



Ball Roll Comparison: Soft Spike Versus Traditional Metal Spikes

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EDITOR'S NOTE: A lot of discussion about the soft spike issue has taken place among golf course superintendents and among players at Wisconsin golf courses. A few have even gone ahead and prohibited metal spikes for the 1995 season. At this point, discussions and decisions seem based on assumptions and empirical evidence rather than any research. The article below puts some numbers on the topic. I happened to see Karl Dannenberger at the Marriott Hotel in San Francisco and visited with him briefly about this article. It appeared in the January/February 1995, Vol. 45, No. 1 issue of DIVOTS, the official publication of the Miami (Ohio) Valley Golf Course Superintendents Association. Richard Boehm is the editor and allows reprints from the chapter publication. Thanks to him and the MVGCSA members.

Incidentally, Karl mentioned to me that he was going to try to honor an invitation from Dr. Frank Rossi to speak at our EXPO 96 next January.

According to a USGA study, the average golfer takes 28 paces per green and the average golf shoe has 12 spikes; 28 paces times 24 spikes yields 672 impressions per player per green; 672 impressions times 18 greens equals 12,096 impressions per round per player. Assuming a course receives its daily average of 200 rounds, the greens receive 2,419,200 impressions every day, which comes to more than 72.5 million spike marks each month.

In theory, a golf ball rolling across a green pocked with spike marks would not roll as far as a ball on an unmarked green. This is due to the fact that each time the ball strikes a spike mark, it briefly loses contact with the putting surface. Over a distance of several feet, these subtle bounces may cause a significant reduction in ball roll.

Soft spikes have recently been gaining acceptance with golf course superintendents and golfers as a viable alternative to traditional metal spikes. This experiment was conducted to determine if use of soft spikes in lieu of traditional metal spikes would have a significant effect on ball roll.

Methods

During the autumn of 1994, a study was initiated at the Ohio State University Turfgrass Research Center in Columbus to compare the effects of soft versus metal spikes on ball roll. The study was conducted on a creeping bentgrass (*Agrostis palustris* Huds. cv. Penncross) turf maintained at 3/16th of an inch. The treatments included soft spikes (Softspikes, Alexandria, VA), metal spikes (Footjoy) and an untreated control. Each treatment consisted of walking with the soft or metal spikes for 10 minutes within a plot measuring 2 X 12 feet. The control did not receive a walking treatment. A single person, 5 feet 11

inches in height and weighing 160 pounds, was used as the walker throughout the study. The shoes used in the study were size 10 Footjoys. Upon completion of the walking, a stimpmeter was used to measure the distance a golf ball rolled. The treatments were conducted four times between 20 October and 7 November between the hours of 1 p.m. and 3 p.m. Each treatment was replicated three times in a completely randomized design.

Results and Discussion

Three out of the four reading dates showed a significant ($P = 0.05$) increase in ball roll with the soft spikes compared to both the metal spikes and the control (Figure 1). The initial readings taken on 20 October showed no difference in ball roll between the soft and metal spikes; however both were significantly ($P = 0.05$) greater than the control.

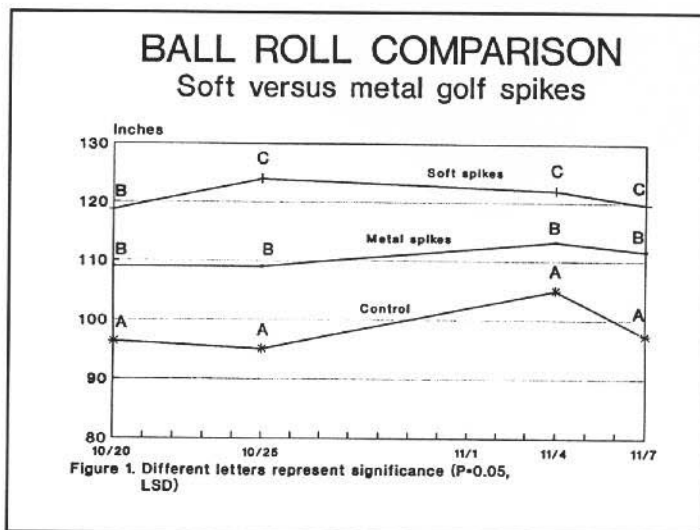


Figure 1. Different letters represent significance ($P=0.05$, LSD)

The control was consistently the shortest ball roll treatment. This may seem counterintuitive; however, the control plots were not walked upon, while the soft and metal spike treatments received intensive traffic from walking. In essence, the walking served as a light "rolling". As a result, the metal spiked treatment, even with the spike marks, rolled further than the control which did not receive the "rolling".

Although the comparison between soft and metal spikes on a putting green setting was somewhat "amplified" by confining the research to a small plot area, the significance of the data cannot be dismissed. Soft spikes

are more likely to result in increased ball roll in situations where greens become excessively "spiked-up" by use of traditional metal spikes. Greens that receive excessive play or are smaller in size are more likely to see the effects of slower ball roll caused by spike marks and are therefore the most likely candidates to experience an increase in green speed with the use of soft spikes.

Two potential benefits of using soft spikes were observed while conducting the experiment. First was the striking visual difference between the soft and metal spike treatments. The metal spiked plots looked literally "chewed up" after the ten minutes of walking; in contrast, the soft spiked plots looked healthy and could barely be distinguished from the control plots. Second, we observed a noticeable difference in the "trueness" of ball roll between the soft and metal spiked treatments, especially as ball speed declined. In the soft spike plots, the ball rolled true, even as the ball slowed; while in the metal spiked plots the ball was more apt to vary in its course, especially as ball speed decreased.

This study was conducted during the latter part of October and the beginning of November. If the study had been conducted in the spring or in the middle of the summer when growth patterns are different, the data may vary. Although further studies need to be conducted, we would expect similar data trends to occur.

Trade name and company name of equipment used in this study are included for the benefit of the reader and does not imply any endorsement or preferential treatment of the product by The Ohio State University. ♣

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