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

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Published 03/09/2021

Abstract

The first data analysis article was published on 17/05/2021. It was written about the influence of the service on the outcome of rallies in teqball singles. The study can be found here.

As the first publication was written about singles, the immediate next step was to compare the data in another category: teqball doubles. During this study, 1,427 doubles rallies were observed from the highest level of the sport. It was found that in teqball doubles that if the first service is successful, there is a much higher chance of winning the rally compared to a successful second service, where chances of winning a point are lower.

Comparing data in singles and doubles, it was found that there is no significant difference between the services and the outcome of the rallies.

Keywords: teqball, doubles, service, and outcomes

1. Introduction

More frequently there is a need to support opinions with measurable, objective data. However, the information must be handled in a meaningful way and in a relevant context.

As teqball is an open skill sport, the technique and the outcome of the rallies depend significantly on the in-game scenarios. This study shows that the outcomes of rallies are affected by services, but it does not factor in the length of the rallies, which may produce more accurate results.

In this study, there was one data frame used with all data from 7 different teqball competitions and 1,427 different teqball doubles rallies. Although more data should be collected, this study shows similar data to the teqball singles study.

In the long run, it is recommended to observe more competitions and compare teqball's development as time passes.

2. Definitions

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

3. Methodology

The data entry for this study happened between 20 May 2021 and 30 July 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
- Team A (Players' name)
- Team B (Players' name)
- Serving team (A; B)
- Service (which was successful: 1; 2 or DF (double fault))
- Point winning team (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 the programming language Python (and mostly using Pandas and Numpy data analysis and scientific computing libraries) [(4) – Data Analysis]. For data visualisation, MS Excel was used [(5) – Data Visualisation].

3.1. Competitions analysed

1. Budapest Challenger Cup (HUN) (2021)
2. Hungarian Championships (HUN) (2021)
3. Napoli Challenger Cup (ITA) 2021)
4. National Challenger Series – Round 3 – Hungary (HUN) (2021)
5. National Challenger Series – Round 3 – Poland (POL) (2021)
6. National Challenger Series – Round 4 – Hungary (HUN) (2021)
7. Tarrafal Challenger Cup (CPV) (2021)

4. Data frames

4.1. Data frame – All Data

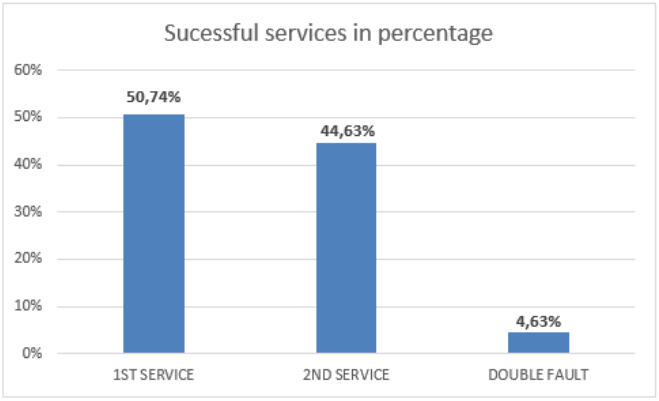
Data frame includes all analysed rallies. As a result of the data entry, the following results were reached:

- 7 different competitions were analysed;
- 30 different teqball matches were analysed;
- 32 different teams played during these matches;
- 1,427 different rallies were analysed.

5. Results

5.1. Successful services

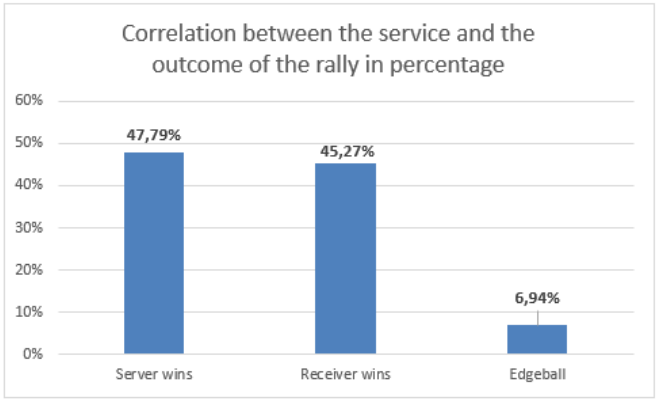
In our data frame, altogether 1,427 services were analysed. Out of this, 724 (50.47%) were successful first services, 637 (44.63%) were successful second services, and 66 (4.63%) of the services were double faults.



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

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

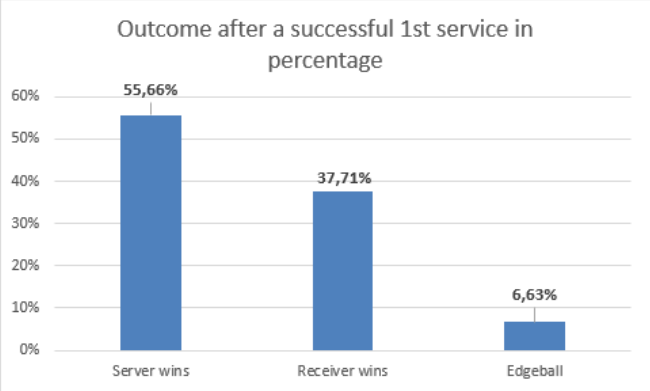
In our data frame, considering all 1,427 rallies, 682 (47.79%) points were won by the serving player, 646 (45.27%) points were won by the receiving player, and 99 (6.94%) rallies were repeated.



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

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

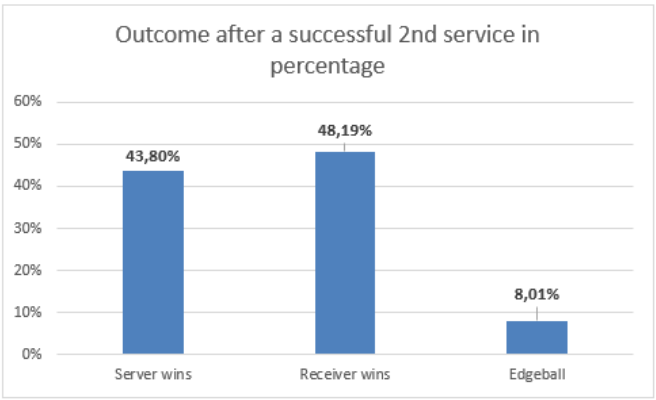
In our data frame, considering 724 successful first services, 403 (55.66%) points were won by the serving player, 273 (37.71%) points were won by the receiving player and 48 (6.63%) rallies were repeated.



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

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

In our data frame, considering 637 successful second services, 279 (43.80%) points were won by the serving player, 307 (48.19%) points were won by the receiving player, and 51 (8.01%) rallies were repeated.



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

6. Conclusions

(1) Based on our data frame, around half (50.7%) of the services are first services, meaning that the serving players take more risks with this service as there is always a chance for a second service.

Commentary: The serving athletes feel that a good, strong first service is an important factor to winning a point, therefore there is more focus on practicing that.

(2) If the first service is good, there is a much higher chance of winning the rally, compared to a successful second service.

Commentary: As mentioned, a good first service is more difficult to return than a secure and safe second service. Therefore, players would like to improve their first attempt to a higher level, so they can turn the serving game to their advantage.

(3) There is a higher chance of losing the point after an unsuccessful first and successful second service.

Commentary: Players do not risk much on the second service (only 4.63% double fault) as they would rather play the rally than take too much risk with their last attempt. Therefore, the second services are way easier to return (37.71% chance for the receiver to win after a successful first service and 48,19% chance for the receiver to win after a successful second service).

7. Recommendations

It is recommended that more data is collected (1) for further studies and to separate lower level stages of the competitions more from the last stages (2).

8. Contributions

- FITEQ Sport Instructors Team: Adam Bako, Adam Marosvari, Bence Forgacs, Lea Vasas, Martin Csereklye, Marton Keresztury, Milan Szabo, Nora Vicsek, Soma Fordos, Zoltan Gondos
- Jonatan Busa (Sport Project Coordinator, FITEQ)
- Krisztina Csavajda (Sport Operations Manager, FITEQ)