

ABSTRACT

Development and Analysis of a Backspin Service in Table Tennis

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This project analyses backspin services in table tennis. For a basic serve in table tennis, the server hits the ball so that it bounces on his of the table, and then at least once on the opponent's side of the table. If the ball bounces more than once on the opponent's side of the table the service is called a short service.

A backspin service is one in which the top of the ball is spinning towards the server through a horizontal axis parallel to the net. This backspin gives the ball an acceleration towards the server, causing it to slow down and even to reverse direction during the serve. This makes return of the service difficult as the time taken to hit the ball has to be altered (as compared with the time taken to return a serve without backspin). Also, this backspin causes the ball to shoot downward upon contact with the opponent's racket. This makes the service difficult to return, and even more difficult to make an attacking stroke at the ball.

This project starts with a basic understanding of the sport and gradually advances from a simple backspin serve to the famous "Ma Lin Ghost Service" . At each

advancement, analysis is performed to explain why a particular service is better than the previous one(s). An entire ghost service is then analysed for a specific force, G and angle θ (at which the racket makes contact with the ball). This is done to determine the best values for G and θ for a short service. To the best of our knowledge such an analysis has never been done.

Keywords: Table Tennis, Backspin, Ma Lin, Serve, Service.