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{ PROF AIDAN MORAN }

Ever wonder how it is that a top Gaelic footballer can kick a ball over the bar from 20 metres in training with ease, but struggle to do it when required in front of a big crowd in the dying seconds of an important game? Or how a professional golfer can sink short putt after short putt on the practice green, but miss them when it comes to the closing holes of a major tournament? It's clearly not a matter of talent or desire. So what is it? The answer appears to be found between the ears. 'Sport', according to Aidan Moran, 'is played with the body but won with the mind – especially, in the ability to focus under pressure.' He should know.

As Professor of Cognitive Psychology at University College, Dublin, he is not alone one of the foremost experts in the field of mental imagery and concentration techniques, but has also applied his knowledge in the real world of competitive sport, assisting many of Ireland's top athletes and teams, from Olympians to elite golfers. Where some sportspeople are merely looking for tips on "psyching out" their rivals, Moran maintains that the best use of psychology is when it is directed inwards; when the focus is on that which athletes can themselves control – such as where they shine their "mental spotlight" or concentration. Just look at Tiger Woods. Like most sportspeople who reach the top and stay there, the American golfer is task oriented rather than ego centred. 'He doesn't seek to achieve at the expense of others, as many are often programmed to do in sport. He is always focussed on competing with himself, trying to improve on his own past performances.'

For elite performers like Woods, mental training has become as integral to their tournament preparation as physical practice, yet the relationship between psychology and sport has not always been so close. Until relatively recently, indeed, psychologists have largely ignored the world of sport in their quest to understand how the mind works. In part, this was due to a certain academic snobbishness: for all its great popularity, sport was essentially viewed as a trivial pursuit, more about brawn than brain, a measure of muscle rather than mind. But there was another factor at play as well. Professor Moran points out that since the 1950s, 'cognitive psychologists had falsely assumed that the mind was some kind of disembodied computer – thereby ignoring the importance of bodily processes and motor skills in daily life.' In short, psychology had overlooked the connection between thinking and action.

For Moran, an appreciation of how the mind rehearses actions and movements developed in the late 1980s and early 1990s when he began investigating mental imagery – "seeing" and "feeling" things in one's imagination. It was then it dawned on him that sport could be something more than a hobby. The world of sport, he came to realise, provided 'a natural laboratory' for the study of cognitive processes such as mental imagery and concentration. Furthermore, sport offered opportunities that laboratory-based psychology, then widespread, could not. 'The trouble with the lab is that it cannot easily simulate a dynamic, rapidly changing environment, so it's not representative of many tasks requiring skilled performance in everyday life', Moran explains. 'In sport, you've



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got one chance to do something right – often under severe pressure. This problem is difficult to replicate under laboratory conditions – although my research team and I use computerised eye-trackers to measure exactly where people look when they perform various skills (e.g. ‘reading’ a green in golf).’

Aidan Moran’s ideas on the application of psychology to sport began to take shape in the early 1990s. This proved a particularly productive period in his career. His work was helped by a temporary move to the United States after he received a Fulbright scholarship in 1994, the same year in which he published *Does mental practice enhance performance?* (with Jim Driskell and Carolyn Copper), a paper that is still his most cited piece of work. The American experience marked something of a watershed for Moran. Not alone did it afford him the opportunity to rub shoulders with some of the most influential psychologists in the world; it also ensured him access to some of America’s elite sportsmen and women at the US Olympic Training Centre in Colorado. Working alongside such people as Professors Robert Singer and Shane Murphy, he developed a body of research that would provide the basis of his groundbreaking monograph on *The Psychology of Concentration in Sports Performers*, which was published in 1996. Essentially, what his 1994 paper and his 1996 book demonstrated were the gains in performance that could be achieved by proper mental preparation involving mental imagery of

skilled actions. It was acknowledged that physical practice delivered the most significant improvements in performance, but, significantly, ‘mental practice – just sitting there and imagining executing a movement – produced more gains than not doing anything at all. The most intriguing thing of all was that alternating physical and mental practice produced faster learning and more significant gains in performance than anything else – a finding that is now being applied to develop expertise in fields like surgical training. We provided really strong scientific evidence that alternating physical and mental practice enhances learning of lots of cognitive and motor skills.’

The message of this research was not lost on those who stood to benefit most from it. Whereas initially Moran approached athletes to assist with his research, they now approached him. ‘They were mainly looking for advice on concentration, on how to focus properly’, he says. ‘They were most interested in how to visualise and block out distractions in the sports they were performing.’ For Moran, mental practice was a powerful concentration technique and he advised people about the best way to use it. Among those who came knocking on his door were the Irish Olympic team, international rugby players and inter-county GAA stars. Another was Pádraig Harrington. ‘Concentration was something he was always fascinated by’, Moran says of the Dubliner. ‘He was very curious about the benefits of psychology and how they might be applied

to golf. He was very interested in the problem of maintaining focus.’ In his final years as an amateur and first few years as a professional, Harrington would devour books and whatever other psychology material Moran would put his way. His persistence, hard-work and openness to new possibilities paid off. Now a multiple Major winner, Harrington has lent his support to Moran’s recent efforts to bring his expertise to a wider golfing public. An audio-book, *Learn to Win at Golf*, was produced in 2009 and offered practical psychological techniques to help golfers produce their best when they need it most. As Harrington puts it on the sleeve note, ‘this is mental toughness put in simple terms.’

More than most sports, golf makes mental demands on those who play it. Moran attributes its difficulty to its stop-start nature and slow pace. In a typical round of three and half hours, a golfer may only be in contact with the ball for 10-20 minutes. ‘Golf makes extraordinary demands on concentration but only for short periods of time’, he says. ‘So, the golfer must learn to do something that is difficult and unnatural – to focus only on the present moment.’ What the audiobook is therefore designed to do is to enable players make the most of those intermittent bursts of activity, to focus effectively, deal with distractions and visualise the next shot.



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What works for golf can also work for other sports and in other spheres of work and activity. The mental techniques that Moran espouses have a wide applicability and, apart from his many scientific publications, he has written for, and worked with, the likes of students, actors and musicians. Now he’s turning his attention to medical surgeons. Working in collaboration with world-renowned surgery researchers such as Dr Raj Aggarwal at Imperial College, London, he is investigating the efficacy of mental imagery processes (‘one of the most remarkable capacities of the mind is its ability to mimic experience’) in the training of laparoscopic surgery skills.

All this is indicative of just how far psychology has travelled in the last quarter century. When Moran started studying the subject at UCD in the 1970s, it was still considered something of a new subject. ‘Few people knew much about the subject’, he recalls. ‘They just knew it had something to do with studying how the mind works.’ Today psychology is universally popular, the shelves of mainstream booksellers overflowing with books in the field, much of it of the self-help pop variety. And yet, for all its extraordinary popularity, Moran admits that many of the old myths that surrounded psychology in the past still persist. ‘A lot of intelligent, well educated people are surprised to discover that psychology is more than therapy – it is really a scientific

discipline that is at the cutting edge of attempts to understand how our minds work.’ Moran has done more than most to champion this approach by studying expertise in action. Through his work with elite sportspeople in particular, he has helped turn on its head the idea that psychology is a discipline exclusively focussed on people with problems. Instead, as practised by Moran and his collaborators, cognitive psychology is more often than not focussed on expertise – on what makes people exceptionally good at what they do.

Perhaps inevitably, Moran, himself a keen sportsman, is frequently asked about whether he practices what he preaches? He tries to, he says, before pointing out that doctors aren’t always healthier and economists aren’t always wealthier than the average person. ‘In the words of Arigo Sacchi, an Italian football manager, you don’t have to be a horse to be a good jockey! I see myself as a teacher of psychological skills rather than an exemplary practitioner of them’, he says. ‘However, if I’m ever ten shots in the lead going down the last hole of the US Open, I know exactly what to do!’

**Prof Aidan Moran IRCHSS Small Research Project Grant 2007**

*A Major winner: Padraig Harrington holds aloft the claret jug after winning the British Open at Royal Birkdale Golf Club in July 2008. According to Professor Moran, who worked with Harrington early in his career, ‘Concentration was something he was always fascinated by. He was very curious about the benefits of psychology and how they might be applied to golf.’ (Photo by John Biever/Sports Illustrated/Getty Images):*