Observing the outcome of rallies in teqball singles depending on the service

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Abstract

The governing body of teqball, the International Teqball Federation (FITEQ), is leading the sport's rapid global growth. FITEQ was officially recognised by the Global Association of International Sports Federations (GAISF) in November 2020 and as of today, FITEQ has 110 recognised National Federations covering all five continents.

To date, there have been limited data-driven studies on the gameplay of elite-level teqball. The purpose of this study is to provide statistical information about the outcome of rallies depending on the service. The study analyses the probability of winning / losing a point after a successful first and second service. During this study, 2,047 teqball singles rallies were observed, including edgeballs. Moreover, the following three datasets are compared: all data, data from matches before the quarter finals, and data from matches after the quarter finals.

The study found that the service can be a distinct advantage and if the first service is good, the probability for the serving player to win the point is higher.

This first study will act as a base for further analysis to track the development of gameplay of teqball in an objective manner.

Keywords: teqball, singles, service, and outcomes

1. Introduction

"Not everything that can be counted counts, and not everything that counts can be counted." – Albert Einstein

Teqball is considered an open skill sport which means that the outcome of the technique applied during gameplay always depends on the circumstances (external factors). Therefore, in open skill sports the same technique executed may not result in the same outcome. Measurements taken in teqball should be contextualised in a way that represents the true picture. Also, error factors should be considered. This study reflects the influence of the service in teqball on the outcome of the rallies. Is it an advantage to serve in teqball?

Three different datasets have been compared: the overall data (Data frame 1 – All Data), the matches before the quarter finals (Data frame 2 – Before Quarter Finals) and the matches after the quarter finals (Data frame 3 – Last 8) – considered as the highest level of teqball.

It has been only conducted on singles gameplay and during official FITEQ supported competitions. The purpose of this study is to establish the relationship between services in singles and the outcome of the rallies in the different stages of a competition. Another sub-goal is to find out whether serving is an advantage and if it is, what the metric proof is. This study will also provide data for comparison in future studies.

2. Definitions

The study is focused on teqball singles, meaning matches where two players played against each other in a 1 versus 1 scenario.

The measured rallies (= the period during which the ball is in play) started with a successful service which is the action when the serving player tosses the ball from their hand and hits it in the air. The service must be made from behind the service line and must land on the opponent's playing surface. In every other case, the service attempt is considered a service fault. In teqball, the serving player has two service attempts to undertake a successful, legal service.

In teqball, rallies can end in two different ways:
- Point is awarded for a player; or
- The rally is repeated.

A repeated rally outcome can happen after an edgeball, a net hit and then at least three bounces on the opponent's side of the table or a force majeure situation (e.g., another ball disturbs the rally) as per the rules and regulations of teqball.

During FITEQ supported competitions the competition format is as follows:
- Group stage (usually groups of 4)
- Knockout stage
  o Round of 16
  o Quarter Finals
  o Semi Finals
  o Bronze Match
  o Final

In the context of this study, Data frame 2 – Before Quarter Finals means all matches that happened before the quarter final of a competition. Data frame 3 – Last 8 includes the quarter finals and the matches after that as per the competition format: semi finals, bronze matches and finals.

3. Methodology

The data entry for this study happened between 15 April 2021 and 29 April 2021 in Budapest, Hungary. As a measurement method, human data entry was applied, which was executed by professionals working for FITEQ. They watched teqball competition broadcast streams and entered the information required in a MS Excel sheet [(1) – Data Entry]. The following information was entered:
- Date of the match
- Country (in which the match was played)
- Competition name
- Competition type (as per FITEQ's competition structure)
- Court type (beach, indoor or outdoor hard court)
- Competition stage
- Player A name
- Player B name
- Serving player (A; B)
- Service (which was successful: 1; 2 or DF (double fault))
- Point winning player (A; B or E (meaning that the rally was repeated)

The different data sheets were then concatenated into one data sheet [(2) – Data Gathering]. Then, the data had to be cleaned to put all variables under the same terminology and to make it available for analysis [(3) – Data Cleaning].
The data analysis took place using MS Excel using the built-in methods and functions [(4) – Data Analysis]. For data visualisation, MS Excel was used as well [(5) – Data Visualisation].

3.1. Competitions analysed
1. National Challenger Series – Round 2 – Hungary (2020)
2. Cape Verde Challenger Cup (CPV) (2021)
3. Racalmas Challenger Cup (HUN) (2021)
4. Budaors Challenger Cup (HUN) (2021)

4. Data frames

4.1. Data frame 1 – All Data
Data frame 1 includes all analysed rallies. As a result of the data entry, the following results were reached:
- 4 different competitions were analysed;
- 43 different teqball matches were analysed;
- 31 different players played during these matches;
- 2,047 different rallies were analysed.

4.2. Data frame 2 – Before Quarter Finals
This data frame includes all matches analysed that happened before the quarter finals (QF) of a competition. Quarter finals are excluded from this data frame. As a result of the data entry, the following results were reached:
- 2 different competitions were analysed;
- 33 different teqball matches were analysed;
- 30 different players played during these matches;
- 1,444 different rallies have been analysed.

4.3. Data frame 3 – Last 8

This data frame includes all matches analyses that were played after the quarter finals. Quarter finals are included in the data frame. As a result of the data entry, the following results were reached:

- 4 different competitions were analysed;
- 10 different teqball matches were analysed;
- 8 different players played during these matches;
- 603 different rallies were analysed.

5. Results

5.1. Successful services

In Data frame 1 – All Data, altogether 2,047 services were analysed. Out of this, 1018 (49.7%) were successful first services, 906 (44.3%) were successful second services, and 123 (6%) of the services were double faults.

In Data frame 2 – Before QF, altogether 1,444 services were analysed. Out of these, 689 (47.7%) were successful first services, 674 (46.7%) were successful second services, and 81 (5.6%) of the services were doubles faults.

In Data frame 3 – Last 8, altogether 603 services were analysed. Out of these, 329 (54.6%) were successful first services, 232 (38.5%) were successful second services, and 42 (7%) of the services were doubles faults.
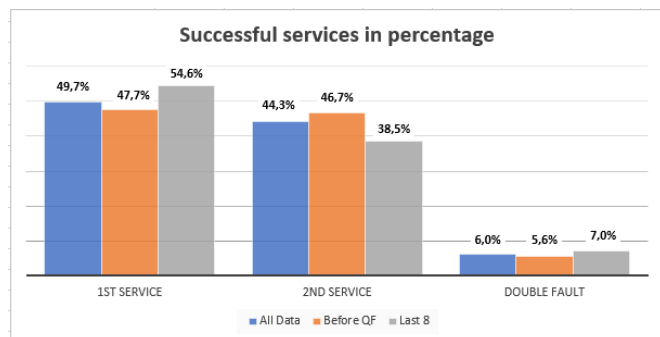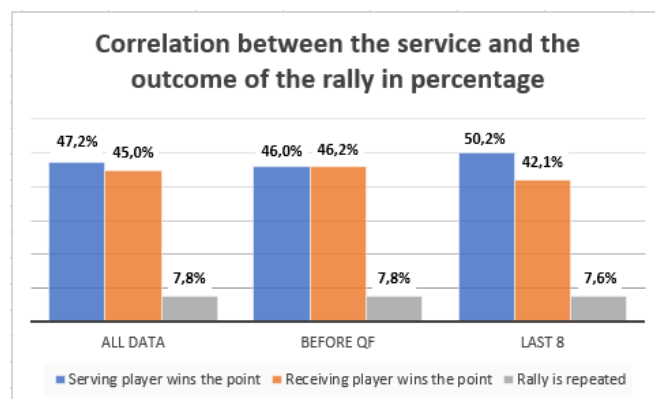

1. Figure: Breakdown of services (%) in teqball singles

5.2. Correlation between the service and the outcome of the rally

In Data Frame 1 – All data, considering all 2,047 rallies, 967 (47.2%) points were won by the serving player, 921 (45%) points were won by the receiving player, and 159 (7.8%) rallies were repeated.

In Data Frame 2 – Before QF, considering 1,444 rallies, 664 (46%) of the points were won by the serving player, 667 (46.2%) of the rallies were won by the receiving player, and 113 (7.8%) rallies were repeated.

In Data Frame 3 – Last 8, considering 603 rallies, 303 (50.2%) points were won by the serving player, 254 (42.1%) points were won by the receiving player, and 46 (7.6%) rallies were repeated.
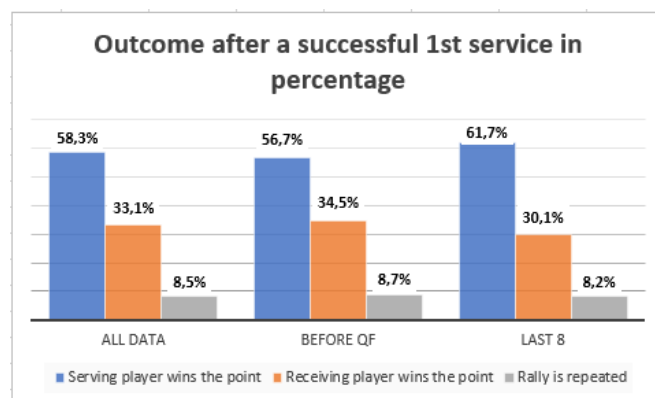

2. Figure: Correlation between the service and the outcome of the rally in teqball singles

5.3. Correlation between a successful first service and the outcome of the rally

In Data Frame 1 – All data, considering 1,018 successful first services, 594 (58.3%) points were won by the serving player, 337 (33.1%) points were won by the receiving player and 87 (8.5%) rallies were repeated.

In Data Frame 2 – Before QF, considering 689 successful first services, 391 (56.7%) points were won by the serving player, 238 (34.5%) points were won by the receiving player, and 60 (8.7%) rallies were repeated.

In Data Frame 3 – Last 8, considering 329 successful first services, 203 (61.7%) points were won by the serving player, 99 (30.1%) points were won by the receiving player, and 27 (8.2%) rallies were repeated.
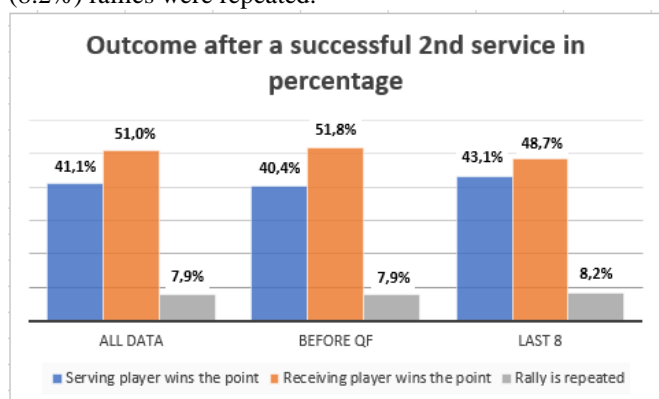

3. Figure: Outcome after a successful 1st service in teqball singles

5.4. Correlation between a successful second service and the outcome of the rally

In Data frame 1 – All data, considering 906 successful second services, 372 (41.1%) points were won by the serving player, 462 (51%) points were won by the receiving player, and 72 (7.9%) rallies were repeated.

In Data frame 2 – Before QF, considering 674 successful second services, 272 (40.4%) points were won by the serving player, 349 (51.8%) points were won by the receiving player, and 53 (7.9%) rallies were repeated.

In Data frame 3 – Last 8, considering 232 successful second services, 100 (43.1%) points were won by the serving player, 113 (48.7%) points were won by the receiving player, and 19 (8.2%) rallies were repeated.

4. Figure: Outcome after a successful 2nd service in teqball singles

6. Conclusion

(1) At the highest level of teqball, the last 8, players complete a first service more regularly (54.6%) compared to in the rounds prior to the quarter finals (47.7%). Upon completing a successful first service, players in the latter stages of a competition more regularly win the rally (61.7%) compared to prior to the last 8 (56.7%).

Commentary: High level teqball athletes put more emphasis on their serving skills. The first service in teqball is always the riskier service attempt, therefore the receiving player is less likely to return a powerful attack. For this reason, the serving player has an advantage / opportunity upon a successful first service.

(2) In the case of a failed first service attempt and a successful second service, the serving player has a higher chance of losing the point (51%) compared to 33.1% when the first service is good.

Commentary: As above, the second service attempt is a much safer attempt in order to avoid a double fault. The percentage of a successful first service is 49.7% while the percentage of a successful second service is 88%. The second service is easier to attack from for the receiving player.

(3) At the highest level of teqball, the second service attempt of the serving player is stronger (and therefore riskier), than before the quarter final stage of competitions. Therefore, there are slightly more double faults (7% compared to 5.6%), but the serving player also has a higher percentage (43.1% compared to 40.4%) of winning the rally.

Commentary: High level teqball athletes take more risks during the second service, because they do not want to allow the receiving player to return a strong and powerful attack. This results in better quality second services, but also gives space for more errors in the second service attempt. As stated above, the percentage of a successful second service is 88% considering all data, but this is 89.3% before the quarter finals and only 84.7% in the last 8 (considered as the highest level).

(4) At the highest level of teqball, serving is an advantage. Considering the teqball matches before the quarter finals, in 46% of the rallies the serving player won the rally, while 46.2% of the rallies were won by the receiving player. In the last 8 (considered as the highest level), 50.2% of the rallies were won by the serving player and only 42.1% of the rallies were won by the receiving player.

Commentary: As before, the higher the level, the higher the percentage is of winning a rally when serving. This is because of better quality (stronger, more tactical, better placed) service attempts. In conclusion, at a higher level, serving can be considered an advantage to players.

7. Recommendations

It is recommended that more data is collected (1) for further studies and to separate group stages more from knockout stages. The difference between average and high level teqball has to be highlighted and proved with more relevant data. It is recommended that comparisons are made between beach teqball and indoor teqball (2). There should be similar studies in teqball doubles (3).

8. Contributions

- FITEQ Sport Instructors Team: Adam Bako, Adam Marosvari, Bence Forgacs, Lea Vasas, Martin Csereklye, Marton Keresztury, Nora Vicsek, Soma Fordos, Zoltan Gondos
- Attila Sowunmi (Athlete Development Coordinator, FITEQ)
- Daniel Zwickl (Sport Operations Manager, FITEQ)