

AR Tennis Player Insights Metrics Breakdown

A Detailed Guide to Performance Metrics

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1 Introduction

This document provides a comprehensive explanation of the performance metrics displayed in the Player Insights cards within the AR Tennis application. These metrics are derived from match data to offer a detailed view of a player's performance. The metrics covered include Points, Win Percentage, Matches, Wins, Losses, Game Difference Average, Cumulative Game Difference, Games Won, Performance Score, Partners, Most Effective Partner, and Recent Trend. Each metric is explained in terms of its description, calculation method, and additional details to aid in understanding its significance.

2 Points

Description

Points represent the cumulative score a player earns from all matches played, serving as the primary metric for ranking players in the AR Tennis League.

Calculation • Win: +3 points.

- Loss: +1 point.
- Tie: +1.5 points.

Details • Points are awarded per match, applicable to both singles and doubles formats.

- Guest players ("Visitors") do not accumulate points, as they are not included in league rankings.
- Higher points indicate superior overall performance and are the primary criterion for ranking players.
- Example: A player with 5 wins and 3 losses has $(5 \times 3) + (3 \times 1) = 18$ points.

3 Win Percentage

Description

Win Percentage indicates the proportion of matches a player has won out of the total matches played, expressed as a percentage.

Calculation • Win % = $(\text{Number of Wins} / \text{Total Matches Played}) \times 100$.

- Ties are excluded from wins or losses in this calculation.

Details • Highlights a player's consistency in securing victories.

- Set to 0% if no matches have been played.
- Serves as a secondary sorting criterion in rankings after Points.

- Rounded to one decimal place for display.
- Example: A player with 7 wins and 3 losses (10 matches) has a Win % of 70.0%.

4 Matches

Description

Represents the total number of matches a player has participated in, with a breakdown into Doubles and Singles matches.

Calculation • Total Matches = Doubles Matches + Singles Matches.

- Doubles Matches: Count of matches where the player was part of a doubles team.
- Singles Matches: Count of matches where the player was one of the two competitors.

Details • Includes wins, losses, and ties.

- Visitors participate in matches but are excluded from rankings and insights.
- Reflects a player's activity level within the league.
- Displayed as: "X (Doubles: Y, Singles: Z)".
- Example: A player with 8 doubles and 2 singles matches shows "10 (Doubles: 8, Singles: 2)".

5 Wins

Description

The total number of matches a player has won.

Calculation • Incremented by 1 for each match where the player's team (or the player in singles) is the winner.

- Ties do not count as wins.

Details • In doubles, a win is credited if the player's team wins the match.

- Used alongside Losses to assess overall match outcomes.
- Example: A player on the winning side in 6 out of 10 matches has Wins = 6.

6 Losses

Description

The total number of matches a player has lost.

Calculation • Incremented by 1 for each match where the player's team (or the player in singles) is not the winner.

- Ties do not count as losses.

Details • In doubles, a loss is credited if the player's team loses the match.

- Used in conjunction with Wins to calculate Win % and assess resilience.
- Example: With 10 matches, 6 wins, and 1 tie, Losses = 3.

7 Game Difference Average

Description

Game Difference Average measures the average difference in games won versus lost per match.

Calculation • For each match, calculate the game difference per set (team1 games - team2 games), sum them, and divide by the number of sets to get match GD.

- $\text{Game Diff Avg} = \text{Total Game Diff across all matches} / \text{Total Matches Played}$.
- Tie-breaks: Standard tie-break (7-x) counts as 7-6 or 6-7; Super tie-break (10-x) as 7-6 or 6-7.

Details • Positive values indicate a tendency to win by a margin; negative values indicate losses by a margin.

- Used as a tertiary sorting criterion in rankings.
- Rounded to two decimal places.
- Example: A total GD of +10 over 5 matches yields Game Diff Avg = 2.00.

8 Cumulative Game Difference

Description

Cumulative Game Difference is the total sum of game differences across all sets in all matches.

Calculation • For each set: $\text{GD} = (\text{games won by player's team}) - (\text{games won by opponent})$.

- Sum GD over all sets in all matches.

- Tie-breaks contribute as 7-6 or 6-7 games.

Details • Provides an aggregate view of dominance across all games played.

- Positive for net game winners; negative for net losers.
- Not averaged, so higher match volume can lead to larger absolute values.
- Example: Sets of 6-4 (+2), 6-3 (+3), and 4-6 (-2) give Cumulative Game Diff = +3.

9 Games Won

Description

The total number of individual games a player has won across all sets in all matches.

Calculation • Sum the games won by the player's team in every set of every match.

- In doubles, games are credited to both team members.
- Tie-breaks: Winner gets 7 games, loser gets 6.

Details • Reflects a player's offensive strength.

- Used as a quaternary sorting criterion in rankings.
- Example: In a 6-4, 7-5 win, Games Won = 6 + 7 = 13.

10 Performance Score

Description

Performance Score is a composite metric evaluating a player's overall effectiveness, calculated separately for Doubles and Singles, on a scale of 0 to 1.

Calculation • Normalize six metrics (Points, Win %, Matches Played, Game Diff Avg, Cumulative Game Diff, Games Won) to [0, 1] using:

$$\text{Normalized Value} = \frac{\text{Value} - \text{Min}}{\text{Max} - \text{Min}}$$

where Min and Max are the minimum and maximum values across all players in the format (doubles or singles).

- Average the normalized scores:

$$\text{Performance Score} = \frac{\text{Norm}_{\text{Points}} + \text{Norm}_{\text{Win\%}} + \text{Norm}_{\text{Matches}} + \text{Norm}_{\text{GameDiffAvg}} + \text{Norm}_{\text{Cumulative}}}{6}$$

Details • Displayed as "Doubles: X.XX, Singles: Y.YY".

- Higher scores (closer to 1) indicate top performers relative to others in the same format.
 - Requires separate rankings for doubles and singles matches.
 - If no matches in a format, the score is 0.00.
 - Example: For doubles, a player has:
 - Points: 30 (min: 0, max: 50) Normalized: $\frac{30-0}{50-0} = 0.60$
 - Win %: 70% (min: 0%, max: 100%) Normalized: $\frac{70}{100} = 0.70$
 - Matches Played: 10 (min: 0, max: 20) Normalized: $\frac{10}{20} = 0.50$
 - Game Diff Avg: 2.0 (min: -2.0, max: 3.0) Normalized: $\frac{2.0-(-2.0)}{3.0-(-2.0)} = \frac{4.0}{5.0} = 0.80$
 - Cumulative Game Diff: 20 (min: -10, max: 30) Normalized: $\frac{20-(-10)}{30-(-10)} = \frac{30}{40} = 0.75$
 - Games Won: 60 (min: 0, max: 100) Normalized: $\frac{60}{100} = 0.60$
- Performance Score: $\frac{0.60+0.70+0.50+0.80+0.75+0.60}{6} \approx 0.66$. Displayed as: “Doubles: 0.66, Singles: 0.58” (if singles calculated similarly).

11 Partners

Description

Lists all doubles partners a player has teamed up with, including their shared performance statistics.

Calculation • For each partner: Wins, Losses, Ties, Matches Played, Game Diff Sum (total GD when paired).

- Derived from doubles matches only; excludes Visitor.

Details • Helps identify compatible partners for doubles play.

- Displayed as: “PartnerName (X wins, Y losses, Z ties, GD Sum: W.W)”.
- Multiple partners are comma-separated.
- Example: “John (3 wins, 1 losses, 0 ties, GD Sum: 8.00), Jane (2 wins, 2 losses, 0 ties, GD Sum: 4.00)”.

12 Most Effective Partner

Description

Identifies the best-performing partner based on win rate and game difference

when teamed together.

Calculation • Sort partners by: Win Rate (Wins / Matches), then Avg Game Diff (GD Sum / Matches), then Wins.

- Select the top partner; excludes Visitor.
- Win Rate = (Wins / Matches) \times 100.

Details • Displays “None” if no partners exist.

- Displayed as: “PartnerName (X wins, Y.Y% win rate)”.
- Focuses on doubles performance synergy.
- Example: “John (3 wins, 75.0% win rate)”.

13 Recent Trend

Description

Displays the outcome of a player’s most recent matches, up to a maximum of five.

Calculation • Matches sorted by date in descending order.

- ‘W’ for a win, ‘L’ for a loss (ties excluded or not marked).
- Outcomes joined as a space-separated string.

Details • Provides insight into a player’s current form.

- Shows all matches if fewer than five exist.
- Displays “No recent matches” if none exist.
- Example: “W L W W L” indicates a recent win, loss, win, win, loss sequence.

14 Conclusion

The Player Insights metrics provide a multifaceted view of a player’s performance in the AR Tennis League. By combining quantitative measures like Points, Wins, and Game Differences with qualitative indicators like Recent Trend and Most Effective Partner, players can gain valuable insights into their strengths and areas for improvement. These metrics are dynamically calculated from match data and displayed in the AR Tennis application to foster a competitive and engaging community experience.