The Pickleball Mathlete! Probability of Winning
Kevin Hillstrom: April 2, 2026

Small Improvements = Larger Chances of Winning

In my charting work, it is common to observe a player who is very good at "something". For instance, a team might score 50% of the time when one players serves, but score 44% of the time when the partner serves. Is that "good"? How does the six percent difference impact the probability of a team winning a game.

To answer the question, I ran millions of simulated games, playing up to eleven, win by one. Both teams start with a 44% chance of scoring a point when they are serving. This (obviously) results in each team winning 50% of all simulated games.

From there, I adjusted the probability of my team scoring a point from 44.0% to 44.5% ... while reducing the probability of the opposing team scoring a point from 44.0% to 43.5%. With a one percent increase in scoring probability, how much more likely is my team to win a game? I simulated one million games to obtain the answer.

I continued to adjust the winning percentage by 0.5% (up/down) for each team, then re-ran a million simulated games.

In total, I ran nineteen million (19,000,000) simulated games. The result? Look at the table that follows.

Difference	Win %	Point Chg
0.01	52.85%	0.3351
0.02	55.74%	0.6714
0.03	58.61%	1.0103
0.04	61.36%	1.3402
0.05	64.19%	1.6766
0.06	66.85%	2.0039
0.07	69.39%	2.3247
0.08	71.86%	2.6347
0.09	74.30%	2.9472
0.10	76.49%	3.2425
0.11	78.77%	3.5565
0.12	80.74%	3.8403
0.13	82.72%	4.1241
0.14	84.55%	4.4028
0.15	86.10%	4.6552
0.20	92.75%	5.8774
0.25	96.60%	6.8872
0.30	98.66%	7.7255
0.35	99.53%	8.3969

The column on the left represents the advantage that the serving team has. A value of 0.01 means the serving team might score 44.5% of the time while the receiving team might score 43.5% of the time. That simple one percentage point difference gives my team a 52.9% chance of winning a game (middle column), and on average my team will outscore the opposition by 0.3351 points (the far right column).

I can also simulate the probability of winning a best-of-three tournament series, playing to eleven. A 52.9% chance of winning a game yields a 54.3% chance of winning a best-of-three series. In other words, your odds of winning a best-of-three series are 54% to 46% just by increasing the probability of scoring a point by 0.5% vs. an opponent.

That's a big deal!

I added a column representing the probability of winning a best-of-three match up to eleven.

Difference	Win %	Point Chg	Best of 3%
0.01	52.85%	0.3351	54.3%
0.02	55.74%	0.6714	58.6%
0.03	58.61%	1.0103	62.8%
0.04	61.36%	1.3402	66.7%
0.05	64.19%	1.6766	70.7%
0.06	66.85%	2.0039	74.3%
0.07	69.39%	2.3247	77.6%
0.08	71.86%	2.6347	80.7%
0.09	74.30%	2.9472	83.6%
0.10	76.49%	3.2425	86.0%
0.11	78.77%	3.5565	88.4%
0.12	80.74%	3.8403	90.3%
0.13	82.72%	4.1241	92.1%
0.14	84.55%	4.4028	93.6%
0.15	86.10%	4.6552	94.7%
0.20	92.75%	5.8774	98.5%
0.25	96.60%	6.8872	99.7%
0.30	98.66%	7.7255	99.9%
0.35	99.53%	8.3969	100.0%

Very small differences result in significantly increased probabilities of winning a best-of-three match up to eleven (in a tournament). Small differences increase your probability of winning a rec match to eleven.

Small differences matter!

Remember my example at the beginning of this discussion? If my team has a 50% chance of winning a point when I serve and a 44% chance of winning a point when my partner serves … while the other team has a 44% chance of winning a point when either player serves, what is the expected result of that increase in scoring efficiency?

Let's assume that 50% and 44% average out at 47% (it doesn't … the player with a 50% success rate gets to serve more often). My team would have a 47% - 44% = 3% advantage. In the table above …

- 58.61% chance of winning a game.
- Will outscore the opposition by 1.01 points per game.
- 62.8% chance of winning a best-of-three match in a tournament.

In other words, a 50/44 advantage when you serve is worth 1 additional point per game, increasing your likelihood of winning one game to 59%, increasing your likelihood of winning a best-of-three match to eleven to 63%.

I play with a player that is fabulous at fourth shots. He just knows how to stop the opposition from scoring. When he hits the fourth shot, his team holds the opposition to a lowly 26% chance of scoring. That's meaningful, right?!

Let's pretend/assume that third shots are hit equally to each player. The opposition will score (26% + 44%)/ = 35% of the time. Meanwhile my team will score 44% of the time. This yields a 9% advantage.

- 74.3% chance of winning a game.
- Will outscore the opposition by 2.95 points per game.
- 83.6% chance of winning a best-of-three match in a tournament.

Super Powers Matter!

There are players in my pickleball club who spend hours each week drilling. Undoubtedly their passion for improvement yields some level of improvement in their probability of winning a game.

It has been my experience that it is just as important for a player to identify his/her "Super Power". What does a player do better than everybody else? Does the player have a heavy serve? Does the player consistently return serves deep? Does the player have an amazing third shot drop/drive? Does a player repeatedly keep the opposition back on a fourth shot? Can a player consistently get to the kitchen on a fifth shot? Does a player have superior dinking skills, thereby winning a majority of kitchen battles?

Please consider identifying what your "Super Power" is. Chart your matches. Are there shots that you consistently win points at higher rates than everybody else you play with? What do you do with those shots that is fundamentally better than everybody else? If you identify the specific skill, why not over-emphasize the skill to give your team a real advantage?

It is my experience that Super Powers are meaningful, help your team score at an above-average rate, and allow the player with a Super Power to play within a "comfort zone".

All it takes is a 3% scoring advantage to add one point to any game to eleven.

A 6% scoring advantage adds two points to a game to eleven. Even better, your probability of winning a game increases to 67% (you'll win 2 in 3 games). If you play three days per week, six games per day, you'll play 936 games per year. With a 50/50 win rate, you'll win 468 games per year. A 6% scoring advantage means you'll win 627 games per year instead of 468 games per year. Would you like to win nearly 160 additional games per year? Yes? Then focus on your Super Power!

A 13% scoring advantage adds four points to a game to eleven. Now we're getting into Ben Johns territory!

Work on gaining small advantages via your Super Power. Maybe you have a strong serve. Your returns are deep. You have a fabulous third shot drop. You keep players back on fourth shots. Your fifth shots get you to the kitchen. Being good at just one of those aspects of pickleball earns you maybe a point per game, which increases your chances of winning from 50/50 to 58/42. That's a big deal. Two points per game bump the odds up to 66/34.

Small improvements lead to big increases in the probability of winning a game!