

Continuing the debate into the benefits of alternative spikes with a look at some of the research which has already been taken place. By Ian McClements, Regional Turfgrass Agronomist STRI.

Some traditionalists may argue that golf would not be the same without spiked shoes, that may be partly true but could significant improvements in the playing quality of the putting surfaces be achieved almost overnight if clubs made the switch and enforced a ban on metal spikes?

Golf was played long before spiked shoes became fashionable and it was not until the 1920s that golf shoes with spikes became standard foot gear. As with so many fashions in golf this switch was probably fuelled by a series of victories from prominent golfers winning championships in spiked shoes. A willing public were quick to follow their heroes in the belief that they too required the extra traction offered by these devices. The power behind a 250 yard drive is derived from the legs firmly attached to the surface. Not everyone drives the ball 250 yards or requires that kind of grip and not every round of golf is played under wet slippery conditions. More to the point what type of damage does the spiked shoe inflict upon the turf?

At least six separate studies in to the effects of golf shoe damage on turf have been conducted in the USA, the earliest dating back to 1948. Surprisingly this early study was undertaken because of concerns arising from a newly developed "lug sole". This is described as being similar to a moulded, rubber, artificial turf shoe. The study compared the effects of this with a standard steel spike and found that the lug soles caused considerably less damage. Further various studies have been undertaken in 1958, 1965, 1982, 1994 and most recently 1995. Every study has consistently shown that metal spiked golf shoes are the most damaging footwear option yet so many players have still to be convinced about the positive benefits of spikeless or other alternatives.

The USGA Green section study in 1982 demonstrated that the metal spike caused the longest lasting damage in both wet or dry conditions requiring a period of up to four weeks to fully recover. Spikes do not aerate the surface, if anything they cause additional compaction as the weight of the golfer is borne directly on the shoulder of a limited number (11-12) of spikes. The pressure exerted by a 73 kg player would amount to approximately 7,335 kg/m² if both feet were firmly planted upon the ground!

The 1994 study at Ohio State University measured ball roll on Pen-

Ouch!

You're hurting me

The possible agronomic benefits of banning metal spikes

cross turf that had been subjected to soft and metal spiked treatments. After ten minutes walking the soft spike alternatives achieved a 9% increase in ball roll when compared to the traditional spike. As ball speed declined the ball rolled smoother and truer over the surface subjected to the soft spike treatment. These plots were almost indistinguishable from the control that had received no treatment while the metal spiked plots were described as being "chewed". Following a single day's play, based on 200 rounds, each green may have received 114,400 spike marks, the majority of these concentrated around the hole. Spike marks remove part of the skill from the game and penalise good putters. Is it any wonder that golfers complain about missed putts?

One can only imagine other possible agronomic benefits of the spikeless alternative. The metal spike abrades and damages the leaf and crown tissues of the plant providing readily accessible sites for fungal invasion. Softer spikes could be kinder on leaf tissues and less damaging improving sward retention and offering financial savings through reduced fungicide applications.

New, tender grass growth is more easily damaged and new greens often tend to spike up more readily than well established surfaces. Turf with a stoloniferous growth habit can also

spike up quite badly and, of course, poa invasion on new greens is a real concern to both Course Managers and golfers alike, spiking the greens intensively on a daily basis may simply provide a seed bed for annual meadow grass establishment but equally by eliminating spikes the bent grasses will be healthier and better able to resist annual meadow grass encroachment. Clearly this requires more research before unsubstantiated claims are made.

Everyone is familiar with worn areas that result from concentrated winter traffic near a tee or close to a green side bunker. Spikeless alternatives may help to reduce this phenomenon, after all wear damage is greatest during the winter months when the ground is wettest and the turf's ability to recover is weakest. At the same time individual benefits are likely to be site specific.

There are wider implications to the alternative spike and hidden financial costs. Capital diverted to repairing damage caused to wooden bridges, paths, artificial teeing surfaces, steps, seats, mowing equipment and locker room flooring could be more fruitfully used in improving course presentation and playing quality.

Traditional metal spikes clearly affect playing quality and damage all surfaces they come into contact with but are there any disadvantages? Many players are convinced that the

spikeless alternatives are dangerous and provide less traction. In some respects they do provide less grip but public courses tend to have more heavily damaged greens caused by inexperienced golfers dragging their feet across the putting surfaces. It is a question of making the necessary adjustment to the type of footwear used, lifting the feet higher when using metal spikes or by exercising greater care on hilly terrain or wet slopes in soft spikes. Many older golfers have commented that shoes fitted with alternative spikes are more comfortable and at the same time experienced less back stress. There is no shoe that is slip proof and the spike can give a false sense of security. I recently spoke to one golfer who badly sprained his wrist after suffering a fall on wet concrete paving while wearing alternative spikes yet he was convinced that he would have broken his arm had he been using metal spikes, on this occasion he was more aware of the dangers at the time.

There is no doubt that they are more convenient to use, imagine finishing a round of golf, walking in to the 19th hole for a drink and some lunch before driving home without changing your shoes. One major drawback is likely to be reflected in the speed with which the spikeless alternatives wear. The cost to the player may increase but the cost to the course could be significantly lower.

I recently spent two weeks in the USA with the USGA Green Section visiting courses in the mid Atlantic and north eastern regions. Over 20 courses were visited during this period and all had successfully implemented a ban on metal spikes. Many of these courses had annual meadow grass dominated greens akin to what is found in the UK and appreciated the improvements in playing quality which accompanied the ban. This is clearly a growing trend in the states reinforced by the USGA who just recently announced that they would uphold any existing club's ban on metal spikes if it was to be used for a USGA qualifying championship.

The availability of spikeless alternatives is likely to increase but a word of warning. Some of the new shoe designs might be as damaging or more damaging than metal spikes as was demonstrated in the 1982 shoe study. Fortunately many of the shoe manufacturers have learnt from that experience and products available today appear to be generally less damaging than the "traditional" metal spike. Nevertheless, until appropriate research is undertaken under UK conditions, it has to be said that the much of the evidence in favour of the alternative spike is at best circumstantial. Certainly for winter play, the metal spike appears to give a safer footing on the tee and on sloping ground. The debate will doubtless go on.