

Defining Importance Of Golf Club Performance

Commentary

Ed Mitchell, PGA

Chairman

Mitchell Golf Equipment Company

Dayton, OH USA

ed@mitchellgolf.com

Introduction

The historical role of the golf professional has come full circle back to the days of the developers of the game. A new opportunity exists for golf professionals to provide a service that golfers want. Golfers want to improve and shoot lower scores. Because of today's technology golfers recognize that golf club performance is a factor in their ability to improve.

However, golfers think club performance is achieved through product features of the equipment marketed by golf club manufacturers. Golf professionals think club performance is achieved through fitting cart methods, when in fact the fitting process is nothing more than a sales method.

Golfers want the same tour van experience tour professionals enjoy every week on tour. Even though tour professionals play name brand equipment, their set make up is based on club performance specifications that best suits them. Golfers look to golf professionals to be complete equipment experts like the tour van technicians. They have accepted the fitting cart process to be their answer for the tour van experience.

But in fact, the club performance specifications of the set of clubs they receive from the manufacturer are not known by them or their golf professional. Neither of them know what the specifications were of the demo clubs used during the fitting process. Further, they do not know if the new clubs match the specifications of the demo clubs.

This means as expert golf instructors and club fitters, golf professionals have the opportunity to become club performance experts too. This single element of expertise will again make the golf professional's role a complete equipment expert just like those professionals who served the game for centuries from it's beginning.

This new opportunity can be defined this way: Every lesson is a potential club performance alteration opportunity.

Game Improvement Equation

Golf is a game that requires practice and competitive rounds if a player is to maintain a certain level of skill. But how does a player achieve a level of competitiveness? A game that ranks in the better player category?

At some point in the development of a competitive player, they had to dedicate themselves to learning a sound swing. They had to learn the skill to manage the golf course. This does not come naturally to most golfers. They must train themselves through the hard work of practice, play and learning golf knowledge.

That is where teaching professionals excel. They are the ones that dedicated golfers seek out to help achieve their improvement goals. Teaching professionals share swing knowledge and playing skills that they themselves have accumulated over years of experience and through education. The better player type of golfer seeks out information about equipment too, usually from their teaching professional. They understand the importance of proper performing equipment. And they usually work themselves into good performing clubs that produce consistent shots for them either through club fitting programs or trial and error.

But what about the average or occasional golfer? How do they become one of the better player types? They too have a desire to enjoy the game more and are willing to put forth an effort to improve. They don't usually spend as much time practicing as the better player but they have the same goal; that being to improve. They take lessons but do not practice as much as they should. That is why it is so vitally important for teaching professionals to include club performance in their lesson programs. This group of golfers is more dependent on help with their equipment. Consequently, the performance of their equipment becomes a vital part of the game improvement equation.

Golf Instruction + Club Performance = Game Improvement (Ball Flight)

Club Fitting v. Club Performance

Today's technology of club fitting and launch monitor data clearly confirms golf club performance contributes to ball flight. Technology has proven that swing mechanics are only one-half of the equation to consistent ball flight.

A large gap exists between golf instruction and club fitting. When each are performed separately, they serve different purposes and do not necessarily produce the same result. Technology has proven that swing mechanics are only half of the equation for game improvement and club fitting methods when used alone are just another way to sell equipment.

Teaching professionals are on the front lines and positioned to bridge this gap between instruction and club fitting by adding club performance to their lesson programs. Evaluating *The 14 Club Performance Numbers* of a student's clubs should be the first action taken by a teaching professional.

The golf industry is embracing the philosophy: "It could be the swing, clubs or both".

Golf professionals usually separate instruction and club fitting into two distinct functions. Lets look at the way many professionals (including top 100 instructors) approach golf instruction.

They believe as recognized instructors their task is to teach golfers to play or improve with whatever golf equipment they bring to the lesson tee. Their instruction method is to achieve a result right then so the golfer sees improved ball flight. But what happens after the lesson when the golfer goes to the course? Does their equipment prohibit them from permanently re-training their swing mechanics? Or do they keep coming back for more instruction believing their physical limitations or inabilities are the total cause for not improving?

Now lets examine what most golf professionals consider as adequate training to be considered an equipment expert making them a qualified club fitter.

They generally use fitting carts from selected major club manufacturers. While it is true they possess expert knowledge shared with them by the club

manufacturer's sales representative or when they made the trip to the manufacturer's factory to be trained, they are limited to the club performance features and the prescribed fitting process of each manufacturer. This process does not share with them the complete performance specification numbers of the fitted set they order for their customer.

Most professionals do not know when the custom fit clubs they order match the fitting specifications of the original order? What if the golfer does not like the custom fit clubs? What happens when the golfer does not improve?

Golf professionals generally are not able to verify the performance numbers of the fitted clubs nor recommend changes for improvement. Compare this to purchasing a new car and when something goes wrong with its performance, you take it back to the dealer and ask their expert to make it perform as expected. What would you do if the dealer said they don't do that work and will have to send your car to someone else? You would feel like they are not the experts after all.

Golf professionals should offer follow up service on the equipment they sell. They should not rely on someone who does not know the customer or what the problem might be? Should they send the clubs back to the manufacturer hoping for a fix? Who is the expert, the professional or someone else?

Golf professionals must do more than sell clubs from manufacturers' fitting carts. They must be able to fit, retrofit and ensure golf club specifications are a perfect match for their golfers. Being trained in one or more fitting system limits the fitting process and makes the golf professional solely dependent on the quality of the club making procedures of the club manufacturer. What are the club manufacturer's tolerances? How important is it to the golf professional to get the exact club specifications matched to the needs of golfers? How can golf professionals be sure that the club manufacturer's quality control will furnish exactly what was ordered?

As club fitters, when golf professionals do not know the exact specifications of the clubs they receive and deliver to their customers, they are putting their professional credibility on the line. They need to be the final quality control for every set of clubs they fit, sell and deliver to their golfers. Golf professionals must have the expertise and tools to perform this quality control task. All golf

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professionals must use the latest technology available to compete. Golfers are demanding the same club performance alterations tour players receive from tour vans every week on tour. A shop outfitted with the proper tools to make club alterations is the vehicle for golf professionals to provide that same tour van service.

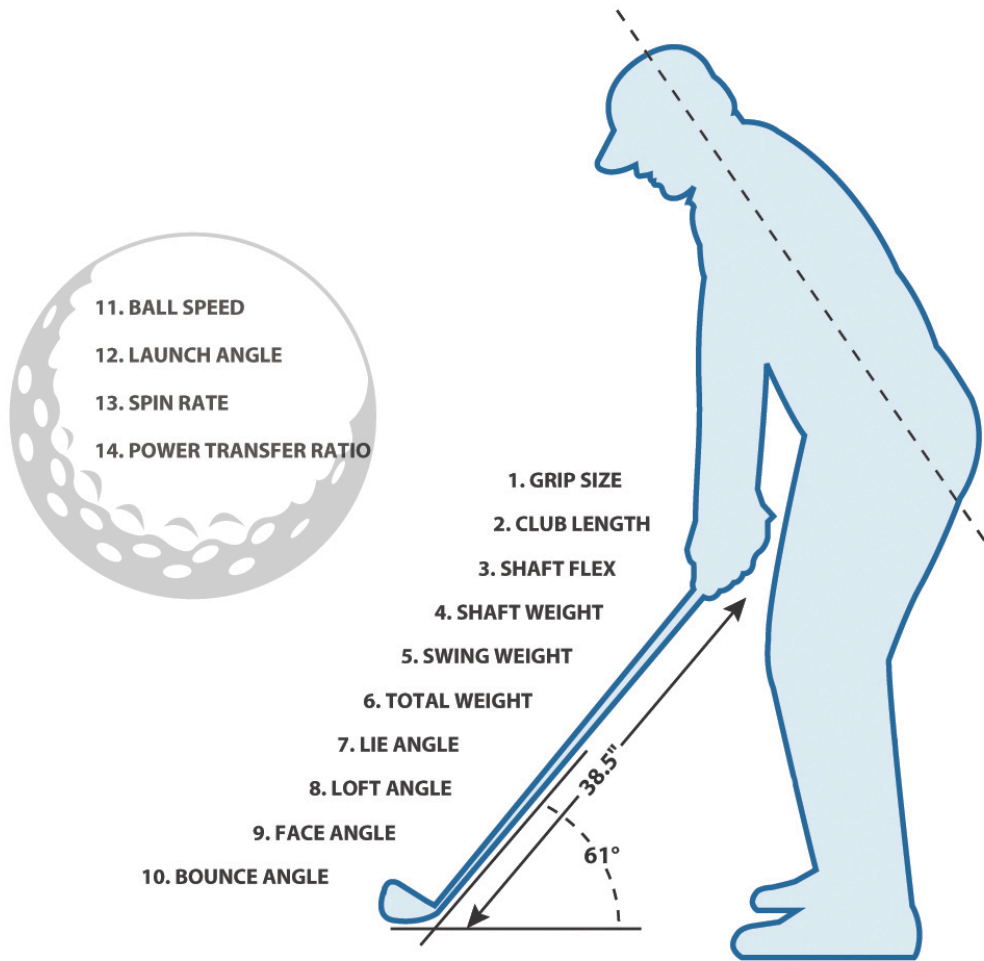
The 3 Components Of A Golf Club

Club performance involves three distinct components of modern day golf clubs; grip, shaft and club head. These components individually and collectively contribute to the overall performance of shotmaking resulting in ideal ball flight.

The performance features of each club component must be evaluated and altered when necessary. It is important to understand these performance features and how they effectively make up a completed golf club. It is the sum of these performance features that produce ideal ball flight. In other words, the brand name on a particular club is less important than the performance features designed into the club. Club manufacturers engineer performance features into their club designs, which work best when they are in sync with the player's swing skills.

Club performance is a direct result of a club's balance and how the golfer is affected by it. The weight of the three components in relation to the club's length determines its balance. It's swinging balance is what is transmitted to the golfer who responds accordingly.

Golf professionals must look at a golf club in this manner and not by the brand name of the manufacturer. They must understand that the performance of the club is relative to its performance specifications and not just the marketing of its design features.



14 Club Performance Numbers For Game Improvement

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10 Static Club Performance Numbers

There are 10 important static club performance numbers that need to be evaluated to determine the performance capability of a set of clubs. First, sets of clubs need to be consistent in progression of their performance numbers, e.g., lie angles. Second, the performance numbers must fit the golfer to achieve maximum game improvement, e.g., grip size, club length and swing weight.

1. Grip Size
2. Club Length
3. Shaft Flex
4. Shaft Weight
5. Swing Weight
6. Total Club Weight
7. Lie Angle
8. Loft Angle
9. Face Angle
10. Bounce Angle

4 Dynamic Club Performance Numbers

There are 4 dynamic club performance numbers that are the most important launch monitor data. These data are representative of the performance of both the golfer and the set of clubs and should be compared before and after alteration and with demo clubs of other specifications.

11. Ball Speed
12. Launch Angle
13. Spin Rate & Tilt Axis
14. Power Performance Factor (PPF) or Smash Factor

Terms & Definitions

1. Grip Size - Measured in thousandths of inches at 2 inches down from butt cap. Grip size is a critical component of feel and timing of the golf club's release.
2. Club Length - The playing length of a club measured from the end of the grip to the intersecting point on the sole created by the linear extension of the shaft plane.
3. Shaft Flex - The designation of a shafts' resistance to bending or the flexural feel built into the design of the shaft. Shaft flex is important for direction of ball flight and tempo of swing.
4. Shaft Weight - The actual weight measured in grams. Shaft weight is mostly associated with feel and tempo.
5. Swing Weight - The measurement of comparing the distribution of the club's total weight defined as a swinging balance. Swing weight will affect feel and swing mechanics.
6. Total Club Weight - The total weight of the club measured on a gram scale in ounces and grams. Total weight affects the golfer's balance and tempo.
7. Lie Angle - The angle formed between the shaft plane and the horizontal face plane (attitude). Lie is the most important factor for ball direction.
8. Loft Angle - The angle formed by the vertical shaft plane and the pitch of the face. Loft is the most determining factor for distance.
9. Face Angle - When viewed in a playing position face angle is the angle formed by the club's face plane (open, square, closed) and the square vertical shaft plane when the club head is soled in its natural lie angle position.
When registered in a measuring device, face angle is the angle formed by the vertical shaft plane to the square face plane with no sole influence. Face angle is an important factor related to ball direction in woods and hybrids.
10. Bounce Angle - The angle formed by the bounce contact point on club's sole and the leading bounce edge on the club face. Bounce is critical on wedges for executing short game shots.
11. Ball Speed - The velocity at which the ball travels in miles per hour. Ball speed directly determines how far the ball travels.
12. Launch Angle - The initial angle in relation to the ground line that the ball leaves the club head measured in degrees. Launch angle will be effected by swing mechanics, loft/lie/face angles, ball speed, spin rate and shaft flex.
13. Spin Rate - The amount of back spin imparted to a ball when struck by a club measured in revolutions per minute (RPM). Spin rate is effected by swing

mechanics, loft angle and shaft flex.

14. Power Performance Factor (PPF) or Smash Factor - The ratio of ball speed divided by club head speed. Power Performance Factor is a measurement of how well the ball is being impacted by the club head.

Teaching Ball Flight Principles & Preferences

This is the moment of truth for all teaching professionals. Should they focus only on principles and preferences or should they also focus on Ball Flight Laws to improve their students' swing? Regardless of which principles and preferences they teach, if Ball Flight Laws are not satisfied game improvement results will not be achieved at desired levels and won't be permanent. And if club performance is not considered in the instruction process, Ball Flight Laws cannot be totally and permanently satisfied.

Most teaching professionals generally measure the success of golf instruction through ball flight results. But what role does club performance play in achieving the desired ball flight? Should it be equally important as swing mechanics taught with principles and preferences?

In his model of ball flight laws, principles and preferences, Dr. Gary Wiren, PGA Master Professional identifies 14 principles that are divided into two categories; pre-swing and in-swing. The pre-swing principles are grip, aim, and setup. The in-swing principles are swing plan, width of arc, length of arc, position, lever system, timing, release, dynamic balance, swing center, connection and impact. These principles have an influence on distance, direction or both.

Dr. Wiren added "Impact" (The position of the body and club at the moment the club head delivers its full energy to the ball) to his Principles in 1990. He goes on to explain the effect of Impact: "There is only one moment of truth in the swing... Impact! The club face must be squared at this moment while the path is to the target if the ball is to travel there. It is the moment when the speed should be reached and the center of the club face is contacting the ball from the desired angle".

Today's technology shows a club's "face attitude" actually has more influence on direction than the leading edge as explained in Ball Flight Laws #4, "Face". Thus the club's lie angle proves to be very important to ball flight. Of course this also holds true for the principle "Impact". The club head must be delivered to the ball with a face attitude in a horizontal plane (square) to the target line.

Launch monitors do not calculate the "attitude" of the club's face. They only calculate the club path and face angle based on ball data. Face angle is not the same as "normal to face" which is determined by the attitude of the face or lie angle. This is why "impact" in the Principles is so important. If the club's face attitude is not pointing in the exact direction desired the ball will start on a tilted axis and may not curve back to the desired target.

Teaching professionals should know *The 14 Club Performance Numbers* of their students' clubs before starting a lesson. Clubs should be altered during the lesson to assist in achieving the desired ball flight. Equipment problems must be fixed just like swing mechanic problems.

Conclusion

Throughout the history of the game many theories on how to swing a golf club have been advanced, such as The Golfing Machine, Stack & Tilt, Square To Square, One Plane, Connected, One Move, Inside Moves Outside, X-Factor, Slot Swing and so on. These theories have been supported by countless instructional books, magazine articles, videos and many instructors have their own idea of the infamous Hogan Secret. But through it all everyone recognizes that golf is a learned skill. As long as the game of golf prevails there will be a need for instruction.

But what if instruction alone is not the total answer for game improvement? What if teaching professionals took into consideration the performance of the golfer's equipment? In the modern times that we now live, it is recognized that equipment does influence shot making, does influence swing characteristics and does influence ball flight.

It is fair to say teaching professionals should have club performance knowledge and be willing to incorporate that knowledge into their lesson program so their students can develop to their fullest potential.