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Choking and the Yips

Introduction

Sporting skills divide contemporary theorists into two camps. Let us call them the habitualists and the intellectualists. The habitualists hold that thought is the enemy of sporting excellence. In their view, skilled performers need to let their bodies take over; cognitive effort only interferes with skill. The intellectualists retort that sporting performance depends crucially on mental control. As they see it, the exercise of skill is a matter of agency, not brute reflex; the tailoring of action to circumstance requires intelligent conceptual guidance.¹

I think that both sides are right, and that both are wrong. We need to distinguish different aspects of sporting performance. When we do so, we will see that there are some aspects where thought is indeed the enemy of sporting success, but that there are others where mental control is crucial.

I shall assume in what follows that the focus of the debate is ‘personal-level’ mental activity. The controversy is about whether mental entities like ordinary intentions, decisions, beliefs, desires, emotions, and so on contribute to sporting performance, not whether the kind of sub-personal mechanisms that might be uncovered by cognitive science do so.²

We need to formulate the debate in terms of personal-level mental states because otherwise there would be no issue. If we ask whether any psychological activities make a difference to sporting performance, whether or not they are personal-level, then the answer can only be ‘yes’. Nobody denies that in general sporting movements are influenced by sub-personal psychological processes. It is uncontroversial that even the quickest of sporting reflexes, like taking a cricket catch at short-leg, or volleying at tennis, where the reaction time can be counted in tens of milliseconds, depends on the processing of visual information and its use for motor control. So if we allow such sub-personal activities to count as the mental control of sporting performances, then there will be no doubt that mental control matters. Not even the habitualists deny that you need a working visual cortex to catch a ball.

Actions and their Components

In what follows I shall distinguish ‘basic actions’ from their ‘components’. Basic actions are things that you know how to do, in the sense that you can decide to do them directly, without deciding to do anything else. Components of such actions are the bits of behaviour that make them up. For most people, tying their shoelaces is a basic action. They can simply decide to tie their shoelaces, and do so, without deciding to do anything else. The components of this basic action are then laying the two ends of the lace over one another, forming a loop in one, and so on.

The notion of a basic action is agent-relative. Some people have never learned how to tie their shoelaces. More to the point in the present context, many people cannot perform many of the basic

¹ On the habitualist side are Hubert Dreyfus (2005 2007a 2007b), Sian Beilock (2007 2010) and Thomas Carr (Beilock and Carr 2001 2004 Beilock, Carr et al 2002); intellectualism is defended in various ways by John McDowell (2007), Jason Stanley (2011), John Sutton (2007, Sutton et al 2011), Barbara Montero (2010) and Ellen Fridland (2013).

² The personal level involves the kind of mental activities that can be conscious. I have not equated the personal level with conscious thought, however, because states like ordinary intentions, beliefs and desires can certainly make a difference to what we do even when they are not being consciously entertained. But at first pass we can distinguish personal-level mental activities as those which can be brought to consciousness, even if they aren’t always.

actions open to trained sports performers. Good golfers can hit a power fade at will, tennis players can decide to slice the ball, gymnasts can choose to do a backflip, and so on. These are basic actions for the sporting performers, but not for most people.

Of course, the ability to perform most basic actions is the result of training. You have to learn how to hit a forehand slice. Before you learn this, it is not a basic action for you. And, while you are learning such basic actions, you may well invoke a prior ability to perform some of the components as basic actions. To hit a forehand slice you must cock your wrist and adopt a flatter swing. The learner will at first be instructed to do these things deliberately and in sequence. But after a while—after hitting hundreds or thousands of balls—the components will get ‘chunked’ into a sub-personally integrated sequence, and the performer will no longer have to think about what movements to make to hit a forehand slice. It will be enough simply to form the intention to ‘hit a forehand slice’.

Even after such basic actions have been learned, performers may still have the ability to perform the component movements as simpler basic behaviours. Learning to hit a slice doesn’t stop me being able to cock my wrist as such, or deliberately swing flatter. Still—and this will be very important in what follows—it is one thing for skilled performers to set themselves to hit a slice, and something quite different for them to set themselves to cock their wrists and swing flatter. Once you have learned to perform some complex basic action, its execution will proceed quite differently—more automatically—from performing its components in sequence as separate basic actions. In effect, there are two quite different actions here for a trained performer: on the one hand you can simply do the thing that you have learned to do—hit the slice; on the other you can perform the components in sequence in the way you did when you first started learning the slice—cock your wrist, flatten your swing. When you perform the latter sequence, you are not availing yourself of the skill you have acquired through practice; rather you are simply rehearsing a sequence of actions in just the way it would be done by someone without that skill.

Both Sides are Right and Wrong

My main thesis in this paper will be that sporting performers need to think actively about what basic actions they are performing, but will be badly hampered if they start thinking about the components of those basic actions. Formulating conscious intentions to perform basic actions and keeping them in mind is an essential part of skilled sporting performance. Worrying about the components of their basic actions, by contrast, will reduce skilled performers to the level of beginners.

So in my view the intellectualists are right and the habitualists are wrong at the level of basic actions. At this level, personal-level mental control is crucial to sporting skill. At the same time, the habitualists are right and the intellectualists wrong when it comes to the components of basic actions. Any attempt to think explicitly about these components will inevitably undermine sporting performance.

It might seem, contra any element of intellectualism, that thought even about basic actions is unnecessary for skilled sporting performance, and may even be deleterious. Isn’t the distinctive thing about trained sports performers that they can react automatically to physical stimuli in ways honed by thousands of hours of repetitive practice? Given their training, don’t they just need to let their responses flow in a way unmodulated by conscious thought?

However, I shall show that this strong anti-intellectualism is just wrong. Deliberate thought about which basic actions you are executing is crucial to every kind of sporting performance, and a loss of such focus will inevitably cause a sharp deterioration in performance. Indeed it is likely that the

difference between top-level and ordinary sporting performers lies as much at this level as at the level of physical reflexes. The best performers are mentally as well as physically peculiar. They are able to keep their purpose in mind³, to the exclusion of everything else, in a way that is beyond the reach of most of us.

On the other side, and contra any element of habitualism, it might seem that explicit mentality will also be needed to explain how the components of basic action get adjusted in response to circumstances. The cricket batsman registers that the wicket is slow and the ball is not coming through, and adjusts his wrist at impact accordingly. The golfer notes that the greens are fast, and reduces the club speed on putts. Does not this kind of intelligent adjustment need to be accounted for at the personal level? How can the performer figure out the appropriate strategy except by drawing on their explicit knowledge of how to cope with varying circumstances?

But I shall show that this strong anti-habitualism is quite wrong too. Maybe some performers do have theoretical knowledge of the component behaviours at issue in these examples. They may remember what they were told to do when they were acquiring their special skills. Moreover, serious performers may make active use of such knowledge while practising to refine their skills, or to eliminate errors that have crept into their technique. During such practice they may deliberately set themselves to hold their wrists differently, or to slow down the putter speed. But such attempts to modulate the components of basic skills need to be restricted to practice.

When skilled performers are actually competing, it would be fatal for them to think about adjusting their wrists or slowing down their putters. Rather they need to rely on the automatic skills they have acquired in all those hours of practice. Golfers, to stick to one example, really don't want to be thinking about the speed of their putter. Sure, they will do well to ensure that information about green speed is available to the sub-personal systems that control their putting. Some time on the putting green will help; it will be even better to have one of your playing partners hit a similar putt just before you. But once this information has been made available to the sub-personal processes that execute the stroke, the golfer must simply focus, as always, on hitting the ball into the middle of the hole at a moderate pace. Opting for some specific behavioural component—slower club speed—in the context of a fast green is something that can be—must be—left to the automatic sub-personal procedures that have been shaped in previous practice.

Actions, Movements, Components

Of course it is an empirical question, and one of crucial importance to practical sports psychologists, exactly which actions are basic and which are sub-personal components in a given sporting skill. As it happens, my own experience makes me confident that the above examples (adjusting your wrists when batting or club speed when putting) will be fully sub-personal for pretty much all serious cricketers and golfers, and not something that it will help them to think about in active competition.⁴ But this is by no means an a priori matter. The distinction between basic actions and their components will depend on the details of the sporting skills in question and indeed on the idiosyncracies of particular performers.

³ The relevant sense of 'keeping in mind' will be explored further in the section on 'The Importance of Focus' below.

⁴ How can these movements be sub-personal, if (as I allow) they can be consciously controlled, as when the athletes first learn or later refine their skills? (Cf footnote 2 above.) The answer is to recognize that similar movements are nevertheless in different behavioural categories when they are performed (a) as sub-parts of routine basic actions and (b) as basic actions themselves. The former count as sub-personal because they can't be brought to consciousness without being transformed into the latter. Thanks are due to an anonymous referee for inviting me to clarify this point.

Recall that basic actions are those that you can perform at will by deciding to do so, and not by deciding to perform their components in sequence. The ability to perform new basic actions comes from practice. You laboriously and repeatedly attempt the action, and eventually it becomes something you can do at will. But exactly what people can do at will varies from case to case. It depends on what they have learned. To take an everyday illustration, consider driving. For those who haven't learned to drive at all, even changing gear is not a basic action—they must first set themselves to depress the clutch, move the gear lever, and so on. Competent drivers can do this at will—if they notice that the engine is working too hard, they simply decide to change up. But experienced drivers usually don't even need to think about changing gears as basic actions—they can just set themselves to drive steadily (or quickly, or whatever) and leave it to sub-personal processes to take care of the gears. Indeed in some cases even driving to a destination via a familiar route can be a learned basic action—I can simply set myself to drive to my tennis club from home, and from then leave the turnings I must take to some sub-personal monitor.

Analogously, there will be a wide range of basic actions that expert sports performers can learn to perform. These will vary from sport to sport and individual to individual. If there is a general pattern, it is perhaps that the more expert performers will conceptualise their basic actions in terms of more distal results. Skilled players of ball sports will tend to think about what the ball is going to do, rather than about the motion of the instrument they are hitting with, and still less about their bodily behaviour. But I do not take this to be an absolute rule. Sometimes it may suit players in ball sports to think about features of their instruments or bodies. It depends what basic actions they have trained themselves to perform. And then there are those sports that don't involve balls or instruments, like gymnastics or track athletics—here we can expect skilled performers to be more likely to focus on their bodies than on any distal results.

One issue discussed in the literature on sporting skills is whether performers should or should not think about the bodily movements they are performing. Habitualists argue not, and cite evidence to show that thinking about movements generally incapacitates performers. Barbara Montero has responded on behalf of the intellectualists with evidence indicating that in some cases thinking about bodily movements can improve performance (2010).

This seems to me to be setting up the debate in a non-optimal way. Thinking of the issue in terms of 'movements' distracts attention from the important point. The real question is not whether we should think about the movements we are performing, but whether we should think about the components or about our basic actions. I say that we should never think about the components when we want to perform a given basic action, but that it is always crucial to think about the basic action as such.

If we must put the issue in terms of 'movements', then the usefulness of thinking about them depends on whether they comprise basic actions or their components. So the habitualists are right insofar as they are talking about movements that are components of the basic action at issue. It doesn't help at all to think about those.⁵ And Montero is right in those particular cases where the basic action at issue is itself conceptualized as a bodily movement, as often in athletics and gymnastics (and in dancing, which is Montero's own area of expertise). In cases like this, where the

⁵ Montero is prepared to grant to her opponents that explicit thoughts about 'highly automatized, everyday skills' may generally interfere with performance (cf her 'Restricted Maxim'). From my perspective, she is right here about the automatization, but wrong about the everydayness—thoughts about the components of highly automatized expert skills are just as destructive as thoughts about everyday ones.

relevant skills are conceptualized specifically as performing certain movements, then it is indeed crucial to think about performing just those movements.

Explicit Strategies

Let me now focus on my claim that sporting performers always need to think actively about which basic actions they are performing. From a habitualist perspective, this may seem dubious. Will it not be enough that the performers have trained themselves to react to relevant stimuli with appropriate responses? What were all those 10,000 hours of practice for, if not to make sure that the performer would automatically do the right thing in the right circumstances, without any need for further reflection to intrude? Surely the time for thought has passed, once the moment for action arrives, and would only serve to interfere with the execution of automatic skills.

Indeed in many sports it is arguable that there is simply no time for thought to make a positive difference to performance. In fast-reaction ball games, like cricket, baseball, tennis and squash, ball strikers at the top level typically have less than half a second between the dispatch of the ball and their response. The response needs to be tailored to the precise trajectory of the ball, with quite different reactions appropriate to different trajectories. It makes little sense to suppose that personal-level response selection plays any role here. Indeed there is strong evidence that the players' reactions in these kind of cases is controlled by information in the largely unconscious dorsal visual stream, rather than the conscious ventral stream which informs planning and decision.⁶

Still, despite these points, it does not take much reflection to see that any extreme version of habitualism must be wrong. Take an example from baseball. Suppose you are fielding at short stop, with a single runner on third, and the ball comes hard at you. What is your play? Well, of course it depends on how many outs there are. If there is none or one outs, you must pause to hold the runner on third before throwing out the batter at first. But, if there are two outs, there is no reason to cut things fine, and you must throw to first directly. This is not just a matter of automatic reactions to perceptible physical stimuli. The set-up on the field can be exactly the same whether there are one or two outs. To react correctly in each of these situations, you must hold in mind⁷ how many outs there are, and respond accordingly. Indeed it is not uncommon, even at the highest levels, for a fielder to start daydreaming, or become agitated, or otherwise lose concentration, and so make the wrong play in such situations.

This is just one example among many. The batters at baseball must tailor their strategy to the strike count. Tennis players will sometimes opt to play to their opponents' backhands as much as possible. Batsmen in cricket must play in a defensive mode in some circumstances but attack in others. And then there are the even more obvious cases, when fast reactions to approaching balls are not an issue. The baseball pitcher sets himself to pitch inside rather than outside. The tennis server resolves to slice it wide. The golfer aims to fly a high 50-yard pitch rather than chip and run. And so on.

True, in the case of the fast-reaction responses, there is something puzzling about the fact that conscious decisions to adopt a given strategy can make a difference to reactions. In cases where the performers have less than 500 milliseconds to suit their movements to the approaching ball, you might expect that their automatic reflexes would dictate their reactions, in a way that cannot be modulated by conscious decisions, just as no conscious decision can stop you blinking when some object quickly approaches your eye.

⁶ See the discussion in sections 2 and 3 of Papineau 2013. Note especially the data from Mann et al 2010.

⁷ Again, the relevant sense of 'holding in mind' is that explored further in 'The Importance of Focus' below.

Still, as the examples above demonstrate, there is no doubt that conscious decisions do make a difference, even in the fast reaction cases. Fielding and batting are clearly different to eye-blinking in this respect. To understand why, it will be helpful to make a few remarks about the general structure of action control in humans.

Systems of Action Control

We share a range of elementary action control systems with other animals. For a start there are unalterable reflexes like eye-blinking. Then there are those behaviours that have been shaped by instrumental learning. In this category, we can distinguish between (a) simple stimulus-response (S-R) learning of habits that have somehow proved rewarding in the past and (b) the more flexible response-outcome (R-O) learning which informs organisms more specifically that certain behaviours are good for given outcomes. (Balleine and O’Doherty 2010.)

Together these elementary control systems provide most animals with enough adaptability and flexibility to cope with a wide range of situations. But they are limited in various respects. Even when R-O learning is in play, the motivational states that drive current behaviour can be overly influenced by immediate circumstances, and so are not always optimally geared to the animal’s needs. (Rescorla 1994.) And, even when this is not a problem, the limited computational powers implicit in these control systems do not always ensure the selection of the best means to currently targeted ends.

Humans beings overcome these difficulties via a yet further system of action control. They can use their powers of reason to form intentions, often involving complex plans whose execution requires a sequence of actions at future times. Rather than acting on the spur of the minute, in ways directed by the action control systems we share with animals, we are able to take time out and reflect on our options, working out in detail what extended sequence of actions will best serve our long-term interests. When we form intentions in this way, we bind our future selves to behave in line with our plans.⁸

This ability of humans so to form intentions helps to explain how conscious decisions can influence sporting responses, even in the fast-reaction cases. Sporting performers will typically think about what they are going to do when the moment for action arrives. As a result, they will select some basic action from their available repertoire, and then set themselves to execute it. They don’t of course think about how to perform the basic action—they have trained themselves to execute the components of basic actions without thinking about them. But which basic action they will perform at the appropriate moment is something they do need to think about.

The more interesting examples are those where the performer has to react quickly to some variable stimulus. In cases where the performers themselves initiate some sequence of play, as when a tennis player opts to serve wide, or the golfer to loft a pitch, they can choose some fairly specific basic action, and set themselves to execute it. But when they must react to an approaching ball within milliseconds, there is no question of then consciously choosing some specific response. Which shot the batsman should play depends on what kind of ball the bowler has bowled. This

⁸ See Bratman (1987) and Holton (2009). Some readers may like to think of the evolutionarily more recent intention-formation mechanism as ‘System 2’, with the older mechanisms of action control as ‘System 1’. (Kahneman 2011.) But in general this terminology strikes me as far more crude than useful. Note in particular that in this case the older ‘System 1’ comprises a battery of interrelated mechanisms which no doubt themselves evolved one on top of the other; while the newer ‘System 2’ owes nothing to the kind of ‘formal rules’ that are supposed to govern such processes.

cannot be predicted beforehand, and there is no time to think about it once it is on its way. Rather the batsman can only form the intention to play defensively, or attackingly, or to look for a single, and so on.

As I see it, each of these strategic options itself constitutes a basic action. For a skilled batsman, the decision to play defensively, say, is a commitment to a whole raft of conditional dispositions: leave any reasonable length ball outside the off stump, block any straight length ball, avoid the hook, and so on. Which of these dispositions will be triggered depends on the nature of the next ball, but the batsman can consciously decide beforehand to put the whole raft of dispositions in place. In effect, the batsman's training has rendered playing defensively as one of his basic actions: it is something he can decide to do at will, and can thereafter leave its execution to subpersonal processes. To this extent, playing a backward defensive to one ball and leaving another are simply alternative subpersonal ways of carrying out the intention to play defensively, just as different ways of grasping differently-sized laces are alternative ways of carrying out the intention to tie your shoelaces.

The same point applies in other cases of fact-reaction sporting skills. The tennis player who is aiming to slice to the backhand given a chance, or the baseball shortstop who knows there is one out, have not committed themselves to any particular play, prior to perceiving the trajectory of the approaching ball. Rather they have committed themselves to a bunch of conditional responses, leaving it to automatic process to select the one appropriate to the approaching ball.

The Importance of Focus

In general, it is not enough for sports performers simply to form the intention to carry out some strategy, and thereafter let their minds wander where they will. As anybody who has played competitive sports knows, if you lose your focus, you will do the wrong thing. I have already given the example of the shortstop who forgets how many outs there are. Similar failures of concentration can lead cricket batsmen to play the wrong shot for the conditions, tennis players to hit the ball to their opponents' strengths, golfers to underhit their pitches, and so on.

The points made in the last section can help us to understand why this should be so. When we humans control our actions by forming conscious intentions, this presumably hinges in some way on our re-setting the parameters of our more elementary and evolutionarily older behavioural control systems: it would make little evolutionary sense to suppose that our intentions manage to influence behaviour via some route that is quite independent of evolutionarily prior mechanisms of immediate control.

However, this then suggests that the mere formation of an intention will not necessarily be enough to ensure the later performance of the intended action. If the formation of an intention works merely by modifying the older control systems, and then leaving these systems to themselves, there will be the danger that the vicissitudes of those older systems, and in particular their sensitivity to motivations associated with immediate circumstances, will once more re-set the parameters of behaviour control, in such a way as to undermine the earlier intention.

No-one has any detailed ideas about the mechanism by which intentions modify the systems that exert immediate control over behaviour.⁹ There are a number of possibilities which suggest themselves. But, on any of these possibilities, one way of guarding against deviations will be to keep your intentions in mind and exclude any distracting influences. The trick is to make sure that your intentions keep doing whatever they do to influence actions, and stop anything else doing so.

⁹ But see Jeannerod 1997 and Clarke 2010 for some relevant material.

It might seem as if this kind of concentration will only matter in those sports where the performers have a choice of strategies or actions—whether to bat defensively or aggressively, whether to serve wide or straight, and so on—and not in sports where the performers always do pretty much the same thing, as for instance with the 100-meter sprint, or certain gymnastics events. In the former cases the performers are in the kind of familiar physical environment where they might well do different things on different occasions, and this argues that they need to keep firmly in mind what they are aiming to do this time. But in cases where the performers always aim to do the same thing in the relevant kind of situation, won't it be enough that they simply shut down their minds, and allow their repetitively trained habits to take over?

However this is to forget the difference between active competition and the kinds of practice routines the performers will inevitably have rehearsed many times. Active competition is different, calling for extra precision, timing and effort. It is simply not possible for performers, even in the most repetitive of disciplines, to replicate this extra level of performance every time they practice their routine. So they need to focus on producing the extra elements when they are really competing. If they allow their minds to wander, and open themselves to distractions, they will risk simply reverting to practice mode, and end up underperforming.

By way of analogy, consider motor car driving. As remarked above, many people are capable of driving on auto-pilot, changing gears and even following elaborate routes, while their minds are fully occupied with other matters, like tomorrow's lecture or where to go for the summer holidays. Yet I very much doubt that Formula One racing drivers allow their minds to wander during a Grand Prix. No doubt they are capable of traversing the circuit at high speed without too much focus, and perhaps they often do so in practice. But in competition the margin for error is reduced, and the drivers must focus totally on what they are doing. When I drive to my tennis club, it will not necessarily matter if I fail to drive in a completely optimal manner: there will be enough time to correct minor errors and momentary inattention to incipient problems. But there is no such luxury for the racing driver in a Grand Prix. Precision is of the essence, and this requires total concentration on the matter in hand.

Many sports call for unnatural levels of sustained concentration. A Grand Prix lasts for nearly two hours. Tennis matches can last more than twice as long. Batsmen at cricket need to hold the appropriate strategy in mind for hours on end, knowing that their innings may be terminated by any momentary lapse. Boxers need to stick to their plan even while they are being battered by their opponents. This kind of mental steadfastness is not to be taken for granted. Sporting success often stems from exceptional feats of concentration. As I suggested earlier, the top sports performers are distinguished from the rest of us not only physically but mentally.

Choking, The Yips and Not Having Your Mind Right

One of the main arguments put forward by habitualists is an appeal to what they call 'choking'. They refer to examples where sporting performers are hampered because they become self-conscious about their physical behaviour. One oft-cited case is Chuck Knoblauch, second baseman for the New York Yankees, who after years of exceptionally reliable fielding started spraying around his throws to first base, with the result that he had to be moved to left field and his career tailed off. Knoblauch's difficulties were widely attributed to a self-destructive concern with the mechanics of his throwing. According to habitualists, cases like this show that any kind of explicit thought about one's behaviour can only undermine the execution of sporting skills.

The analysis in this paper so far shows that this kind of analysis is far too simple. The mental side of sport involves a number of different dimensions, and this means that a number of different mental factors can interfere with sporting achievement. An indiscriminate notion of 'choking' is far too coarse-grained to capture all the different kinds of mental failure to which sporting performers are hostage.

In the last section I stressed the importance of concentration in sport. Performers need to form a clear intention about what they are doing, and ensure that this intention continues to govern their behaviour. They cannot daydream, or become distracted, for then the wrong behavioural dispositions may become activated, and then they will do the wrong thing.

I shall use the phrase 'Not Having Your Mind Right' as a generic term to cover all cases where players lose focus and so fail to keep their intention in mind. There are a range of distinguishable species of this genus. I shall distinguish two of these as 'Choking' and 'The Yips'. These are often run together in the literature. But I shall show that, while they can overlap, they also dissociate, in both directions. Moreover, while Choking and The Yips are both sufficient for Not Having Your Mind Right, they are not necessary. There are cases of Not Having Your Mind Right which don't involve either Choking or The Yips.

By 'Choking' I shall mean a loss of focus caused by the pressure of some competitive situation, leading to the player performing at a significantly lower level than normal. In the most egregious cases, the performer is expected to do well, or perhaps is even closing in on victory, but is unnerved by the magnitude of the occasion, and as a result starts to play poorly.

By 'The Yips' I shall mean cases where performers become concerned about the components of the basic actions they have learned to perform automatically. As a result, they cease to execute these actions at will, and instead seek to control the components individually. They thus find themselves reduced to the level of unskilled players who have not yet acquired the ability to do those basic actions at will.¹⁰

As I said, some cases of Not Having Your Mind Right involve neither Choking nor The Yips. In the first test against South Africa in 2012, Ravi Bopara was dismissed for a duck in the first innings. He started to hook against a short ball from Dale Steyn, but then tried to pull out of the shot, as if realizing half-way that it was the wrong choice early in a test innings, with the result that he merely feathered the ball and was caught behind. After the match he asked to be stood down from the team, citing 'family problems'. It certainly looked as if Bopara was distracted while batting. His personal issues made it hard for him to focus on the specific demands of test cricket, with the result that he half-reverted to the habits of the one-day batsman.

There is no reason to suppose that Bopara's distraction was caused by the pressure of the situation. He was an experienced test batsman with three centuries to his name. Nor is there any reason to suppose that his distraction was mediated by any worries about his batting technique. Rather his inability to focus was simply a result of his personal turmoil. He was unable to clear his head of his private anxieties and focus on the task in hand. He could Not Get His Mind Right, even though he was neither Choking nor a victim of The Yips.

Let me now say a bit about The Yips. The term comes from golf, where it was first used to refer to an affliction that can cause even the best golfers to miss short putts. Many prominent golfers have

¹⁰ These definitions of 'Choking' and 'The Yips' are intended to be stipulative. Not all writers in this area divide things up in my way, not least because many hold the substantial (and to my mind mistaken) thesis that in sports Choking (in my sense) always derives from The Yips (in my sense).

suffered, from Sam Snead to Bernard Langer. Some recover by radically changing their putting styles, but other do not. Snead's putting in his later years was said to be 'difficult to watch'.

Putting is typical of a range of sporting activities that can be similarly affected. Strikingly, they all involve some action initiated by the performer, rather than a response to a fast-approaching ball. Because of this, the performers have time to start worrying about the components of their basic actions and thereby undermine their performance. Darts player are particularly prone to what they call 'dartitis', which in its extreme forms can result in an inability to release the dart at all. In golf it is not just putting: you can also get the 'full-swing yips'. In cricket, it is the bowlers who are particularly prone (a recent case was Simon Kerrigan, who could scarcely land the ball on the pitch in his debut test match) and in baseball it is the pitchers ('Steve Blass Disease'). In tennis, you can get The Yips when serving, often involving the ball toss.

By contrast, there is no question of The Yips afflicting batters in baseball or cricket, or receivers in tennis. When a ball is coming at you in milliseconds, there is no time to start thinking about how you should now move—you can only react. The same applies when players are engaged in continuous action sports like soccer and other types of football (though of course within such games there are more static elements where the danger of the Yips does arise, like penalty taking and goal kicking).

The example of second baseman Knoblauch is interesting. There is no direct evidence that his collapse was to do with inappropriately thinking about his throwing technique, and the player himself said he didn't know what his problem was. Moreover, you might think that throwing to first is the kind of quick reaction that doesn't leave any time for destructive thoughts about technique to intrude. But neither of these points is conclusive. Second baseman do have a moment to pause (maybe to hold a runner on second or third) before throwing to first, and this could well allow time for worries about technique to interfere. Nor is there any reason why Knoblauch himself should be decisive about the nature of such quickly-passing mental processes.

Still, perhaps Knoblauch was just Choking, and The Yips weren't part of it at all. As I said above, I am taking Choking to cover cases where players lose focus on their intended actions and perform badly because of the pressure of the competitive situation. Now, no doubt in some cases of Choking the Yips are involved too. The importance of the occasion makes the performer anxious about their technique, and they are then undone by their consequent focus on the components of their basic actions, rather than on the actions themselves. But there is no reason why all cases of Choking should work like this.¹¹ It will be enough if the pressure makes the performer start thinking about anything other than the basic action they need to think about. Maybe Knoblauch was simply distracted from getting the ball to first by an understandable anxiety about the parlous state of his career. This loss of focus alone could make him throw badly, without the intervention of any thoughts about methods of throwing.

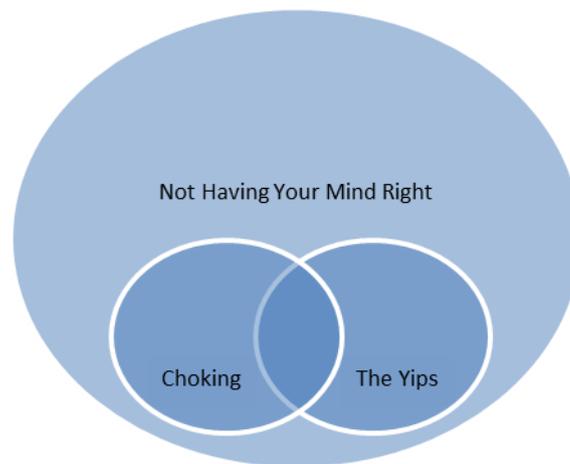
¹¹ Sian Beilock, Thomas Carr and their associates argue that Choking in sport (but not necessarily in more intellectual endeavours) is always caused by The Yips ('explicit self-monitoring' in their terminology) rather than by loss of focus. They cite a series of studies showing that expert sporting performance is adversely affected by self-monitoring but not by a simultaneous 'distracting task', such as listening for variations in a series of tones. (Beilock 2007 2010 Beilock and Carr 2001 2004 Beilock, Carr et al 2002.) Their data are interesting, but scarcely conclusive in showing that Yip-like self-monitoring is the only thing that disrupts sporting performance. For one thing, it is not clear that the subjects in their studies (mainly golf putters) were in competitive rather than practice mode; as my earlier discussion of the 'importance of focus' implies, practice mode permits a level of imprecision that does not require focus and so need not be affected by distractions. Moreover, it is no part of my argument that focus requires an active conscious rehearsing of your intended basic action; it may be enough to hold your intention in place that you prevent certain kinds of disrupting thoughts from intruding; and for this it may be helpful to occupy your mind with music, say, or a meaningless mantra, or indeed attention to a sequence of tones.

Or consider perhaps the most famous case of Choking in sporting history. In the Wimbledon final of 1993, Jana Novotna was serving at 40-30 to reach 5-1 in the final set against Steffi Graf—at which stage she double-faulted and scarcely won another point. There is no doubt that Novotna was overwhelmed by the occasion. She Choked because she could not stop herself thinking about the fact that she was about to win her first grand final—or then that she was about to throw it away—and this stopped her thinking about what she was supposed to be thinking about, namely hitting the ball hard where Graf didn't want it hit. But again there is no reason at all to suppose that Novotna's discomposure had anything to do with her focusing inappropriately on the components of her basic actions. She had no history of a Yippish tendency to worry unhelpfully about her technique. Indeed she has no particular history of Choking. But winning a first Grand Slam at Wimbledon against Steffi Graf is not something she would have experienced before, and perhaps it is not surprising that her mind was in a fragile state.

So far I have distinguished Choking and The Yips within the more general category of Not Having Your Mind Right, and pointed out that, while some cases of Choking do involve The Yips, we can have the former without the latter. What about a dissociation in the other direction? Can we have The Yips without Choking? Can someone's sporting focus be undermined by a concern with the components of their actions, even though this is not precipitated by the pressure of the competitive situation?

Yes, there can be cases like this too. Even though it is often specifically extra competitive pressure that makes performers start worrying about their techniques, sometimes The Yips are so compulsive that they intrude even when competition is not an issue. Many suffering golfers struggle with their putting even when on a practice round.

Perhaps the most famous pure case of The Yips was Mackey Sasser, a successful catcher for the New York Mets in the 1980s and 90s. He started having trouble flipping the ball back to the pitcher between plays. There's nothing stressful about returning the ball to the pitcher. There is no competition involved. It is not even part of the game. Still, it is an interesting skill, if you think about it. There is the speed of your arm, and the point and angle of release, and then there is the speed and trajectory of the ball, which can well vary from throw to throw as long as the ball reaches the pitcher appropriately. Many of us have learned to adjust and compensate all these things in real time, without knowing how we do it, so that we can reliably lob a ball twenty yards. But of course this skill will start unravelling if you start to worry about how the trick is done. That's what seems to have happened to Mackey Sasser. Even though there was no pressure involved at all, he became so worried about the mechanics of throwing that he lost the ability to lob the ball to the pitcher, and had to retire from the professional game. (Interestingly, and in line with the analysis of the paper, he had no trouble firing the ball to second on a steal, when he had no time to think about what he was doing.)



Conclusions

We have seen that there is an element of truth in habitualism. Sporting excellence is indeed undermined by a certain kind of explicit thinking about performance—namely, by thinking about the components of those actions that training has rendered basic for the performers.

But habitualism is wrong insofar as it claims that any kind of thinking about performance is destructive. On the contrary, and in line with intellectualism, it is crucial for performers explicitly to hold in mind what basic actions they are aiming to perform.¹²

Various factors can prevent performers so focusing on their intended basic actions. One is a neurotic tendency to focus instead on the components of those actions, leading to the distinctive kind of incapacity associated with The Yips. But other causes can also disrupt concentration, apart from such destructive concerns about technique.

When players are distracted from their intended strategies by anxieties about winning or losing in some stressful competitive situation, we distinguish these as cases of Choking. And then there is the wider category of cases where players Fail to Have Their Minds Right, not because of The Yips or Choking, but simply because they allow something else to come into their minds and undo their controlling intentions.

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¹² One anonymous reader of this paper felt that it supported Dreyfus's habitualism at least to the extent of showing that athletic skill increases with the ability to hand over more and more complex 'rafts of conditional dispositions' to unthinking execution. I do not wish to dispute this observation.

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