

Golf Soles and Golf Greens: Then & Now

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In 1914 Walter Hagen won the U.S. Open wearing hobnails on the soles of his shoes. His victory is credited with fueling the trend toward golf spikes. By 1920 golf shoes with spike soles were considered standard attire. In the latter half of the 40's golf course superintendents complained about lug soles leaving indentations on their greens. This led to the first golf sole research conducted in 1948. A decade later golf course superintendents protested about ripple soles leaving indentations on the green surface. Thus, in 1959 research was conducted comparing metal spikes to ripple soles. Twenty years later multi-stud and suction cleats earned the ire of golf course superintendents and golf sole research was conducted for the third time in the century. All three studies concluded that metal golf spikes caused the most damage **in the long run**. However, lug, ripple, suction cleats, and multi-stud soles all disappeared from the golfer attire. In some cases the disappearance was fueled by golf clubs banning the soles. So why has all research concluded that metal spikes cause the most damage yet alternative sole designs (prior to the 90's) have disappeared"? To assist us in an answer we look at the results of a 1959 survey conducted by the USGA. Golf course superintendents were asked, "*Which shoe sole type do you consider most damaging to putting green turf?*"

The Results:

- * Ripple = 135
- * Lug = 50
- * Spike = 46
- * All = 5

The results lead us to conclude that indentations made by non-metal soles were considered more detrimental to daily putting quality than metal spikes. So what if research concluded that metal spikes were more detrimental in the long run. The golf course superintendents job has relied upon the playability of the course on a day to day basis. Long term problems are repaired with fertility, rolling, aerification or some other cultural practice.

So what changes have led to metal spikes being banned at golf clubs in the 90's"? To answer this question consider the changes of cultural practices on putting greens. Mowing heights have decreased significantly over the decades. By the early 1980's the practice of sand topdressing greens became vital to maintain surface smoothness as cutting heights decreased. In turn the tri-

weekly sand topdressing programs all but eliminated thatch as a problem on greens. We hypothesize that greens maintained at .25 inch cutting heights with .75 inches of thatch would show more traffic damage by indentations than the uplifting of turf. In contrast the firmer surfaces of the 90's golf green favor more visual traffic by the uplifting of grass plants than the indentations of the non-metal soles or spikes.

Today, many universities are conducting research with the newer spike alternatives. At Michigan State University we think its time to ask the golf course superintendent what he thinks. For Field Day 20 golf greens maintained at a 5/32" cutting height have been trafficked with different golf shoe bottoms. The treatments include 16 different spikes on DryJoy golf shoes. The sixteen different spikes are listed below.

Aerospike	Greenkeepers	Greenpike	Gripper(ceramic)
Gripper(poly)	Flatspikes	SmartSpikes	Softpikes
Softpikes EP	Softpikes EP	Tred Lite MT	Tred Lite SP
Turf Mate	Turf Mate +	8mm metal spikes	6mm metal spikes

There are also three different golf sole bottoms. Two are from Etonic and one from Nike. The Nike have solid rubber outsoles with a high traction design and the Nike Waffle Spike. One pair of Etonic have replaceable DSS-1 Spikes incorporated into their molded outsole. The final pair of Etonic has no spikes and is a formed outsole for high traction. The final green received no traffic. All greens have been sand topdressed regularly for the past two months. Participants will be asked to rate each of the twenty greens and pieces of plywood trafficked with each of the golf soles.