VICTUS
ADVISORS

2017 Bowling Technology
Survey Analysis

USBC

SECTION 1
OVERVIEW/RESPONSE RATES

Earlier this year, USBC Executive Director Chad Murphy discussed how the USBC Equipment Specifications and Certifications Team spent two years researching the bowling ball and how the research is part of a much larger plan that continues in 2017.

USBC set out to talk to those who own the centers, the manufacturers who make the balls, and the consumers who use the balls, to determine what bowling collectively wants and needs.

Victus Advisors was engaged by the **United States Bowling Congress** in April 2017 to conduct an independent, objective, and research-based analysis of the effects of technology in the sport through surveying members of USBC, IBPSIA (International Bowling Pro Shop and Instructors Association), and BPAA (Bowling Proprietors Association of America).

From April through August 2017, online surveys were distributed via USBC, IBPSIA, and BPAA email databases:

	Survey Population	Total Survey Responses	Survey Response Rate
USBC Members	728,937	18,844	3%
IBPSIA Certified Pro Shop Operators	458	92	20%
BPAA Bowling Center Proprietors	2,719	287	11%
TOTAL:	**732,114**	**19,223**	**3%**

THEORETICAL MARGIN OF ERROR:
USBC: +/- 0.7%
IBPSIA: +/- 9.1%
BPAA: +/- 5.5%

(based upon a 95% confidence interval on questions where opinion is evenly split)
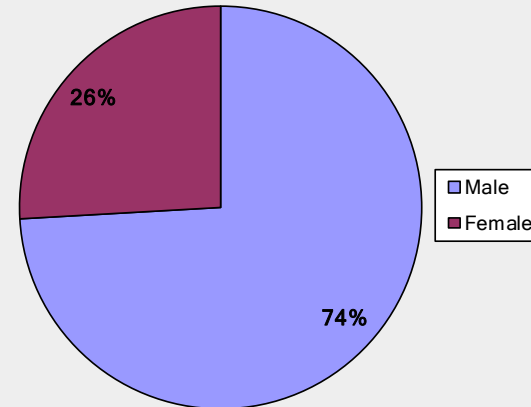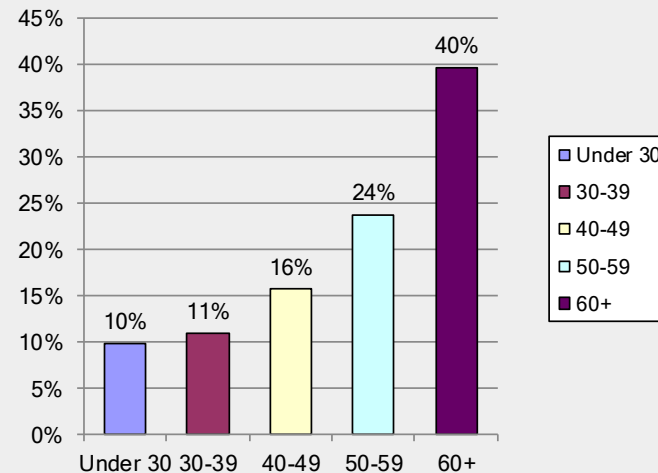
SECTION 2
RESPONDENT PROFILE - USBC

DEMOGRAPHICS:

- 18,844 respondents

- 74% Male, 26% Female

- 90% over the age of 30

- 27% ages 30 to 49, 63% age 50+

GENDER

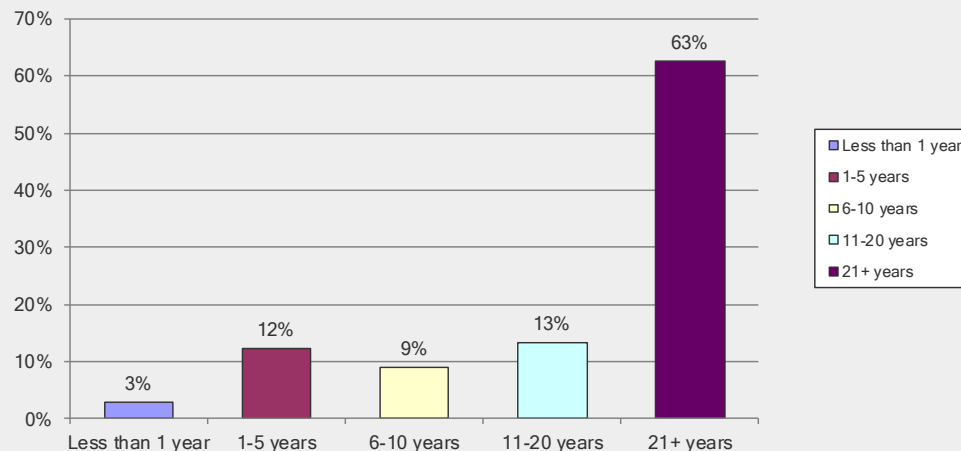- 26% Female
- 74% Male

AGE

- Under 30: 10%
- 30-39: 11%
- 40-49: 16%
- 50-59: 24%
- 60+: 40%

BOWLING PROFILE:

- 63% have bowled for 21+ years

- 42% classify themselves as Average bowlers; 45% classify themselves as Above Average

BOWLING EXPERIENCE

Experience	Percentage
Less than 1 year	3%
1-5 years	12%
6-10 years	9%
11-20 years	13%
21+ years	63%

BOWLING SKILL

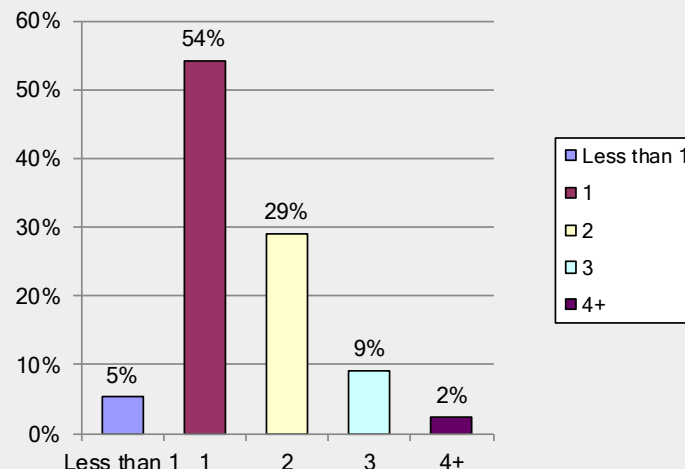| Skill	Percentage
Beginner	2%
Below Average	6%
Average	42%
Above Average	45%
Elite	5%
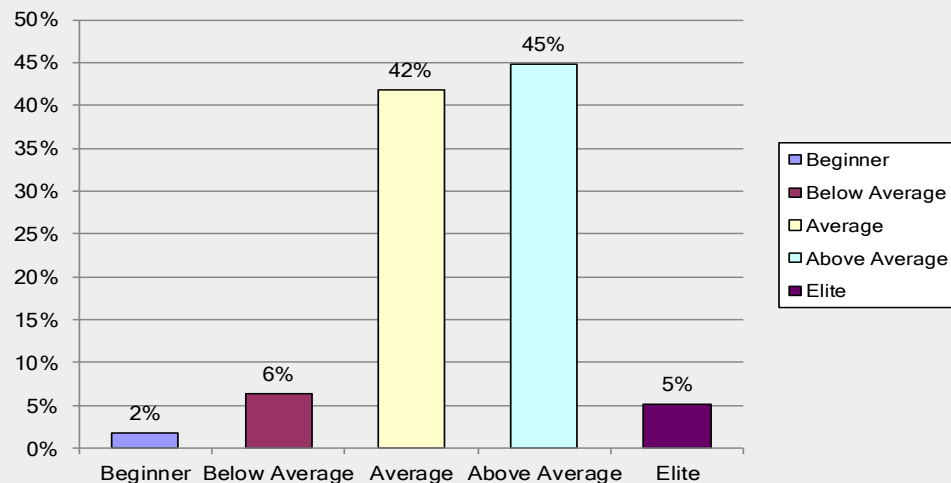
BOWLING PROFILE (CONT'D) :

-40% bowl more than one time per week

- 55% bowl in 1-5 tournaments per year; 32% bowl in 0 tournaments

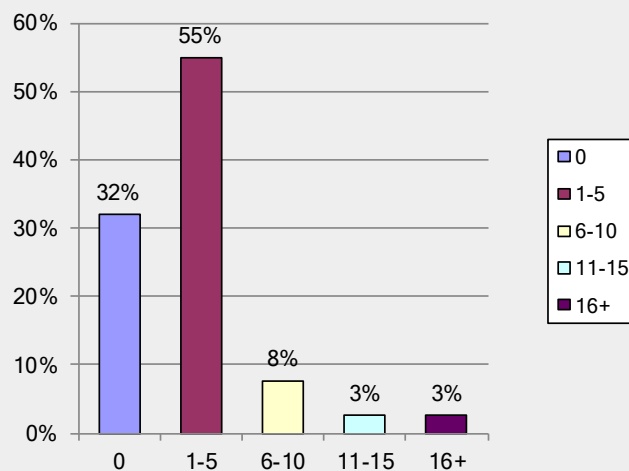## What is your bowling average?

More than 220 - 6%
201-220 - 22%
181-200 - 26%
151-180 - 28%
Less than 150 - 18%

How many times do you bowl league each week?

- Less than 1: 5%
- 1: 54%
- 2: 29%
- 3: 9%
- 4+: 2%

Legend:
- Less than 1
- 1
- 2
- 3
- 4+

How many times do you bowl tournaments each year?

- 0: 32%
- 1-5: 55%
- 6-10: 8%
- 11-15: 3%
- 16+: 3%

Legend:
- 0
- 1-5
- 6-10
- 11-15
- 16+

BOWLING EQUIPMENT PROFILE

- 47% own between 2-4 balls

- 64% use 1-2 balls when they bowl; 30% use 3-4 balls when they bowl
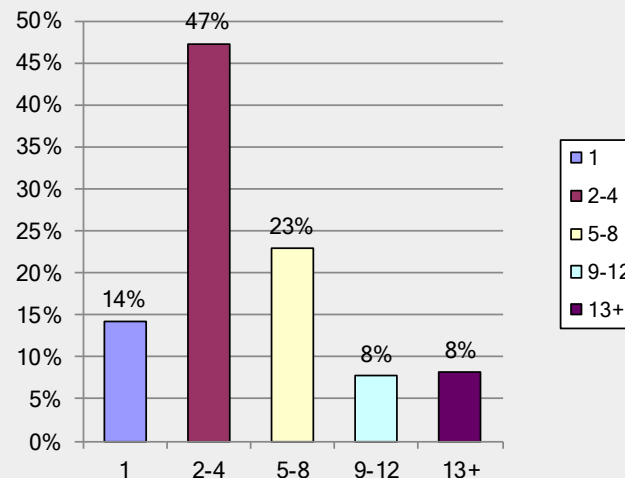
How many bowling balls do you own?

■ 1	
■ 2-4	
□ 5-8	
□ 9-12	
■ 13+	

Values: 1 = 14%, 2-4 = 47%, 5-8 = 23%, 9-12 = 8%, 13+ = 8%

How many bowling balls do you use when you bowl?

■ 1-2	
■ 3-4	
□ 5-6	
□ 7-8	
■ 9+	

Values: 1-2 = 64%, 3-4 = 30%, 5-6 = 5%, 7-8 = 1%, 9+ = 0%
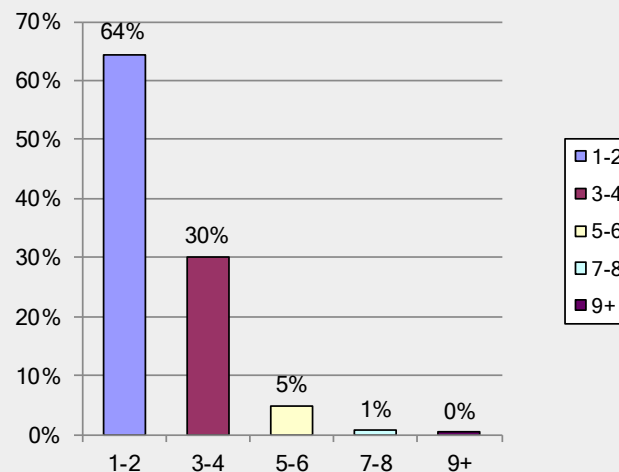
KNOWLEDGE OF TECHNOLOGY

- 59% rate their knowledge of bowling technology as the Basics or Fair, while 24% rate themselves as Knowledgeable

- 72% have Minimal, Basics, or Fair knowledge of lane conditions, while 26% consider themselves Knowledgeable

How would you rate your knowledge of bowling ball technology?
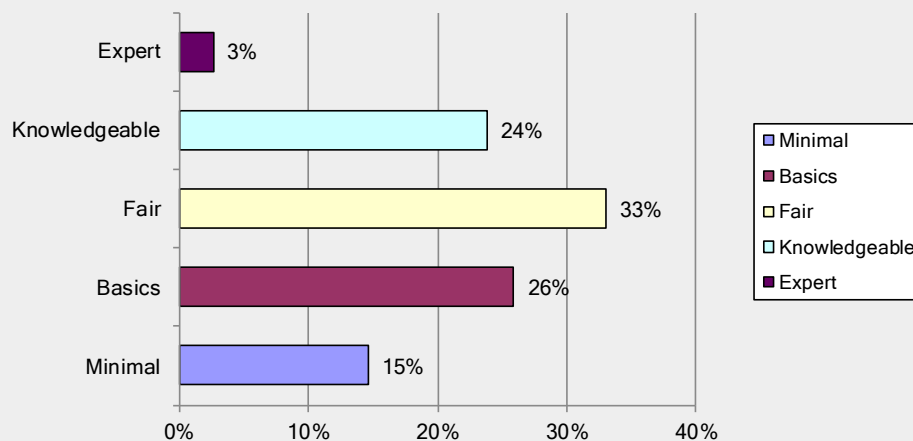
Rating	Percentage
Expert	3%
Knowledgeable	24%
Fair	33%
Basics	26%
Minimal	15%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert

How would you rate your knowledge of today's lane conditions?

Rating	Percentage
Expert	3%
Knowledgeable	26%
Fair	35%
Basics	25%
Minimal	12%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert
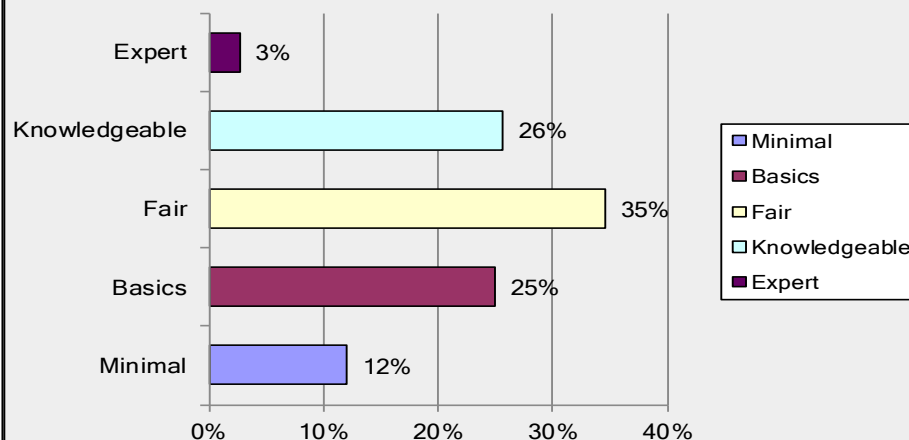
KNOWLEDGE OF TECHNOLOGY (CONT'D)

- 25% notice changes to lane conditions weekly, 51% notice them each game, and 15% notice them each shot

- 77% have Minimal, Basics, or Fair knowledge of in regards to the overall flatness of the lane and the importance of it, while 21% consider themselves Knowledgeable
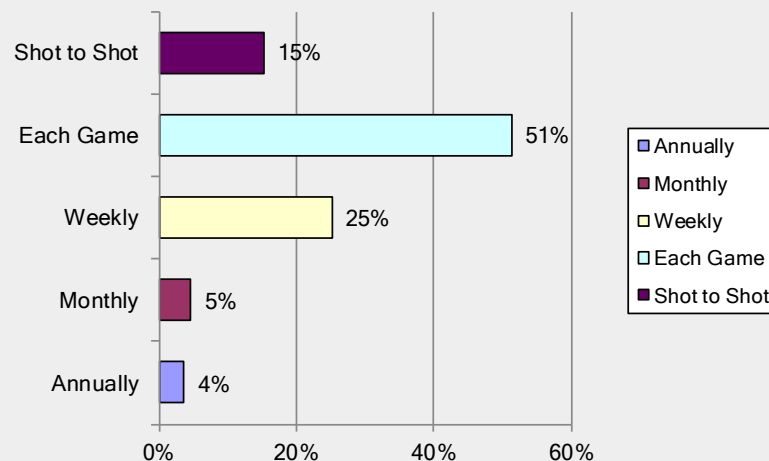
How often do you notice changes in lane conditions?

Category	Value
Shot to Shot	15%
Each Game	51%
Weekly	25%
Monthly	5%
Annually	4%

Legend: Annually, Monthly, Weekly, Each Game, Shot to Shot

How would you rate your knowledge in regards to the overall flatness of the lane and the importance of it?

Category	Value
Expert	3%
Knowledgeable	21%
Fair	31%
Basics	23%
Minimal	23%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert
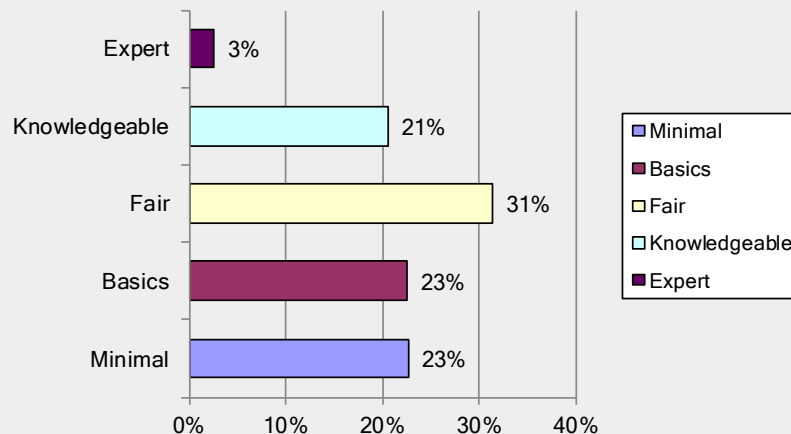
SECTION 3
RESPONDENT PROFILE - IBPSIA

DEMOGRAPHICS:

- 92 respondents

- 95% Male, 5% Female

- 97% between the ages of 30 and 60+

- 23% ages 30 to 49, 74% age 50
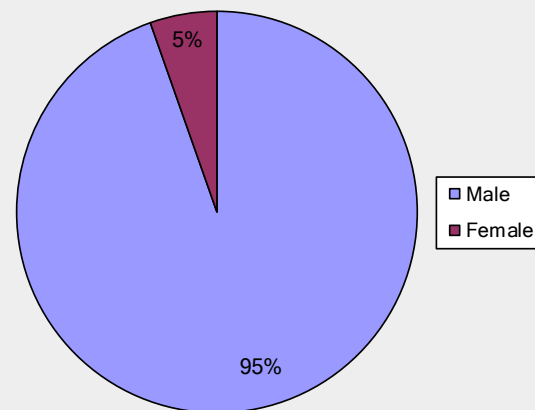
GENDER

- 5% Female
- 95% Male

AGE

Age	Percent
Under 30	3%
30-39	4%
40-49	19%
50-59	33%
60+	41%
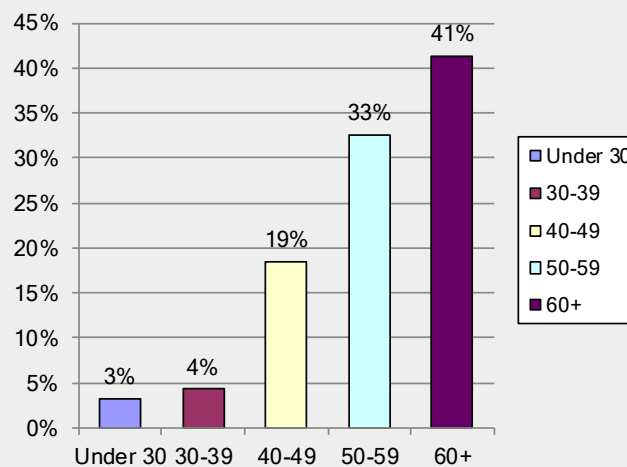
BOWLING PROFILE:

- 91% have bowled for 21+ years

- 79% classify themselves as Above Average bowlers; 17% classify themselves as Elite

BOWLING EXPERIENCE

	Value
Less than 1 year	0%
1-5 years	0%
6-10 years	1%
11-20 years	8%
21+ years	91%

Legend:
- Less than 1 year
- 1-5 years
- 6-10 years
- 11-20 years
- 21+ years

BOWLING SKILL

	Value
Beginner	0%
Below Average	0%
Average	4%
Above Average	79%
Elite	17%
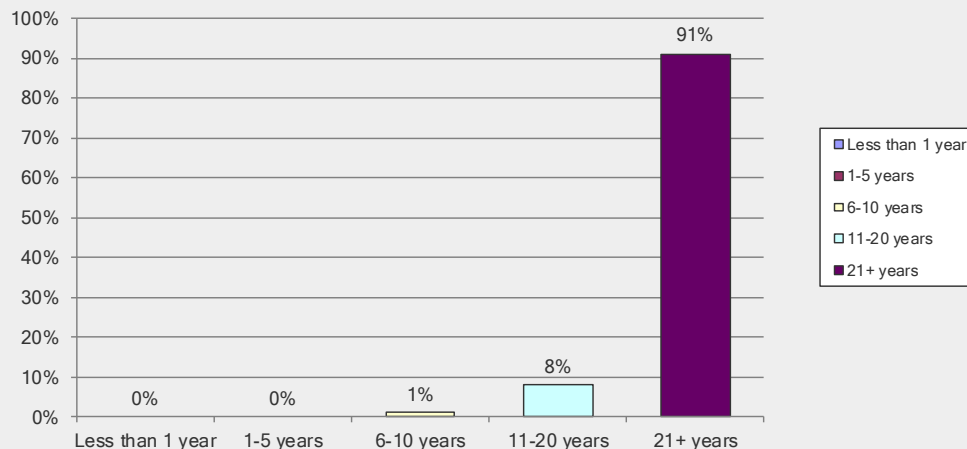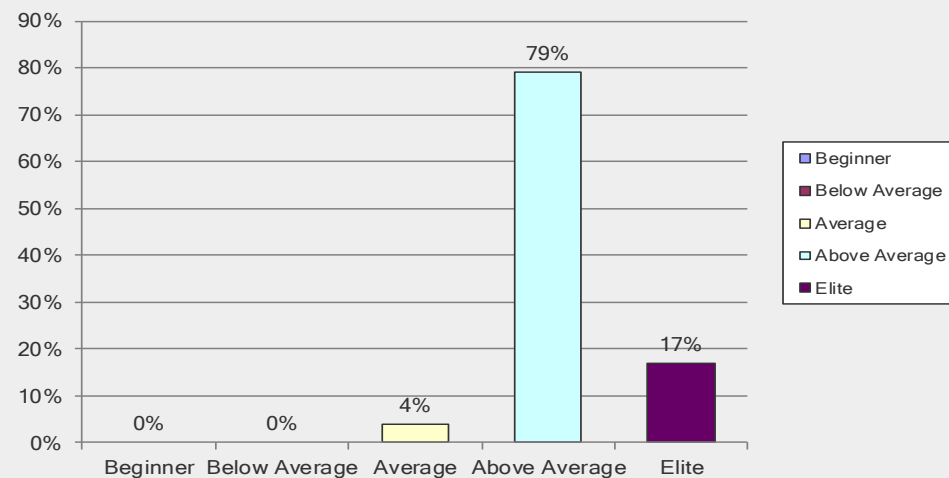
Legend:
- Beginner
- Below Average
- Average
- Above Average
- Elite

BOWLING PROFILE (CONT'D) :

-70% bowl more than one time per week

- 95% bowl in 1+ tournaments per year

What is your bowling average?

More than 220 – 25%
201-220 – 53%
181-200 – 20%
151-180 – 2%
Less than 150 – 0%

How many times do you bowl league each week?
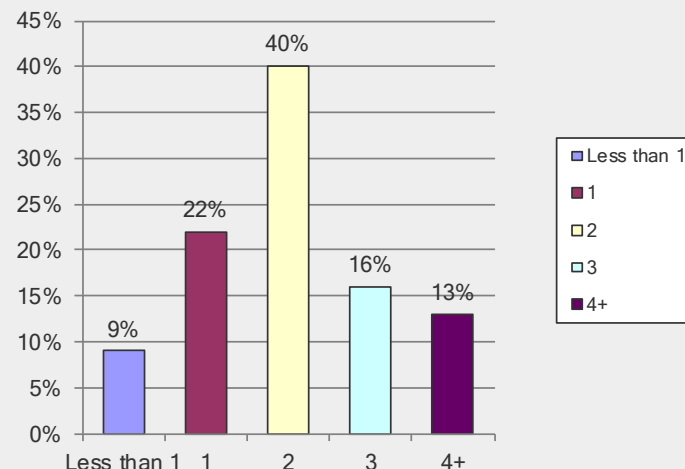
Category	Value
Less than 1	9%
1	22%
2	40%
3	16%
4+	13%

How many times do you bowl tournaments each year?

Category	Value
0	5%
1-5	48%
6-10	24%
11-15	16%
16+	7%
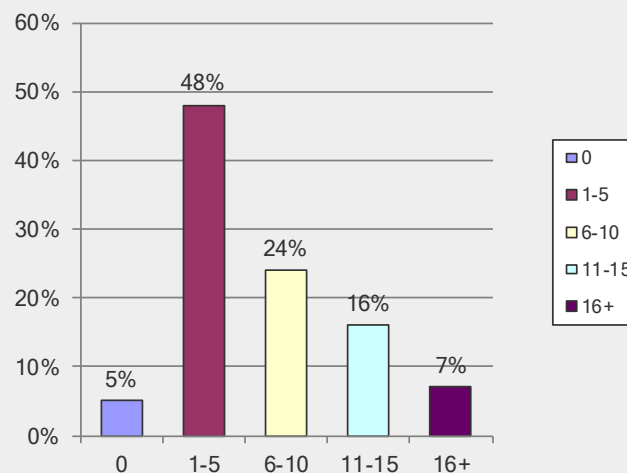
BOWLING EQUIPMENT PROFILE

- 10% own between 2-4 balls; 90% own 5+ balls (44% own 13+ balls)

- 19% use 1-2 balls when they bowl; 81% use 3+ balls when they bowl
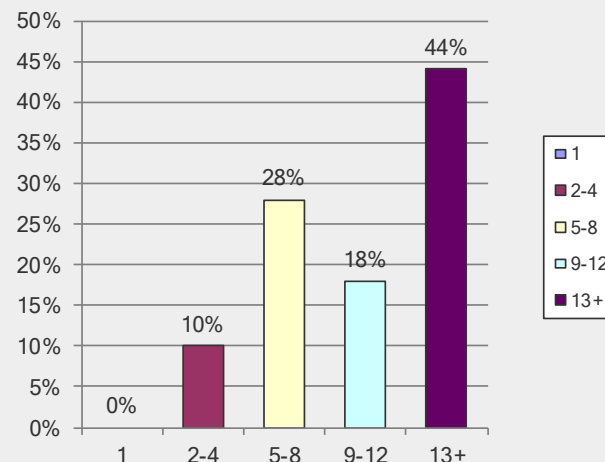
How many bowling balls do you own?

Category	Percentage
1	0%
2-4	10%
5-8	28%
9-12	18%
13+	44%

How many bowling balls do you use when you bowl?

Category	Percentage
1-2	19%
3-4	52%
5-6	26%
7-8	3%
9+	0%
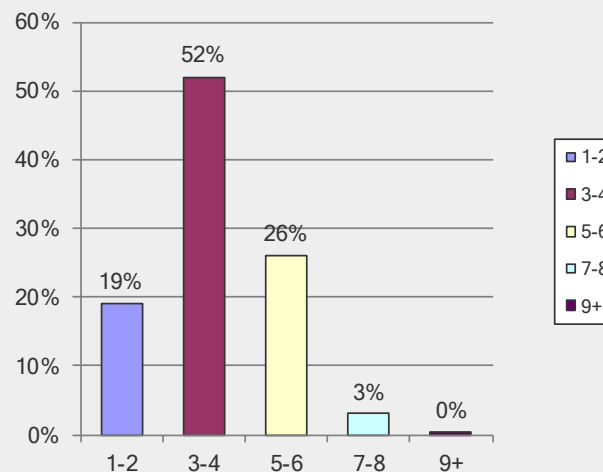
KNOWLEDGE OF TECHNOLOGY

- 55% consider their expertise of bowling technology to be Knowledgeable, while 41% rate themselves as Expert

- 69% have Knowledgeable expertise of lane conditions, while 25% consider themselves Expert

How would you rate your knowledge of bowling ball technology?
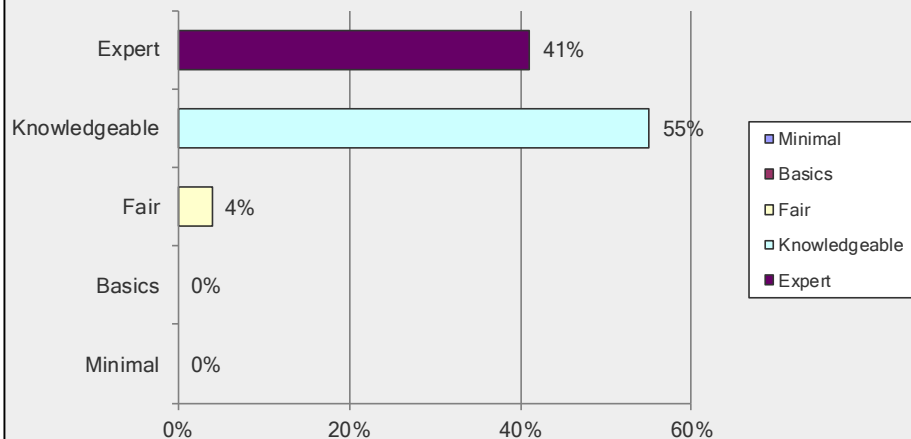
Rating	Value
Expert	41%
Knowledgeable	55%
Fair	4%
Basics	0%
Minimal	0%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert

How would you rate your knowledge of today's lane conditions?

Rating	Value
Expert	25%
Knowledgeable	69%
Fair	6%
Basics	0%
Minimal	0%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert
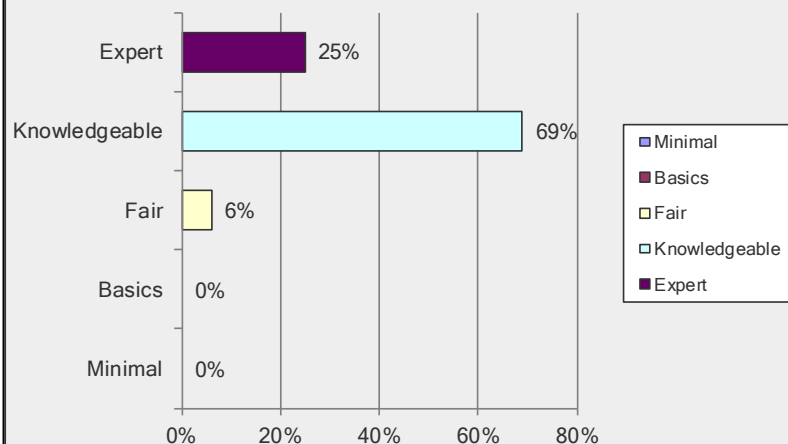
KNOWLEDGE OF TECHNOLOGY (CONT'D)

- 48% notice changes to lane conditions each game, and 50% notice them each shot

- 64% have Knowledgeable expertise in regards to the overall flatness of the lane and the importance of it, while 26% consider themselves Expert
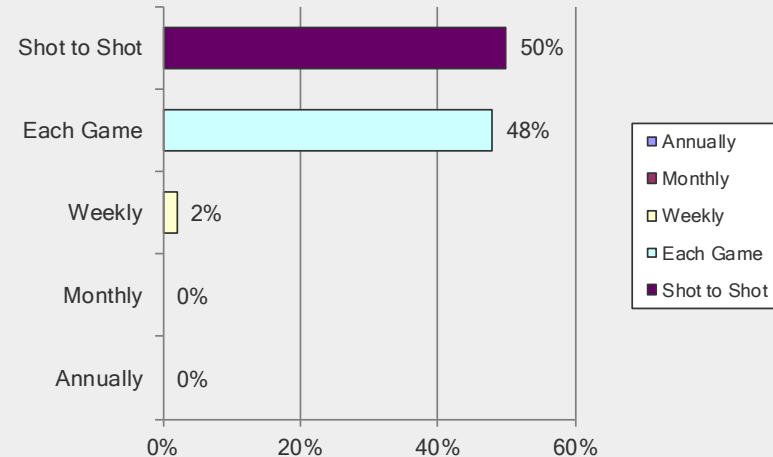
How often do you notice changes in lane conditions?

	%
Shot to Shot	50%
Each Game	48%
Weekly	2%
Monthly	0%
Annually	0%

Legend:
- Annually
- Monthly
- Weekly
- Each Game
- Shot to Shot

How would you rate your knowledge in regards to the overall flatness of the lane and the importance of it?

	%
Expert	26%
Knowledgeable	64%
Fair	10%
Basics	0%
Minimal	0%

Legend:
- Minimal
- Basics
- Fair
- Knowledgeable
- Expert

SECTION 4
RESPONDENT PROFILE - BPAA

GENDER

- Male
- Female

16%

84%

DEMOGRAPHICS:

- 287 respondent

- 84% Male, 16% Female

- 60% between the ages of 30 and 60

- 4% less than 30, 36% age 60+

AGE

- Under 30
- 30-39
- 40-49
- 50-59
- 60+

Under 30	30-39	40-49	50-59	60+
4%	12%	18%	30%	36%
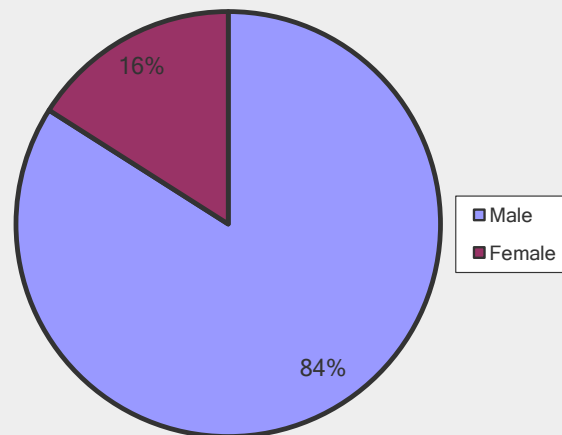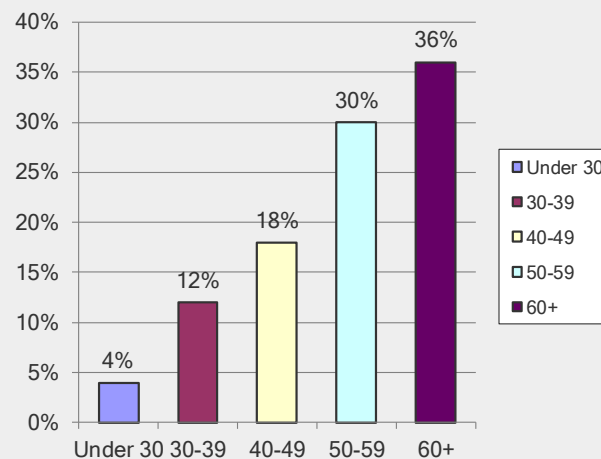
On average, the **BOWLING CENTERS** of BPAA survey respondents:

- Have 26 lanes per center

- Host 19 certified leagues each week

- Host 7 tournaments each year

It should also be noted that the average for the league and tournament data is much higher than the median, indicating that several busier centers are skewing the average higher.

Bowling Center Information	Average	Median
How many lanes are in your center?	25.9	24
Approximately, how many certified leagues does your center host each week?	18.7	9
Approximately, how many tournaments does your center host each year?	7.3	4

BOWLING EQUIPMENT PROFILE

- 68% own between 2-8 balls

- 95% use 4 or less balls when they bowl
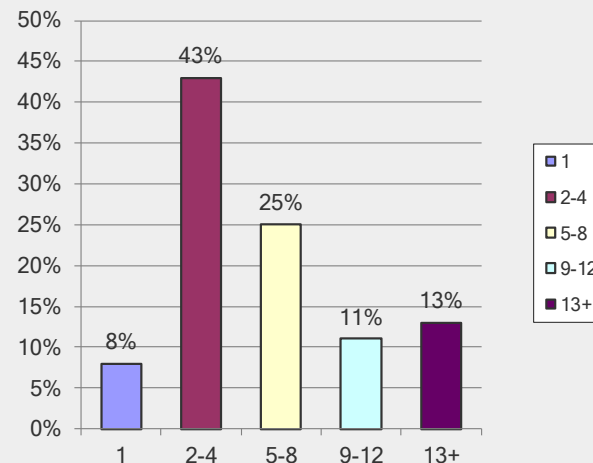
How many bowling balls do you own?

1	8%
2-4	43%
5-8	25%
9-12	11%
13+	13%

How many bowling balls do you use when you bowl?

1-2	62%
3-4	33%
5-6	5%
7-8	0%
9+	0%
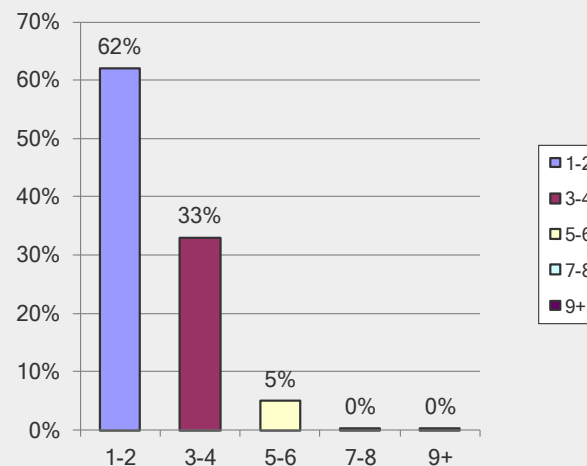
KNOWLEDGE OF TECHNOLOGY & CONDITIONS

- 49% consider their expertise of bowling ball technology to be Knowledgeable or Expert

- 66% consider themselves Knowledgeable or Expert when it comes to today's lane conditions

How would you rate your knowledge of bowling ball technology?

Rating	Value
Expert	10%
Knowledgeable	39%
Fair	29%
Basics	14%
Minimal	7%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert

How would you rate your knowledge of today's lane conditions?

Rating	Value
Expert	15%
Knowledgeable	51%
Fair	22%
Basics	8%
Minimal	3%

Legend: Minimal, Basics, Fair, Knowledgeable, Expert
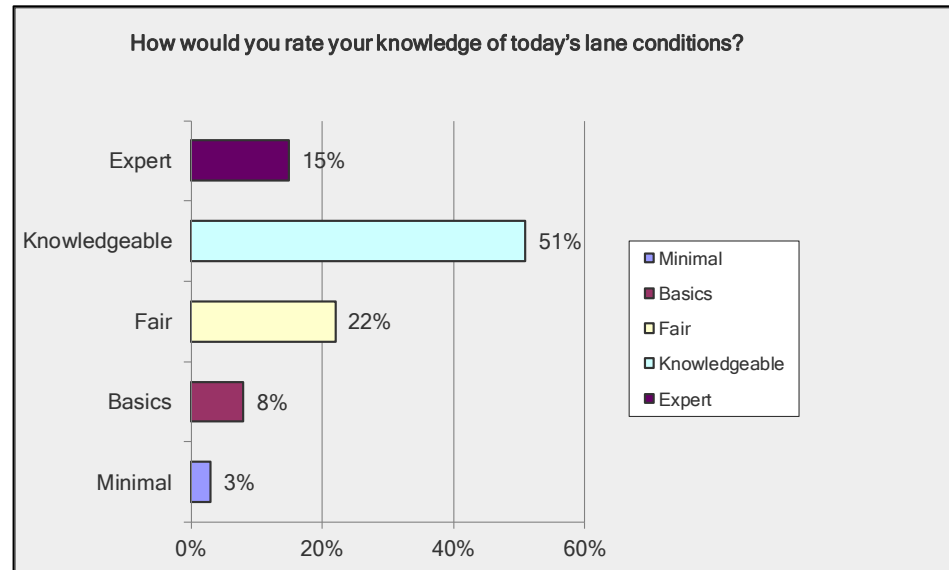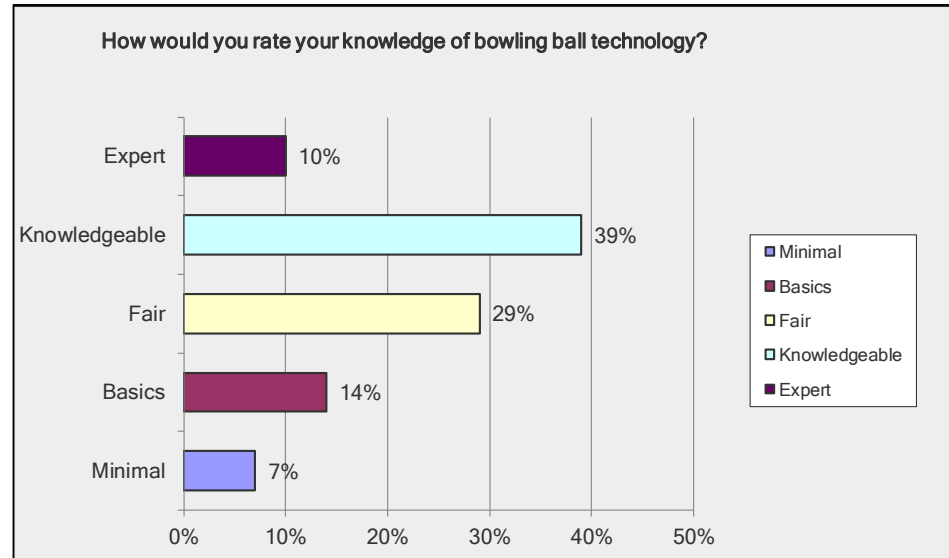
KNOWLEDGE OF TECHNOLOGY & CONDITIONS

- 59% notice changes to lane conditions each game, and 18% notice them each shot

- 52% have Knowledgeable expertise in regards to the overall flatness of the lane and the importance of it, while another 10% consider themselves Expert
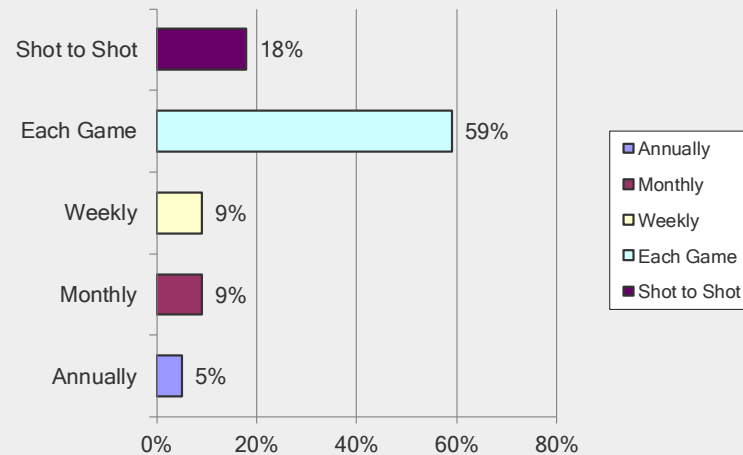
How often do you notice changes in lane conditions?

Category	Value
Shot to Shot	18%
Each Game	59%
Weekly	9%
Monthly	9%
Annually	5%

Legend:
- Annually
- Monthly
- Weekly
- Each Game
- Shot to Shot

How would you rate your knowledge in regards to the overall flatness of the lane and the importance of it?

Category	Value
Expert	10%
Knowledgeable	52%
Fair	22%
Basics	10%
Minimal	6%

Legend:
- Minimal
- Basics
- Fair
- Knowledgeable
- Expert

SECTION 5
SURVEY RESULTS

On a 5-point scale, where 5 = Very Satisfied and 1 = Very Dissatisfied, survey respondents were asked to indicate their overall satisfaction with the quality of bowling technology.

Overall satisfaction with bowling technology skews high with USBC, IBPSIA, and BPAA members, with 60-63% having above average satisfaction, and only 7-13% having below average satisfaction.

USBC — Average Rating: 3.5

5 - Very Satisfied	4	3	2	1 - Very Dissatisfied
20%	42%	31%	5%	2%

IBPSIA — Average Rating: 3.8

5 - Very Satisfied	4	3	2	1 - Very Dissatisfied
27%	34%	28%	9%	1%

BPAA — Average Rating: 3.7

5 - Very Satisfied	4	3	2	1 - Very Dissatisfied
21%	42%	25%	9%	4%

On a 5-point scale, where 5 = Strongly Agree and 1 = Strongly Disagree, survey respondents were asked to evaluate several statements about the current state of bowling technology.

The majority of respondents agreed that ensuring certified lanes are as flat as possible is important, USBC approved bowling balls are held to specifications, the flatness of certified lanes affects the averages bowled in USBC leagues, and centers should be evaluated for difficulty.

The opinion that respondents most disagreed on is if all USBC-certified lanes should play the same from lane to lane. USBC Members agree with that statement, whereas IBPSIA/BPAA disagree.

Line chart of bowling technology opinions on a 5.00 to 2.00 scale comparing USBC Average, IBPSIA Average, and BPAA Average.

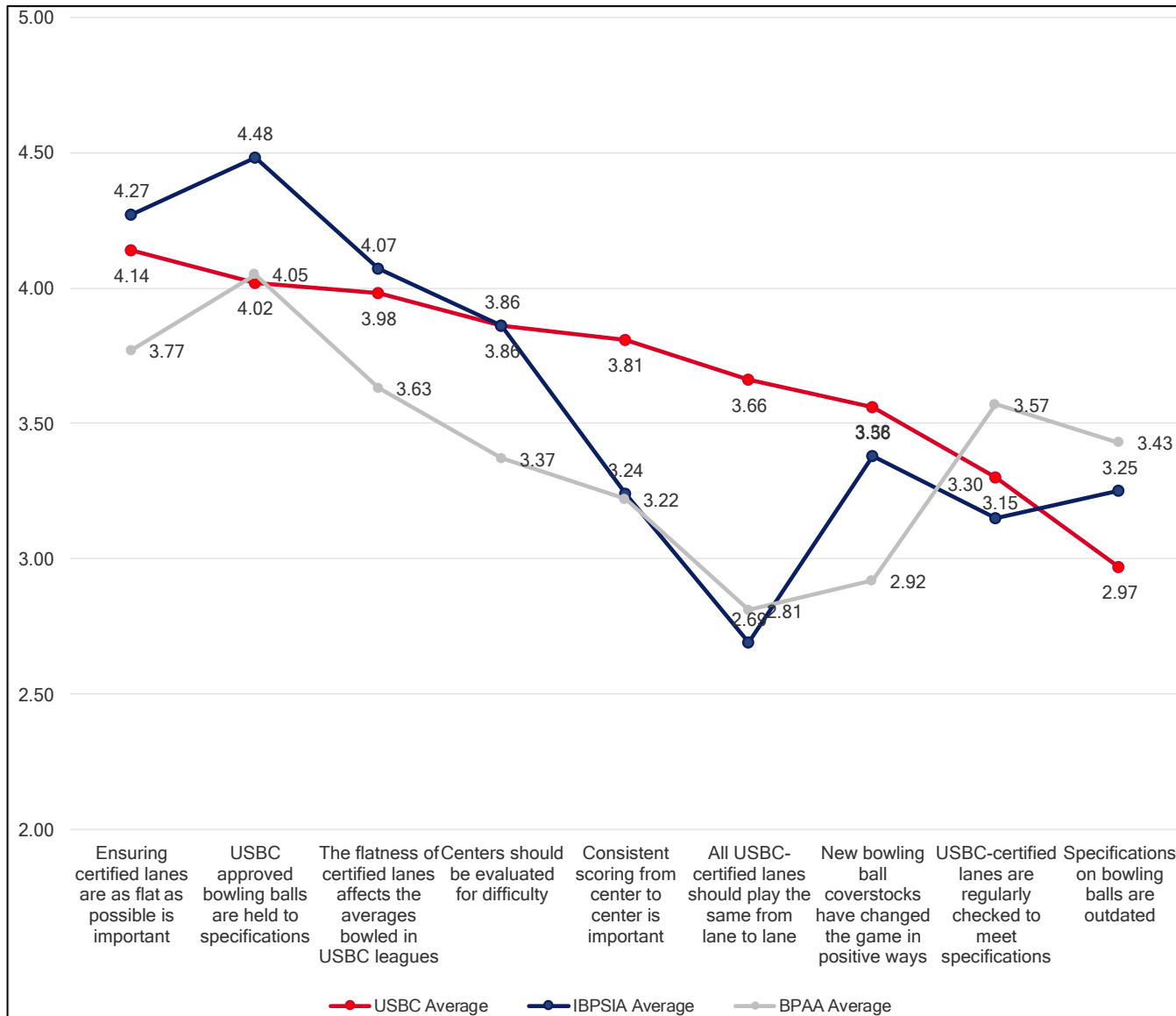| Statement	USBC Average	IBPSIA Average	BPAA Average
Ensuring certified lanes are as flat as possible is important	4.14	4.27	3.77
USBC approved bowling balls are held to specifications	4.02	4.48	4.05
The flatness of certified lanes affects the averages bowled in USBC leagues	3.98	4.07	3.63
Centers should be evaluated for difficulty	3.86	3.86	3.37
Consistent scoring from center to center is important	3.81	3.24	3.22
All USBC-certified lanes should play the same from lane to lane	3.66	2.69	2.81
New bowling ball coverstocks have changed the game in positive ways	3.56	3.38	2.92
USBC-certified lanes are regularly checked to meet specifications	3.30	3.15	3.57
Specifications on bowling balls are outdated	2.97	3.25	3.43

28
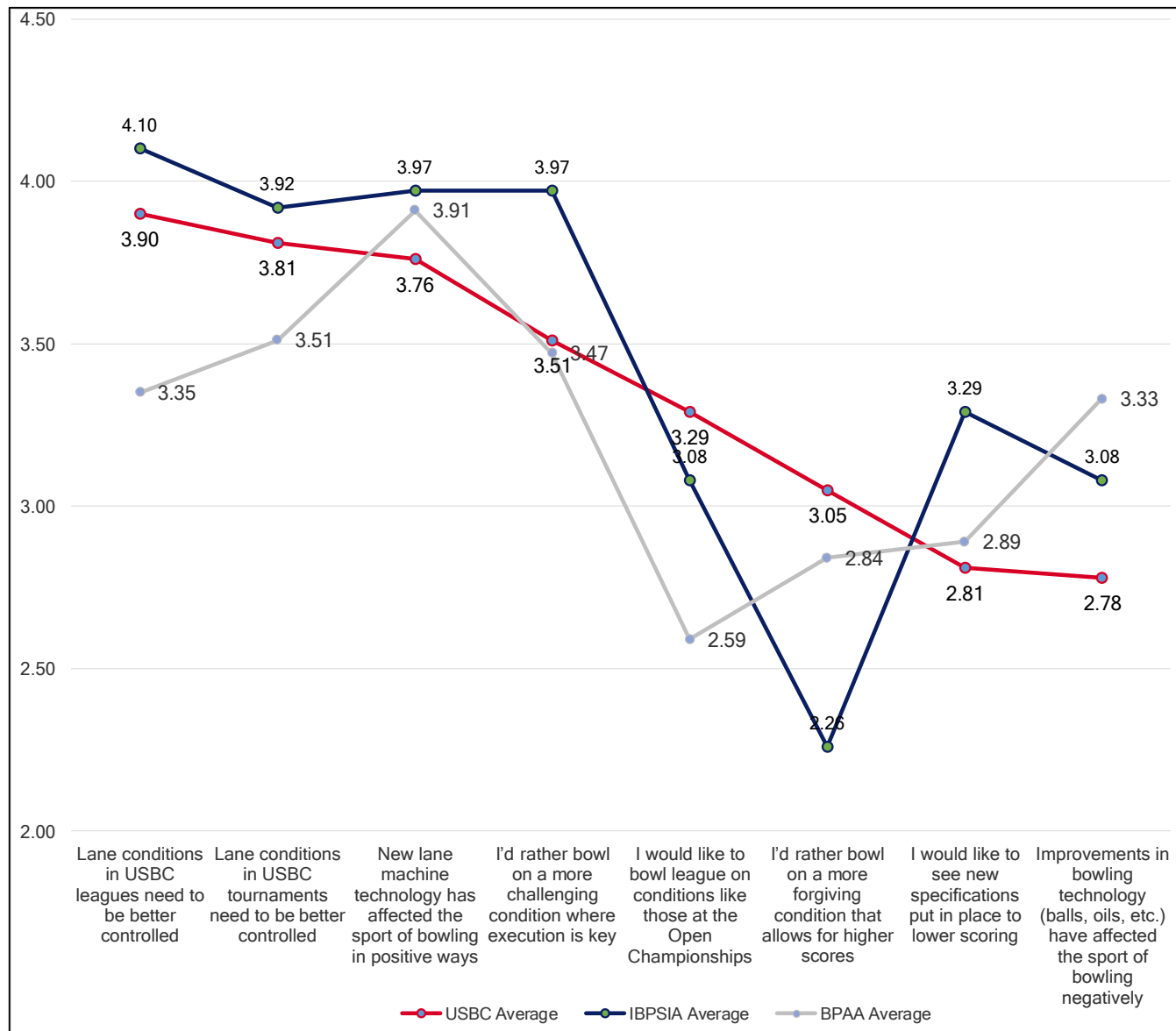
The majority of respondents agreed that new lane machine technology has affected the sport of bowling in positive ways.

Disagreement was more widespread regarding lane conditions in USBC leagues/tournaments, and bowling on Open Championships-like vs. forgiving conditions.

	Lane conditions in USBC leagues need to be better controlled	Lane conditions in USBC tournaments need to be better controlled	New lane machine technology has affected the sport of bowling in positive ways	I'd rather bowl on a more challenging condition where execution is key	I would like to bowl league on conditions like those at the Open Championships	I'd rather bowl on a more forgiving condition that allows for higher scores	I would like to see new specifications put in place to lower scoring	Improvements in bowling technology (balls, oils, etc.) have affected the sport of bowling negatively
USBC Average	3.90	3.81	3.76	3.51	3.29	3.05	2.81	2.78
IBPSIA Average	4.10	3.92	3.97	3.97	3.08	2.26	3.29	3.08
BPAA Average	3.35	3.51	3.91	3.47	2.59	2.84	2.89	3.33

There was a generally positive or very positive attitude amongst respondents regarding the overall improvements to bowling technology over the last 30 years (ranging from 57% to 75% Positive/Very Positive).
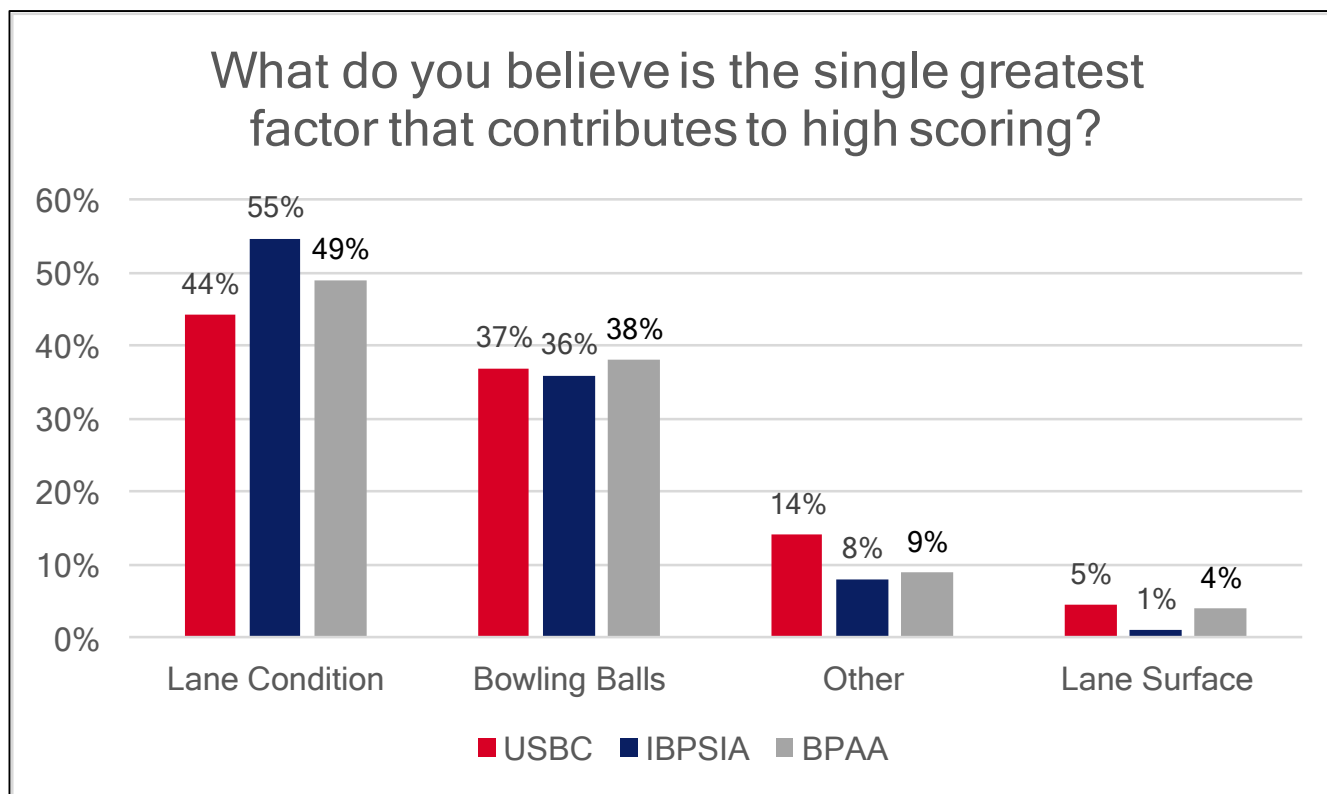
Overall, the improvements due to bowling technology (balls, oils, etc.) over the past 30 years have been:

	USBC	IBPSIA	BPAA
Very Positive	18%	14%	7%
Positive	57%	53%	50%
Neutral	16%	13%	22%
Negative	7%	15%	17%
Very Negative	2%	5%	5%
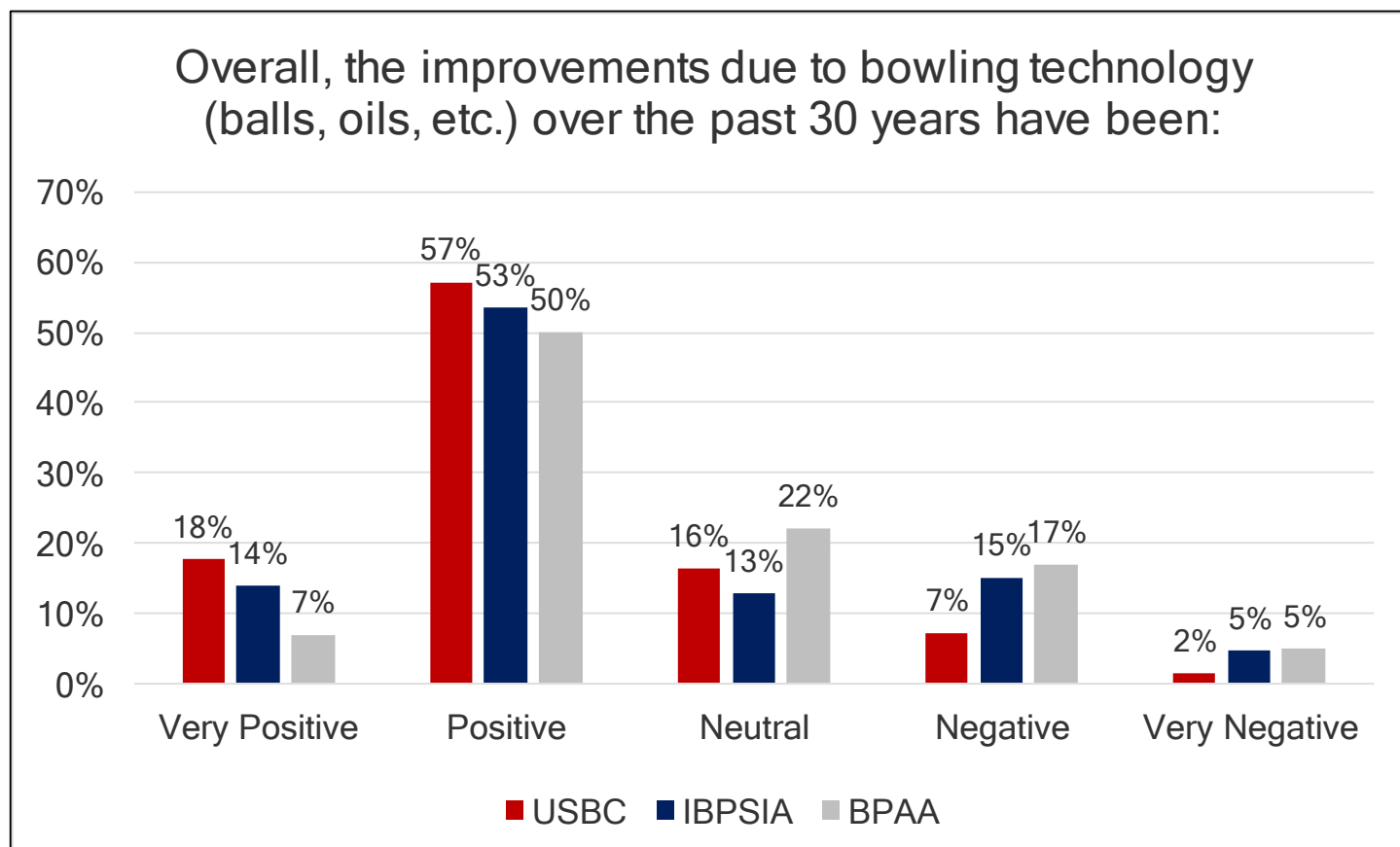
Respondents felt that the single greatest factor contributing to high scoring is lane conditions (44% to 55%), followed by bowling balls (36% to 38%).

The majority of respondents who selected "Other" specified that the skill and talent level of the bowler is the greatest factor that contributes to high scores.

What do you believe is the single greatest factor that contributes to high scoring?

|	USBC	IBPSIA	BPAA
Lane Condition	44%	55%	49%
Bowling Balls	37%	36%	38%
Other	14%	8%	9%
Lane Surface	5%	1%	4%

The majority of respondents feel that league lane conditions should be standard (54% to 65%).

When asked about tournament lane conditions, an even stronger majority of respondents felt that they should be challenging or very challenging (72% to 87%).

League lane conditions need to be:
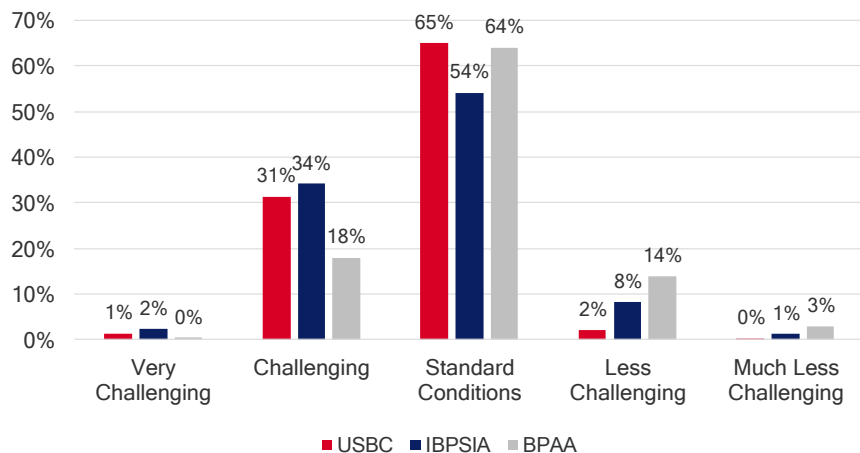
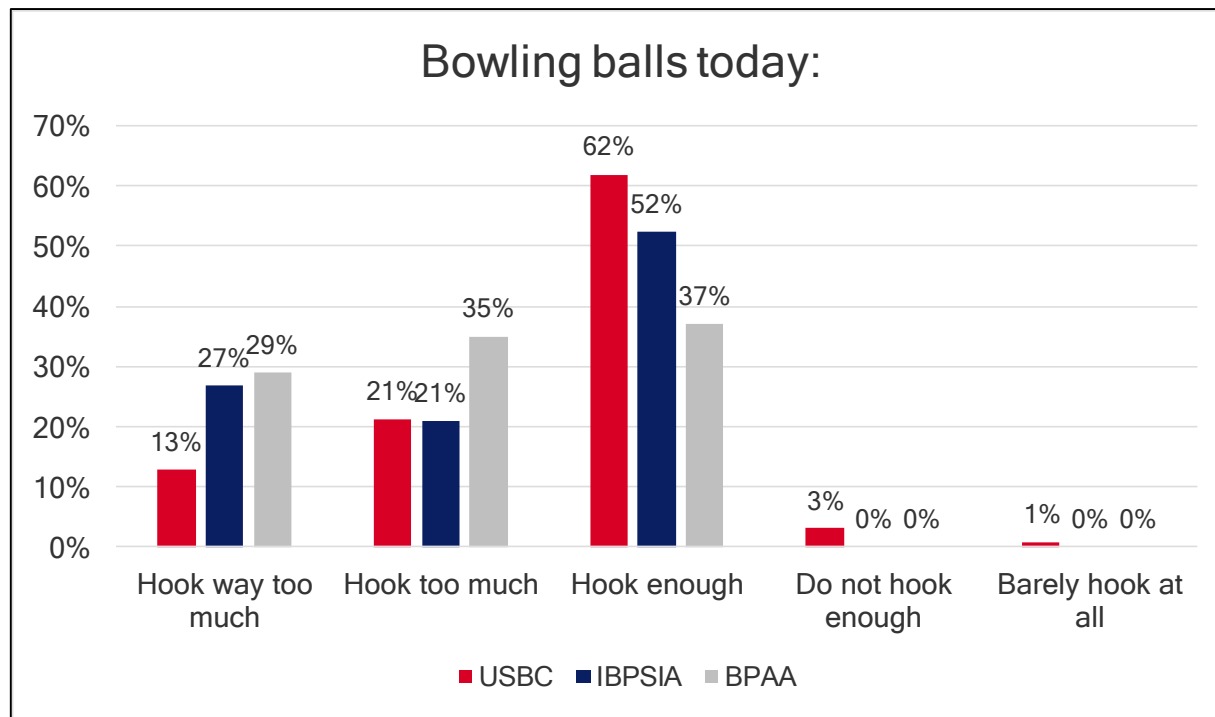Tournament lane conditions need to be:
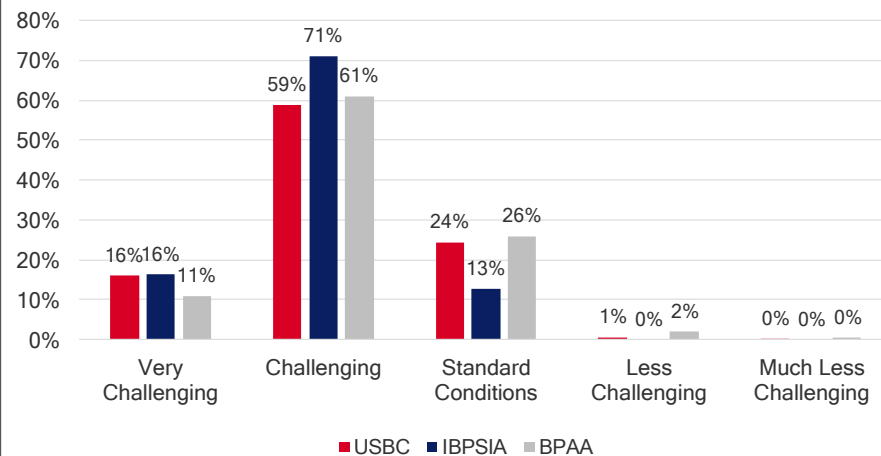
The majority of respondents from both USBC and IBPSIA feel that bowling balls today hook enough (62% and 52% respectively), however BPAA members are split more evenly between hook enough, hook too much, or hook way too much.
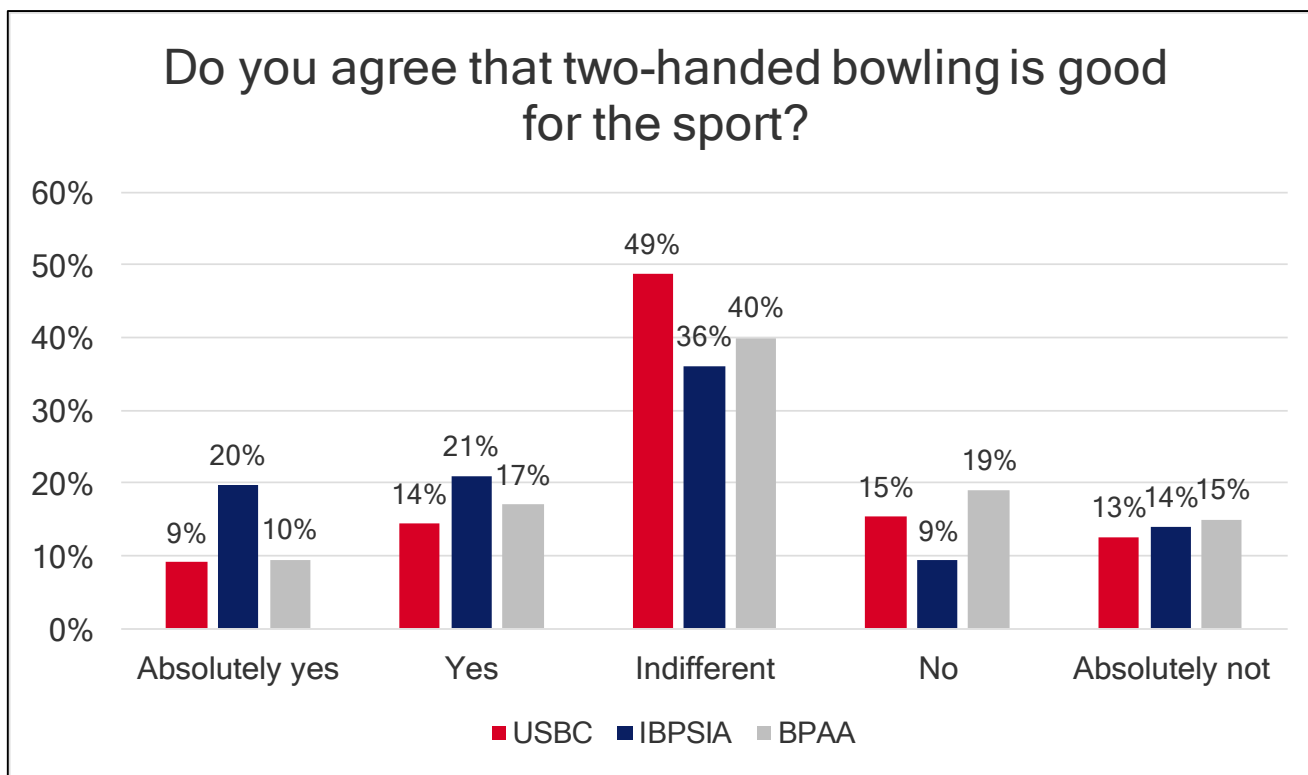

Bowling balls today:

Many respondents in the USBC, IBPSIA, and BPAA surveys are indifferent about two-handed bowling (49%, 36%, and 40% respectively). IBPSIA members tend to believe more strongly than USBC and BPAA members that that two-handed bowling is good or absolutely good for the sport (42%).

Do you agree that two-handed bowling is good for the sport?

	Absolutely yes	Yes	Indifferent	No	Absolutely not
USBC	9%	14%	49%	15%	13%
IBPSIA	20%	21%	36%	9%	14%
BPAA	10%	17%	40%	19%	15%

■USBC ■IBPSIA ■BPAA
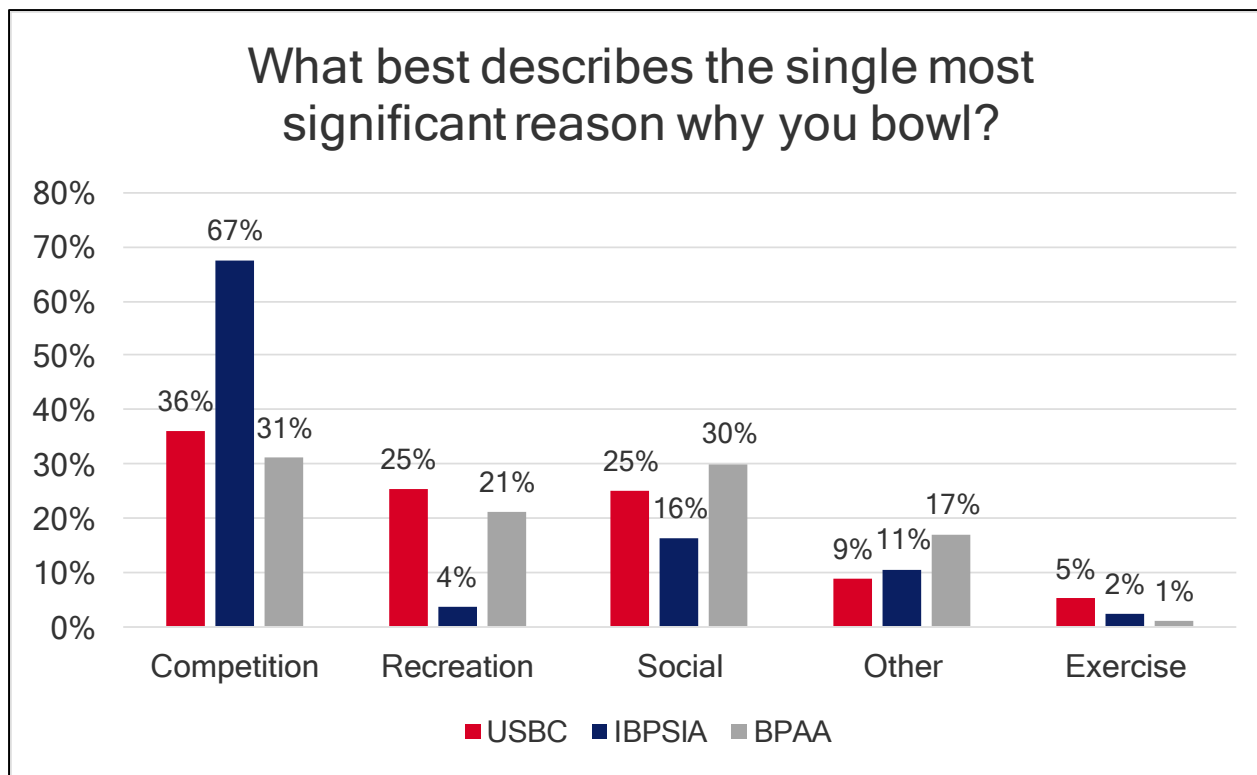
Competition is the primary reason (67%) why IBPSIA member choose to bowl. Whereas USBC and BPAA members' motivations are more evenly distributed across Competition, Recreation, and Social reasons.

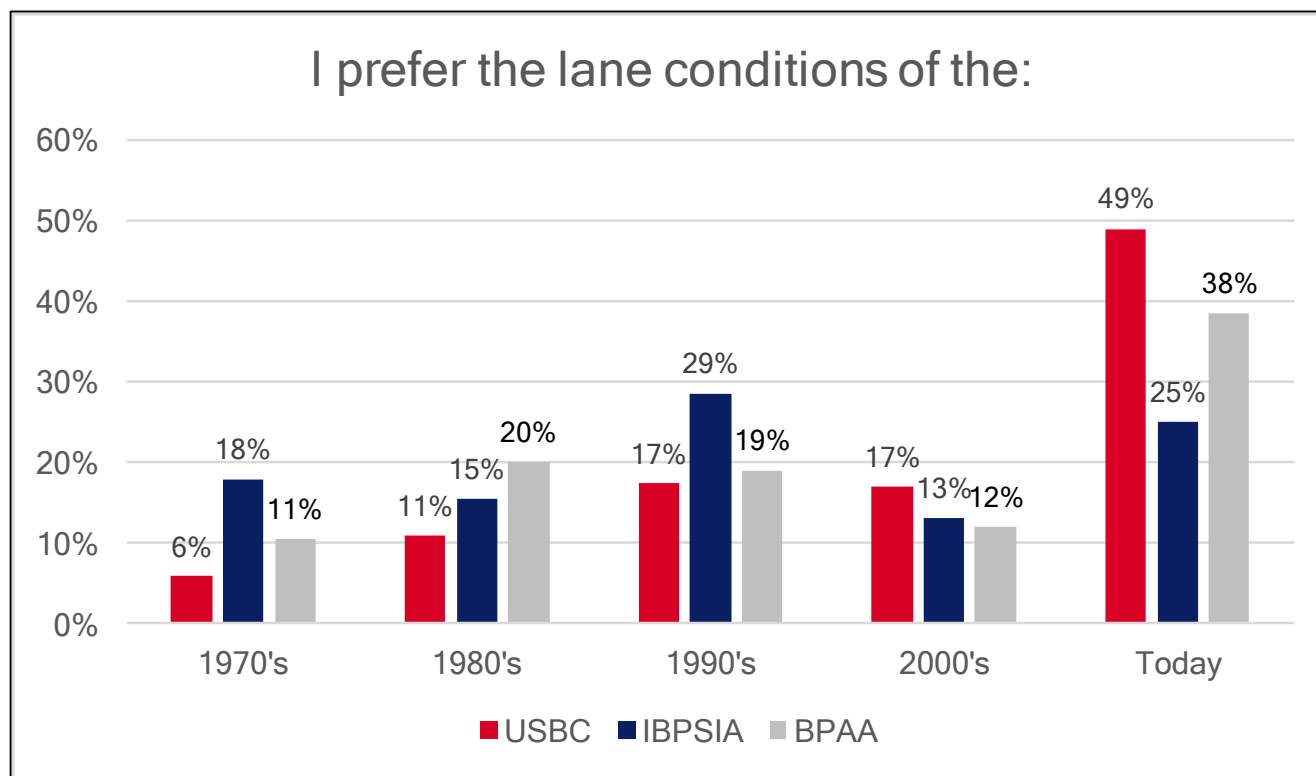What best describes the single most significant reason why you bowl?

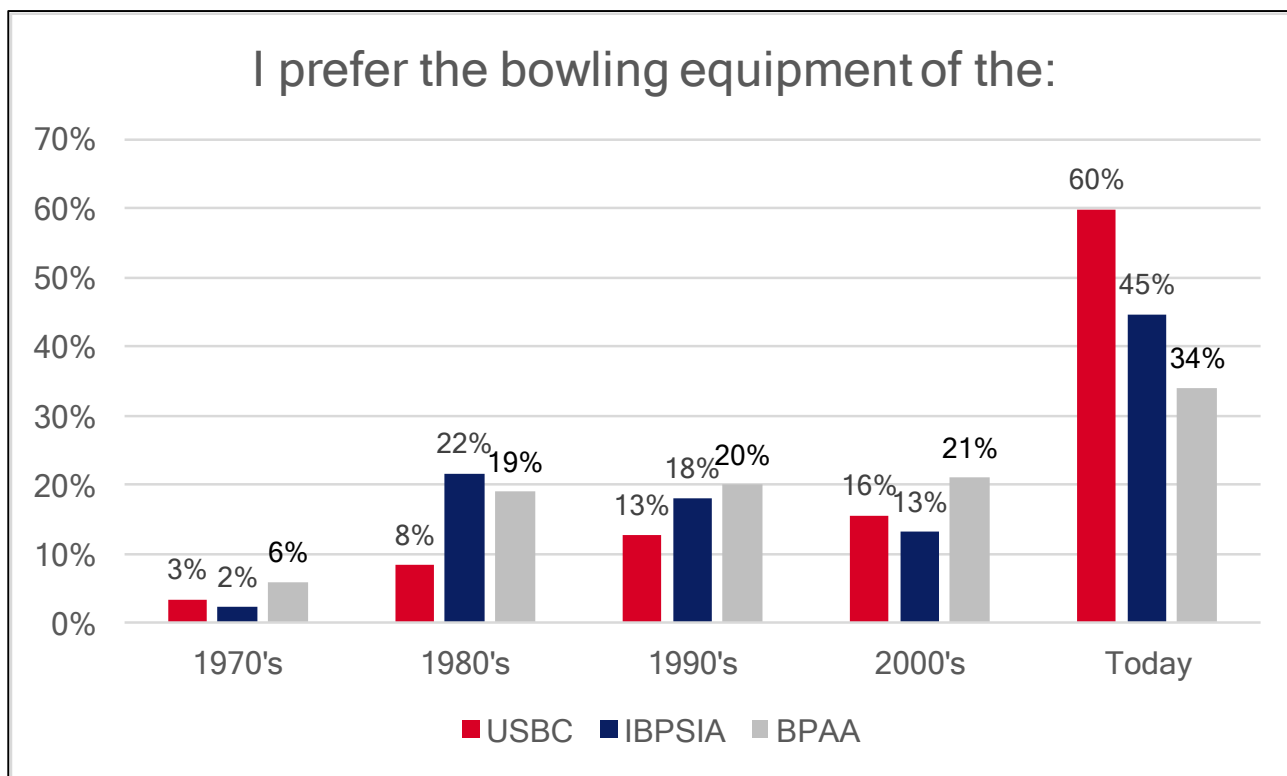|	Competition	Recreation	Social	Other	Exercise
USBC	36%	25%	25%	9%	5%
IBPSIA	67%	4%	16%	11%	2%
BPAA	31%	21%	30%	17%	1%

A plurality of USBC and BPAA members prefer the lane conditions of today over previous eras (49% and 38%, respectively).

IBPSIA members, however, have a much more varied response, and actually favored the lane conditions of the 1990s (29% of respondents).

I prefer the lane conditions of the:

	1970's	1980's	1990's	2000's	Today
USBC	6%	11%	17%	17%	49%
IBPSIA	18%	15%	29%	13%	25%
BPAA	11%	20%	19%	12%	38%

The majority of USBC respondents (60%) and a plurality of IBPSIA and BPAA respondents (45% and 34%, respectively) prefer the bowling equipment of Today over previous eras.
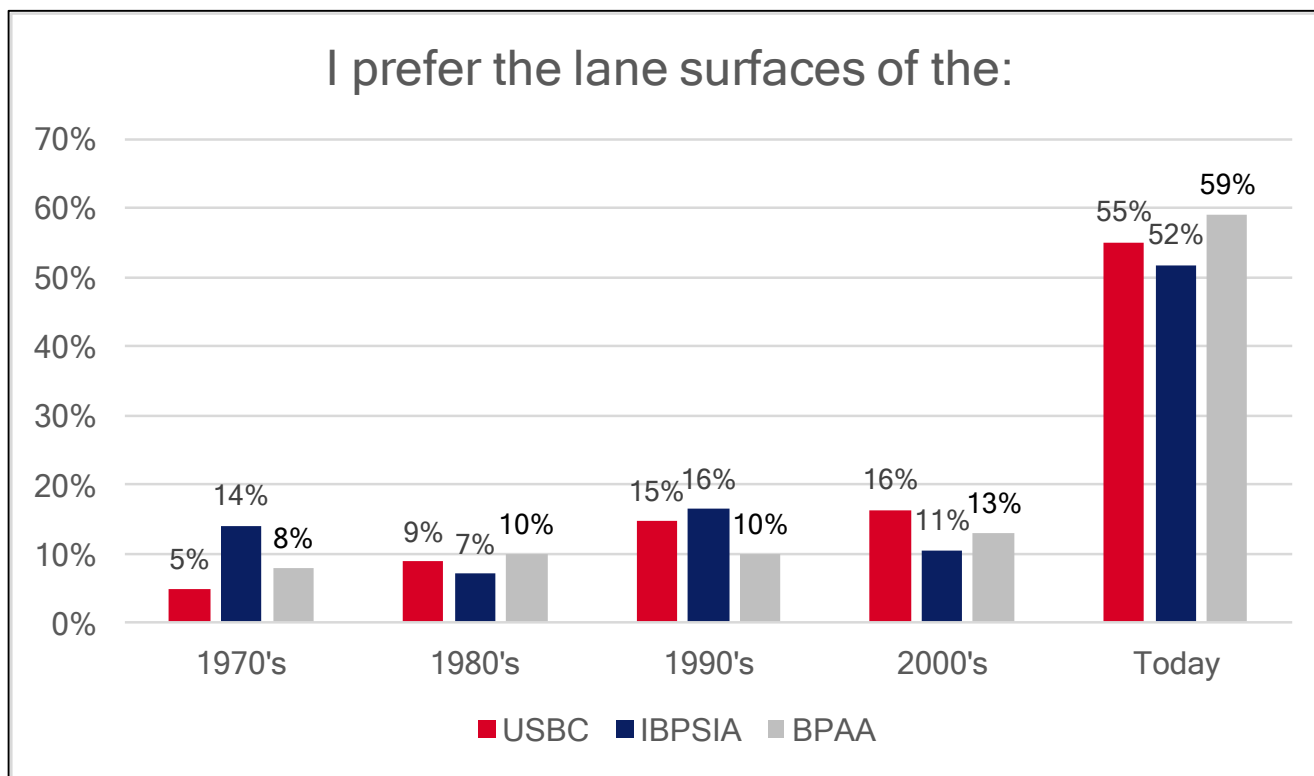
I prefer the bowling equipment of the:

	1970's	1980's	1990's	2000's	Today
USBC	3%	8%	13%	16%	60%
IBPSIA	2%	22%	18%	13%	45%
BPAA	6%	19%	20%	21%	34%

A majority of each respondent group (USBC, IBPSIA, and BPAA) prefer the lane surfaces of Today (55%, 52%, and 59%, respectively).

I prefer the lane surfaces of the:

	1970's	1980's	1990's	2000's	Today
USBC	5%	9%	15%	16%	55%
IBPSIA	14%	7%	16%	11%	52%
BPAA	8%	10%	10%	13%	59%

■ USBC ■ IBPSIA ■ BPAA

A majority of USBC members (51%) prefer the scoring pace of Today, while a plurality of IBPSIA members (38%) actually favored the pace of the 1990's. BPAA members were more divided than USBC and IBPSIA, with 27% preferring Today, 23% preferring the 1980's, and 20% preferring the 1990's.
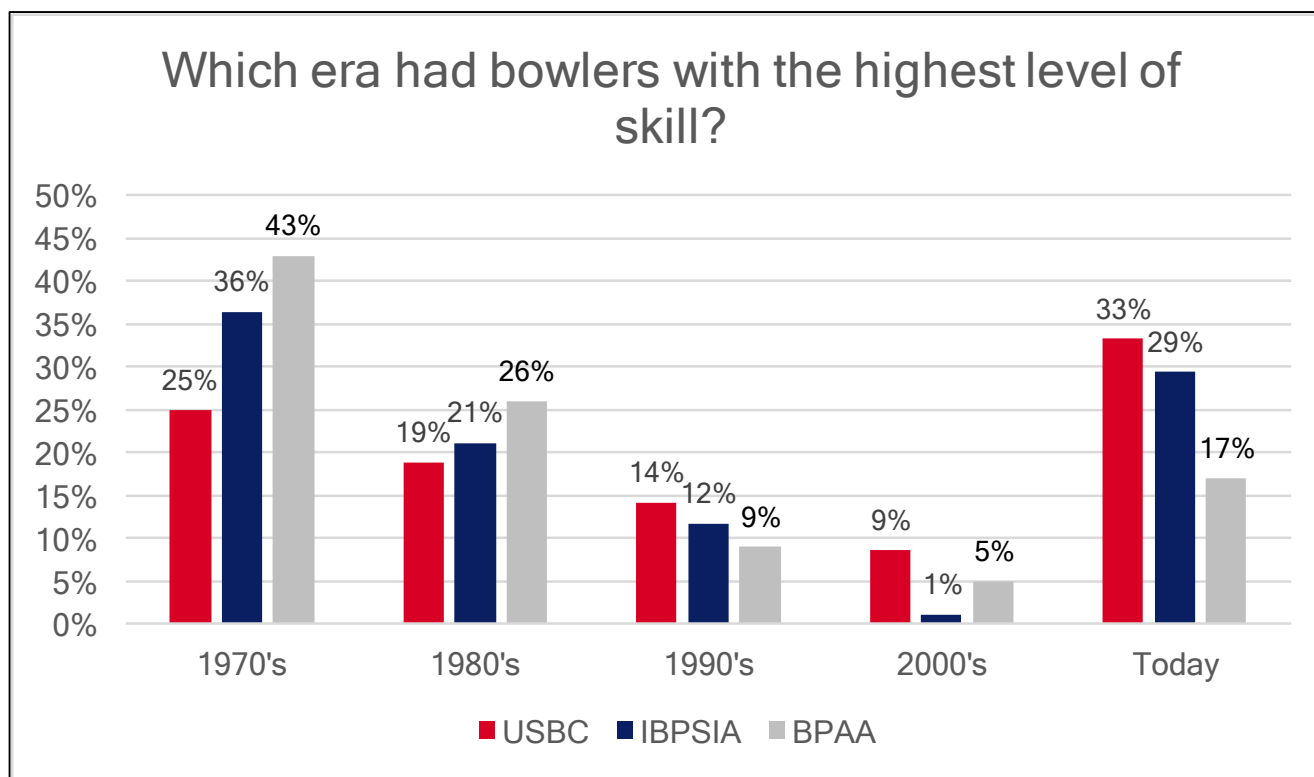
I prefer the scoring pace of the:
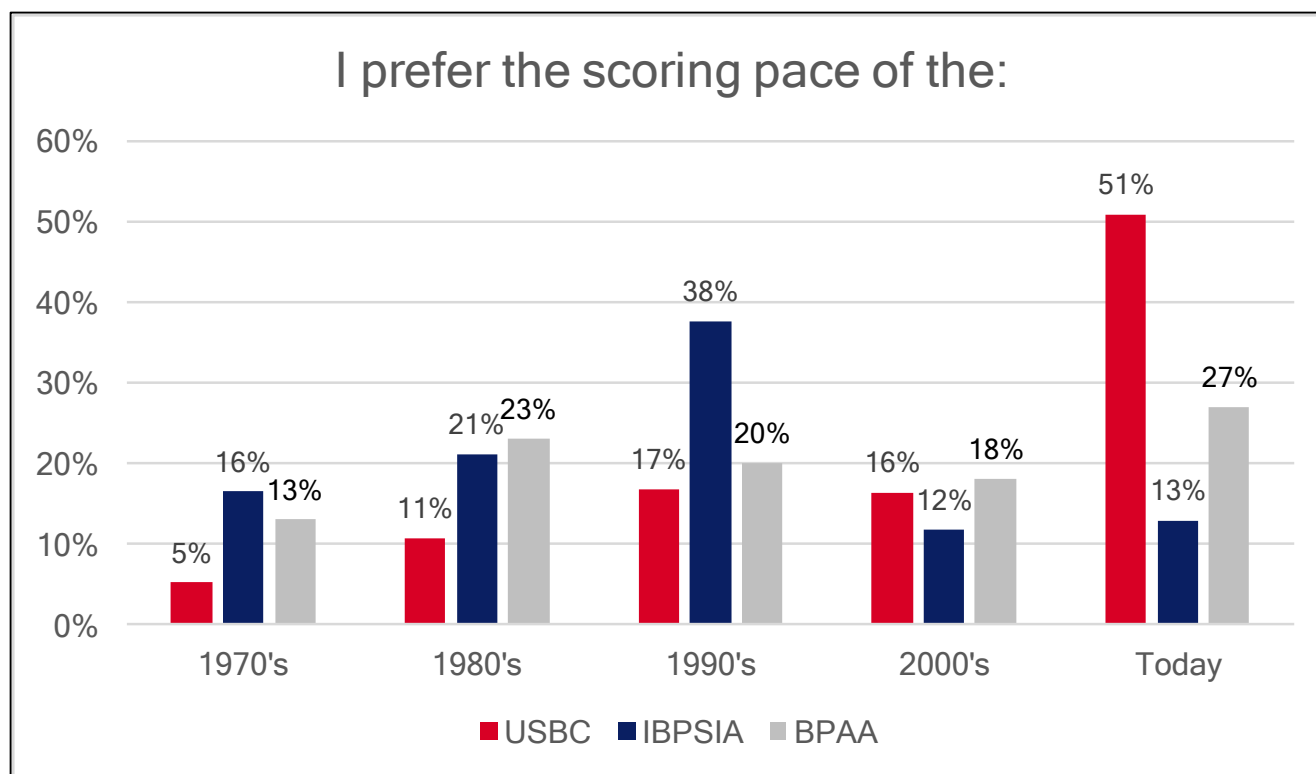
Pluralities of each respondent group feel that the most skilled bowlers existed in the 1970s (36% of IBPSIA and 43% of BPAA) and Today (33% of USBC).

Which era had bowlers with the highest level of skill?

	USBC	IBPSIA	BPAA
1970's	25%	36%	43%
1980's	19%	21%	26%
1990's	14%	12%	9%
2000's	9%	1%	5%
Today	33%	29%	17%

SECTION 6
SEGMENTATION BY BOWLER AVERAGE

Note: For this segmentation analysis, Victus Advisors combined the respondent pools of USBC, IBPSIA, and BPAA members, and then segmented their scores by five different ranges of bowler average.

There is a strong correlation between changes in bowling average and the level of **disagreement** with the following statements: "New bowling ball coverstocks have changed the game in positive ways", "Consistent scoring from center to center is important", and "All USBC-certified lanes should play the same from lane to lane".
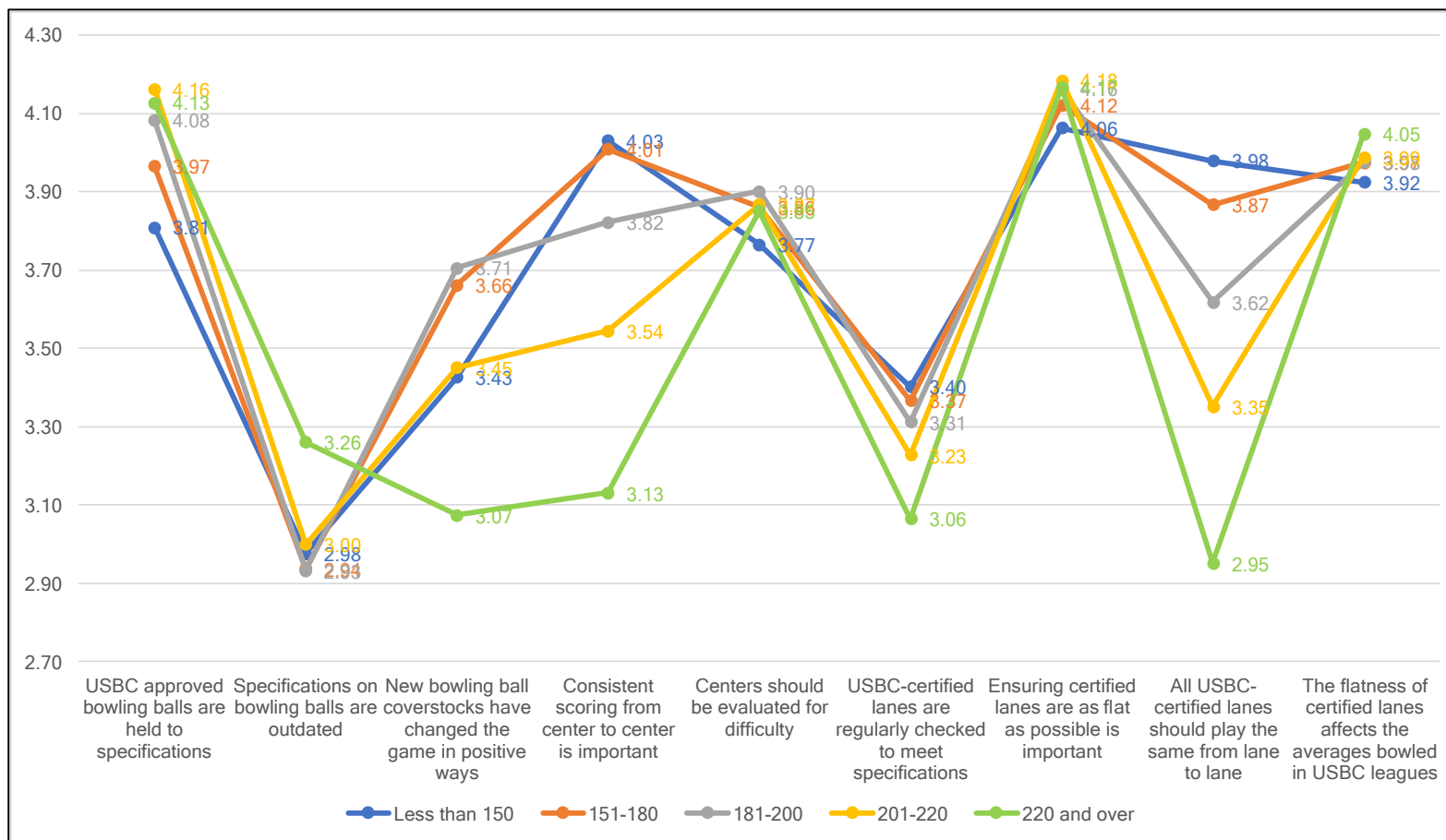
There is a strong correlation between changes in bowling average and the level of **disagreement** regarding the following statements: "I'd rather bowl on a more forgiving condition that allows for higher scores", "I'd rather bowl on a more challenging condition where execution is key", "Improvements in bowling technology have affected the sport of bowling negatively", and "I would like to see specifications put in place to lower scoring".
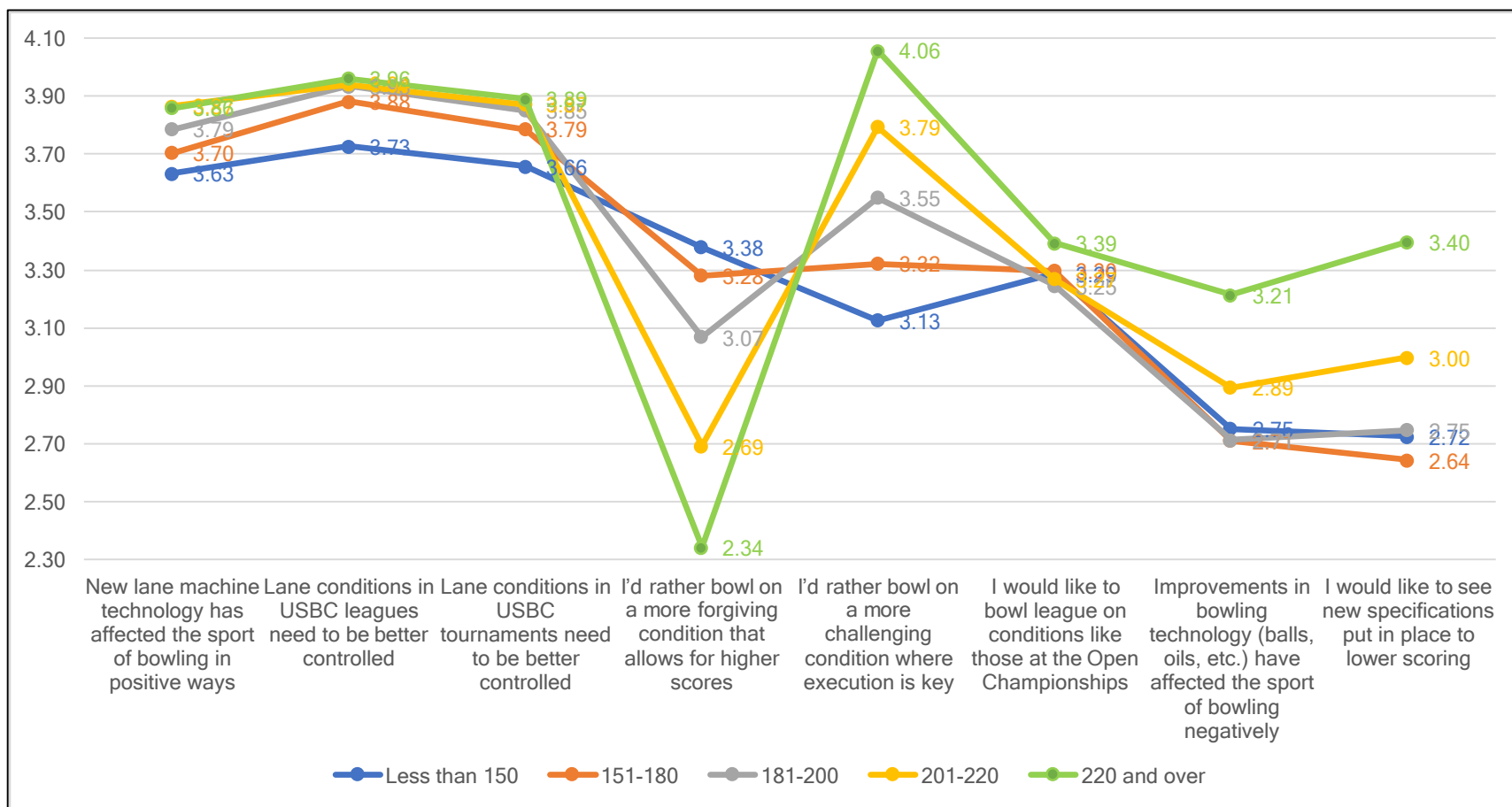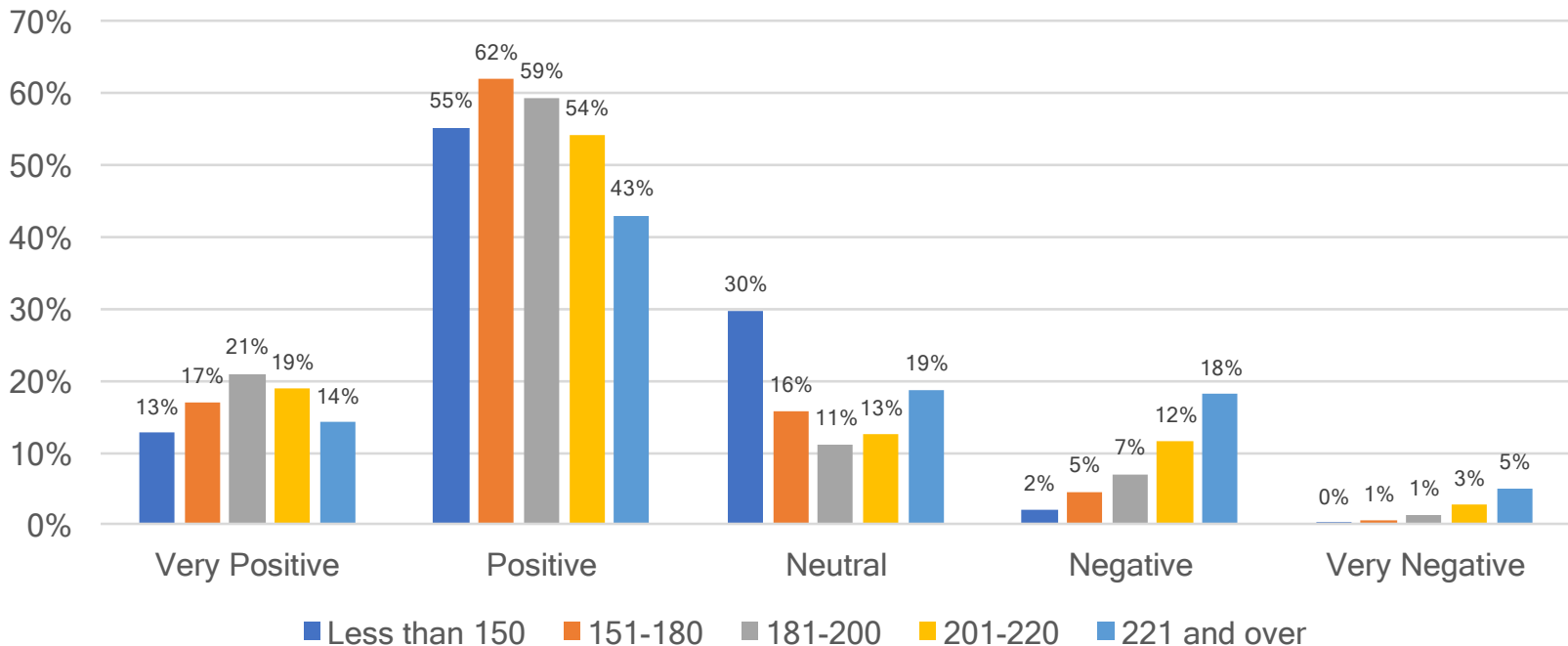
Most respondents, regardless of bowling average, feel that the overall improvements due to bowling technology over the last 30 years have been positive. However, there tend to be more negative sentiments regarding bowling technology amongst bowlers with higher averages.

Overall, the improvements due to bowling technology (balls, oils, etc.) over the last 30 years have been:

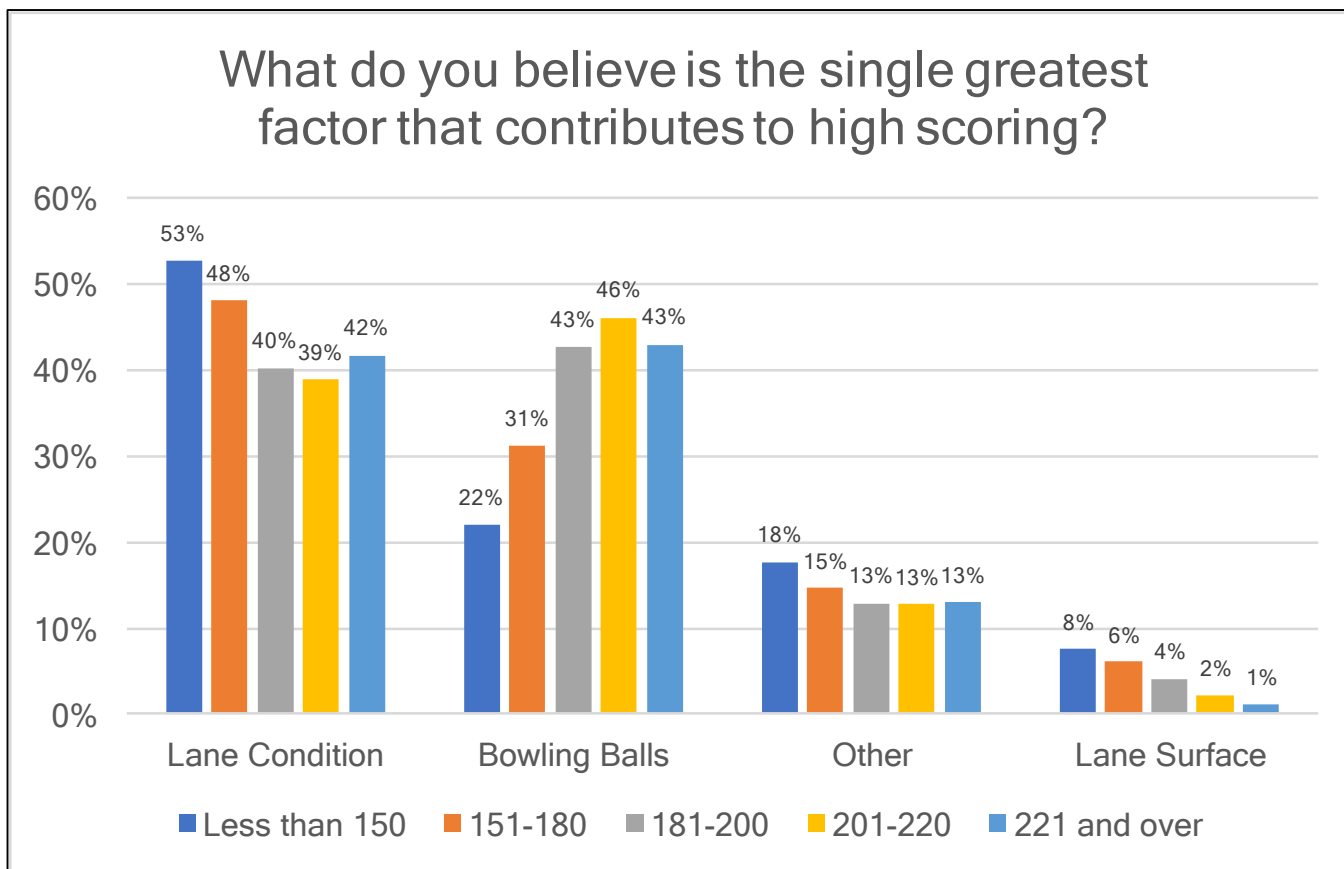|	Very Positive	Positive	Neutral	Negative	Very Negative
Less than 150	13%	55%	30%	2%	0%
151-180	17%	62%	16%	5%	1%
181-200	21%	59%	11%	7%	1%
201-220	19%	54%	13%	12%	3%
221 and over	14%	43%	19%	18%	5%

Bowlers with lower averages tend to believe that the single greatest factor that contributes to high scoring is lane condition while bowlers with higher averages feel that bowling balls are a slightly greater factor than lane conditions.

What do you believe is the single greatest factor that contributes to high scoring?

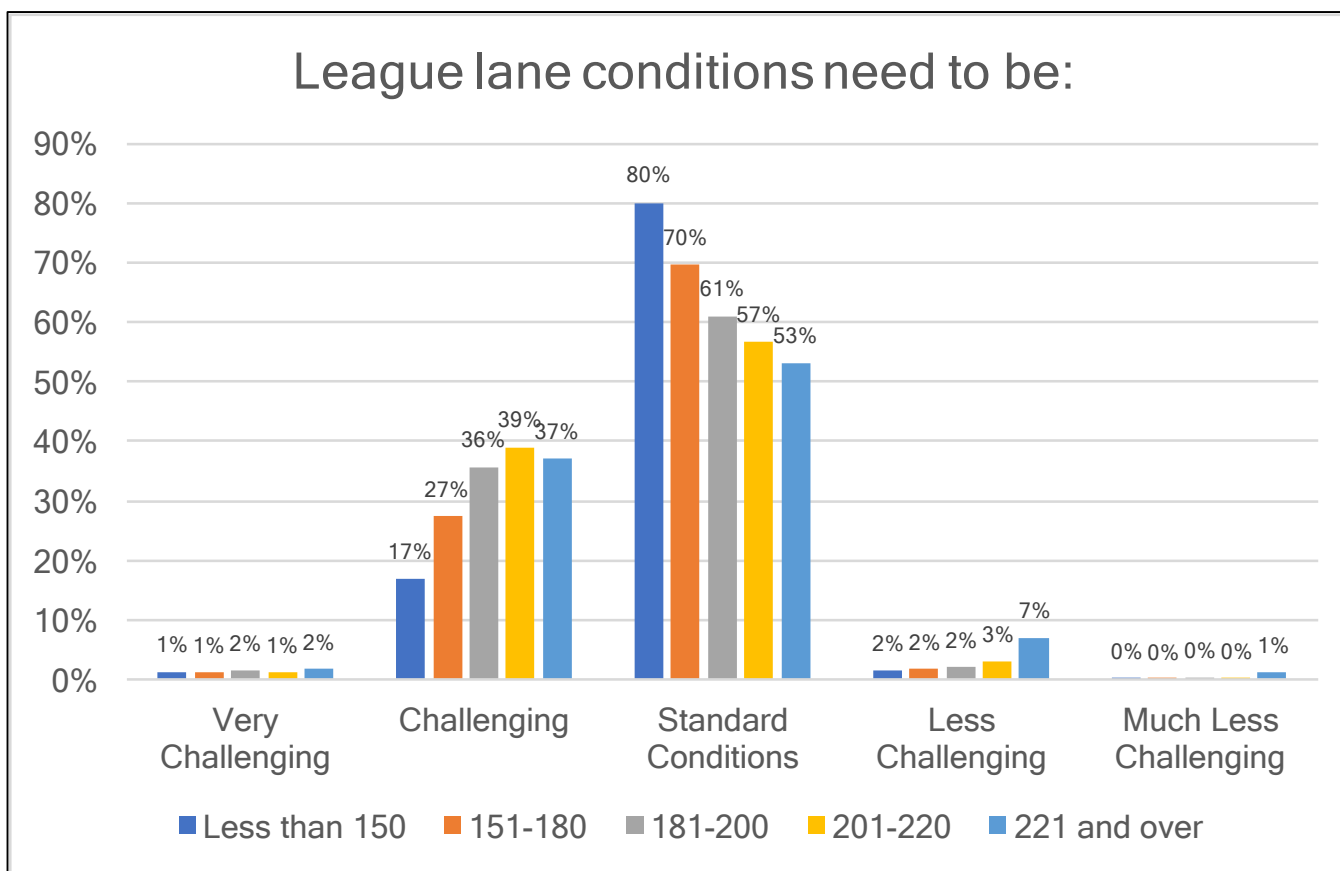|	Less than 150	151-180	181-200	201-220	221 and over
Lane Condition	53%	48%	40%	39%	42%
Bowling Balls	22%	31%	43%	46%	43%
Other	18%	15%	13%	13%	13%
Lane Surface	8%	6%	4%	2%	1%

The majority of respondents within all scoring ranges felt that league lane conditions need to be "Standard". A higher percentage of bowlers with an average over 180 prefer challenging conditions relative to bowlers with an average less than 180, however they were still the minority even among bowlers with higher averages.
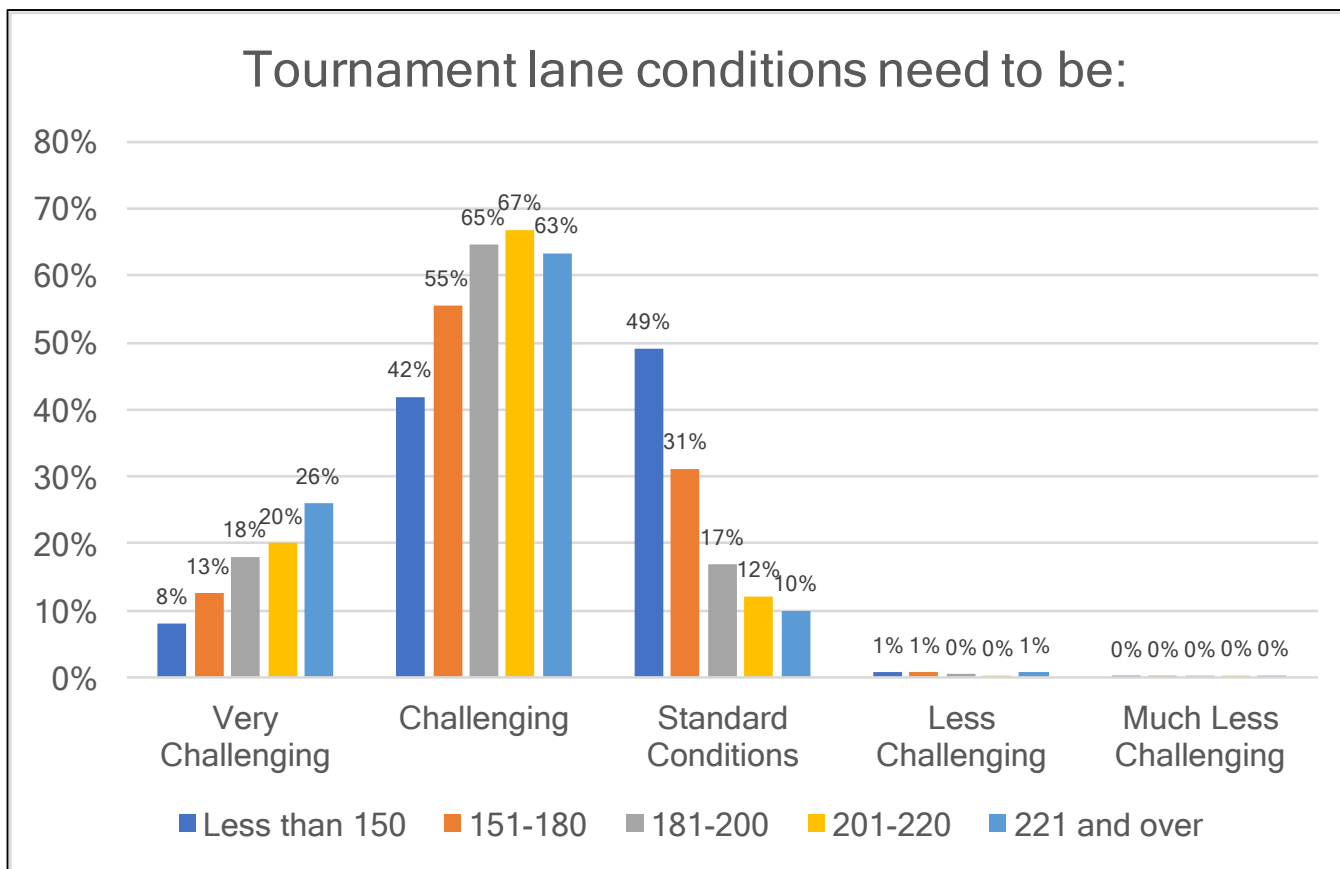
The majority of bowlers with averages over 150 feel that tournament lane conditions need to be challenging. However, bowlers with an average less than 150 slightly prefer standard conditions.

Tournament lane conditions need to be:
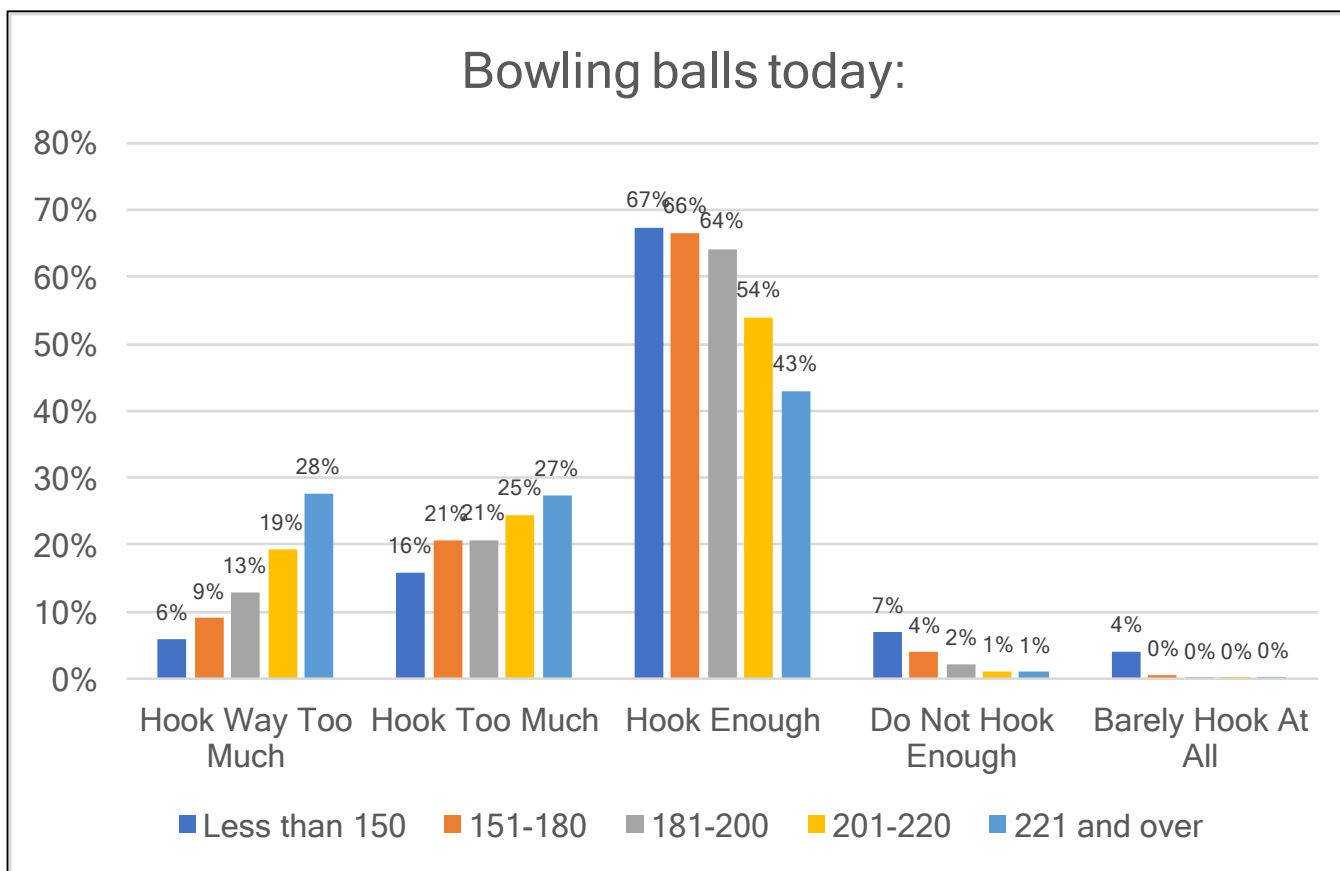
The majority of respondents with averages below 220, and a plurality of those with a 220+ average, feel that bowling balls today "hook enough". However, as bowlers' averages increase, there is an increased likelihood to feel that bowling balls hook too much or hook way too much.

Bowling balls today:

Most respondents are indifferent toward two-handed bowling, regardless of their bowling average.

Do you agree that two-handed bowling is good for the sport?

Response	Less than 150	151-180	181-200	201-220	221 and over
Absolutely Yes	6%	8%	10%	11%	11%
Yes	11%	13%	16%	16%	16%
Indifferent	56%	51%	48%	43%	39%
No	19%	17%	14%	14%	14%
Absolutely Not	9%	11%	12%	15%	20%
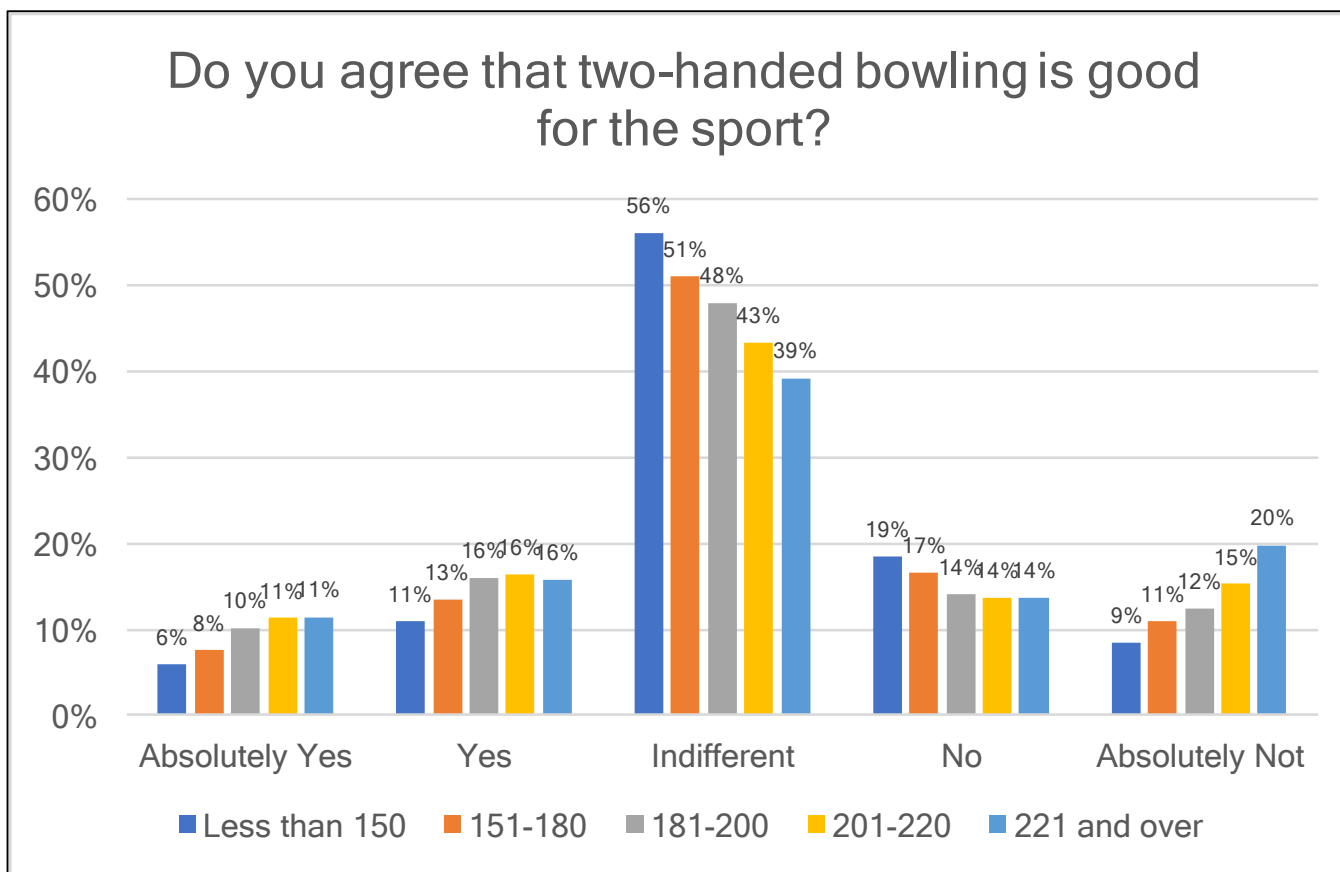
There is a strong correlation between bowlers with higher averages and their motivation for "Competition" (70% of bowlers with a 220+ average). Bowlers with a lower average are more inclined to bowl for "Recreation" or "Social" purposes (36% and 40% respectively for bowlers below <150).
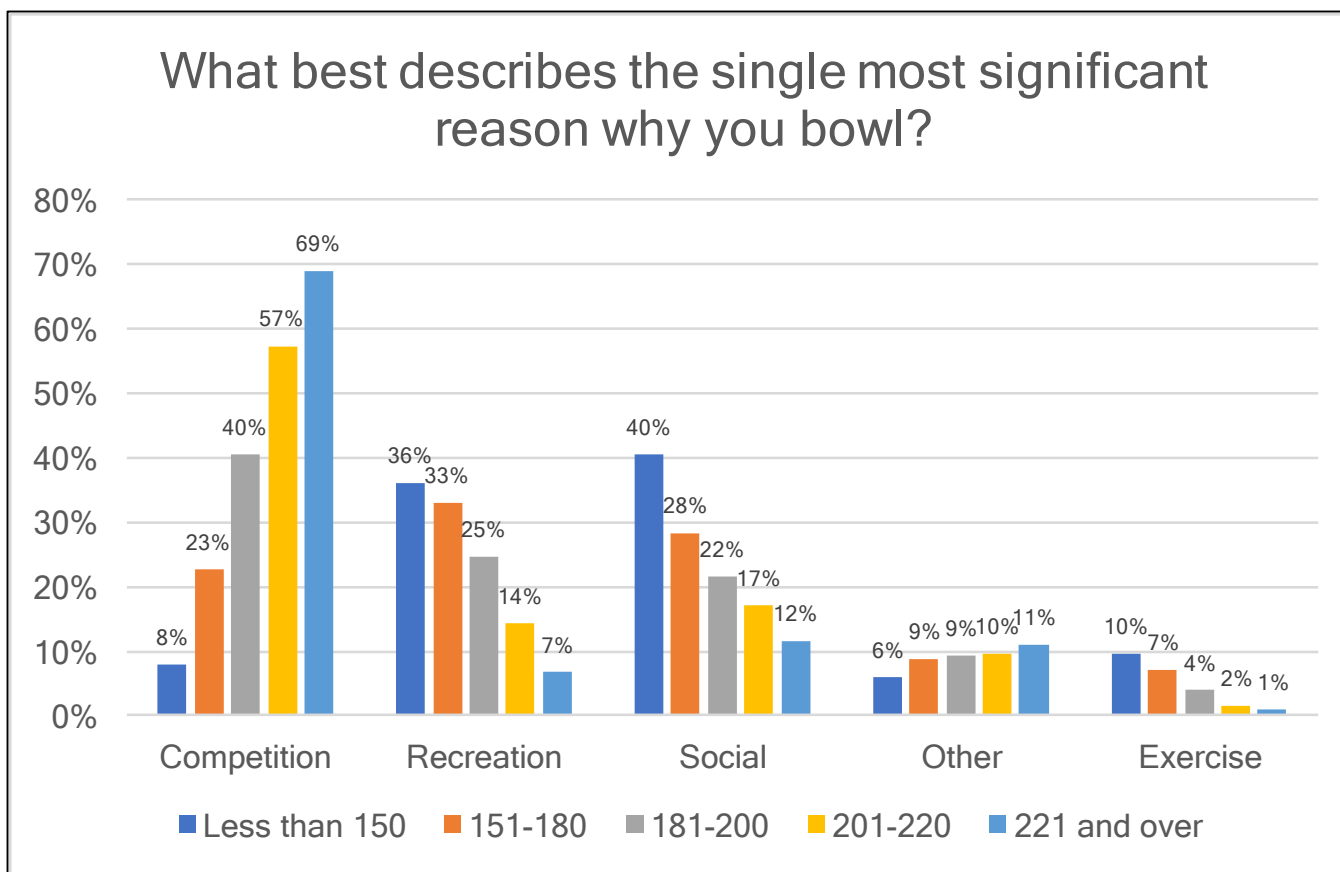

What best describes the single most significant reason why you bowl?

A majority of bowlers with an average of 180 or less prefer the lane conditions of "Today", while majorities of bowlers with a higher average prefer the conditions of a previous era (although a plurality prefer Today).

I prefer the lane conditions of the:

	1970's	1980's	1990's	2000's	Today
Less than 150	5%	7%	11%	11%	66%
151-180	5%	9%	16%	16%	53%
181-200	6%	10%	18%	19%	47%
201-220	7%	15%	20%	19%	39%
221 and over	9%	20%	25%	15%	31%
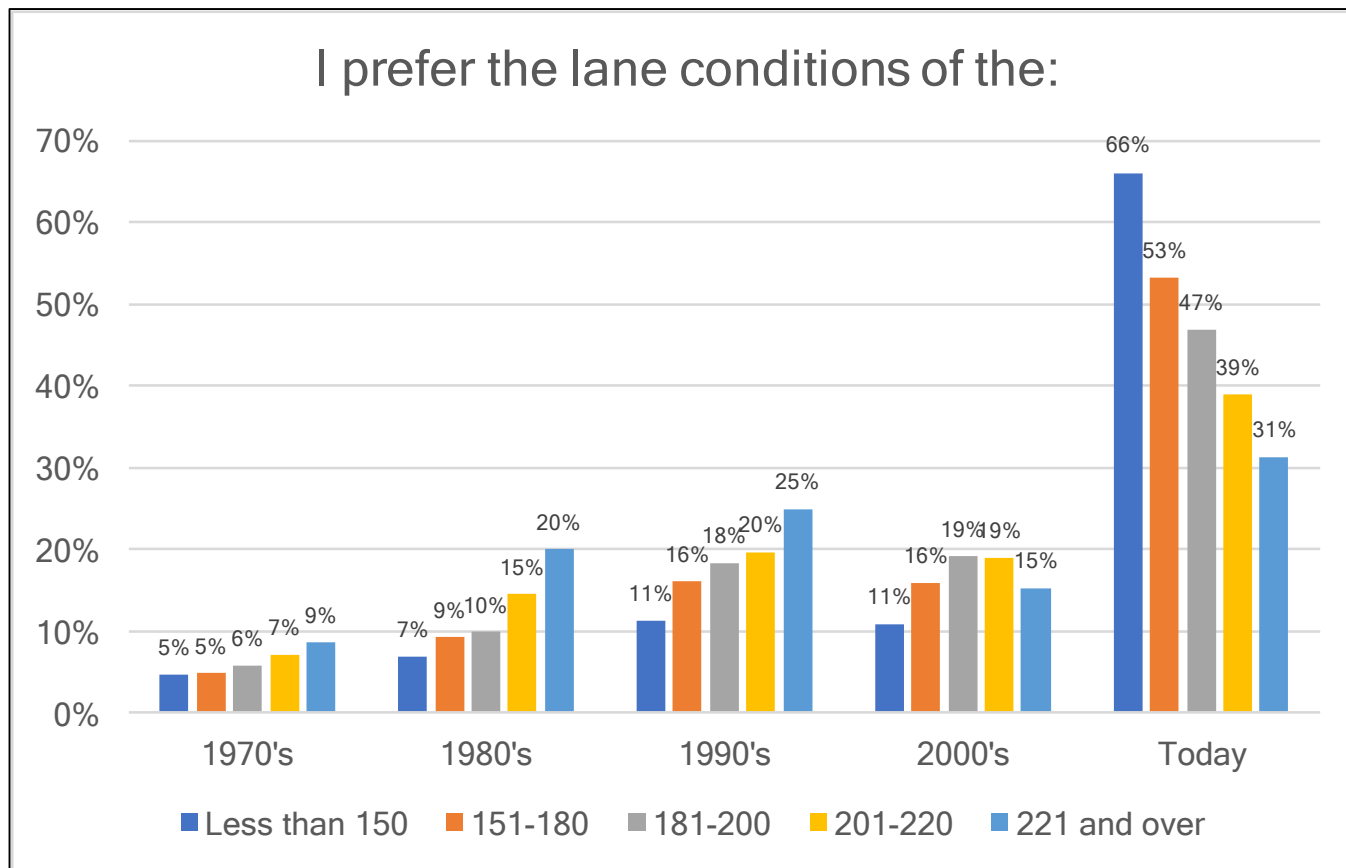
A majority of bowlers with an average below 200 prefer the equipment of "Today", while more than 60% of bowlers with a 220+ average prefer the bowling equipment of a past decade.

I prefer bowling equipment of the:

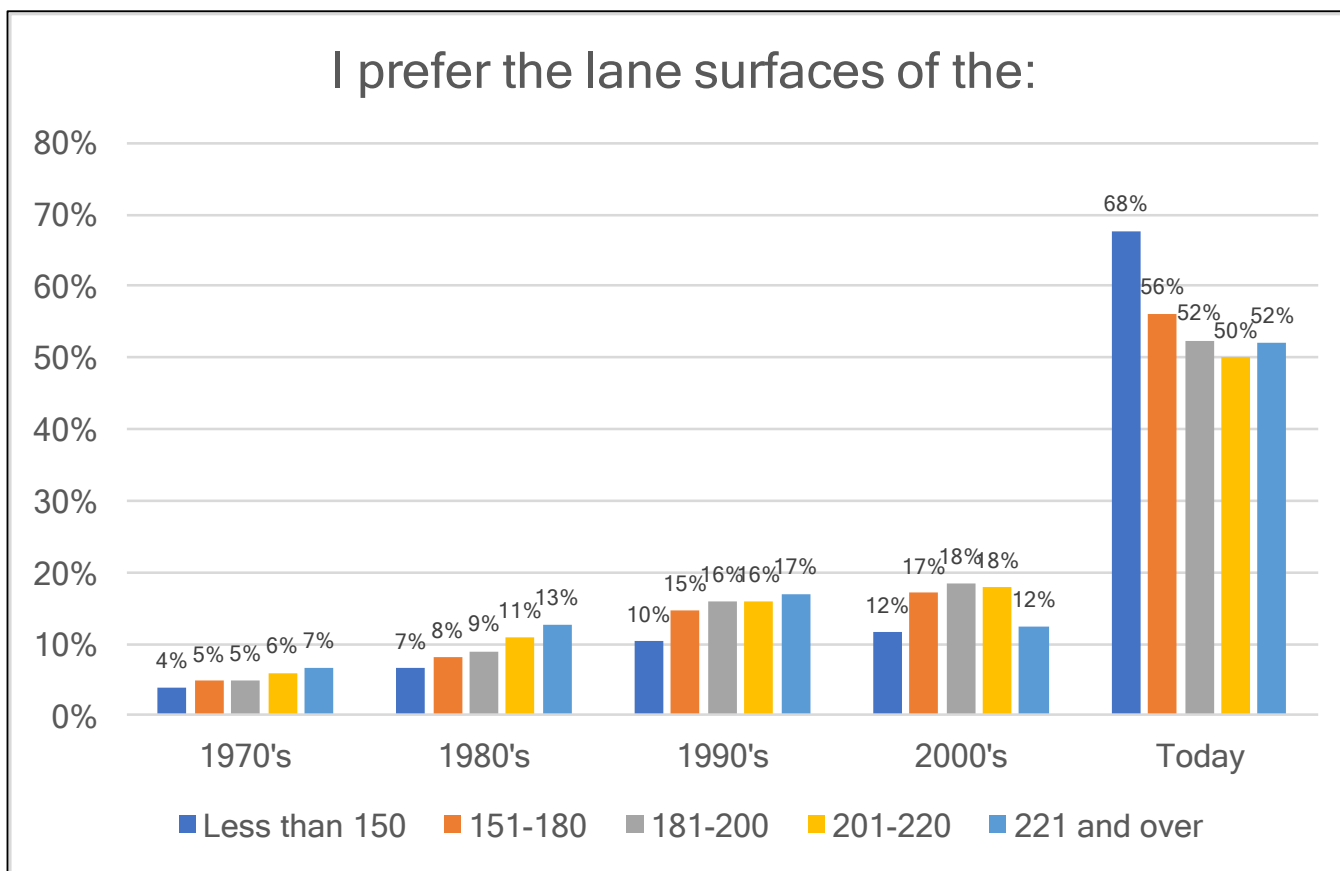|	1970's	1980's	1990's	2000's	Today
Less than 150	3%	5%	7%	10%	75%
151-180	3%	7%	11%	15%	65%
181-200	3%	8%	13%	16%	60%
201-220	4%	12%	16%	19%	49%
221 and over	4%	17%	24%	16%	38%
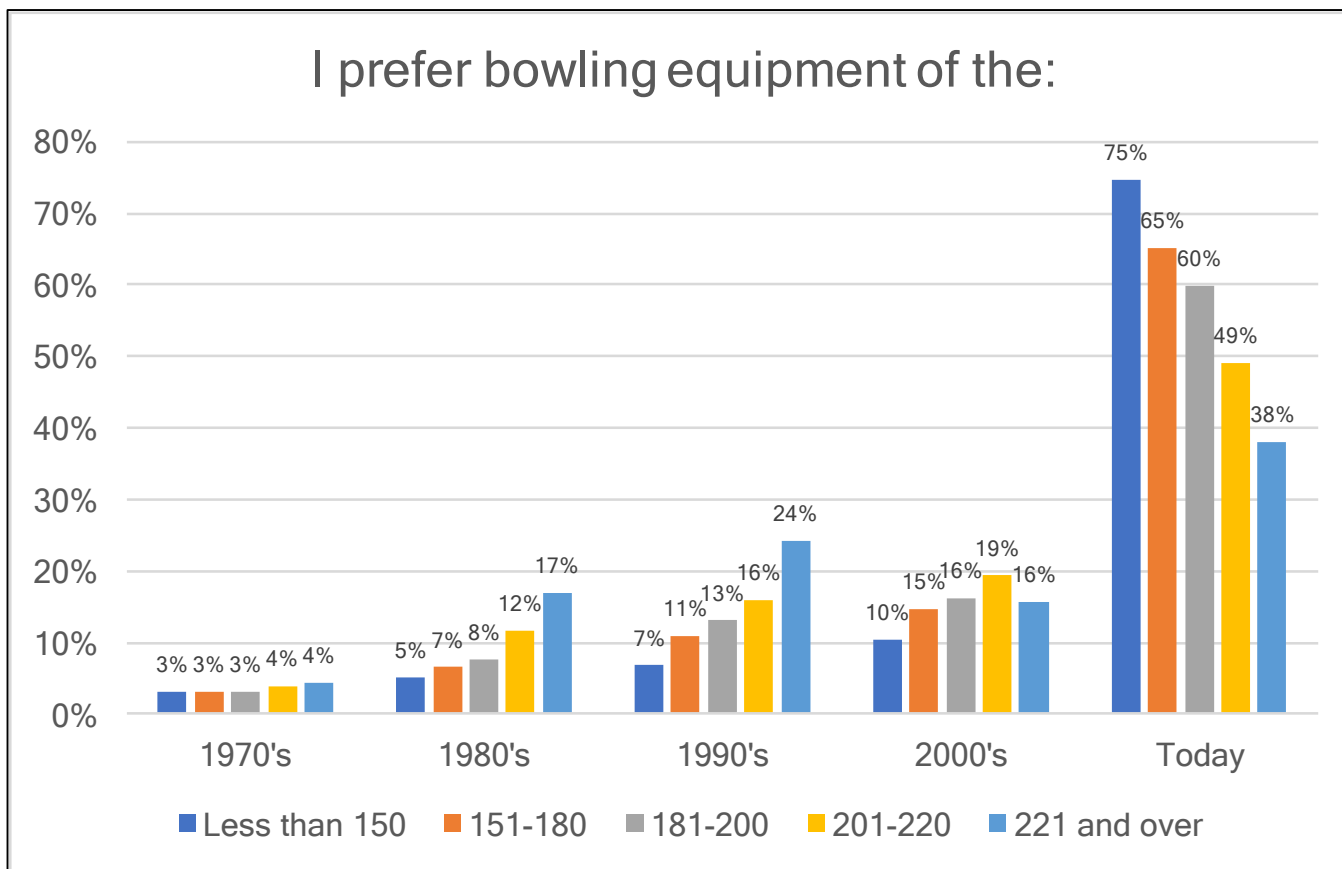
A majority of all respondents prefer the lane surfaces of "Today" regardless of their bowling average. Most bowlers have perceived a steady improvement each decade in the lane surfaces.
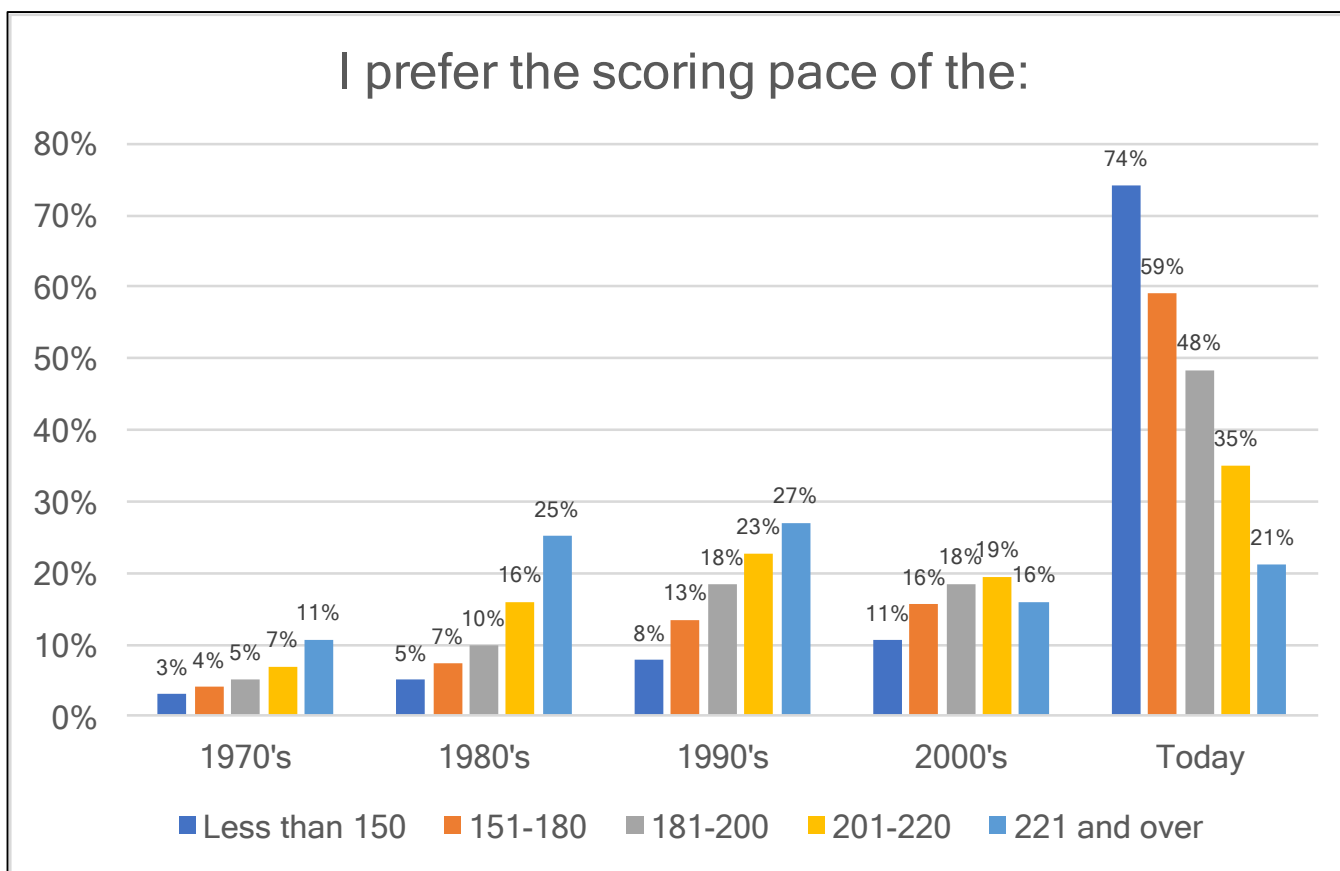

I prefer the lane surfaces of the:

There is a strong preference for the scoring pace of Today amongst bowlers with lower averages, including 74% of bowlers with an average less than 150. Bowlers with an average over 220 actually have more of a preference for the scoring pace of the 1980's and 1990's (25% and 28%) than Today (21%).

I prefer the scoring pace of the:

	1970's	1980's	1990's	2000's	Today
Less than 150	3%	5%	8%	11%	74%
151-180	4%	7%	13%	16%	59%
181-200	5%	10%	18%	18%	48%
201-220	7%	16%	23%	19%	35%
221 and over	11%	25%	27%	16%	21%

54

Bowlers with higher averages are more likely to believe that previous decades had bowlers with the highest level of skill (32% of bowlers with an average over 220 selected the 1970's and 26% selected the 1980's, whereas 24% selected Today). A majority of bowlers with an average below 150 (51%) selected Today's bowlers as the highest level of skill.

Which era had bowlers with the highest level of skill?

	Less than 150	151-180	181-200	201-220	221 and over
1970's	15%	20%	28%	33%	32%
1980's	13%	16%	19%	24%	26%
1990's	12%	15%	16%	14%	13%
2000's	10%	11%	8%	7%	5%
Today	51%	38%	29%	22%	24%