

**Kondrič Miran\*, Hudetz Radivoj\*\*, Koščak Jure\*, Slatinšek Uroš\*\*\*, Cerar Katja\*\*\*\***

*\*Faculty of Sport, University of Ljubljana, Slovenia*

*\*\*Croatian Table Tennis Association*

*\*\*\*Independent researcher, Slovenia*

*\*\*\*\*University Sports Center, University of Ljubljana, Slovenia*

**RESEARCH REGARDING POSSIBILITIES OF MARKING THE BALL IN ORDER TO MAKE SPIN VISIBLE**

**Abstract**

*Marked balls should enable the players to see more clearly the rotation of the ball, particularly when receiving the service. Marked balls should be helpful as well in coaching, to teach young players to watch the ball all the time.*

*To find out whether a ball marked with lines or otherwise could help the players to see more clearly whether the ball had or had no rotation and even determine which rotation the ball had. This could be a help to players specially when returning the service and so reduce mistakes in returns, but be helpful in rallies as well.*

*After test with different markings it seems that the best visible marking on white and orange balls are black lines (2 mm width) – three black lines on the equator of the ball placed so that each line is on the right angle to each other line. Another good possibility seems to be marking similar to that of basket balls.*

*After short practice players were able to see clearly whether the ball in play has rotation or has no rotation. Due to it «floating» services, services without rotation caused almost no returns mistakes.*

**Key words:** *table tennis, marked balls, visible spin*

**1. Reason for the experiment**

Marked balls should enable the players to see more clearly the rotation of the ball, particularly when receiving the service. Marked balls should be helpful as well in coaching, to teach young players to watch the ball all the time.

It was planned to analyse videos from different tournaments to find out the approximate percentage of return mistakes made because the receiver did not see that the ball had no rotation. We did not make such an analysis because it was not possible to produce clear criteria for students which are supposed to make the analysis. The first results showed quite big differences.

Many experienced coaches told us that in spite of some changes of service rule and of bigger ball many mistakes are still made because the receiver is not able to «read» the rotation, can not see if there is any or no rotation. It differs quite a lot from game to game – when players know each other well there are less such mistakes, some players can generally «read» better the opponents service and so on. The fact remains that service without rotation and even balls without rotation in rallies cause quite some errors. A good illustration of this problem was the men final game of the first Pro-tour tournament of the year 2005 – Pro-tour Slovenia, which was televised live even into Russia and in which both players made a lot of return mistakes because they did not realise that the service had no rotation. The result was for the spectators a very pure game.

**The goal of the experiment**

To find out whether a ball marked with lines or otherwise could help the players to see more clearly whether the ball had or had no rotation and even determine which

rotation the ball had. This could be a help to players specially when returning the service and so reduce mistakes in returns, but be helpfull in rallies as well.

## 2. Procedure

We marked balls in many different ways, players of lower, middle and high level in Zagreb and in Ljubljana played in practice and in test tournaments with such balls.



After test with different markings it seems that the best visible marking on white and orange balls are black lines (2 mm width) – three black lines on the equator of the ball placed so that each line is on the right angle to each other line. Another good possibility seems to be marking similar to that of basket balls.

The players got used to marked balls very quickly, had no problems so far when playing with such a ball for a longer time (tiredness or such).

Games and practice recorded with cameras showed no significantly reduced visibility of the ball – when the ball has big rotation the ball becomes slightly grey, but it did not seriously influence the visibility.

After short practice players were able to see clearly whether the ball in play has rotation or has no rotation. Due to it «floating» services, services without rotation caused almost no returns mistakes.

We tried to let the advanced beginners practice with marked balls and teach them to watch the ball all the time and say when the marking lines are visible and when not. It seems to be a good possibility to teach the beginners watch consciously the ball all the time.

The big problem is the technical problem of marking the balls. We developed as a test a small device which made possible marking the balls with lines on ball equator. Marking with such a device must be made by hand and takes some time, so it is unthinkable that such a device could be used for industrial ball production. All the ball makers that we asked for advice were not able to propose an acceptable price.



## 3. Summary

### a. Conducted tests:

- ball colour: white, orange balls
- marking colour: black, blue, red, green marking
- different test markings: two circles on equator of the ball under right angle; one circle on the equator of the ball; three circles on the equator of the ball, each circle under right angle to each other; one circle on the equator of the ball and two smaller circles parallel to the circle on the equator, several pips evenly distributed on the ball (different size, shape and number of pips)
- different width of the marking lines: 1 mm, 2 mm, 3 mm, 4 mm

### b. Results:

- The best variant proved to be the variant with three circles on the equator of the ball, each circle under right angle to other circles. Optimal lines are black lines, width 2 mm, either on white or orange balls.
- The marked ball is not disturbing the player during the rallies.
- There are no problems with the visibility of the marked ball for spectators, on video or TV screen. The visibility of the ball for the spectators is even better.
- Many players involved into this tests reported that the marked ball when in play seemed to them to be bigger than regular white or yellow ball. To them it was an advantage, as the ball was better visible.

**c. Advantage:**

- It can be clearly seen if the ball has a rotation or has not any rotation. During the service or during the rallies this can be seen at the same moment in which the ball is leaving the racket after point of impact racket-ball.
- It is even possible to estimate how strong the rotation is.
- Most of players reported that they could see not only if the ball had rotation or had no rotation but they were able to see if the ball had right or left sidespin.

**d. Possibilities of utilization:**

- Marked ball as tournament ball to reduce the mistakes of the receiver. Possible proposition – as test to nominate several test tournaments to be played with such a ball.
- Usage of marked balls to teach young players watch the ball carefully and get feedback accordingly all the time. Could as well be tested with parallel groups of beginners.

**e. Open questions:**

- Technical solution for mass production of marked balls and price of such production
- Manufacturing of a smaller quantity of marked balls for official test tournaments and tests with groups of advanced beginners.

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