



ROCKET SCIENCE FOR EVERYONE

Arnold Palmer has recently been credited with being the single most important sporting icon to begin the transformation of golf into the 'game for everyone'. A generation before marketing became a byword for charlatanry with testosterone, Palmer's looks, undoubted athletic prowess and his charisma made him much more 'bankable' than any other golf professional of his age. But here's an interesting thing...Recently re-produced photos of Arnie in his heyday show the young dragon pouting strangely. This was mentioned in passing to John Lewis from Bay Hill by Palmer UK & Ireland, who explained that it's because the young Palmer smoked like a chimney, but modern custom forbids this and so the Lucky Strikes have been airbrushed out but the facial expression of the habitual smoker remains.

It's representative of how sport has turned against nicotine and related sybaritic pleasures - many would have thought that golf didn't really number among the sports where self-denial and discipline were that evident.

At the Open in 1976, Johnny Miller walked away with the champion's purse of £7500,



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In an entirely separate undertaking, Hurrión several years ago was retained by shoe manufacturer Hi-Tec to research and develop the ultimate golf shoe. The result was the Custom Directional Traction (CDT) shoe. Three guesses what shoes were worn by the Open Champion Harrington... and the first two don't count.

Golf is especially interesting from a biomechanical point of view, due to the fact that enormous torque and power are in play when driving a ball off the tee, yet chip shots and putting around the greens involve a very different set of physical movements, relying on control and great deftness of touch. Common to all golfing movements, however, and a key consideration in so much biomechanical study is balance & stability. In looking at sport performance literally from the ground up, the way a golfer distributes his body weight is a factor of which he's generally unaware, and yet so much depends on it, 'The power comes from your feet! How far would you hit a driver in your bare feet?'

For analysis of both the full swing stroke and putting stroke, weight distribution and balance is measured using a force platform. This is a small mat packed with sensors and

chips to monitor initial balance and shifting of weight during athletic movement. Hurrión is able to look at unlabelled computer-generated pressure graphics of various golfers' movements whom he has coached and identify it as a Harrington, Howell, Westwood or Nancy Jones from down the road – each display being so much an individual signature.

This might not appear that interesting at first, were it not for two distinct facts relating to this. Firstly, there has never been a visitor to the Quintic lab whose athletic aberrations have not been immediately impacted by addressing balance to one degree or another. Secondly, the experience derived from this type of analysis has allowed Hurrión to design a range of training and adjustment solutions that this year and next will be on sale to the general public. No exaggeration or sleight of hand, the complex methods used to coach the world's most successful golfers will literally be available to everyone. More of this later...

"I often work with amateur golfers as well as the Tour Professionals," says the biomechanist in an aside. "Most of them have favourite Tour players whose progress they will follow assiduously. One of these keen



ABOUT PAUL HURRION

A varied and active sporting life combined with sports / injury related studies gave Paul the grounding to build a company (www.quintic.com) with his father providing a range of quality performance analysis software used at the highest levels in sport, health, and education across the world, and producing top class coaching CDs.

Paul specialises in biomechanical analysis using high-speed cameras, force platforms and computers and is a leading biomechanist contracted to UK Athletics, International Cricket Council (ICC), English Cricket Board, and British Diving. His passion for golf has led to a specialism in putting analysis and advice, assisting European Tour Professionals and holding PGA accredited Putting Clinics. Through his work with Padraig Harrington, he advised Hi-Tec on the biomechanical design dynamics of their new CDT Golf Shoe. Currently, Paul heads biomechanical analysis for the ICC's consideration of legal bowling actions.

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amateurs said to me once that being privy to these methods we use to help Tour players was akin to an extreme form of memorabilia-collecting. But instead of having the ball David Howell used to hole out and win the BMW, or the glove Padraig was wearing when he won The Open, he had the very technique, mind-set or drill that was in use, and not mere equipment. "It's probably the only acceptable form of super-athlete-stalking there is," he says – almost smiling.

Avoiding injury is also clearly a key consideration. For Tour golfers, injury actually means more than just discomfort, it's a loss of earnings. The vast majority of the world's 65 million golfers, though, aren't professional golfers. But the sheer number of players over 55 whose physicality is more prone to strain and damage makes injury at this level just as important. It is through a comprehensive understanding of the body's mechanical characteristics that biomechanists know what a body can and can't, or should and shouldn't do.

Understanding all the physiological stuff is one thing. But it's an entirely different matter discovering the best hardware and software possibilities that are available to turn it into diagnostic, explanatory and remedial reality.

The use of video cameras to capture images of athletic motion is very important. The human eye can only separate a maximum of ten to twelve images per second. When it comes to analysing athletes' techniques, even the coach's practised eye cannot extract all the necessary details in a live sporting situation. The way that video cameras work is by creating the illusion of motion by 'tricking' the human eye. They play 25 flashing still pictures each second (fps). As the eye cannot separate those pictures, we perceive continuous movement.

Quintic video analysis software enables video capture at 25, 50 and 100fps. At 100fps each still image is 10ms apart, capable of capturing even the fastest of human movement. Quintic also has the capability of capturing four live video images simultaneously, allowing for still further potential for kinetic comparisons.

More and more athletes, coaches, scientists are using video feedback as a coaching aid. Video can help athletes to understand the basic fundamentals of a specific movement, and these images are used to assist coaches in their task, as the athlete's performance can be repeated afterwards and slowed down during critical phases.

By comparing performances of previous movements, or even other athletes, the Quintic

biomechanical software enables the user to compare video images via the computer screen. Differences between the techniques can be identified (competition vs. training) and this information made available immediately to the athlete. The coach and the athlete can discuss what they see and plan a strategy for improvement, then repeat the process. How the feedback is presented to the athlete when using Quintic is highly dependent upon the skill of the coach or analyst.

AND YOUR POINT IS...?

Golfers are extremely vulnerable. No seriously. A lot of club golfers come to the game late in life and a strange metamorphosis occurs the first time they walk into the pro shop at their new golf club.

Imagine a successful professional man. He could be a surgeon, company director, stockbroker or Formula one racing driver. Supremely confident in his own sphere of expertise, he is putty in the hands of a PGA pro (or his 17 year-old assistant perhaps) and is entirely reliant on the advice he is given. This is widely known among the entrepreneurial community.

There is virtually a gadget for every one of those 65 million golfers, costing anything between a few Euros and thousands of dollars they can cure your slice, enhance your confidence, stop the shanks, yips and DTs, align your stance, help read the greens, make you drive further, chip more accurately... all geared to lower your handicap and make you a better golfer. Golfers pursue lower handicaps like a knight after the Grail and will pay loads for any and every chance to make it happen.

Most devices have only the kind of research behind them that comprises likely profits after 12 months' trading (if they last that long). Even well-meaning golfers who 'have an idea' are arguably on the prowl to be behind the next big thing in golf.

The work carried out by Dr Paul Hurrion and Quintic Consultancy is grounded in proven academic fact and tested application of physics. He personally is cagey about when his training products will be available, partly because this sort of commercialism is not his primary area of expertise. Also, it's partly due to the fact that on most occasions when he sits down to apply himself to refining the product, he'll get another urgent summons from his client list of PGA players who need his consultancy... there aren't enough hours in the day...

We all look forward to Paul finalizing the designs so we can benefit from the science... what would that be worth to us golfers? ●