



Magazine Articles and Testimonials

At Rational Golf we are passionate about busting the myths of golf and invent rational solutions that will benefit golfers.

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BEST OF 2016: LESSONS WORTH ANOTHER LOOK

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LETS LOOSE

>FOLLOW-THROUGH

MOMENT OF (INERTIA) TRUTH

Change Clubfitting Forever

BY VIC WILLIAMS

don't eat 13 different ways. We probably don't walk or run 13 different ways, or toss a ball 13 different ways. So why in the world would we want to swing a golf club 13 different ways? Believe it or not, that's what we're doing every time we hit the range or the first tee. We're subconsciously employing a different swing for every single club besides the putter, which is its own animal.

A German-born physicist named Gisle Solhaug can prove it through his web site, rationalgolf.com — a clever nod to Sir Isaac Newton's "Laws of Motion" revelations in the 1600s, which kicked off the Age of Reason. Solhaug has the science and numbers to show that just about every living, breathing golfer, pro or amateur, low-handicapper or weekend hacker, is making the game much more difficult than it needs to be. Why? Because despite all the whiz-bang advances in materials and data that drive today's golf industry, manufacturers are leaning on 100-year-old technology to build their clubs — the idea of "swing weight" and that leads to a whole mess of issues for golfers.

"The golf industry is very old-fashioned," says Solhaug. "It's difficult to get in with new thinking. Everybody has swing weight in their minds, which is not doing anything for them. The way they use swing weight today is silly, because it's different from what it was designed to do when clubs all had the same materials for shafts — wood. Now some clubs are steel, some are carbon fiber, in the same set, so swing weight just messes things up these days. Some manufacturers don't specify swing weight anymore, realizing it doesn't really matter."

But making sure your clubs behave identically, with the same weight and moment of inertia, does matter. It's physics, and physics don't lie. So Solhaug got to work, building a weight-uniform set of his own. This weight is merced for Marting the man of golf clush scorrding to the Marting the method scorrding to the Marting to the Martin

"I was playing with it, and it worked

better for me than before. I realized that the longer clubs need to be lighter, because the club head is further forward at set-up, and your hands need to be further forward at impact. The longer clubs need to be lighter than the shorter clubs."

Which means that today's practice of adding more weight, adjustable or otherwise, to the head of a driver or 3-metal, for instance, is actually opposite to what should happen — adding more weight in the handle to balance the weight of each club through the bag. That's how Gisle's Bio-Match system was born.

"To calculate how much difference there should be between the longest and shortest clubs, I make a model of the human body — height, weight, fat percentage — with the body swinging each of your clubs, thereby calculating the difference between them and making the weights progressive. This involves a lot of biomechanics and mathematics."

Once armed with a model of a person's body, Gisle calculates the Bio-Match weight needed for each of that golfer's clubs, applying it in two-gram increments. "It's a matter of picking the right weights, boxing them up and sending them off." The customer then installs each weight himself via drill or electric screwdriver. "You make a hole in the end of the existing grip, insert the weight and tighten it. The weight expands inside the grip."

The result is akin to what newly minted PGA Tour player Bryson DeChambeau accomplishes by putting a 6-iron shaft in every club. "If you put his clubs into my website, you'll find they're all the same weight, because they are all the same length. But you can achieve the same result without doing that [using weights]. And he's only applying his method to his irons; he still needs another method for his longer clubs."

In other words, the big sticks need the most tweaking since they have the largest moment of inertia — the span in which the club head travels in a relatively straight line with the least resistance. "If you have a driver that's 46 inches or

longer, you would see that you have to add a lot of weight to the [grip end] of it to make up for large moment of inertia," says Gisle "Sometimes it's better to reduce

says Gisle. "Sometimes it's better to reduce the weight on the clubhead, so you add less weight to the grip end." Too much weight in the clubhead leads

the hands to get too far ahead through impact, which will open the clubhead, the larger the moment of inertia and the slower the release. It all affects how fast your hands move. It's a matter of synchronizing these two [weights]."

Gisle says that several teaching pros are using the Rational Golf method to fit their students, and that overall, feedback has been overwhelmingly positive. "The immediate reaction is that impact feels [more] solid. Some say they have added distance straight away. Some report five to 10 yards on the irons and 15 yards on the driver. That is a by-product, because the whole intention is to match your clubs so you only have to use one swing for all the clubs. You don't have to steer the club. The wrists become looser, which adds distance."

Sounds like every golfer's Holy Grail, and Gisle wants to be your high priest of one-swing bliss. "I've been studying this for a long time, and my goal is to become an authority on fitting golf clubs. I want to be THE person who knows how to do this, who people come to when they want to match their clubs.

"Your game will improve effortlessly. You still need a good swing but it will be much easier."

Join Gisle's revolution at www.rational-golf.com. **GT**

BioMatch



For about five hundred years golf club makers have searched for a way of matching golf clubs so that the golfer can apply the same swing to all the clubs in the set.



Gisle Solhaug, the founder of Rational Golf LLC, has come up with the solution, named BioMatch.

The patented BioMatch system is the only scientific method of matching golf clubs so that the golfer can apply the same swing to all the clubs in the set. This is a breakthrough in golf technology, a real game-changer. As your subconscious mind, now only has to learn one swing, the game will be easier to play for all. Your game will automatically improve without any efforts from your side.

BioMatch involves making a biometric model of the golfer swinging each of his clubs. These calculations have been incorporated into the Rational Golf website. Any golfer can enter his personal data and the properties of his golf clubs

online. The personal data is used to build an anthropometric model of the golfer. The website will make a model of the golfer swinging each of his or her clubs and thereby determine the optimum weight of each club. After paying a small fee, the golfer can download the BioMatch report. A set of weights tailored to you can then be ordered by a click of a button. The golfer easily installs the weights after receiving them. After the installation, it is advisable to forget about the weights and let your game improve effortlessly as your mind now only has to concern itself with one swing. This will offer higher accuracy in both distance and direction and, as the wrists no longer need to steer the club, the club will release effortlessly causing slightly more distance. The game of golf will be more fun for all.

About Gisle

Gisle Solhaug, from Norway, moved to Florida in August 2013 together with his wife Rita and now 13-year-old son Gregory. Gisle studied for his MBA at Keiser University while setting up his company, Rational Golf LLC. The family lives at the IMG Academy, located in Bradenton, at the entrance to Tampa Bay. Gregory is in the Golf program at the IMG Academy.

Before moving to Tampa, Gisle spent twenty years in the Marine and Offshore industry as a Naval Architect and Project Manager. His interest in the science of golf came to life as he was fitted with a set of golf clubs over ten years ago. With his background in physics, he realized that the clubs were not matched within the set nor to his body and that he would, therefore, have to learn a different swing for every club.





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grip end of each club for the upper body, length of weight that has to be added to the hands, and clubhead to be synchronized at the impact position, while the golfer applies one consistent swing. This is how the BioMatch method of golf club matching takes the complexity out of golf.

www.designergolf.co.uk www.rational-golf.com

clubs, and thrown away the Swingweight Ltd here in the UK. And the system can be fitted to golfers existing clubs or a inserted into the grip end of the clubs is BioMatch method of matching new set and is the final part of the club making process. The tailored set of weights derived once the golfers personal data of Height, Weight and percentage of Body fat algorithm. Club fitters that have converted to the BioMatch method of matching golf golf clubs is available from Designer Golf along with original weight, length loft and lie of each club has been entered into the scale, are able to measure the moment of inertia in the grip area accurately and increase an individual golfers shot accuracy by up to 65%! The

Mass Production

that golf club manufacturers can optimize the weight of each club to suit The inventor of BioMatch and founder Rational Golf has developed a method implement for taking online orders and each customer in an efficient manner.

of Rational Golf LLC, Gisle Solhaug, can be contacted on gisle@rational-golf.com. Or for enquiries in the UK contact Steve Low, Director Designer Golf Ltd clubmaker@ designergolf.co.uk





had me hitting a few balls to Met Steve at his studio where after a coffee and a chat he get warmed up.

into my 6 Iron – immediate in the grip we hit the sta<u>ts again</u> Now I see the difference – taking immensely. Now I stood a chance l was very sceptical at first when We went through the "fitting' process and fitted the weight you see some of the data but after showing me my dispersion that would have covered a green and quite a few of the hazards around improvement, not quite but after hitting some shots with the weigh away the couple of duck hooks my dispersion area had improved it I realised I needed some help. of hitting the par 3!

Was sceptical but after playing shot very close to two and the fact now seeing a constantly better have had my clubs fitting and the BioMatch fitting I am feeling with the clubs (which were also new, that never helps) I am grouping of balls on the range and looking at my stats my handicap has come down one more confident of where the ball is going

Thanks Steve – great day and awesome company

You are one swing away from a better game.... **IS THE FUTURE**

OUTDATED – BIOMATCH

SWINGWEIGHT IS

BioMatch – One Swing Club Matching

Designer Golf have the exclusive rights Swing Golf Club Matching system directly to to deliver the revolutionary BioMatch Oneits customers and sub-distributors.

any golfer's game by matching the golf clubs distance that Swingweight matched golf clubs of the golfer swinging each of his or her clubs and thereby determines the optimum weight adding a specific proprietary weight inside the shaft at the grip end of each club. BioMatch is BioMatch offers effortless improvement to within the set and to the biomechanics of the golfer. Thereby taking back the accuracy and are robbing you off. The revolutionary system is applied to any golfer's clubs, old or new! A patented online application creates a model for each club. The target weight is achieved by the last step in the club fitting process.

Once the weights are installed the golfer ´s subconscious mind. Steering of the club is game will improve effortlessly as he or she now only have to ingrain one swing in the The method provides significantly better The following two screen shots show the accuracy improvement from 7-iron shots hit accuracy and slightly more distance to golfers at all levels. BioMatch is a must have for any golfer who cares about their scores, or even the enjoyment of the game. by Sam Patel, the current Captain of Collingtree no longer necessary and is discouraged. Park GC, Northampton:

of 881 square yards using his own 7 iron, the The first picture shows a shot dispersion second picture shows his 7 iron dispersion

after BioMatching reduced to an incredible 99 square yards, with an overall distance gain of 8 yards.

Distributor with both hands: "After applying the dispersion, I have now fitted it to every incidentally, has nothing at all to do with swing It is totally obsolete, but still used by the golf club fitting business across Europe and has Denmark and Sweden with several centres BioMatch replaces the arbitrary Swingweight method of matching golf clubs which and very little to do with weight! furthermore industry as the holy grail of clubmaking/fitting? Designer Golf Ltd, located in Daventry 50 miles north of London, is now trained and fully equipped to implement the patented BioMatch method to its customers. Steve Low, Managing Director of Designer Golf Ltd, was stunned by the results that BioMatch brought and grabbed the opportunity to become the UK & European the method to my clubs I was shocked to see age, shape and ability of golfer, from a Tour Pro to an 85-year-old client and the accuracy Designer Golf is now set to revolutionize the already appointed distributors in Germany, improvement is remarkable across the board" in the UK to follow soon.

The founder of Rational Golf LLC of Florida

how Rational Golf will appoint and work with Solhaug, is excited to work with Designer Golf and inventor of the BioMatch system, Gisle as "they will be able to serve golfers in the UK and Europe far better". The cooperation with Designer Golf will be used as a model for distributors worldwide.

E: clubmaker@designergolf.co.uk | W: www.designergolf.co.uk | @designer_golf T: 01327 877922 | M: 07811 065072 Steve Low – Managing director

contact Steve Low.

Club makers/fitters interested in becoming BioMatch fitting centres across Europe should

Golfers are welcome to learn more at www.designergolf.co.uk or www.rational-golf.com

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insidegolf.com

olfers play with 13 different full swing clubs of random Mass and Moment of Inertia.

that affect how a club behaves when swung. of the golfer thereby has to learn one swing These are the two physical properties by waggling the club before swinging learn thirteen different swings and be able consistent manner is an achievement. To Still, these two properties are ignored by the golf industry. The subconscious mind for each club. It also has to tell them apart it. To swing one club in an efficient and to tell them apart at a subconscious level is next to impossible.

Moment of Inertia, it would not be easy to Even if the club makers wanted to do as the properties of each golfer comes into play as well. The physical properties of each club would have to be optimized produce clubs of optimal Mass and for each and every customer.

Memory) **Brain Maps** (Muscle

It gets worse; it has been found that space (Zumerchik, 2010). For example, by practicing with a 9-iron, the proficiency of the other 12 clubs will drop. The only way while growing one brain map, another brain map may shrink. This, as brain maps are competing for neurons and to solve this problem is to have one brain map that covers all thirteen full swing clubs

BioMatc

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the problem by creating an algorithm, such as the golfers body mass and height and various properties of the clubs the algorithm calculates how much weight and Rational Golf LLC of Florida has solved named BioMatch, that makes a computer model of the player of the clubs in the

's body swinging each bag. Based on input



KEISER UNIVERSITY ALUMNUS GISLE SOLHAUG VISITS COLLEGE OF GOLF

Gisle Solhaug, Keiser University Fort Lauderdale campus graduate of the <u>MBA program</u>, recently visited the <u>College of Golf</u> to discuss and demonstrate his BioMatch technique.

The <u>BioMatch technique</u> scientifically matches golf clubs within a set based on the golfer's physical characteristics and abilities. Mr. Solhaug parlayed his MBA degree and love of golf into a business, founding Rational Golf LLC, which is incorporated in Florida and based in Bradenton. His business is built on the concept that "By scientifically determining the optimal mass and moment of inertia of each club in the set, the upper body, hands, and clubhead will be synchronized so that they all line up at the impact position, which will improve accuracy and distance."

College of Golf Executive Director of Golf Operations, Dr. Eric Wilson, worked with Mr. Solhaug and volunteered to have his own golf clubs weighted using this unique system. Mr. Solhaug also met with <u>PGA Master Professional</u> and College of Golf instructor David Wixson, who teaches the Club Fitting course, to share his ideas and concepts. Eventually, Mr. Solhaug hopes to have his paper on "Scientifically Matching Golf Clubs" published in *The International Journal of Sport Science*. The College of Golf staff wishes Mr. Solhaug all the best on his endeavors.



To learn more about a career in golf <u>contact the Keiser University College of Golf</u> today!

Gisle Solhaug working on Dr. Wilson's Golf Clubs

Geir Leknes, Oslo, Norway

Dear Rational Golf!

I do think I have the honor of being the first person to try out your BioMatch system, and I must admit that I am all inn!!

I think the swing is a lot smoother and it allows me to have just one swing. I started out with 6.1 hcp but after a year and a half I am now down to 3,9 !

I would like to dedicate my last years Norwegian Police Championship to Rational Golf and Gisle Solhaug!!

Sincerely

Geir Leknes

Inventor's note: Geir keeps winning the Norwegian Police Championship. He came second in the Nordic Police Championship 2017, again siting BioMatch as a contributor to his success.

Mark Rummings, Sarasota, Florida

Good Evening Gisle,

I have practiced twice with the clubs after you installed the weights. The first time I struggled a little with the long irons but second time I felt more comfortable and could not tell the weights were installed. The woods went well and they felt like a match to the set even though they were from different manufactures. Today I played 18 holes at The Members Club of the back tees and breezed around in an easy 67 (-5), best round of the year. The clubs felt great and my ball striking was consistent, now I need to make more putts..

Thanks so much for the work on my clubs.

Mark Rummings

Head Golf Professional

The Ritz-Carlton

Jim Beatty, Jeffersonville, Indiana.

I am a 15 handicapper. Today I shot 78, two days ago I shot 80. BioMatch is definitely making a huge impact on my game.

Thank you for Everything.

Jim Beatty, October 20, 2016.

William Milne, Buena Park, California

Received the back weights yesterday and installed immediately. Played in my money group today. Did not practice with the new set up at all. As I said, I am 72 and shot 73 today. Unbelievable. My guys were pissed and wondered what happened. Did not miss a drive. Did not miss a fairway wood. Mishit a couple of irons when I decelled, but hit 4 inside 6ft and made 3 of the 4 for birdie and lipped the other. Have not hit irons that close since before I had my left hip replaced about 5 years ago. Only area I had some issues were on my wedges. Not the full wedges, but the pitch and chip shots. Came up short on all but the last one which I almost flopped in hole. I think it will just take me a little time to get feel with new weighting on the touch shots. For me, Gisle, you have a winner in your system. I got all these different weights and didn't question it...I just installed and trusted. I am blown away. Didn't really hit ball further, but my accuracy was amazing and my misses were minor. First time I didn't hit a trap in a long time. Greens were slow and I am not great putter on slow greens. Had they been fast, I do believe I shoot my age. Will keep you posted. I am STOKED! Bill Milne, October 27, 2016

Andrew Ash, United Kingdom

BioMatch is the best innovation I have seen in the golf industry over the last 25 years as a club maker!

Andrew Ash

Founder of Designer Golf, UK

Sal Martignetti, Sarasota, Florida

I wanted to get back to you about my experience with the Bio-Match. When I first started swinging the clubs I did notice something different but I couldn't put it into words. It was strictly a feeling I was experiencing. So, I waited to let you know until I could figure out a word for it. What I came up with is balanced. A constant and consistent feeling throughout the swing. However, what I suspected before I tried it is that the average player wouldn't notice the difference and still feel that way. It's very subtle but noticeable to me. I'm not sure if I could have felt the difference if I had a blind test with clubs that had the bio-match and clubs without.

Knowing they are there now and the feeling I get, I feel that I have more time to swing the club, if that makes sense. So, I think that this product would be best suited for pros and lower handicapped players that are both technical and feel players. I'm not sure if this helps you in any way. Let me know your thoughts.

Thanks,

Sal Martignetti, Elliptic Golf Swing, October 28, 2016. Inventor's note: Even if you do not feel that the weights are there, they are working. (Just like gravity works, even if you are not aware of it)

Andrew Oliphant, Bradenton, Florida

I started using these in all my clubs last month. The results have been really good, having played Sarabay CC in under par for the first time and my Trackman numbers being more consistent.

The wedges feel great, my mid irons flight is a little lower, but my long irons that was too high now have a lower stronger flight.

For the M1 driver it was tough to get the right formula to make it work. Now with Rational Golf - it's perfect.

Thanks to Mr. Gisle Solhaug for giving me the opportunity to play this product.

Andrew Oliphant Senior Instructor, IMG Golf Academy, Bradenton, Florida

Max Thompson, Birkenhead Auckland, New Zealand

Hi Gisle,

I'm pleased to report I have back weighted my clubs using your system.

I've hit some balls at the driving range and the results were quite astonishing.

I began with a 9 iron and worked my way down to the driver. I was able to put the same feeling swing and swing speed on every club.

This is quite remarkable. All clubs felt the same. I did not feel a need to adapt my swing to each club change. Their balance was perfect.

I will let you know more results when I have been on the golf course.

Best Regards

Max

Senior Professional NZPGA

Steve Low, Daventry, United Kingdom

Hi Gisle,

OMG!!! As soon as I can I will send you a couple of screen grabs 9I, 7I and 4W dispersion is unreal, will give you more detailed feedback after the weekend

Have you guys thought about reseller terms yet... I need to start selling!!!

Have a great weekend

Regards

Steve Low Director Designer Golf Ltd Inventor's note: Designer Golf Ltd has since signed a Distributor Agreement with Rational Golf for Europe.

Jan Meyer Oxford, Oh

I wanted to email you and let you know what I experienced with your product. I am 71 years old 5'9" tall 170 pounds.

I have a 5 handicap. My swing speed with a driver is 95 mph. My stock 7 iron goes 150 yards. My friends in my senior game say that my swing is very smooth. The problem I have is that I keep aging even though I exercise everyday. I try to offset this by buying new equipment every two years. The thought is "better technology will help me". And it does. I read in "Golf Tips" magazine an article about your product. It made sense to me so I went ahead and ordered your product and installed it according to the instructions.

I want to be honest when I tried my clubs with counter weights in them my reaction was "What have I done.. these are not my clubs !". The feeling was not bad but just different. I decided to stick with the counter weights. After 20 to 30 practice balls it got better and better and better. My dispersion pattern got tighter. My distance improved. In my opinion this came about because the ball is coming off the club head from the sweet spot more often.

Am I ready for the Senior Tour ???? NO!!!!!!!

But I am getting more skins in my senior game.

Thanks,

Mr. Jan Meyer

Frank De Pauw, Lembeke, Belgium

I have the counter weights of BioMatch in all my clubs, and it's strange, but there has been a slight change in my swing, and I'm more confident, and swing more equivalent with every club in my bag....TOP !!!

Arthur M. Pineda, Cypress, Texas

I wanted to take the time to let you know about my golfing experience following the installation of the Biomatch weights on my golf clubs.

The bottom line up front is that I have never been more consistent with my golf game than I have after adding the weights. I am consistently hitting straighter and longer with all my irons and hybrids. The only drawback (if you can call it that) is: 1) since my clubs are going further than before I have to convince/trust myself to hit less club than before especially on shots 135 yards in to the green or basically my 3 wedges (SW, Gap and PW). I rarely miss tee shots on par 3's and just missed a handful of "hole in ones". The golf ball is tracking to the pin as never before. My only misses are usually self inflicted when I pull the trigger too quick. Before installing the weights I was a 12.6 but the handicap has dropped 3 full strokes in just over a month. Shot my best back to back rounds (79/77) in 20 years.

Your product is a game changer. I'm playing the best more consistent golf at 62 years young.

Arthur M. Pineda, CPP

Bryan Van Der Riet, Bradenton, Florida

Great work! You are a pioneer in this break through technology, and I would recommend all golfers of all skill levels give this break through technology a go!

After working with and being fitted personally by Mr. Solhaug, and after a couple of days working with this new technology installed on my equipment I noticed two changes immediately, one being my ball flight, our found being able to flight and control my ball flight was a lot easier. Being able to control the flight of each club made being able to hit my numbers more consistently. Two, I found my dispersion/s had improved — a lot tighter! Meaning my "misses" were more in play. I've always believed if I could become more consistent in these two important elements of my golf game, I would become a more consistent player — I only wish I had met Gisle Solhaug 40 years ago!

Again, great work Gisle! I'm proud to have had the opportunity to work with you, and I love what you have done for my game!

Bryan Van Der Riet Golf Coach, IMG Academy Founding Member of the Sunshine Tour of South Africa

Poster Presentation



Poster Presentation at the 2018 World Scientific Congress of Golf

BioMatch Winning lots of Tournaments

All the below Champions were the only players in the field playing with clubs matched by BioMatch.



Gregory Solhaug won the American Athletic Union Junior Golf National Championship



Gregory Solhaug won the North Shore GC IMG Junior Tour



Angelina Ye won the 2017 Annika Sørenstam AJGA Invitational



Jim Cai won the Hurricane Junior Golf Tour National Championship



Joe Redoutey won the Club Championship and the President Cup at Harbor Hills Country Club, Florida



Kuangyu Chen "Tony" won the 2018 KPMG Stacy Lewis Junior All-Star Invitational.



Gregory Solhaug, a 15-year-old student at the IMG Golf Academy in Bradenton won the Florida Junior Tour (FJT) organized by the Florida State Golf Association (FSGA) at Wyndemere Country Club in Naples this weekend. He shot a total of 4 under par after two days of tournament and won by 5 shots. September 2018.