Finding the Optimal Stickiness of a Table Tennis Paddle to Produce the Most Spin

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Background:: With a passion for physics and the dynamics of table tennis spin, we wanted to see if we could create an optimal stickiness that would produce the most spin on the ball. This study will Methods: Using a rubber recipe consisting of cornstarch and silicone, we created several two-millimeter-thick rubber pads of differing ratios of silicone and cornstarch. Using these pads, we tested the static friction of each by attaching a force probe to a 100 g weight placed on top of the rubber pad you want tested. Zero out the force probe and pull until the weight slips, record the peak force, and repeat five times for each ratio, average out and that number will be your static friction. We set up our apparatus and measured the time it took the ball dropped onto the rubber to rotate 6 times. We divided that time by a second and multiplied it by six. Results: Our results showed that a 10:2 ratio of silicone to cornstarch had the greatest static friction for these materials. We also discovered that as the static friction increases, it reaches an asymptote, appearing like a logarithmic graph. Conclusion: There appears to be a critical value for the stickiness or static friction of a material for spin, that at a given point, the increase in static friction will have an unnoticeable effect on the number of spins.

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