would cash 56% of the tournaments including, sixteen times in the top 5 for a total of eighteen times in the top 10. In addition, he would place 5th in the inaugural tournament of Champions and at the PBA Nationals he would place 2nd. Also setting an earnings record for one season.

60 Greatest Moments of the PBA (cont'd)

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#55-Mike Durbin Wins Third Career TOC

Mike Durbin became the first bowler to win three Tournament of Champions titles in PBA history in 1984, the same week he was inducted into the PBA Hall of Fame! In the tournament, his first opponent was Steve Cook. Cook had built an early 500 pin lead going into the last two rounds of match play. However, after battling an illness, he barely hung on to make the show, qualifying in fifth. Ironically, this was the closest match Durbin would have, as he only beat Cook by 17 pins, 205-188. In the next match, he faced George Pappas, who fell easily to Durbin 255-191.

In the semi-final, Durbin faced Joe Salvenini. Durbin kept on striking, winning 244-198. In match play, Aulby had built a 115-pin lead over second place, looking to claim the title. Durbin had other ideas, as Aulby struggled early, opening four of the first five frames. This gave Durbin all the chance he needed to secure his third Tournament of Champions title, as he won 246-163. This added to his 1972 and 1982 titles. No other bowler had or has since won the Tournament of Champions and been inducted into the Hall of Fame in the same week.

#56-Pete Weber's 299 Serves Notice—New PBA is Born

In the summer of 2001, PBA announced that they were going to have a different match play format instead of having round robin match play. They were going to do single elimination, and bowling fans wondered if the top names would be ready for this new format. In Wyoming, Michigan, Pete Weber would make history by throwing the first eleven strikes to shoot a 299. He would go on to win the title to tie his legendary father. He would go undefeated in this new match play format.

#57-Sean Rash Rolls 300 at 2015 TOC

In the 50th edition of the Tournament of Champions, Sean Rash would make history as he would become the first player to throw two perfect games on national television. Jason Belmonte would become the second player in PBA history to successfully defend his PBA Tournament of Champions title. Sean Rash would defeat Ryan Ciminelli when he bowled his perfect game. Rhino Page also was trying to make history by becoming the second player to win the tournament wire to wire.

#58-Creation of PBA Lane Maintenance Program

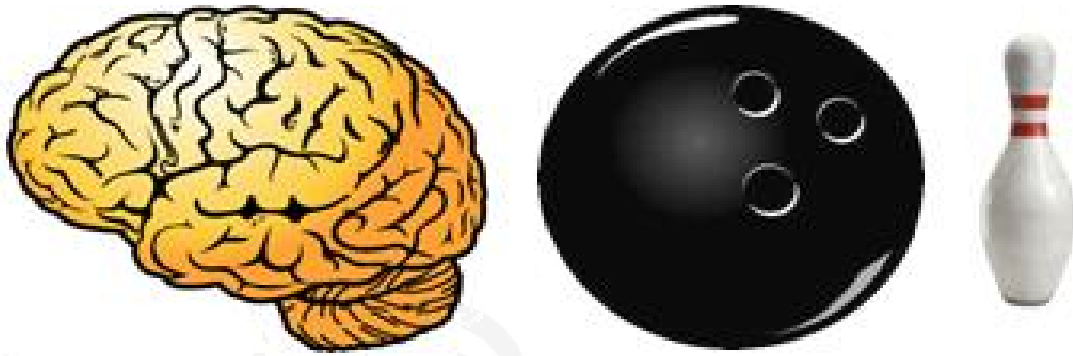
In 1971, the PBA introduced the PBA Lane Maintenance program. This was a good thing for the PBA because it gave bowlers challenging lane conditions. It also served the purpose to make the lane conditions more consistent and balanced. In 2007, it was expanded into the animal patterns we know today. In 2013, the PBA introduced a blue dye to the oil. This allowed bowling fans to see the breakdown of the oil on televised events. Lenny Nicholson was inducted into the Hall of Fame in 2011 for Meritorious Service for his service in the Lane Maintenance Program. He knew lane conditions so well that he could predict the scoring average at the beginning of the tournament.

#59-Chris Warren vs Bob Vespi in 1992

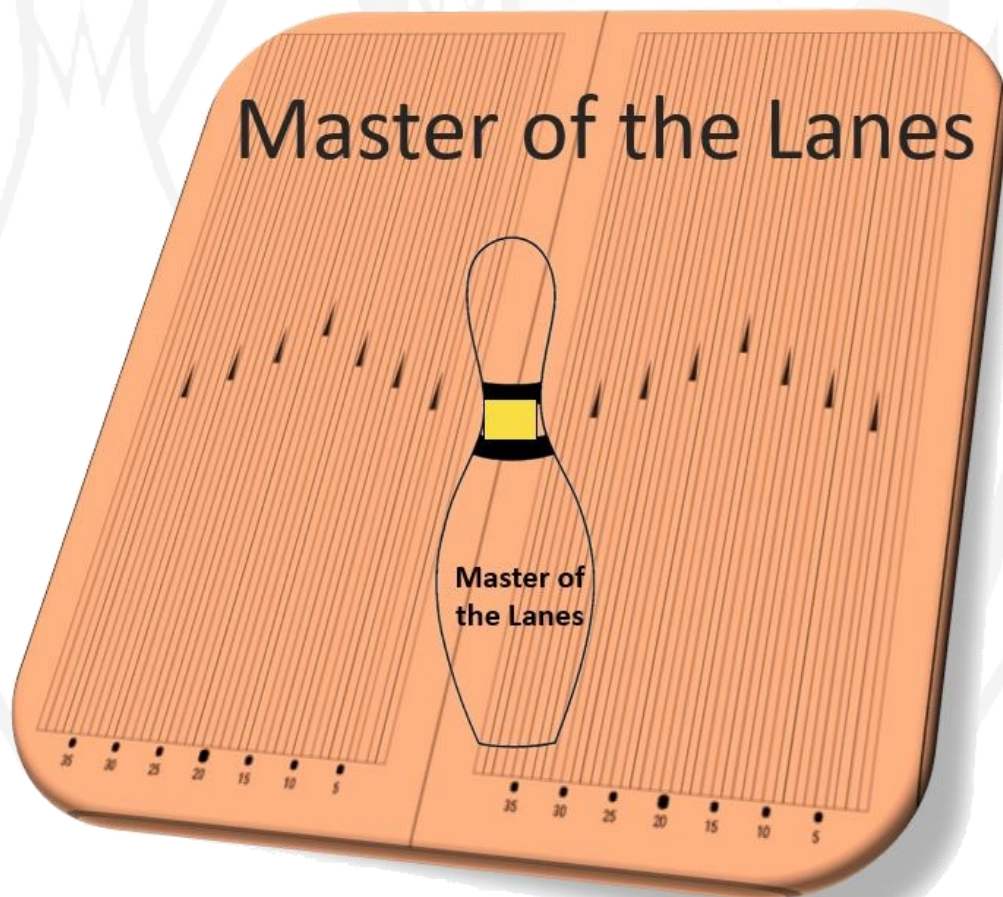
In 1992, at the Florida Open, Chris Warren was climbing the ladder to claim his 4th title. However, the tournament leader, Bob Vespi would be looking for his first. He would only have to win one game. However, Vespi would struggle with a couple of splits. He would strike out forcing Warren to need a double and get eight on his fill ball to win the tournament. He would answer the call by striking out in the tenth. This would give Warren his fourth PBA tour title.

#60-PBA League, Dallas Strikers Bowl 300

The Dallas Strikers were the first team to shoot a perfect game in the 2016 PBA League Competition in the semi final against the Motown Muscle. The teammates were Tommy Jones, Norm Duke, Bill O'Neill, Sean Maldonado, and BJ Moore. It was the first Baker perfect game in PBA league history. Jones, O'Neill, and Duke were the top bowlers of the team. At Portside Bowl, if a bowler throws a perfect game, they get their name engraved in a brick.



BOWLOLOGY



A Bowlologist is known as the Master of the Lanes who captains the Keglers and must know 80% of all the Kegler categories. A Kegler knows that they were specialists and knew what the expectations were. In Bowlology terminology, a Kegler is an expert in a specific bowling category and knows at least 80% of that category. If a person scores a 720 out of 900 they are a Master of the Lanes. Each Question is worth 5 points except for the Major Tournament they are worth 10 point. Good Luck and High Scoring

Equipment History **GRAY**



PBA History **RED**

BPAA History **BROWN**

Bowling History **GREEN**

USBC History **BLUE**

Bowlology Pillars **PURPLE**

Major Tournaments	Major Tournaments-80% of the questions need to be answered	
PBA History 80% of the questions need to be answered correctly to be a specialist in this field.	Equipment History-80% of the questions need to be answered correctly to be a specialist in this field.	BPAA History-80% of the questions need to be answered correctly to be a specialist in this field.
USBC History-80% of the questions need to be answered correctly to be a specialist in this field	Bowling History-80% of the questions need to be answered correctly to be specialist in this field.	Bowlology Pillars-80% of the to be answered correctly to be a specialist in this field.

Balls - Questions	Lanes - Category	Pins - Response
Player who became the first two-time TOC champion.	PBA History	Jim Godman
First Player to bowl a 300 in USBC Open Championship	USBC History	Billy Knox
First Bowling Ball Company	Equipment History	Brunswick
The Year that Del Ballard, Jr threw a gutter ball to lose the title	PBA History	1991
First Bowler to surpass 1 million	PBA History	Earl Anthony
Second bowler to win ten major PBA Titles	PBA History	Pete Weber
The bowler that has the most PBA Major ti-	PBA History	Jason Belmonte
First Bowler to win with the resin reactive ball.	Equipment History	Marc McDowell
First Three Time Tournament of Champions winner	PBA History	Mike Durbin
Oldest Bowling Publication	Bowling History	Bowlers Journal International
First Four Time Tournament of Champions Winner	PBA History	Jason Belmonte
Youngest Bowler to win a PBA Major	PBA History	Anthony Simonsen
Longest Running Bowling Organization in History	Bowling History	United States Bowling Congress
Youngest Bowler to win a PBA Major	PBA History	Anthony Simonsen
Second player to complete the Triple Crown	PBA History	Johnny Petraglia
Youngest Bowler to win three majors	PBA History	Anthony Simonsen
Youngest Bowler to win four majors	PBA History	Anthony Simonsen

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Balls - Questions	Lanes - Category	Pins - Response
First Bowler to bowl a USBC sanctioned 900	USBC History	Jeremy Sonnenfeld
First Bowler to defend the USBC Masters Title	USBC History	Dick Hoover
First Bowler to successfully defend the Tournament of Champions	PBA History	Jason Couch
First Bowler to Three Peat the Tournament of	PBA History	Jason Couch
First International Bowler to receive Player of	PBA History	Amelto Monacelli
First International to be inducted in the PBA Hall of Fame	PBA History	Amelto Monacelli
First Player to receive Rookie & Player of the	PBA History	Mike Aulby
The Bowler who has the most Eagles	USBC History	Nelson Burton, JR
First Father & Son Duo inducted into PBA Hall	PBA History	Dick and Pete Weber
First Bowler to win two US Open All-Star Titles	BPAA History	Andy Varipapa
First Bowler to surpass two and three million dollars in career earnings	PBA History	Walter Ray Williams Jr
The man who started the PBA in 1958	PBA History	Eddie Elias
First Year that USBC Sanctioned PBA Tourna-	USBC History	1990

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PBA History **RED**

USBC History **BLUE**

BPAA History **BROWN**

Bowlology Pillars **PURPLE**

PBA History 80% of the questions need to be answered correctly to be a specialist in this field	Equipment History-80% of the questions need to be answered correctly to be a specialist in this field.	BPAA History-80% of the questions need to be answered correctly to be a specialist in this field.
USBC History-80% of the questions need to be answered correctly to be a specialist in this field	Bowling History-80% of the questions need to be answered correctly to be specialist in this field.	Bowlology Pillars-80% of the to be answered correctly to be a specialist in this field.
Balls - Questions	Lanes - Category	Pins - Response
First Bowler to win a 100 combined PBA Titles.	PBA History	Walter Ray Williams, Jr
First Bowler to earn \$300,000 in a single season.	PBA History	Walter Ray Williams, Jr
The first urethane bowling ball was introduced	Equipment History	1980
Single Season Earnings Record	PBA History	Kyle Troup
Second Bowler to complete the SuperSlam	PBA History	Jason Belmonte
The Bowler who won the most titles in a single season	PBA History	Mark Roth(8 titles)
The only bowler to win 5 US Opens	PBA History	Pete Weber
First Bowler to bowl a 300 in the championship game	PBA History	Bob Benoit
First Bowler to bowl a 300 on national television.	PBA History	Jack Biondolillo
First Bowler to convert the 7-10 split on national television	PBA History	Mark Roth
First Women to win a PBA Major Title	PBA History	Kelly Kulick
First Resin Reactive Ball	Equipment History	Excalibur
First woman to qualify for a PBA Championship Round	PBA History	Liz Johnson
First year Bowling was an Exhibition Sport in the Olympics	Bowling History	1932
The ball company that used a KFC bucket to make their first ball.	Equipment History	Storm
The year that the All-Star and the USBC Master counted toward PBA Titles	PBA History	2008

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Equipment History **GRAY**

Bowling History **GREEN**



PBA History **RED**

USBC History **BLUE**

BPAA History **BROWN**

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Balls - Questions	Lanes - Category	Pins - Response
The year that an African-American won the first PBA Major	PBA History	George Branham III in 1993 At the ToC
First bowler to win the Senior USBC Masters	USBC History	Phil Ware
A Bowling ball took down 3 sets of pins on a commercial	Equipment History	KE 21 AMF bowling ball
2 nd bowler to receive Rookie-and Player-of-the-Year honors	PBA History	Tommy Jones
3 rd bowler to receive Rookie- and Player-of-the-Year honors	PBA History	Chris Barnes
The year the plastic ball was first introduced	Equipment History	Early 60's
The 3 bowlers that have earned the Rookie-of-the-Year honor and have earned multiple Player-of-the-Year honors.	PBA History	EJ Tackett, Jason Belmonte, Mike Aulby
The year the first underground bowling ball return was introduced.	Equipment History	1978
The last bowler to win a PBA tournament title with a rubber ball.	PBA History	Ted Hannahs
The year the first string pin-setter was invented.	Equipment History	1963
The year that BPAA was founded	BPAA History	1932

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Equipment History **GRAY**

Bowling History **GREEN**



PBA History **RED**

USBC History **BLUE**

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Balls - Questions	Lanes - Category	Pins - Response
The year the PBA voted Earl Anthony as the #1 bowler of all time.	PBA History	2009
The year that Columbia 300 was founded	Equipment History	1960
The PBA Regional Program was launched.	PBA History	1969
Don Johnson was voted the greatest moment when he shot the infamous 299 at the Tournament of Champions	PBA History	1970
The first bowler to win multiple USBSC Masters	USBC History	Billy Welu
The year that the USBC had the inaugural Hall of Fame	USBC History	1941
The Year that the PBA had the inaugural Hall of Fame	PBA History	1975
First bowler to bowl 35 strikes in a row.	Bowling History	Ray Orf
The number of Eagles a bowler needs to win to be inducted into the USBC Hall of Fame	USBC History	Four
The number of titles a bowler to needs to win to be inducted into the PBA Hall of Fame	PBA History	Ten Titles or Five Titles with 2 Majors

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BPAA History **BROWN**

Bowling History **GREEN**

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Balls - Questions	Lanes - Category	Pins - Response
The first bowler to win the USBC Masters	USBC History	Jason Belmonte
The three bowlers that have forty PBA titles or more.	PBA History	Walter Ray Williams Jr, Earl Anthony and Norm Duke
A bowler needs one of these scores to be	USBC History	300, 299, and 298.
The Bowling Tournament that substituted	Bowling History	World Brunswick Memorial Open
Bowlers started using finger grips in this	Bowling Equipment	1970s.
A rudimentary form of bowling first ap-	Bowling History	Ancient Egypt
The modern form of bowling was adopted	Bowling History	3 rd Century AD
Bowlers who have successfully defended	PBA History	Jason Couch and Jason Belmonte
The Bowler who won the Tournament of	PBA History	Jason Belmonte
A bowler soaked his ball in MEK	Equipment History	1973 Don McCune-He won 6 titles
A bowler who bowled back to back perfect	BPAA History	Ed Lubanski 1959

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Equipment History GRAY



PBA History RED

BPAA History BROWN

Bowling History GREEN

USBC History BLUE

Bowlology Pillars PURPLE

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Balls - Questions	Lanes - Category	Pins - Response
A Bowler who did not win a title. He received the Player of the Year	PBA History	Marshall Holman
The PBA Bowler who earned the most money in a single PBA Tournament.	PBA History	Mika Koivuniemi
The year that USBC celebrated their Centennial Year.	USBC History	1995
The year that ABC/WIBC/WABA merged as one organization.	USBC History	2005
Most 300's at a PBA Major	PBA History	2015 Tournament of Champions
The Year the PBA50 Tour was founded	PBA History	1981
First Bowler to win the Tournament of	PBA History	Joe Joseph
The first bowler to win two PBA World Championships	PBA History	Wayne Zahn
The Bowler who had the most over his closest competitors.	PBA History	Dave Davis-770 pins
The Year the ABC(USBC) was founded	USBC History	1895
BPAA was organized by bowling proprietors in this year	BPAA History	1932
The year that first bowling ball polisher	Equipment History	1951
The Year the BPAA All-Star(U.S Open)	BPAA History	1941

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Balls - Questions	Lanes - Category	Pins - Response
The year that Brunswick purchased Ebonite, Columbia 300, Track, Hammer,	Equipment History	2020
The ball that had walnut shells as a core	Equipment History	Johnny Petraglia LT48
The bowler who completed the Triple Crown twice	PBA History	Pete Weber in 2013 Tournament of Champions
The year the IBMA was founded	Bowling History	1934
The year the IPBISA was founded	Equipment History	1991
The year that Do-Do ball was made illegal	Equipment History	1913
The year that the USBC made extra holes illegal	Equipment History	2020
The ball Glenn Allison used to shot his 900	Equipment History	Columbia 300 Yellow Dot
Bowlers that have 3-peated a Major	PBA History	Jason Belmonte, Jason Couch, Earl Anthony (2x)
The year that the PBA Lane Maintenance Program was founded	PBA History	1971
Father and Son inducted into PBA Hall of Fame	PBA History	The Webers - Dick (1975) and Pete (1998)
Bowler who threw a double gutter on national television	PBA History	Marshall Holman
First USBC Masters Champion	USBC History	Lee Jougard
Youngest to win the Tournament of Champions	PBA History	Jesper Sevennson
The year that the national Bowling Hall of Fame & Museum opened up	Bowling History	1984
The first year the BPAA All-Star was not held in Chicago	BPAA History	1958
The year the first World Invitational was conducted	Bowling History	1956

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PBA History **RED**

BPAA History **BROWN**

Bowling History **GREEN**

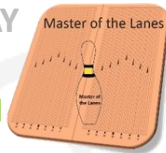
USBC History **BLUE**

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Balls - Questions	Lanes - Category	Pins - Response
Three bowlers have won 3 consecutive PBA tournaments in a row.	PBA History	Dick Weber, Johnny Petraglia, Mark Roth
The bowler who won the USBC Open with a score of 858 in the singles event.	USBC History	John Janawicz
The rookie that has made most money on the PBA Tour.	PBA History	Rhino Page
Only bowler to have 3 perfect games on television.	PBA History	Jason Belmonte
The first PBA President to win the PBA World Championship as he served.	PBA History	Johnny Petraglia
The first and only bowler to win the TOC and be inducted into the PBA Hall of Fame in the same year.	PBA History	Mike Durbin
This bowler won a PBA tournament while being inducted into the PBA Hall of Fame,	PBA History	Tommy Jones
This tournament has the greatest number of participants in any sporting event.	USBC History	USBC Open Championships
In 2002, Doug Kent won this tournament and it was the largest purse up through that date.	PBA History	PBA World Championship
This term was used to describe a perfect game.	Bowling History	Golden Turkey
These bowlers were the first to join the PBA.	PBA History	PBA Charter Members
The Year that IBMA became a bowling organization for bowling writers.	Bowling History	1934
The AWBA formed in what year?	Bowling History	1962
The year that the US Open Mens & Womens Tournament was conducted at the same venue	BPAA History	1996

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Bowling History **GREEN**

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Balls - Questions	Lanes - Category	Pins - Response
The First Year that won three majors in a	PBA History	Norm Duke
The first bowler that won three majors in a single season	PBA History	Jason Belmonte
Four Bowlers that have converted the 7-10 split on national television	PBA History	Mark Roth, John Mazza, Jess Staybrook, Anthony Niuier
The one bowler to convert 4-6-7-10 split on national television	PBA History	Walter Ray Williams Jr
Second Bowler to complete the GrandSlam	PBA History	Norm Duke
The first bowler to shoot 800 at the USBC Open Championship	USBC History	Lou Veit
The two bowler have converted the Greek Church	PBA History	Doug Kent and Alan Bishop
This event was the first to use automatic pin-setting and had the finals televised	BPAA History	1952 BPAA All Star Tournament
These three bowlers have four or more BPAA All-Star (currently known as the US Open)	BPAA History	Dick Weber, Don Carter, Pete Weber,
The bowler who shot the highest losing score on national television.	PBA History	280-Norm Duke
The bowler who shot the lowest game on national television	PBA History	100-Tom Daugherty
The first bowler who won the first PBA National World Championship	PBA History	Don Carter
The first year USBC held it's Open Championship Tournament	USBC History	1901
The two Bowlers who have competed in the most USBC Championships	USBC History	Bill Doehrrman and Joe Norris
The first PBA President to win the Tournament of Champions while serving as the President.	PBA History	Marc McDowell

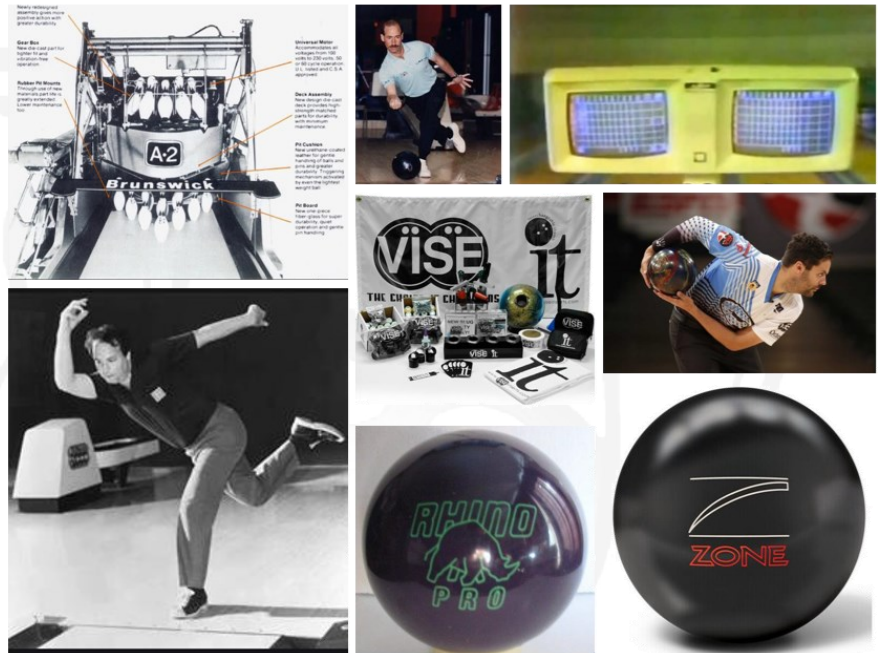
In this section, Master of the Lanes is the instruction of Bowlology. The student needs to identify which of the four Bowlology Pillars applies to their problem. The Bowling Pillars are: Knowledge of the Sport, Physical Game, Lane Play and Ball Dynamics. They will need a passing score 83%.

Mary Strike is having a hard time making her spares.	Knowledge of the Sport
Bill Open is unsure what he needs to score to win the game.	Knowledge of the Sport
Bob Spare falls off balance at the foul line.	Physical Game
Julie Frame is muscling the ball.	Physical Game
Doug Bowler moves right on one ball, and the ball goes left. On the next ball, he makes an adjustment and the ball goes right.	Lane Play
Joe Split is leaving the 10-pin and unable to string strikes.	Lane Play
Dick Pin is using the wrong layout.	Ball Dynamics
Pat Strike is not using the correct surface on the ball.	Ball Dynamics
Bowler fails to acknowledge bowlers on adjacent lanes.	Knowledge of the Sport
Bob Lane is having a difficult time keeping his trail leg on the floor	Physical Game
Joe Strike does not have accuracy in hitting his target.	Lane Play
Mary Lane does not where to stand for her makeable splits	Knowledge of the Sport
Bob Breakpoint is having a difficult time understanding where the breakpoint is?	Lane Play
John Bowler is having a hard time with his ball arsenal.	Ball Dynamics

Major Tournaments		Major Tournaments-80% of the questions need to be answered correctly to be specialist in this field.	
The first player to win every major in his PBA career.	Major Tournaments	Mike Aulby	
Name the tournament that only PBA Champions can enter.	Major Tournaments	Tournament of Champions	
Name the player that has the most US Open Titles.	Major Tournaments	Pete Weber	
Name the only bowler to win three consecutive TOC titles.	Major Tournaments	Jason Couch	
Name all three players that have won the Grand Slam.	Major Tournaments	Mike Aulby, Jason Belmonte, Norm Duke	
Name the center which hosts the Tournament of Champions	Major Tournaments	Riveria Lanes	
Name the first bowler to win four US Open Titles.	Major Tournaments	Don Carter	
Name the second bowler who won US Open Titles.	Major Tournaments	Dick Weber	
Name four of the nine Triple Crown Winners.	Major Tournaments	Billy Harwick, Johnnie Petraglia, Pete Weber, Mike Aulby, Norm Duke, Jason Belmonte, Dom Barrett, EJ Tackett, Chris Barnes	
Name 6 out of 11 players who have at least won the US Open twice.	Major Tournaments	Marshall Holman, Pete Weber, Walter Ray Williams, Jr. Dell Ballard, Dave Husted, Norm Duke, Francois Lavoie, Dick Weber, Don Carter, Andy Varipapa, Junie McMahon	
This bowler has completed the Triple Crown Twice.	Major Tournaments	Pete Weber	
Name one player who has three Tournament of Champion Titles.	Major Tournaments	Mike Durbin, Jason Couch, Jason Belmonte	
Who has won the most PBA World Championship Titles.	Major Tournaments	Earl Anthony	
Name all five majors.	Major Tournaments	PBA World Championship, US Open, TOC, USBC Masters, PBA Players Championship.	
This Bowler won the First PBA Players Championship.	Major Tournaments	Steve Cook	

BOWLING INNOVATIONS

From 1906 to 2022 changes in the sport of bowling



In this presentation, the Bowlology Academy will explain the innovations in the sport of bowling from the automatic pin-setter to the string pins. There have been numerous innovations within the sport. Back in the 19th century, bowlers were trying to obtain more hook. Bowlers would cut the ball in half and add a block of wood and then glue it back together. By doing this, the pro-shop operator needed to find the dodo balls which led to the invention of the dodo scale. Bowlers could go to New York City and bowl a 60-foot lane. Then they go to Chicago to bowl on a 30-foot lane. This led up to a uniform bowling association known as the American Bowling Congress (currently United States Bowling Congress). The ABC was founded in July of 1895. They quickly standardized rules and regulations including the 300-game and the 12-inch spacing between pins. A rules committee with Sam Karpf as the first ABC Secretary was formed to get the standardization process going. "Nearly 1,000 copies of ABC rules" were sent to known bowling centers with an invitation to ratify those rules in January of 1896. Bowling centers in Canada also joined in 1896. Bowling has been a changing sport from early on - from the balls to the pins. Even the bowlers have revolutionized the way the bowlers bowl from one-handed to two-handed and from two fingers to three fingers in the ball. Bowlers have always wanted to increase their score on a consistent basis.



Fathers of the Modern Power Game

Mark Roth and Marshall Holman were the fathers of the modern power game in mid-70's. They hooked the ball like no other bowler could bowl. Mark Roth went hard and straight at his spares. Marshall Holman was a finesse power game player. He would go on to win two U.S. Opens and two Tournament of Champions. They would also become the second and third bowlers to earn a million dollars by throwing a bowling ball.



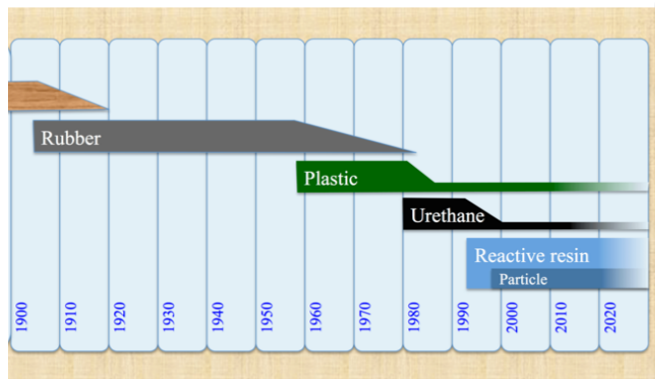
Power Game 2.0

In the finals of the 2004 U.S. Open, a bowler from Finland named Osku Palermaa introduced a new type of power game with a two-handed style. Five years later, a bowler from the land down under named Jason Belmonte was named PBA Rookie of the Year with his exceptional two-handed bowling. The style would enhance more revs and the pins would fly more from the force of the collision. Jason Belmonte would dominate the Majors on the PBA Tour from 2011 to the present earning seven Player of the Year awards.



First Bowling Ball

This is a replica of what bowlers likely bowled with in the early 20th century. Bowlers would cut the ball in half to add a block of wood to the ball so they could generate more hook. The early pro-shop operators devised a scale to screen out counterfeit or contraband bowling balls at tournaments. Bowling balls were initially drilled with two finger holes, so the bowler would use his middle finger and his thumb.



Bowling Ball Coverstocks

Though five thousand years of bowling balls have advanced from rocks-to-wood-to-rubber-to-plastic urethane-to reactive resin. Bowlers have been trying to master the sport of bowling throughout history. The early bowling balls were not conducive to shooting high scores. Bowling ball technology has improved during the last 50 years. In the AMF pro-staff video from the mid-1990's, Steve Wunderlich, [Lelia Wagner](#), Del Warren, and Dick Weber discussed major changes in the sport of bowling. When Del Warren asked Dick Weber what he saw as the major innovation during his tenure, Weber responded – the bowling ball. Bowling balls have come a long way.



Bowling Balls

In 1973, Don McCune soaked his bowling balls in M.E.K. (Methyl Ethyl Ketone). This made the coverstock softer which allowed the ball to have more hook. McCune would win six titles and earn \$69,000 dollars and become the Player of the Year. The next year, the PBA banned the use of M.E.K. or any chemical softening agent applied to the coverstock. Over the years, bowlers would sand their balls to make the breakpoint closer to the bowler. In the early days of the PBA, the PBA would only oil the lanes one time each day. The lanes would hook more in the night than in the morning. Bowlers bowled twice the first day of the tournament and then once the next day. Bowling balls have become high tech over the course of the last 50 years.

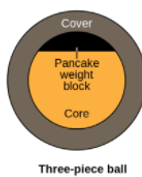


Tour Edition Bowling Balls

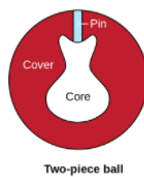
In 1996, Brunswick came out with the Danger Zone bowling ball. Brunswick also invented the concept of a tour edition bowling ball. A pro-bowler bowls on challenging lane conditions and a tour edition touring ball would enable the pro to use the Danger Zone. It was possible to have various weight blocks inserted into the ball and the pin color determined what weight block was in the ball. For example, a bowler could have a green-pin Danger Zone. This ball's characteristics had a T2 weight block with the same coverstock as the original Danger Zone. Brunswick would use this program from 1996 to 2000.

Solid vs Pearl Bowling Balls

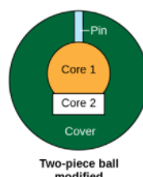
Solid vs Pearl. A solid ball is usually going to use up energy earlier meaning it will bring the break point closer to the bowler. Whereas a Pearl ball has an additive in the coverstock so the ball can retain energy and go through the pins and give a reliable strike. In the back end of the lane, the solid ball will go straighter than the pearl. It all depends on the surface of the ball.



Three-piece ball



Two-piece ball



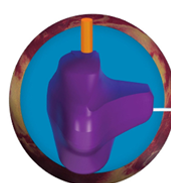
Two-piece ball modified



Symmetric



Ceramic Core



Asymmetric

Weight Blocks

Weight Blocks were first used with the Johnny Petraglia LT-48 back in 1976. Weight Blocks are like the engine of a bowling ball. Pro-shop operators know where these weight blocks are by the riser pins. If there is a smaller pin on the ball, this means that ball is asymmetrical. If there is no secondary riser pin on the ball, then the ball is symmetrical.

A symmetrical weight block would be like a baseball where it is equal & balanced on all sides. The Ceramic core is a secondary core inside the weight block. An asymmetrical core is like a coffee mug where it is unequal in dimensions and the weight is unbalanced.

Finger & Thumb Inserts & Tape

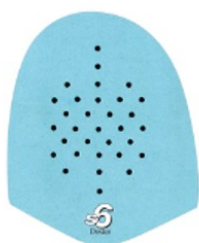
In 1980 bowlers were introduced to a new product that kept their fingers from being injured with the use of soft rubber insert tubes that went into the ball where the fingers and thumb holes would be. This allowed bowlers to bowl longer games without injuring their fingers or thumbs. Twenty-six years later the bowling industry came out with the interchangeable thumb to switch out grips without drilling multiple thumb. Bowlers could go to one ball to the next ball without worrying about the feel.

Back in the 60's started to use tape to tighten finger and thumb holes. Today bowlers use tape to not only tighten their finger holes, also to protect the hand so that they can bowl longer periods of time.



There are three different types of soles and heels.

Slide Sole



Traction Sole



Brake Heel



Bowling Shoes- Soles and Heels

Bowling centers have different approaches, some approaches are stickier than other approaches while others can be slick as ice. Older bowling shoes allowed a bowler to add inserts that would automatically lock in place. Dexter shoes came out with the interchangeable sole and also an interchangeable heel that was attached by Velcro. This allowed bowlers to adapt to different approaches and save money by not having to buy several different types of shoes or replace whole shoes as often as before.

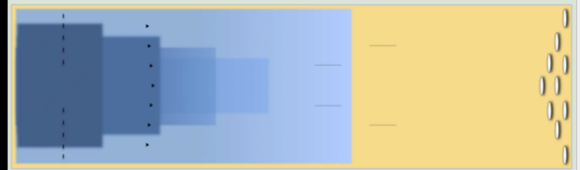


Lane Oil

In the beginning lane oil was used to clean the lane. Bowlers did not comprehend the effects of the oil between the bowling ball and the lane. It was evenly distributed across the lane and the maintenance process was just add more oil to the lane. In the 80s and 90s they started out different oil patterns and oil densities. Around the same time lanes were cleaned and re-oiled daily.



Typical House Shot (THS)



Sport Pattern



CURRENT



FIRE

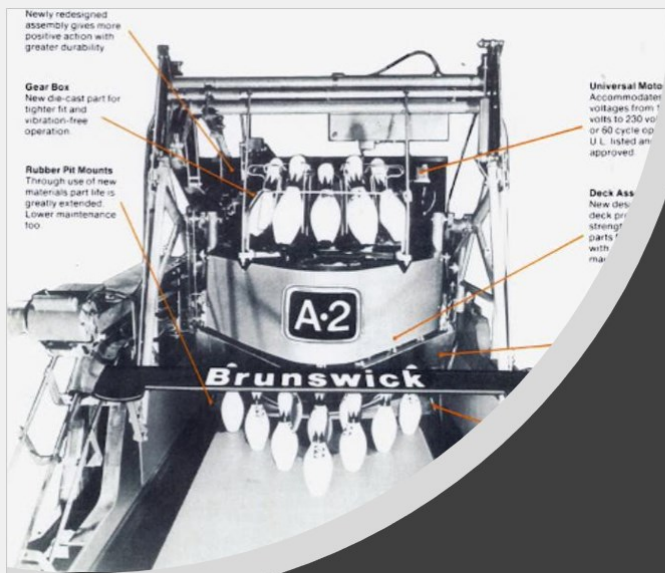


ICE

Lane Machines

In the early days of lane maintenance bowling mechanics would have to oil the lanes with a bucket and a mop. This procedure would take hours to do the entire center. The first lane machine would oil the lanes but not clean the lanes. Now today lane machines are doing the work of cleaning and oiling the lanes. Oiling a lane does not necessarily mean scores are going to be high or low. Oiling can also mean protecting the lane surface. In the old days lane mechanics would use a bug sprayer to oil the lanes. Bowling proprietors and lane mechanics would oil and clean lanes manually, with the advent of the lane machines it became easier.





Automatic Pin Setter Machine

The automatic pin setter machine was invented in 1906 and patented in 1941. AMF introduced a prototype to the general public in 1946 at an America Bowling Congress tournament but these did not really arrive at the lanes until 1956 when the Brunswick company introduced them to bowling centers.



Synthetic Bowling Pins

In 1962, USBC approved the use of synthetic bowling pins for use in bowling tournaments replacing the maple hardwood pins. This made the scores jump higher and go through the roof. Some critics say this hurt the sport of bowling because the lack of accuracy that occurred with synthetic bowling pins. Bowlers could hit the pins at a glancing blow instead of head-on in the pocket and still strike.

Automatic Scoring

Back in 1967, some Bowling centers went to automatic scoring, and bowlers were not required to keep their own score. Robert Reynolds invented the first automatic scoring device. This made bowling teams happier as they did not have to pay a score keeper to keep bowlers scores. In the early years of automatic scoring, it was hard to see what bowler was scoring because of the size of the screen. Automatic scoring has made it convenient for bowlers so all they had to do was concentrate on their bowling. Years later, automatic scoring would get easier to read on the monitor.

Specto Bowling (originally C.A.T.S computer aided tracking system) is software designed for bowlers and coaches to measure how fast and how many raves on the lane. It can tell the bowler or the coach what they need to work on to improve their scores.

LANE 4 > ATLANTIS / DEV / RECORDED 3-10

ROWS	BREAKPOINT BOARD	ENTRY ANGLE	LAUNCH SPEED	RPM	HOOK BOARDS
18.0	7.4	6.4	16.9	346	10.1
16.1	4.5	7.3	16.9	346	7.9
16.2	2.1	6.6	16.7	360	7.1
15.4	1.0	5.6	16.7	333	6.4

TABLE VIEW DEEP PRACTICE 3D VIEW CLEAR SCREEN RECORD & SAVE YOUR SESSION

2 remaining: 0 C. TOTAL TOTAL
HDP 702 344

2	3	4	5	6	7	8	9	10
7	X	9	4	2	9	4	5	
7	24	43	52	58	67	76		
4	X	8	1	X	X	5	7	9
20	39	48	73	93	112	122		
X	9	8	1	9	9	6	2	6
19	28	37	48	55	63	69		
5	3	6	7	9	6	7	1	6
8	27	43	60	68	77			

FOR \$1 GAMES AND SHO



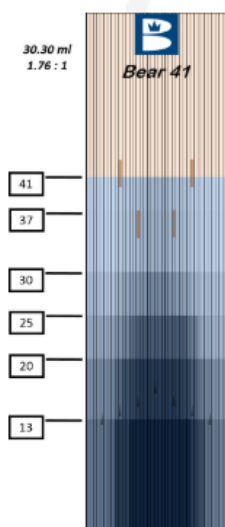
PBA Lane Patterns

Animal Patterns

PBA Bear 41



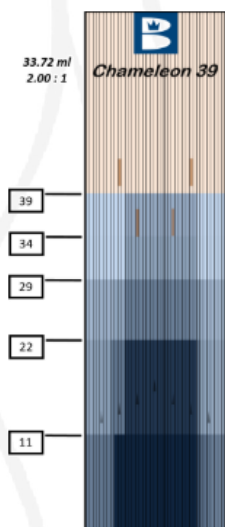
Length
41'



PBA Chameleon 39



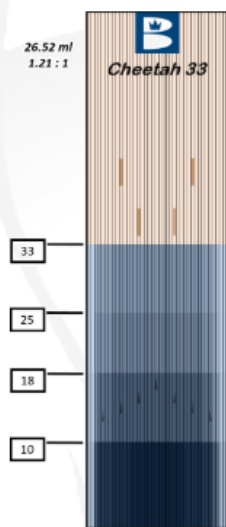
Length
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PBA Cheetah 33



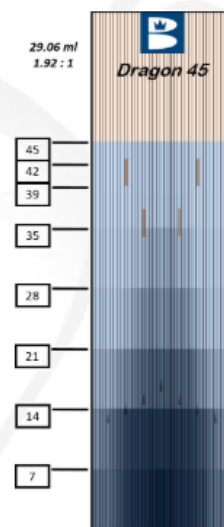
Length
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PBA Dragon 45



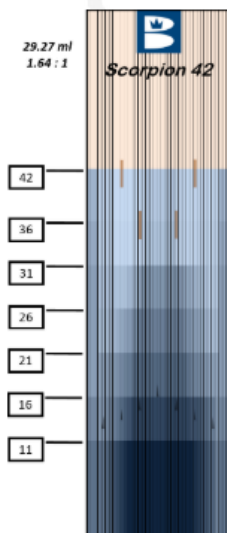
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PBA Scorpion 42



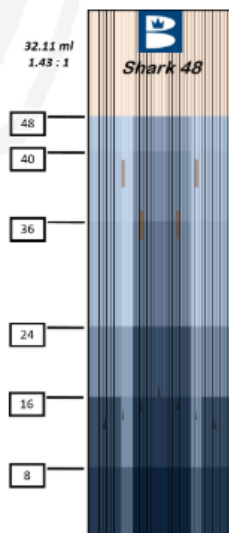
Length
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PBA Shark 48



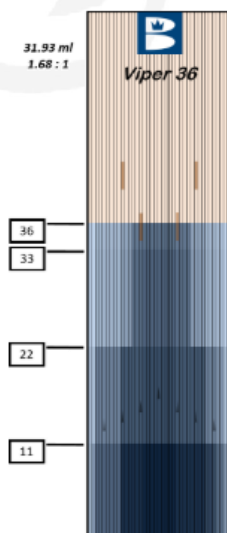
Length
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PBA Viper 36



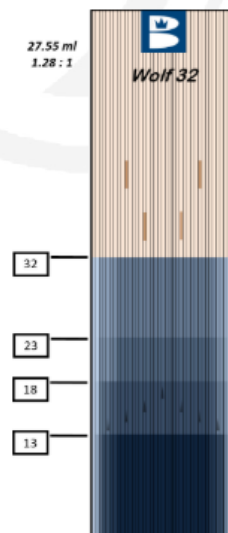
Length
36'



PBA Wolf 32



Length
32'



PBA Lane Patterns

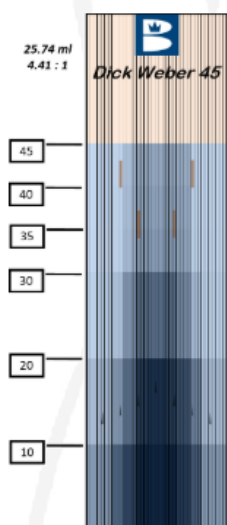
PBA Hall of Fame Patterns

PBA Dick Weber 45



Length
45'

The Dick Weber

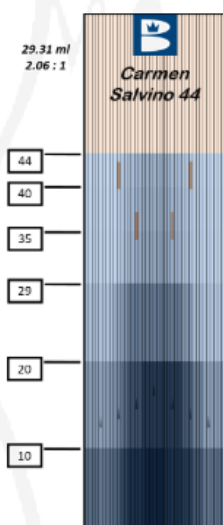


PBA Carmen Salvino 44



Length
44'

The Carmen Salvino

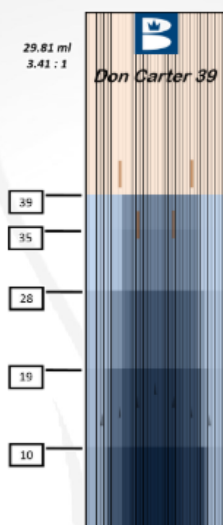


PBA Don Carter 39



Length
39'

The Don Carter

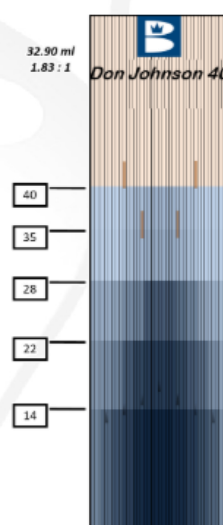


PBA Don Johnson 40



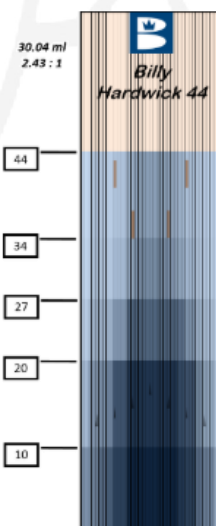
Length
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The Don Johnson



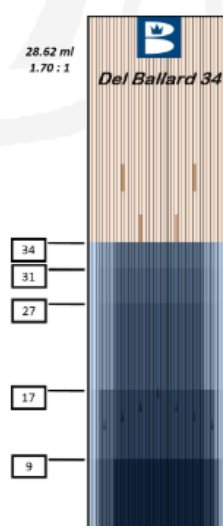
PBA Billy Hardwick 44

Length
44'



PBA Del Ballard 34

Length
34'



PBA Lane Patterns

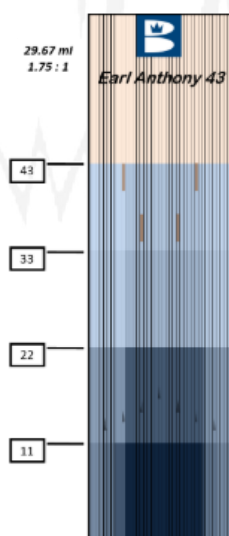
PBA Hall of Fame Patterns

PBA Earl Anthony 43



Length
43'

The Earl Anthony

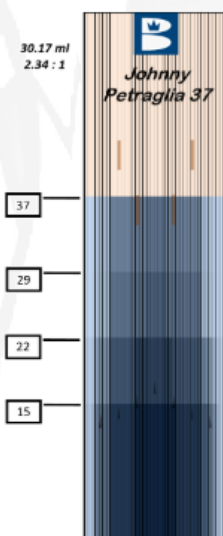


PBA Johnny Petraglia 37



Length
37'

The Johnny Petraglia

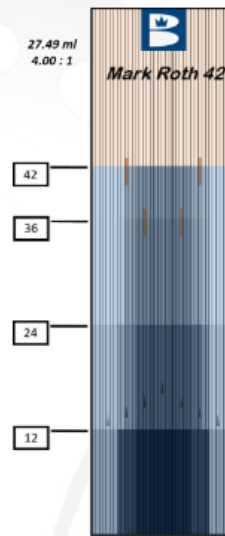


PBA Mark Roth 42



Length
42'

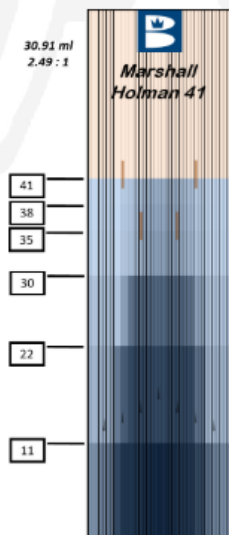
The Mark Roth



PBA Marshall Holman 41

Length

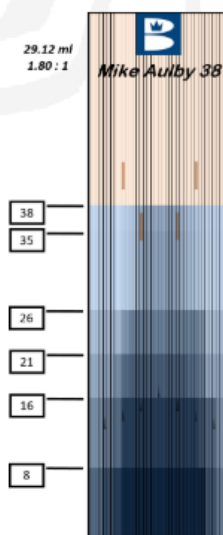
41'



PBA Mike Aulby 38

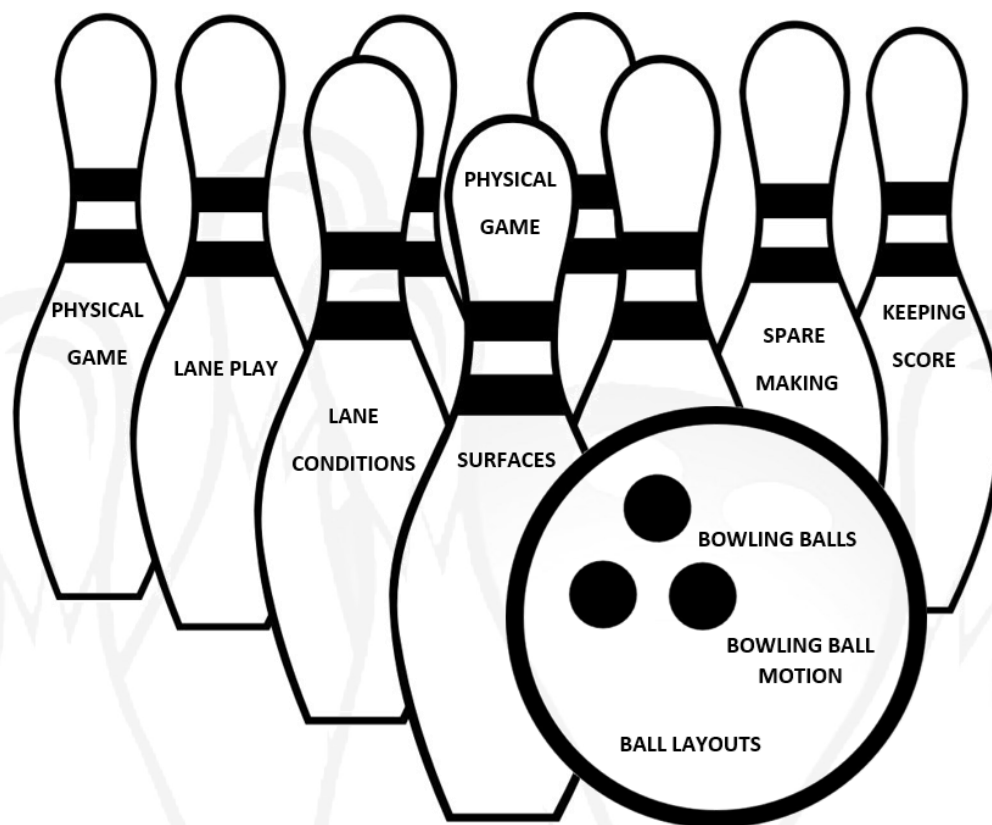
Length

38'



Bowling Industry Contact Info

Lane Masters— californiabowlinglic.com
Steve Cooks Bowling-stevecooksbowling.com
Master-bowlwithmaster.com
High Roller-highroller.com
South Point-southpointcasino.com
Storm-stormbowling.com
RotoGrip-www.rotogrip.com
Jayhawk-jayhawkbowling.com
Classic-classicbowling.com
USBC-bowl.com
Bowling Museum-bowlingmuseum.com
Stars and Strikes-starsandstrikes.com
Bowling University-bowlinguniversity.net
Global 900-900global.com
BPAA-bpaa.com
Motiv-motivbowling.com
DV8-dv8bowling.com
Brunswick-brunswickbowling.com
Radical-radicalbowling.com
Turbo-turbogrips.com
LPI— LubyPublishing.com
PBA-pba.com
Ace Mitchell-acemitchell.com
Ultimate-ultimatebowling.com
Columbia300-columbia300.com
AMF-amf.com
Ebonite-ebonite.com
Track-track.com
Hammer-hammerbowling.com
Visionary-visionarybowling.com
Qubica AMF-qubicaamf.com
Killer B.Productions-123bowl.com
Dexterbowling-dexterbowling.com
Kegel Training Center-kegeltrainingcenter.com



These are the main elements of Bowlology. The Categories are as follows.

Keeping score – Scoring Rules of the Sport.

Lane play – How to adjust on the lane.

Physical game – How to throw the ball: timing, arm swing, release, and follow through.

Bowling balls – Type of bowling balls: rubber, plastic, urethane, resin reactive, and particle. Anatomy of a bowling ball.

Bowling ball motion – Types of motion: skid, hook, and roll.

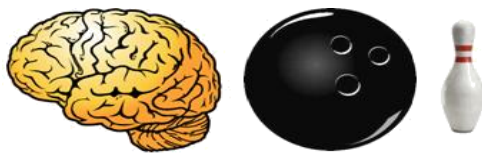
Surfaces – Lane surfaces: wood and synthetic. Ball surfaces: sanded, medium, and polished.

Lane reading – How a left-handed bowler reads the lane; how a right-handed bowler reads the lane.

Spare making – How a bowler can pick up their spares.

Ball layouts – How a pro shop operator can manipulate a bowler's ball to react to lane conditions by using specific drilling techniques.

Lane conditions – Understanding how lane conditions effect a bowler's game.



BOWLOLOGY

This is the first of three tests if a bowling fan or bowler wants to become a Bowlologist. They can take these exams and email them to joshhydeb bowling@gmail.com. If bowlers or bowling fans want to be more knowledgeable about the sport of bowling. This has been an endeavor of mine since I met Mike Aulby in 1986.

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?

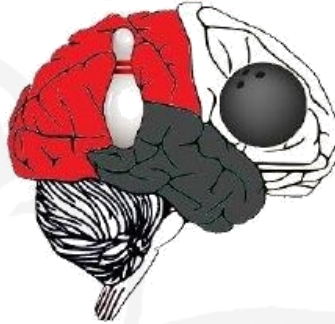
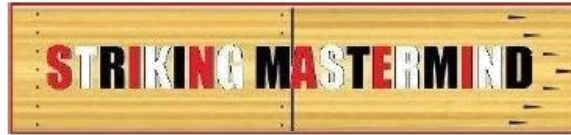
Ten Pin Staffers

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.

PBA Trivia Strikeout Challenge

The PBA is the Pinnacle of Bowling. Here are some questions that bowling fans can use to test their knowledge about the PBA. Just below are questions that need a correct match from the answer list beneath them.

If a bowling fan is interested how they scored on the quiz. They can email their questions and answers to me at joshhydeb bowling@gmail.com

Good Luck!

1. First Player to win a PBA Tournament?
2. Name the Person who founded the PBA?
3. Name what year the PBA was founded and how many charter members were there?
4. Where was the first PBA headquarters located in?
5. Who was the first bowler to earn a \$100,000 in a single season?
6. Who was the first bowler to earn \$2,000,000.00 in career earnings?
7. Who won the most titles in a single season?
8. The tournament the only PBA Champions can bowl?
9. Bowler who has five U.S. Open Titles?
10. The first bowler to win a PBA Tour Title in five decades?
11. Who has the most majors titles?
12. Who was the first bowler to get Rookie and Player of the Year?

- A. Tournament of Champions
- B. Earl Anthony
- C. Lou "Wrongfoot" Campi
- D. Dick Weber
- E. 58, 33
- F. Akron, Ohio
- G. Walter Ray Williams, Jr
- H. Pete Weber
- I. Mark Roth
- J. Mike Aulby
- K. Jason Belmonte
- L. Eddie Elias

Glossary of Terms

A

ACTUAL – See SCRATCH

ABSENT – A score used in league when a bowler on the team is not there to bowl.

ADJUST - When a bowler changes his/her starting point on the approach and/or target on the lane.

ALL-EVENTS – In a tournament, the combined total score of singles, doubles and team events.

ANCHOR - Last player in a lineup for team competition.

ANGULAR MOVE – An adjustment where the starting position on the approach is changed and the lane target either remains the same or is moved a different amount, resulting in a different angle.

APPROACH – 1) Portion of the lane behind the foul line used by bowlers to build momentum to deliver the ball.

2) The movement of a bowler from stance to the delivery.

AREA - The margin of error where the bowler can miss their target and still hit the pocket.

ARROWS - Targets on the lane starting about 15 feet from the foul line.

ASSOCIATIONS - Name applied to volunteer organizations serving at the local and state levels for USBC.

AVERAGE – For a bowler, the total number of pins knocked down divided by the number of games bowled.

B

BABY SPLIT – A split where there is one pin missing between those left. For example, the 2-7, 3-10, 4-5, 5-6 splits.

BACK UP – See REVERSE HOOK

BACK END – The last 15 feet of the lane before the pins.

BAKER SYSTEM - A format that calls for different players bowling in different frames. Mainly used in five-person team competition where the number 1 bowler throws in the first and sixth frames, the number 2 bowler in the second and seventh, etc.

BALL – The object rolled at the pins in order to knock them down.

BALL RETURN - 1) The machine that returns the ball to the player. 2) Where the ball rests on or near the approach.

BALL RACK – Storage structure where establishments keep house balls.

BALL TRACK – 1) The portion of the ball that comes in contact with the lane surface. 2) The area on the lane where the majority of balls are rolled creating a worn path.

BIG FOUR – A split resulting in the 4, 6, 7 and 10 pins still standing after the first shot.

BLIND - Score allowed for absent member, usually lower than his/her average as a penalty.

BLOCK – 1) A term to describe an easy lane condition. 2) A specific squad or time bowled.

BLOW THE RACK – Expression that applies to a variety of strikes, especially a light, sweeping strike.

BOARD - Wooden lanes have boards approximately one-inch wide Synthetic lanes feature the same image. Bowlers use specific boards to line up their stance and as their target on various shots.

BONUS – Extra pins or points awarded during match-play competition for winning a particular match.

BOWLER'S AREA (Also SETTEE) – The area where players wait between shots. Usually contains seats and a scoring unit.

BOWLING CENTER – A facility where people go to bowl.

BRACKETS FORMAT – In a tournament, where bowlers or teams are paired to compete and the winner advances to bowl other winners. This continues until there is only one bowler or team left undefeated.

BREAKDOWN – 1) The change or deterioration of the initial oil pattern. 2) Malfunction of the pinsetter or ball return

BREAK POINT - Place on the lane where the ball begins to hook toward the pins.

BRIDGE - The area between the finger holes on a bowling ball.

BROOKLYN (Also CROSSOVER) – Describes a strike ball that goes to the opposite side it was intended. For example, a right-hander hitting the left side of the head pin. (In Brooklyn, it is called a “Jersey.”)

BUCKET – A term used to describe the 2-4-5-8 or 3-5-6-9 spare leaves.

C

CARRY DOWN – The oil that is moved, or transferred, down the lane from bowling balls.

CERTIFICATION – 1) Competition registered with and conducted in accordance with USBC rules.

All certified bowling centers must have their lanes inspected by USBC annually to ensure they meet specifications. 2) The accreditation earned by USBC coaches upon completion of training courses.

CHANNEL (Also GUTTER) - The 10-inch out-of-bounds area to the right and left of the lane that guides the ball to the pit once it leaves the playing area.

CHAMPIONSHIP FORMAT – A tournament format usually run for local, state and national tournaments consisting of multiple events.

CHOP (Also CHERRY and PICK) – To hit the front pin of a spare leave while the pin behind or alongside remains standing.

CLASSIFIED - Leagues or tournaments with average limitations or other restrictions.

CLEAN GAME - A game with a spare or strike in each frame.

CLOSED SHOULDERS – When a bowler's shoulders remain parallel with the foul line or return to this position from being open. See also open shoulders.

CONCOURSE – The main walkway and spectator area in a bowling center; where food and drinks should be kept.

CONDITIONER – See LANE CONDITIONER

CONTROL DESK – The main hub in a bowling center where all lane activity is managed.

CONVENTIONAL GRIP – The grip in which the fingers are inserted into the second knuckle and the thumb fully inserted; recommended for beginning bowlers.

CONVERT - Knock down the remaining pins on the lane for a spare.

COUNT - Number of pins knocked down on each ball.

CORE - The interior of a bowling ball.

CRANKER – A bowling style that describes a bowler who throws a powerful hook.

CROSSLANE – 1) The concept of the starting position being on the opposite side of the approach from where the spare leave stands. For example, standing on the far left side of the lane to throw at the number 10 pin. 2) Alternating between two lanes in different frames.

CROSSOVER – See BROOKLYN

CUSHION - The padding at the rear of the pit to absorb the shock of the ball and pins.

D

DEAD BALL (Also FLAT BALL) – 1) An ineffective ball that deflects badly when it hits the pins. 2) Can be declared at delivery if any of a variety of factors occurs as listed in the USBC Rule Book. 3) Any ball that enters the channel.

DEAD WOOD – Pins that fall over but remain on the lane or in the channel that must be removed before the next shot. **DEFLECTION** - The movement of the ball after it hits the pins.

DELIVERY - The combination of a bowler's approach and release.

DOTS – 1) Imbedded in the lane just past the foul line and used by some bowlers as their target. 2) A series of dots on the approach used to assist the bowler in lining up.

DOUBLE - Two consecutive strikes.

DOUBLES EVENT – A team of two players, usually in a tournament.

DOUBLE WOOD (Also SLEEPER) - When one pin is directly behind the other. For example, the 1-5, 2-8 or 3-9.

DRIFT – A bowler's inability to finish in the same spot at the foul line.

DRY LANE - A lane that has a little amount of conditioner (oil).

DUROMETER TEST - An instrument that inserts a needle into the ball's surface to determine its hardness.

DUTCH 200 - A 200 game scored by alternating strikes and spares.

E

ELIMINATION FORMAT – In a tournament, after a game or series of games have been bowled, bowler(s) with the lowest scores are eliminated.

F

FAST EIGHT - A high pocket hit that leaves the 4-7 for a right- hander or the 6-10 for a left- hander.

FILL - Pins knocked down following a spare or two consecutive strikes in the 10th frame.

FINGERTIP GRIP – The grip in which the fingers are inserted to the first knuckle and thumb fully inserted; recommended for experienced bowlers.

FIT – Relating to the way a hand fits in the bowling ball.

FLAT BALL – See DEAD BALL

FLUSH (Also PACK) – When a ball hits the pocket solid for a strike.

FOUL - Going beyond the foul line at delivery. Results in a zero scored for that delivery.

FOUL LINE – A solid black stripe which separates the approach from the lane.

FOUNDATION FRAME - The ninth frame. The desire is to roll a strike or spare as a “foundation” for the 10th frame.

FRAME - Each game is divided into 10 frames, the first nine allowing a maximum of two shots with three shots allowed in the 10th frame.

FRONTS (Also HEADS) - The first 15 feet of the lane beyond the foul line.

FULL ROLLER - A ball that rolls over its full circumference and produces a track between the thumb and fingers.

G

GREEK CHURCH - The 4-6-7-8-10 (LH) or 4-6-7-9-10 (RH) leave.

GRIP – The way the hand fits in the ball. Either conventional or fingertip.

GUTTER – See CHANNEL

H

HANDICAP - Pins given to individuals or teams in an attempt to equalize the competition.

HEADS – See FRONTS

HEAD PIN - The 1-pin.

HIGH HIT - A ball that makes contact near the center of the head pin on a strike attempt.

HITTING UP – Releasing the ball late on the upswing.

HOLD – An area on the lane that resists hook action of the ball, preventing it from hooking high on the head pin.

HOOK – 1) A ball path that usually curves sharply near the pins. 2) The second phase of ball motion.

HOOKING LANE - A lane on which the ball has more tendency to curve or hook.

HOUSE – A term for a bowling center.

HOUSE BALL - Bowling ball provided by the center.

HOUSE SHOES - Rental shoes provided by the center.

HOUSE SHOT (Also HOUSE CONDITION) – The oil pattern typically used by bowling centers for leagues and other events.

I

IBPSIA – International Bowling Pro-Shop and Instructors Association founded in 1990

INSIDE - A line used by a bowler who plays toward the center of the lane such as the third, fourth or fifth arrows.

J

JUNIOR TEAM USA – The official USBC team comprised of male and female bowlers age 20 and under who represent the United States in international competition.

K

KEGLER - German word for bowler. The term was used to describe bowlers for many years.

KEY PIN – In spare shooting, it is the pin that the ball must initially hit to convert the spare.

KICKBACK - Vertical division boards between lanes in the pit. On most hits, the pins bounce off the kickbacks to knock down additional pins.

L

LABEL - The manufacturer's marking on the ball, pin or lane.

LANE (Also ALLEY) – Playing surface made of either maple and pine wood or a synthetic surface.

LANE CONDITIONER (Also LANE OIL or LANE DRESSING) - An oil used to coat or dress the lanes,

necessary to protect the lane surface. Also affects the reaction of a bowling ball.

LANE FINISH – A Urethane based product placed on wood lanes to protect the lanes surface.

LEADOFF - First player in a team lineup.

LEAGUE – A competition where bowlers or teams of bowlers compete against others in a series of weeks or sessions.

LEVERAGE - Being in the proper posture position at the foul line with the knee solidly under the body to allow maximum strength in rolling the ball. 2) A type of drilling layout for a bowling ball.

LIGHT – Describes a shot that is not fully in the pocket. For a right-hander, too much to the right.

LINE – 1) The path a bowling ball takes from release to the pins. 2) One game of bowling.

LOCATOR DOTS – 1) Markings imbedded in the lane just past the foul line and used by some bowlers as their target. 2) A series of dots on the approach used to assist the bowler in lining up on the approach.

LOFT – The distance beyond the foul line that the ball travels after leaving the bowler's hand to the point of impact on the lane surface.

M

MAPLE – Very hard wood used in the front of the lanes, approaches and bowling pins.

MARK – 1) Getting a strike or spare in a frame. 2) The spot on the lane bowlers use as their target.

MATCH PLAY - Portion of tournament or league play where bowlers are competing one on one.

MESSENGER - A pin that goes back across the lane bed to knock down additional pins.

MID-LANE (Also PINES) – The 30-foot section between the fronts and back end.

MISS – See OPEN

MIXED LEAGUES – Leagues of men and women competing together.

MIXER - A hit that causes the pins to bounce around.

N

NO TAP - A form of competition that awards a strike when nine pins are knocked down on the first ball. It also can be when eight pins are knocked down.

NOSE HIT - When the ball hits the front center of the head pin.

O

OIL – See LANE CONDITIONER

OILY (Also SLICK) - Indicates that there is a heavy coating of conditioner on the lane, making it difficult to hook the ball.

OPEN (Also MISS) – A frame that doesn't include a strike or spare.

OPEN BOWLING - Non-league, non-tournament play, practice.

OPEN SHOULDERS – When a bowler's shoulder is turned toward the ball side.

OUTSIDE – Rolling the ball starting from an area close to the channel, such as the first arrow.

OVER - In tournament play, 200 is often used for "par." If an individual is averaging over that figure, he/she is considered over for that tournament. Example: Bowler has a score of 652 for 3 games; par would be 600 so they are 52 over for the tournament.

P

PARTICLE BALLS – Developed in the mid-1990s, bowling balls made using high-tech manufacturing processes to insert minute pieces of silica such as glass beads in the ball's shell to increase hook potential.

PACK – See FLUSH

PARALLEL MOVE – An adjustment where the starting position and lane target are moved the same amount and in the same direction.

PERFECT GAME - Rolling 12 consecutive strikes in one game for a score of 300.

PLASTIC BALLS - Developed during the 1950s and made of polyester.

PICK – See SPARE or CHOP

PIN – The free-standing targets at the end of the lane. They are set in groups of 10 for each frame.

PIN ACTION – Pins that bounce or roll around the pin deck knocking down other pins.

PIN DECK - The area at the end of the lane where the pins are set.

PINFALL – The total count of pins knocked over in a given shot, series of shots or games.

PIN TRIANGLE – The arrangement of pins sitting on the pin deck.

PINES – See MID-LANE

PIT - Open area behind the pin deck where pins and balls go after leaving the back of the pin deck.

PITCH - Angle at which holes are drilled into a bowling ball.

POCKET (Also HOLE) - Where a ball hits solidly between the 1-pin and 3-pin for right-handers and the 1-pin and 2-pin for left-handers.

POLISH - A compound used to shine bowling balls in order to decrease hook potential.

POSITION ROUNDS – Part of leagues or tournaments when teams or players face each other based on their standings. Example: First place meets second, third meets fourth, etc.

POT GAME – Competition in which two or more bowlers post some sort of stake on a winner-take-all basis or to be divided by the number of entrants.

PUNCH OUT - Refers to getting three strikes in the 10th frame.

Q

QUALIFYING FORMAT – In a tournament, when bowlers bowl a set number of games attempting to advance to the next round.

R

REACTIVE RESIN BALLS - Developed in the 1990s, made of an advanced urethane. Reactive resin bowling balls increase hook potential.

READING THE LANES – Observation of the overall ball reaction to determine the best place to roll the ball for a strike.

RELEASE – The point at which a bowler lets go of the ball.

RELEASE POINT – The moment the bowler releases the ball with the thumb, rolling off the fin-

gers and imparting rotation to the ball.

RESURFACE – This term refers to wood lanes, when a center cuts the worn out damaged lanes down the down to bare wood in preparation for recoating the lane finish.

REVERSE HOOK (Also BACKUP) – A ball that hooks toward the hand from which the bowler delivered it. For example, a right-hander who hooks the ball to the right.

REVOLUTIONS - Also known as “revs.” The amount of rotation a bowler imparts to a bowling ball as it travels from the foul line to the pins.

ROLL OUT – A ball that stops hooking and begins to go straight.

S

SANDBAGGER - Bowler who purposely keeps his/her average down to receive a higher handicap.

SANDING – A process used on bowling balls to increase hook potential.

SCOTCH DOUBLES – A competition where two partners alternate shots during a game.

SCRATCH (Also ACTUAL) – Bowling score that does not include any handicap.

SEMI ROLLER - A ball that rolls off its center and produces a track outside of the thumb and fingers.

SET – 1) Ball holding into the pocket. 2) A series of games.

SETTEE – See BOWLERS AREA

SHELL – A term referring to the outside of the bowling ball. Specifically, the material from which it was made.

SHOT – 1) A single delivery 2) Reference to where to play specific types of oil patterns.

SINGLES EVENT – When one person competes against all others, in his/her division, usually in a tournament.

SKID – The first phase of ball motion when the ball slides through the front portion of the lane.

SLEEPER – See DOUBLE WOOD

SLICK – See OILY

SNOWPLOW - A ball that hits straight on the head pin and clears the pins for a strike.

SPAN - The distance between the thumb and finger holes on a bowling ball.

SPARE - Knocking down all 10 pins in two shots.

SPLICE – On wood lanes, the way the hard and soft wood parts of the lane come together.

SPLIT - A spare leave in which the head pin is down and the remaining combination of pins have a gap between them, ranging from the 4-5 to the 7-10.

SPOT - A target on the lane surface at which the bowler aims, ranging from a dot to an arrow to a board or area.

SQUARE – A reference to having the shoulders, hips or body parallel to the foul line.

STANCE – The balanced starting position that bowlers assume before making their approach and delivery.

STEPLADDER – A competition in which the lower qualifier bowls against the next-highest qualifier. This is usually done in the final phase of a competition known as stepladder finals.

STONE 10 – Leaving a 10 pin on a seemingly good first ball.

STRIKE - Knocking down all 10 pins on the first ball.

STRIKING OUT – Finishing the game with a string of consecutive strikes.

STRING - A number of continuous strikes.

STROKER – A bowling style that relies on being smooth and accurate, creating only a minimal amount of hook.

SWEEPER – 1) A form of competition that usually is conducted in association with another tournament. 2) A separate competition at the end of a league.

SYNTHETIC LANE - A non-wood or manmade lane surface that may be placed over an existing wood lane or a pre-constructed unit placed on a foundation.

SYNTHETIC PINS - Non-wood or manmade pins.

T

TAP – A single pin that stands on a seemingly perfect strike shot.

TARGET – A mark or area of the lane which the bowler uses to aim his or her shot.

TARGETING - Selecting a spot on the lane for the ball to roll over such as the dots, the arrows, a particular board or area. Some bowlers select the pins.

TEAM USA – The official USBC team composed of men and women representing the United States in international competition.

TIMING – A measurement of where the ball is in relationship to the steps during the approach.

TOPPING THE BALL - When the fingers are on top of the ball instead of behind, below or to the side upon release.

TOURNAMENT – A competition where bowlers or teams compete in a single or series of events against all others in their division.

TRACK – 1) The worn or most used part of a lane 2) The part of the ball that contacts the lane surface when rolling.

TRACK FLARE – When a track migrates over a slightly different part of the ball with each revolution.

TURKEY - Three consecutive strikes.

TURN – 1) The hand motion that imparts rotation to a ball upon release. 2) A ball that hooks.

U

UNITED STATES BOWLING CONGRESS - The organization created when the American Bowling Congress, Women's International Bowling Congress, Young American Bowling Alliance and USA Bowling merged into one organization on Jan. 1, 2005.

USA BOWLING – Formerly recognized by the U.S. Olympic Committee as the organization responsible for amateur competition in the United States. It is now a part of the IBC Youth department as a mainstream youth sports model that shares a similar team-based structure to other youth sports.

USBC COACHING – Organization headquartered in Arlington, Texas, that trains and certifies coaches to teach the sport of bowling. USBC Coaching is the only bowling coaching program recognized by the U.S. Olympic Committee.

UNDER - In tournament play, 200 often is used for “par” and if an individual is averaging below that figure, he/she is considered under for that tournament. Example: Bowler has a score of 550 for three games; par would be 600 so they are 50 under for the tournament.

URETHANE – A material used in making the cover of a bowling ball.

V

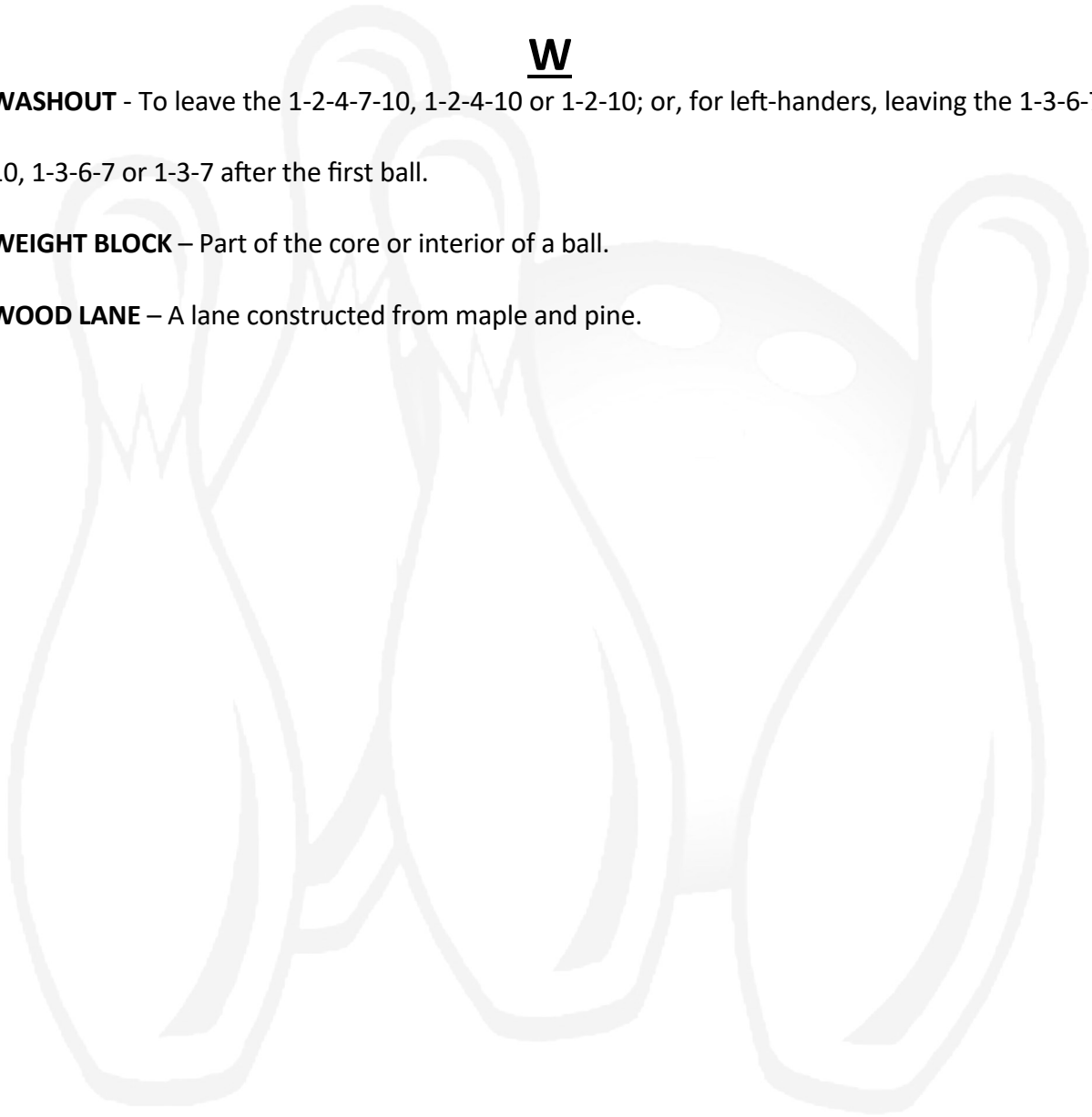
VISUALIZATION – A mental-game technique that helps a bowler concentrate.

W

WASHOUT - To leave the 1-2-4-7-10, 1-2-4-10 or 1-2-10; or, for left-handers, leaving the 1-3-6-7-10, 1-3-6-7 or 1-3-7 after the first ball.

WEIGHT BLOCK – Part of the core or interior of a ball.

WOOD LANE – A lane constructed from maple and pine.



Bowlology Bowler's Profile

of 600's ____
 (Less than 160 average)
 # of 700's ____
 # of 800's ____
 # of 900's ____

Tournaments/Titles Won ____
 Highest League Average ____
 Highest Series ____
 # of 300's ____
 # of 299's ____
 # of 298's ____
 PBA Regionals ____
 PBA Membership Years ____
 Hall of Fame Member ____
 USBC Member ____
 Local/State ____
 Splits Made ____

Bowler's Goal—

Bowler's Highest Achievement-

Bowling Center Name _____ Phone # _____ Email- _____

Pro-Shop Name & Operator _____ Phone# _____ Email- _____

Coach's Name _____ Phone# _____ Email- _____

League _____ Secretary _____ Phone# _____ Email _____

League _____ Secretary _____ Phone# _____ Email _____

League _____ Secretary _____ Phone# _____ Email _____

Bowlology Bowling Ball Arsenal

Ball	Manufacturer	Coverstock	Layout	Surface
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Bowler's PAP

Bowler Type - Circle type below

5 Types of Bowlers

1. Revs dominate ball speed
2. Revs slightly dominate ball speed
3. Revs and ball speed match up
4. Ball speed slightly dominates revs
5. Ball speed dominates revs

BALL SPEED	REV RATE
15-16 mph	200-250 rpm
16-17 mph	250-300 rpm
17-18 mph	300-350 rpm
18-19 mph	350-400 rpm
19+ mph	400+ rpm

of resin balls

of urethane

of asymmetrical

of symmetrical

Bowler's Tournament Ledger

Bowler

	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Total 1-8
Single									0
Single Conversion									0
Single Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Multiple									0
Multiple Conversion									0
Multiple Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Spares									0
Total Spares									0
Total Spare Conversion %	0%	0%	0%	0%	0%	0%	0%	0%	0%
Split									0
Split Conversion									0
Split Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Strike									0
Score									0
Total -/+	0	0	0	0	0	0	0	0	0
Games									0
Average									0.00

	Game 9	Game 10	Game 11	Game 12	Game 13	Game 14	Game 15	Game 16	Total 1-16
Single									0
Single Conversion									0
Single Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Multiple									0
Multiple Conversion									0
Multiple Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Spares									0
Total Spares									0
Total Spare Conversion %	0%	0%	0%	0%	0%	0%	0%	0%	0%
Split									0
Split Conversion									0
Split Conversion Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
Strike									0
Score									0
Total -/+	0	0	0	0	0	0	0	0	0
Games									0
Average									0.00

Tournament	Expenses
Entry fee	
Brackets	
Pot Games	
Travel expenses	
Total Expenses	
Pot Game Winnings	
Bracket Winnings	
Total Earnings	

Strikes	Game
4-bagger	
5-bagger	
6-bagger	
7-bagger	
8-bagger	

Tournament performance	
Qualifying	
Semi-Finals	
Match Play	
Round Robin	
Single Elimination	
Sweeper	

Bronze & Silver Certificates



Josh Hyde achieved his Level I certification in June of 2003 and decided he didn't want to stop with just the basics. He completed his Bronze certification by studying manuals and materials and then successfully passing a written assessment in November of 2014. After learning what was needed to take the next step, Josh took time to evaluate if Silver was right for him. His passion for bowling and desire for information led him to adapt to the necessary requirements for learning the Silver level course material. Upholding the credibility of the program by completing test questions and, perhaps the most challenging part, video analysis evaluation of students, Josh earned USBC Coaching's Silver Level certification in November of 2019.

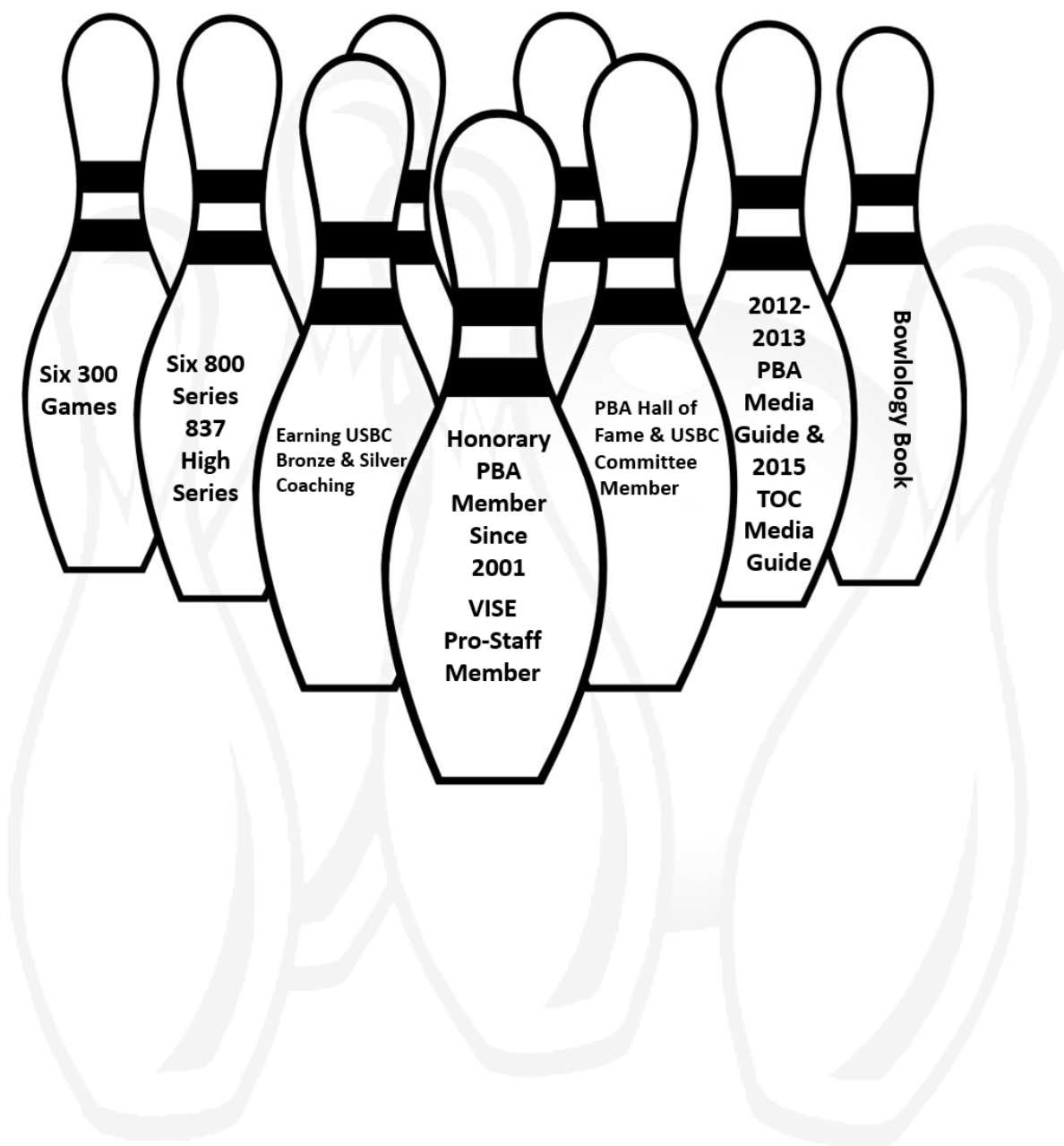
Josh Hyde's Bowling Achievements
(Presented by IBMA "formally known as BWAA")
(Amateur Writing Competition)



Strike Achievements:

299 Game /290 Game/300 Game
2011-3rd Place Feature "Bottom 5 of the 50 Greatest"
2010-3rd Place Editorial "World Series of Bowling"
2013-1st Place Newsletter "Josh Hyde's Bowling Newsletter"
2012-1st Place Editorial "Bowling Physics " "Yesterday vs. Today"
2010— 2nd Place Handicap Championship Tournament
2013-1st Place Editorial "Player of the Year Pick"
2013 1st Place Newsletter IBMA Amateur Writing Contest
2013-3rd Place Editorial "Using PBA Publicity"
Six 800 series-837 High Series
Five 300 games
May 2013- Bowler's Journal International "Our Man in Indy: Josh Hyde on New Hall of Famer Doug Kent"
Bowlers Journal Interactive September 2014 PBA50 Giving Bowlers New Life
2014– the present PBA Hall of Fame Committee Member
2014 IBMA Amateur Writing Contest Second Place Newsletter
2014 IBMA Amateur Writing Contest Third Place Feature
2015 3rd Place IBMA Newsletter March 2014
2015 50th Anniversary Tournament of Champions Media Kit Author
2015 USBC Bronze Bowling coach
Vise Grips Regional Pro-Staff Member
2015 IBMA 1st Place Editorial "Regulating bowling equipment for Pros"
2021 IBMA 2nd Place Editorial "Career of a Bowlologist"
2021 IBMA News Division Honorable Mention "2021 KIA Playoffs"
2021 IBMA News Division Honorable Mention "2021 Hall of Famers Pass Away"
2015 2nd Place Editorial "Is Bowling a Sport?"
2022 IBMA News Division Honorable Mention "2022 PBA Recap"
2020 USBC Hall of Fame Committee Member
Special Recognition Journalistic Excellence Josh Hyde " for the creation of a comprehensive and compelling PBA Media Guide showcasing the Pro-Bowlers Association Tournament History"
April Edition of the Bowler's Journal International " PB3 comes through for PBA Superfan"
November 2011, Introduce Bowlology to the Josh Hyde's Bowling Newsletter

Top Ten Highlights



Epilogue

In November of 2011, the Josh Hyde Bowling Newsletter introduced Bowlology. “Bowlology” - the study of bowling with the desired result begin that the student gains more knowledge of and more respect for the sport. This book is a collection of those articles plus new material.

In November 2019, I became a Silver USBC Coach with a score of 82%. This project has brought me great joy. Just like Dennis Bergendorf described in the foreword—I have studied the game from the history of bowling to how to correctly throw the ball to get ten pins down in one shot. This book will help bowlers improve their game. Each chapter is a frame and there are ten chapters in this book signifying ten frames in bowling. During the 2012-2013 season, I designed the Josh Hyde’s PBA Media Guide. In 2014, I designed the 2015 50th Tournament of Champion Media Kit for the bowling writers. The year 2001 was a special occasion when I became an honorary PBA member. In 2014, I also became a part of the PBA Hall of Fame Committee. Later in 2020 I became apart of the USBC Hall of Fame Committee member.

November of 2017 became a milestone when I shot my first 300 game. As a bowler I have had a total of five 300 games and a total of six –800 series. My highest series is 837.

These are some of the top moments of my bowling career. Another milestone was in 2018 when the Josh Hyde bowling newsletter became a decade old (and counting) publication. In 2013, I was given the opportunity to write for the Bowler’s Journal International. These are the top highlights of my bowling career. For bowlers and bowling fans, I hope you can learn something about the greatest sport in the world.

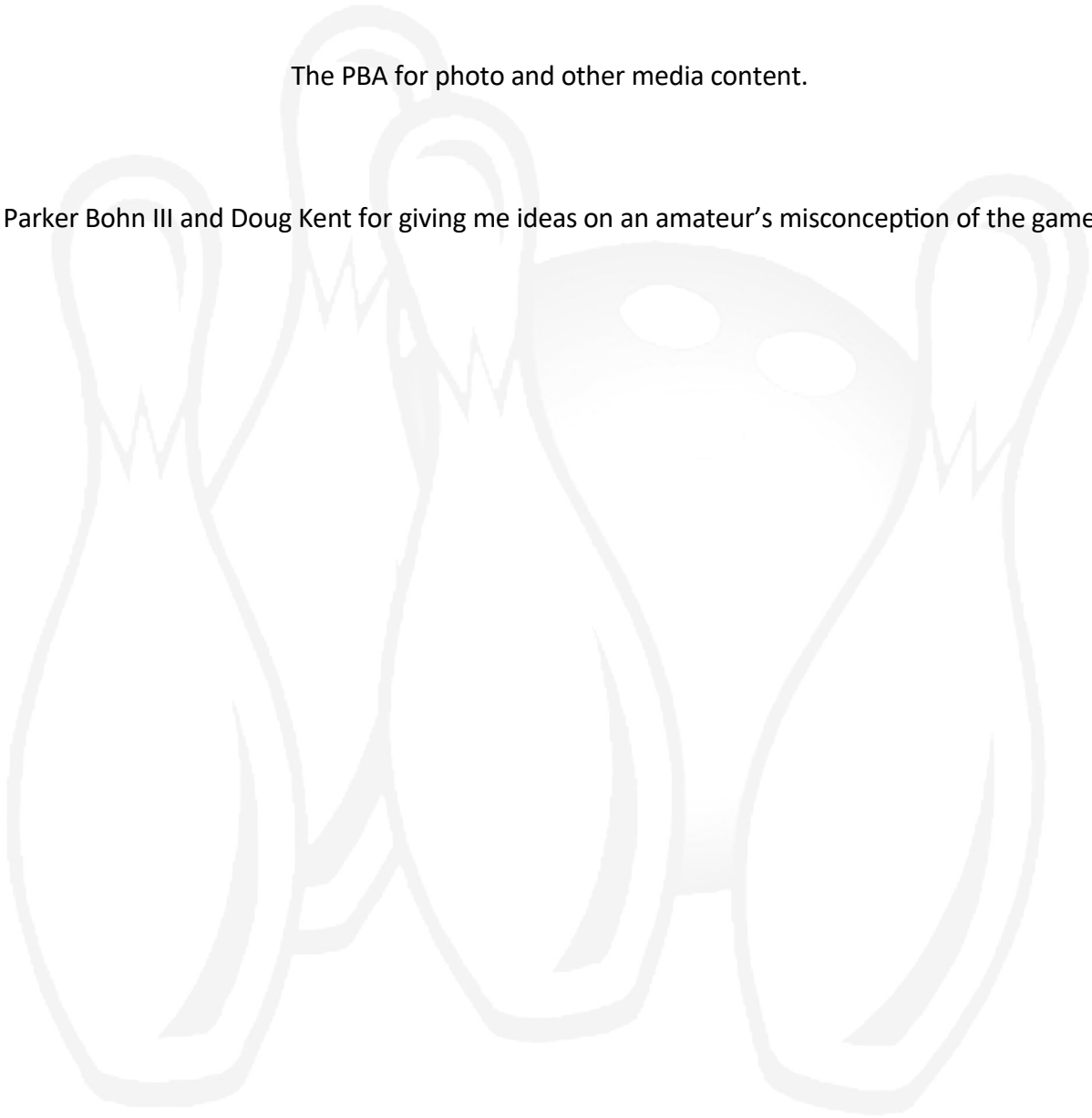
Josh Hyde
Bowlologist

Acknowledgments

USBC for allowing me to take the USBC bronze coaching level and the information in this book.

The PBA for photo and other media content.

Parker Bohn III and Doug Kent for giving me ideas on an amateur's misconception of the game



Bowlology Academy



The Bowlology Academy can be found on Josh Hyde Bowling.com. This academy is meant to teach to give students a comprehensive education in the field of Bowlology. A student of the Academy will be able to understand the general art & science of the sport of bowling from being able to play a hometown league, coaching other players, running a tournament, being a bowling historian & writer like Chuck Pezzano, and to understanding ball dynamic lectures from Hank

Boomershine. Students will be ambassadors of the sport who can promote it to the general public and maybe even get it into the Olympics.

The Bowlology Academy offers several milestone courses that build a student in to a Bowlologist:

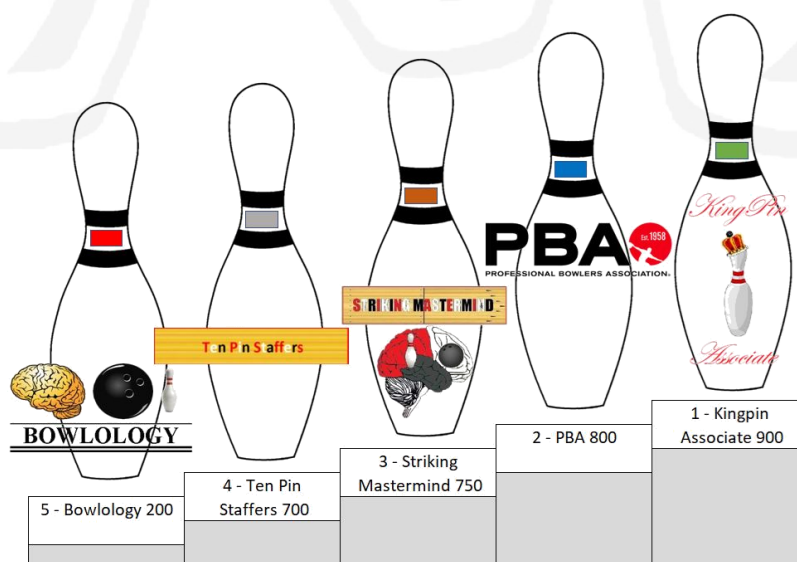
5-Bowlology 200—This is the basics of bowling and a foundation for a first time bowler to achieve a 200 game.

4-Ten Pin Staffer 700—This is for the coach to learn more advanced lessons in the sport of bowling and for a pro-shop operator fine tune a bowlers skill.

3-Striking Mastermind 750—This is for the bowler who wants to get serious about the sport and compete in tournaments on a weekly basis.

2-PBA 800—This class is to designed for the bowler who wants to become a PBA member and the path to the membership on the PBA circuit. They will learn what the lane courtesy and expectation for PBA Members.

1-Kingpin Associate—This is for the student who wants to know how to become a Bowlologist and become a Master of the Lanes in a particular focus area.



"I've had the honor of knowing Josh Hyde for more than a decade, and I can say unequivocally that Josh is our sport's most enthusiastic aficionado. Josh is tireless in his pursuit of bowling knowledge, talking at length with the biggest stars, the most successful executives, and the most prolific fellow writers.

I've known many bowlers who have had a love affair with ten pins, but none shines brighter than Josh Hyde. He captures the spirit of a game that can be both rewarding and frustrating.

Bowlology is a fine example of the information that Josh Hyde wants to share with his friends in the world of bowling. I hope you enjoy it."

-----Dennis Bergendorf

Senior Writer for Bowler's Journal International

This BOWLOLOGY BOOK can certainly help and enlighten anyone that wants to know more about bowling. The book is written by my dear friend who has more heart and soul for the sport of bowling than most of the GREATEST BOWLERS of today. He truly loves the sport and has put everything he knows into this fun faceted book. Please enjoy reading it and pay attention to the details as I am sure you will learn something that can help improve your game today.....

----- Parker Bohn III

35 PBA Tour Titles (including 3 Majors), PBA & USBC Hall of Famer, Two-Time Chris Schenkel Player of the Year Winner and Two-Time George Young High Average Award Winner, and Two-Time Harry Smith Point Leader Award and Four-Time PBA50 Tour Champion and Four-Time Steve Nagy Sportsmanship Award Winner