



Sqairz Golf Shoe

Case Study

By Daisy-May Kenny

The purpose of this study was to identify how the women's Sqairz golf shoe impacts golf swing performance variables.

But first let's discuss why footwear is important...

In the golf swing we have two points of contact that create friction and enable us to create motion: our hands on and club, and our feet on the ground. Try making a golf swing sitting on a chair with your feet off the ground, you will see that it is tricky. How we interact with the ground throughout our golf swing has a bigger effect on performance than you would think. As an over exaggeration, imagine trying to hit balls wearing stilettos... It does not take rocket science to figure out we need a stable shoe to interact well with the ground and produce a good golf swing. Unfortunately, shoe brands are more focused on driving sales through aesthetics and consequently golfers nationwide are sacrificing performance for the latest fashion trend. With the Nike Air Max and Nike Jordan's being the latest trend on the course, I want to explain why these might not be your best options if you are looking to improve your golf swing.



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NIKE AIR MAX



NIKE JORDANS

When observing the side profile of these golf shoes there are a few things that are clear. Firstly, the Nike Air Max has an extreme ratio of height from heel to toe. So extreme that the center of mass of the body gets shifted forwards and golfers find themselves in their toes throughout their swing. The second problem is with the large spongy heel as it reduces ground reaction forces and subsequently club head speed. The density of the sole of a shoe influences how much ground reaction force you create. The more you can create the better, just like that old fella Newton once said for every action there is an equal and opposite reaction. So, we push into the ground and it literally pushes back on us. Trouble is you can push force down as hard as you like into the ground but if the sole of your shoe is absorbing the energy because its squishy, you are being robbed of an extra couple miles per hour of potential club



head speed. Lastly, let's touch on the Nike Jordan's. My pet peeve on the golf course (sorry not sorry). The ankle is a mobile joint built to move freely and it is stabilized by the neighboring joints: the knee and the foot. When you lock up the ankle with high top golf shoes, you are literally shutting off one of the key physical components of the golf swing: Ankle mobility. Unlike basketball, golf is a rotational sport, and the ankle needs to rotate to create efficient motions from the ground up. So, while it may help you jump higher in basketball, it will not quite have the same effect on your golf swing. When I saw Bubba wearing them this year at the masters, I verbally betted on him not doing well this year. Rickie Fowler did the same and underperformed while wearing high tops. It astounds me that even the best in the world have not caught onto the fact that golf shoes MATTER.

Now we have the technology we need to measure how we interact with the ground and the experts have noticed some common tendencies in some of the best players in the world. They are as follows:

- Change of direction of center of pressure into lead side before downswing starts.
- Increased center of pressure velocity into lead side before downswing starts.
- Center of Pressure applied in lead toe area in transition.
- Majority of Center of Pressure is in lead side (favoring heel) at impact.
- Large ground reaction forces applied at the correct time in the correct direction.
- There are Four subcategories of ground reaction force application methods: Trifecta, Lateral, Vertical, Torque. These categories correlate with swing styles. It is important to recognize everyone has a different pressure and force pattern. It is all about finding the one that's best for you.

No matter who you are, whether you are a weekend warrior amateur or a tour professional, everyone can benefit from good footwear.

Female golfers often get neglected when it comes to golf in general, but especially equipment testing and footwear. The golf industry has been failing female golfers with footwear. They just take the men's shoe design and made it more narrow. This caused us girls to be at a significant disadvantage due to badly designed footwear. That is until now. Sqairz shoe has created the first ever women's golf shoe that has been created using measurements of actual women's feet. When looking at the Sqairz shoe you can see that the toe gap is much wider which enables the toes to spread out more thus increasing surface area giving us more balance, and a larger potential to produce more force with the ground. More force equals more distance! It is quite important to highlight the fact that us females have lower strength in our upper bodies relative to males and therefore our power source comes from our lower body. Most amateur lady golfers do not utilize the ground enough due to the narrow shoes they are wearing which limits their distance.

I am a professional golfer and I decided to test these shoes out for myself to see what I would find. Bearing in mind my club head speed with my driver is on average 94mph, I am 5ft5, 130lbs and athletic. The golf shoes I was wearing were FootJoy Pro SL Custom Wide Fit, I must get wide fit because my feet will not fit into a conventional women's golf shoe without them folding in half. So, I was incredibly excited when I saw this Sqairz shoe come to the market this year. I had seen the commercials with Sir Nick Faldo and LOVED the concept being so nerdy about the biomechanics of the feet in the golf swing. I decided to test the two different shoes and compare them to each other. I also hit balls barefoot to see what the control is without any footwear at all. The results were AWESOME....

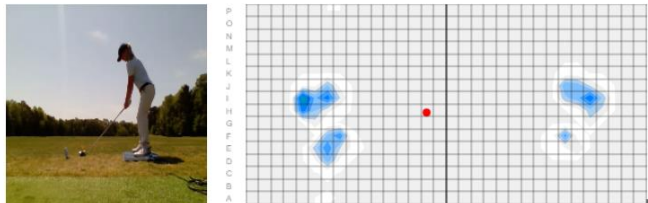
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Shoe	Driver Club Speed Avg (mph)	Peak Driver Club Speed (mph)
Barefoot	90	95
FootJoy Pro SL	94	97
SQAIRZ ladies	97	101

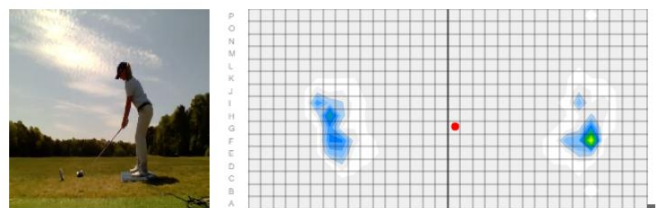
As you can see from the results above, being barefoot resulted in reduced speed. This means I need the added stability and friction provided by a golf shoe to create more club head speed. When wearing the FootJoy Pro SL shoes I was pretty happy with my average of 94mph but frustrated with my peak speed only at 97. Then when I put on the Sqairz shoe my average speed shot up 3mph to 97mph and my peak speed amazingly exceeded my expectations and hit 101mph. For each 1mph gained in club speed on average will result in 2.5 yards increased distance off the tee. So, I gained an extra 7.5 yards on my average drive, and 10 yards on my especially good swings. I will take that and run with it...

But of course, this is a research experiment and I needed to measure WHY they work. Here is a side-by-side comparison of Center of Pressure location during different phases of the swing with a description of how the Sqairz shoe improved ground interaction. I used BodiTrak to measure.

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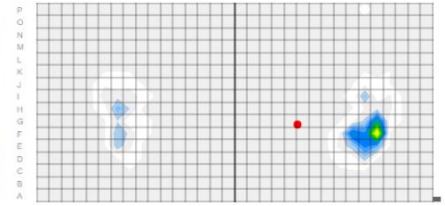
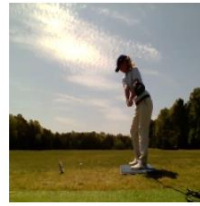
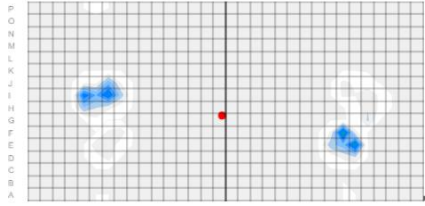
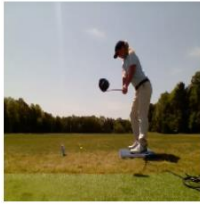


FOOTJOY PROSL

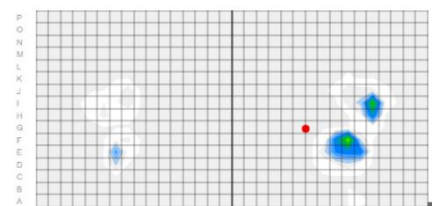
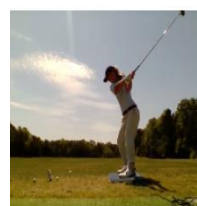
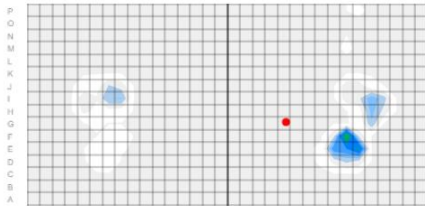


On the right using FootJoy Pro SL the pressure is excessive in the right heel area. On the left in SQAIRZ the pressure is more evenly distributed and a larger surface area in contact with the ground create more stability.

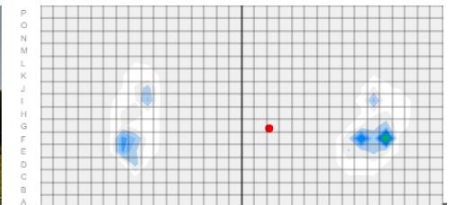
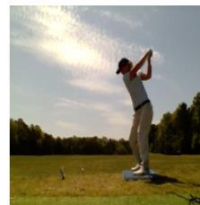
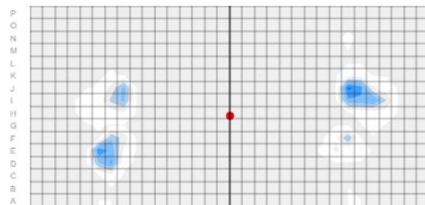
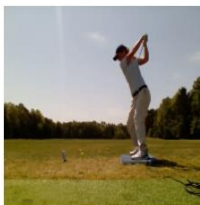
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In the takeaway the pressure stays centered for longer wearing sqairz. As you can see on the right the pressure is all in the outside of my foot which causes eversion of the foot which creates bad swing tendencies and inefficient ground reaction forces. The Sqairz shoe helps your ankles stay stable and not roll over to the side.

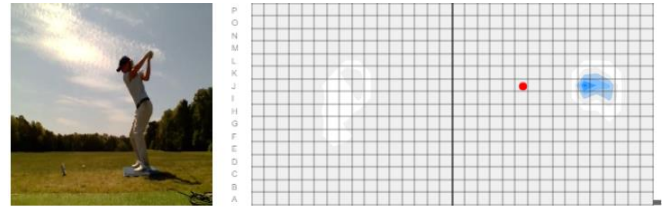
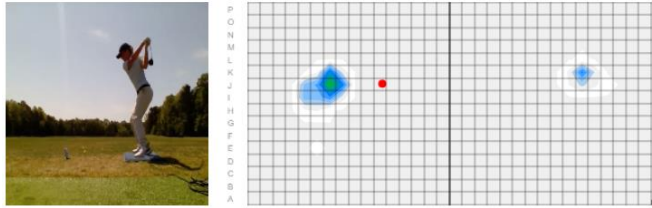


Pressure loaded nicely using sqairz on the left, the ball isn't too far over to the right, whereas using FootJoy Pro SL you can see excessive pressure on the outside of my foot still which slows down how quickly I can transfer it into my lead side.

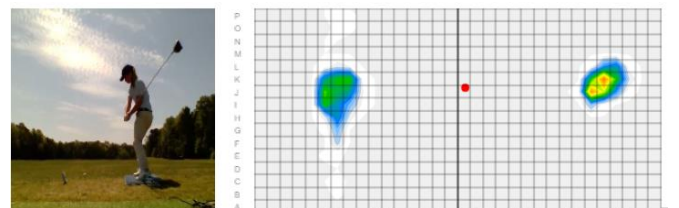
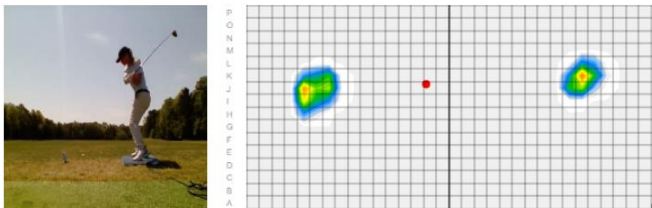


Top of backswing you can see on the left in Sqairz the pressure has already started to move towards the lead side sooner than the FootJoy ProSL which is stuck on the trail side. Also notice overall less contact area on the right.

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With Sqairz on the left you can see the pressure moved further into the lead side, and it shifted sooner too. Both good qualities! On the right in the FootJoy Pro SL's I still haven't gotten any pressure into the lead side and I have already started my transition into the downswing.



At about shaft vertical downswing you can see on the right how the pressure still isn't in the lead side at all... yet on the left in Sqairz the pressure starts to back up already as a consequence of my driving up and back with my lead foot at this point in the swing to hit up onto the ball with a driver. Having so much pressure in the lead side allows you to create more vertical force which creates more potential for club speed.

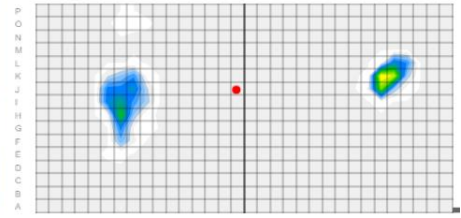
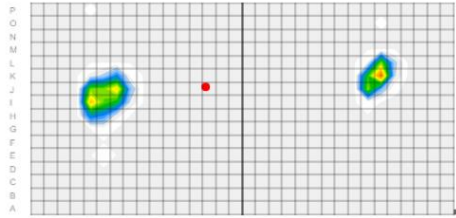
Vertical Forces:

SQAIRZ=200N LEAD, 208N TRAIL = TOTAL = 408N

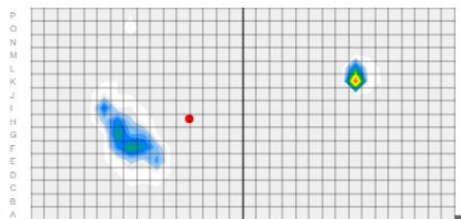
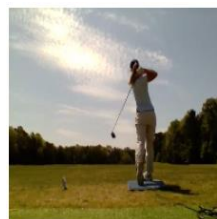
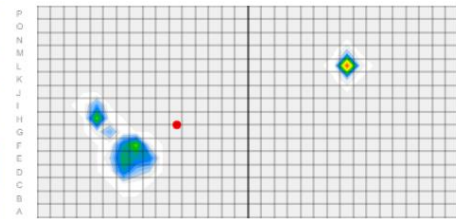
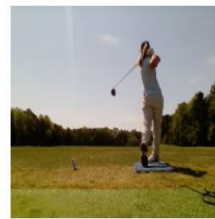
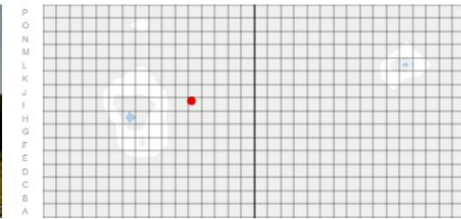
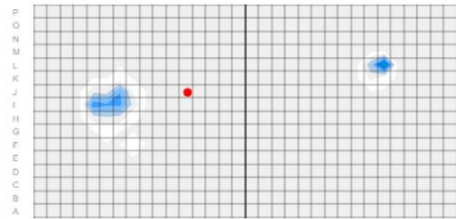
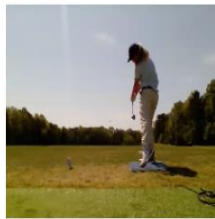
FJ PRO SL= 122N LEAD, 208N TRAIL = TOTAL = 340N

These significant increases in vertical force at this point in the swing supports aiding club head speed and adds to the explanation as to why these shoes work better.

SQAIRZ



At impact you can see the pressure in the lead side wearing sqairz which means more vertical force through the lead side. A great quality we see in good players.



Conclusion

The Sqairz shoe benefits performance for an elite female golfer compared to the FootJoy ProSL and barefoot. The shoe provides greater stability and supports efficient physiological motion in the feet and ankles which positively impacts the entire golf swing. More testing is needed to support these findings with a variety of female golfers of differing ability levels.

Having worked for SuperSpeed golf for many years, I know how hard people are willing to work to add an extra couple of miles per hour to their swing performing training protocols for months and months to get to their max speed. Not to take anything away from speed training as it is a fantastic way to increase club head speed, but with no investment of your valuable time, and a much lower price point, I don't see why every golfer doesn't already have a pair of these Sqairz shoes.



About Daisy-May Kenny

Daisy-May is originally from London, England. She is an avid golfer (handicap +2) which led her to the US on a full golf scholarship to The University of West Florida where she obtained her bachelor's and master's degree in Science. She became TPI Certified in 2016, and soon after founded Biomek Golf where she wanted to create a golf performance platform that everyone could access, anywhere, anytime. She is now based in South Carolina at Wescott Golf Club where she is a golf coach.

Daisy-May is an extremely passionate individual who loves working with her clients. Her approach is scientific and gets to the route of a swing problem. Daisy-May Kenny is an ACSM Certified Exercise Physiologist with a master's degree in exercise science and a research specialization in sports biomechanics. Daisy-May's biomechanics research included measuring the effects of various interventions on the biomechanics of the swing using 3D motion capture using Vicon Nexus and ground reaction forces using Kistler Force Plates. The interventions included TPI golf specific workouts and speed training.

Daisy-May has presented her research at the International Olympic Conference for the prevention of injury and illness in sport and the National Strength and Conditioning conference. Daisy now specializes in the body-swing connection, ground force mechanics, overspeed training, and injury prevention mechanisms. Her education allows her to take a wholesome approach to helping athletes improve performance. Daisy-May has presented nationwide for BodiTrak Sports and SuperSpeed Golf on different topics associated with the biomechanics of creating speed in the golf swing. She presented on ground force mechanics at the PGA Demo Day 2018 & 2019, the PGA Show: BodiTrak Speaker Series 2018 & 2019, LSU Strength & Conditioning, LSU Athletic Training, the Yankees Baseball, International Leadbetter Academy, National Leadbetter Junior Academy, and Mike Boyle S&C. Daisy has also taught sections on overspeed training at TPI Level 2 Power, TPI Level 3 Fitness, Junior, Medical and Golf.