Concentration/attention

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Without question, at the top level, concentration is a big part of a player’s game – whether they’re a keeper or outfield.

Sir Alex Ferguson, manager of Manchester United, 2009
Premier League champions, on a new record set by Edwin van der Sar for the longest time spent by a goalkeeper without conceding a goal; cited in Northcroft, 2009, p. 12

As top coaches, like Sir Alex Ferguson, have discovered from experience, the ability to concentrate, or focus on the task at hand while ignoring distractions (Moran, 2004), is central to successful performance in sport. This claim is supported by a combination of anecdotal, descriptive, and experimental evidence. First, anecdotally, many sports performers have emphasized the great importance that they attach to concentration skills. For example, Paul McGinley, the Irish golfer, reported what he focused on when he faced a tricky putt to win the 2002 Ryder Cup match for Europe against the USA:

At no time did I even consider the mechanics of the stroke … I became absorbed in the line of the putt. I could see it exactly from beginning to end. My only job at that moment in time was to set the ball off on the line that I had chosen. That was the only thing I could control.

(cited in Clarke, 2005, p. 63)

McGinley’s insights are interesting because they highlight the importance of concentrating on a specific external target (the line of the putt) and because they indicate the practical value of dwelling only on actions that are under one’s control. Second, at the descriptive level, the capacity to become absorbed in the present moment is a key component of peak performance experiences in athletes (Jackson & Kimiecik, 2008). Finally, many laboratory experiments show that there is a relationship between focus of attention and skilled performance. More precisely, Wulf’s (2007) review of relevant evidence concluded that an external focus of attention (where performers direct their attention at the effects that their
movements have on the environment) is usually more effective than an internal one (where performers focus on their own body movements) in the learning and performance of motor skills.

Despite agreement among coaches, athletes, and psychologists about the importance of concentration in sport, at least four theoretical and practical questions remain unresolved in research in this field. First, what exactly is “concentration” and how is it related to the broader psychological construct of attention? Second, why do athletes appear to “lose” their focus so easily in competitive situations? Third, what psychological principles govern effective concentration in athletes? And finally, what practical techniques can athletes use to improve their concentration skills in competitive situations? The purpose of this chapter is to make a start in attempting to answer these and other relevant questions.

Attention and concentration

Concentration is part of the multi-dimensional construct of attention that Goldstein (2008) defined as “the process of concentrating on specific features of the environment, or on certain thoughts or activities” (p. 100). The main dimensions of attention are selectivity of perception, the ability to coordinate two or more actions at the same time, and concentration (Moran, 2004). These dimensions can be explained as follows.

Selective attention

Selective attention is the perceptual skill of zooming in on relevant information while ignoring potential distractions. For example, goalkeepers in soccer must be able to focus on the flight of an incoming ball while disregarding the distracting movement of players in their penalty area.

Divided attention

Divided attention is the mental time-sharing ability that enables skilled athletes to coordinate several simultaneous actions. For example, an expert basketball player can dribble the ball while simultaneously scanning the court for a teammate who is in a favorable position to receive a pass.

Concentration

Concentration involves the deliberate decision to invest mental effort in information that seems most important at any given time. For example, during a team talk before a crucial match, players will usually make an effort to focus carefully on their coach's instructions.

For many psychologists, concentration is best understood as a mental spotlight that illuminates what we pay attention to either in the world around us or in the private theatre of our own thoughts and feelings (Kremer & Moran, 2008). In some ways, it resembles the head-mounted torches that miners, divers, and spelunkers wear in dark environments. No matter where these explorers look, their targets are illuminated. This spotlight metaphor of concentration has two important practical implications. First, it shows us that although athletes' concentration can never be really lost (one's mental spotlight has to be shining somewhere), it can be directed at the wrong target – one that is irrelevant to the task.
at hand. This attentional misdirection happens regularly in everyday life. For example, have you ever had the experience of suddenly discovering that you’ve been reading the same sentence in a book or newspaper over and over again without comprehension because your mind was miles away? If so, then what has happened is that you have distracted yourself by allowing a thought, daydream, or feeling to become the target of your own mental spotlight.

The second practical implication of the spotlight metaphor is that it suggests that athletes are in control of where they choose to “shine” their concentration beam at any given moment. For example, a midfield player in soccer who has gained possession of the ball must quickly scan the field before attempting a pass to a teammate. Here, he uses a broad external focus of attention. By contrast, a gymnast rehearsing a complex movement in her mind before a competition is using an internal focus of attention. Unfortunately, even the best athletes in the world sometimes allow their mental spotlights to wander. Let us now consider why this problem occurs.

Why do athletes lose their concentration?

Athletes frequently complain of being distracted or losing their focus during competitive action. But, as I have just explained, attention is never lost – just misplaced. So, what factors distract an athlete’s spotlight from its intended target?

In general, distractions fall into two main categories – external and internal (Moran, 1996; 2004). External distractions are objective events and situations (such as crowd noise) that divert an athlete’s attentional spotlight away from its intended target, whereas internal distractions include thoughts, feelings, and bodily sensations (e.g., pain, fatigue) that impede a performer’s efforts to concentrate on the job at hand. Regardless of where they come from, distractions are particularly damaging for elite athletes because of the automaticity of their skills. Because such athletes have largely automated their technical skills as a result of extensive practice (typically amounting to 6–8 hours a day over many years), they tend to have extra mental capacity available to devote to other concurrent tasks – thereby increasing their distractibility.

Typical external distractions include such factors as spectator movements, sudden changes in ambient noise levels (e.g., the click of a camera), gamesmanship (e.g., “sledging” or verbal taunting of opponents) and unpredictable weather conditions (e.g., tennis players can get distracted if gusty conditions affect ball tosses). Usually, these distractions impair athletic performance. For example, Roger Federer’s victory over Robin Söderling at the 2009 French Open tennis championship was jeopardized by the sudden appearance of a spectator who jumped onto the court and approached him. Clearly rattled by this distraction, Federer lost the next three points and admitted afterwards, “it definitely threw me out of my rhythm” (cited in Sarkar, 2009). Fortunately, he regained his composure and won the match. In soccer, noisy supporters can distract players. For example, fans of the Turkish football club, Galatasaray, are infamous for using flares, drums, smoke, and incessant shouting to intimidate visiting teams at their home ground, which is known to visitors as “Hell” (Ronay, 2008)! Not surprisingly, some of the world’s leading soccer teams (e.g., AC Milan, Barcelona, Manchester United, Real Madrid) have been defeated in this hostile cauldron. Another example of the deliberate, tactical use of distractions comes from the verbal taunting of opponents – a practice that Steve Waugh, the former Australian cricket captain, justified as a means to achieve the “mental disintegration” of opponents (McIlvanney, 2008).
As the term suggests, internal distractions come from inside performers themselves. They include disruptive, self-defeating thoughts such as wondering what might happen in the future, regretting what may have happened in the past, and worrying about what other people might think or say. They also include feelings of being tired or emotionally upset. A classic example of a costly internal distraction occurred in the case of the American golfer Doug Sanders who missed a putt of less than three feet that would have earned him victory at the 1970 British Open championship. This error not only prevented him from winning his first major tournament but also deprived him of millions of pounds in prize-money, appearance fees from subsequent tournament invitations, and advertising endorsements. Remarkably, Sanders’ attentional lapse was precipitated by an internal distraction – thinking too far ahead. “I made the mistake about thinking which section of the crowd I was going to bow to!” he confessed (cited in Gilleece, 1999, p. 23). By his own admission, Sanders had distracted himself by allowing his mental spotlight to shine into the future instead of on the task in hand. As he acknowledged:

I had the victory speech prepared before the battle was over ... I would give up every victory I had to have won that title. It's amazing how many different things to my normal routine I did on the 18th hole.

(cited in Moran, 2005, p. 21)

Sanders’ sudden anticipation of future success led to a costly lapse in attention. But dwelling on a previous success (or failure) can be equally damaging to an athlete’s focus. For example, Stephen Hendry, the 7-times world champion snooker player, slipped up mentally after he had achieved a rare feat – scoring a maximum “break” in his match against Shaun Murphy in the 2009 World Snooker Championship. Having won £157,000 for this achievement, he said, “After I made the maximum, my concentration was nowhere ... I was so elated ... in the next break, I missed a red” (in Skilbeck, 2009, p. 16). Fatigue can also serve as an internal distraction. For example, Paula Radcliffe, the British runner who has won the New York marathon three times, admitted that, “When you’re tired, it’s easy to drift off and suddenly have run 20 seconds slower for that mile, so you need to stay focused. I count to myself to break down the miles, and stay in the moment” (cited in The Guardian, 2009, p. 35)

Unfortunately, few studies have been conducted on internal distractions in elite athletes, and we know relatively little about how and when they arise. Let us now consider the building blocks of effective concentration in sport.

**Principles of effective concentration**

Figure 52.1 summarizes five key principles of effective concentration in sport (derived from Kremer & Moran, 2008).

**Athletes have to decide to concentrate – it will not happen by chance**

To concentrate properly, athletes have to prepare to focus by making a deliberate decision to invest mental effort in their sporting performances. Many expert sport performers understand this link between deciding to concentrate and subsequently performing to their full potential. For example, Ronan O’Gara, the British and Irish Lions’ rugby outside-half
stated, “I have to be focused. I have to do my mental preparation. I have to feel that I’m ready” (cited in English, 2006, p. 70).

Many athletes use mental imagery to distinguish between “switch on” (focused) and “switch off” (relaxed) zones in their sports. For example, when tennis players want to switch off for a few seconds during a match, they may look for towels from ball-persons behind the baseline of the court between points to dry themselves. But when they want to switch on their minds again, they step forward to begin their pre-service or pre-return routine.

**Athletes can focus on only one thought at a time**

A second building block of effective concentration is the “one-thought principle” – the idea that athletes can focus consciously on only one thought or action at a time. Given this limited attention span, the ideal thought for a performer should be a single word or phrase designed to trigger the appropriate feeling or tempo of the action to be executed (e.g., “slow and smooth” for a golf drive) rather than a complex technical instruction (e.g., “transfer your weight and turn your shoulders”). This one-thought principle is epitomized by the

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1. Athletes have to decide to concentrate – it will not happen by chance

2. Athletes can focus on only one thought at a time

3. Athletes’ minds are “focused” when they are doing what they are thinking

4. Athletes need to refocus regularly to keep their minds on track

5. Athletes should focus outwards when they become anxious

**Figure 52.1** Concentration principles (based on Kremer & Moran, 2008; Moran, 1996).
U.S. swimmer Michael Phelps, who revealed that, “You have to go one day at a time, one meet at a time, and one practice at a time. Everything is about steps and constantly improving on your own times and achievements” (cited in Walsh, 2008, p. 13).

**Athletes’ minds are “focused” when they are doing what they are thinking**

A third principle of effective concentration is that when athletes’ minds are truly focused there is no difference between what they are thinking about and what they are doing at that moment. This harmony between thought and action is characteristically evident in peak performance experiences in sport. For example, Roger Bannister (2004) experienced a unity of thought and action when he became the first athlete to run a sub 4-minute mile in May, 1954, “There was no pain, only a great unity of movement and aim” (p. 12). Based on these insights, it seems plausible that peak performance stems from a fusion of thinking and action. Such fusion is facilitated by concentrating on tasks that are specific, relevant, and under one’s own control.

**Athletes need to refocus regularly to keep their minds on track**

Because our concentration system is rather fragile, skilled performers have to learn to refocus regularly by switching their attention back to the present moment as often as possible. An example of such refocusing comes from Paula Radcliffe, the world-class British marathon runner, who uses a counting strategy to keep her mind on track during a race, “At marathon pace, if I count to 100 three times it’s about a mile” (cited in The Guardian, 2009, p. 35)

**Athletes should focus outwards when they become anxious**

The final building block of effective concentration is the idea that when athletes become anxious, they should focus outwards on what they have to do – not inwards on self-doubts. This outward focus is necessary because nervousness tends to make people self-conscious or self-critical. The adoption of an external focus of attention is consistent with recommendations arising from Wulf’s (2007) review of the research literature.

**Practical concentration techniques**

Sport psychology researchers have developed a variety of practical strategies that seem to improve concentration skills in athletes (see Greenlees & Moran, 2003; Kremer & Moran, 2008).

**Specifying action goals**

Psychologists (e.g., Hardy & Jones, 1994) commonly distinguish between outcome goals (e.g., the result of a match), performance goals (i.e., the specific end-products of performance that lie within the athlete’s control such as attempting to achieve 90% serving accuracy in tennis), and process goals (i.e., specific behavioral actions that need to be undertaken to achieve a specific goal such as deliberately swinging slowly in golf). Using this distinction, sport psychologists suggest that focusing on actions (i.e., performance and process goals) can help to improve athletes’ concentration skills. See also Chapter 51 in this book.
Using pre-performance routines

Most top-class athletes display characteristic and consistent sequences of preparatory actions before they perform key skills. For example, golfers tend to adopt the same set-up for every shot and waggle their clubs and take the same number of practice swings before striking the ball. These preferred action sequences or repetitive behaviors are called pre-performance routines and they are designed to take the performer from thinking to action – one step at a time. They are typically performed prior to the execution of self-paced skills (i.e., actions that are carried out largely at one’s own speed and without interference from other people).

Top athletes attach great importance to pre-performance routines in their quests to achieve optimal concentration before competition. For example, Martin Corry (2007), the former England rugby player, stated:

I believe that the only way to cope is to establish a routine, almost to go on automatic pilot. That way you are free to think about the game, rather than constantly fret about where you’re supposed to be … I used to like switching the dressing room light off, to signify the end of our preparations and the start of something new.

(p. 3)

Singer (1988) described a useful five-step pre-performance routine for self-paced skills. Applied to golf, this routine involves readying (preparing to perform by adopting a comfortable stance and taking a few practice swings), imaging (visualizing a target at which to aim), focusing (directing one’s mental spotlight at a specific part of the golf ball such as its number), executing (swinging the club as smoothly as possible) and, if feasible, evaluating (or checking whether or not one is happy with the shot played). See also Cotterill (2008) and Chapter 56 in this book.

In competitive situations, routines are often combined with other concentration techniques. For example, the Irish rugby player Ronan O’Gara incorporated the use of mental imagery and trigger words into his routine before kicking the winning penalty for Munster in the 2006 final of the Heineken Cup against Biarritz:

It was obvious how important it was, but I just had to get into my routine and block everything else out. Usually, there’s a mark in the centre of the crossbar and I focus on that. Thomond Park has a black dot, at Lansdowne Road it’s green. I imagine a little hoop between the sticks, like a gymnasium hoop, and I picture the ball going through that. I stepped back and the buzz words in my mind were, “Stay tall and follow through.”

(cited in English, 2006, p. 233)

Using “trigger words” as cues to concentrate

Many athletes talk to themselves covertly when they compete, in an effort to motivate themselves or to keep their minds on track. Such silent cognitive activity has attracted research interest from psychologists in recent years (e.g., Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou, 2009). Usually, what athletes say to themselves silently takes the form of praise (e.g., “Well done! That’s good”), criticism (“You idiot – that’s a stupid mistake”), or instruction (“Swing slowly”). It is this third application of
self-talk that interests us here in our discussion of athletes’ use of trigger words. For example, the U.S. tennis champion Serena Williams used trigger words during the 2002 Wimbledon ladies’ singles tennis final against her sister, Venus. In this match, Serena (who defeated Venus 7–6, 6–3) was observed by millions of viewers reading something as she sat down during the changeovers between games. Afterwards, she explained that she had been consulting notes that she had written to herself as trigger words or instructional cues to remind her to “hit in front” or “stay low” (Williams, 2002, p. 6). Serena Williams also used trigger phrases such as “get low,” “add spin,” or “move up” during her defeat of Daniela Hantuchova in Wimbledon 2007 (Martin, 2007). Hatzigeorgiadis, Theodorakis, and Zourbanos (2004) have reported evidence for the efficacy of trigger words on performance. They encouraged participants to use verbal cues such as “ball” or “target” in an effort to concentrate on the most important elements of the execution of an open skill (e.g., water polo ball throwing). They found that this use of self-talk not only improved skilled performance in water-polo but also decreased the prevalence of intrusive thoughts among the players concerned. See also Chapter 53 in this book.

**Imagery**

Earlier, I mentioned that some athletes use their imaginations to create switch on and switch off zones. More generally, imaging involves “seeing” and “feeling” a skill in one’s mind’s eye before actually executing it (Driskell, Copper, & Moran 1994). Although there is considerable empirical evidence that mental practice facilitates skill-learning and performance, its status as a concentration technique remains uncertain. Anecdotally, however, mental imagery is used widely by performers for focusing optimally. For example, the English rugby star, Jonny Wilkinson (2006), revealed that his imagery involves

a sort of clarified daydream with snippets of the atmosphere from past matches included to enhance the sense of reality. It lasts about twenty minutes and by the end of it I feel I know what is coming. The game will throw up many different scenarios but I am as prepared in my own head for them as I can be. If you have realistically imagined situations, you feel better prepared and less fearful of the unexpected.

(p. 58)

In Wilkinson’s quote, we discover that mental imagery may help athletes prepare for various hypothetical scenarios, thereby ensuring that they will not be distracted or upset by unexpected events. This hypothesis, however, has not been tested adequately to date. Additional research is required on athletes’ knowledge about, and views on, imagery techniques in sport. See MacIntyre and Moran (in press) and Chapter 50 in this book.

**Conclusions**

Concentration, or the ability to focus on the task at hand while ignoring distractions, is central to successful performance in sport. It is part of the construct of “attention” that is concerned with focusing mental effort on sensory or cognitive events. Other dimensions of this construct include selective attention (the perceptual skill of zooming in on relevant information while ignoring distractions) and divided attention (the mental time-sharing ability that enables us to perform several simultaneous actions equally well). For cognitive
psychologists, concentration resembles a mental spotlight that illuminates what we pay attention to – either in the world around us or in the private theatre of our own thoughts and feelings. An important aspect of this spotlight metaphor is the idea that concentration can never be lost but can be directed at the wrong targets (i.e., things that are irrelevant to the task at hand). Research-based principles of effective concentration include the ideas that one has to decide to concentrate in the first place, one can focus on only one thing at a time, one should try to do exactly what one thinks, one needs to refocus regularly, and one should focus outwards when anxious. Practical concentration techniques include setting action goals, establishing pre-performance routines, using trigger words, and visualizing future actions. Overall, this chapter has shown that far from being something fleeting or mysterious, concentration is a mental skill like any other that can be improved with appropriate training and practice. See Box 52.1 for some take-home messages from this chapter.

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<td><strong>Take-home messages about concentration</strong></td>
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- Concentration, or the ability to focus on the task at hand while ignoring distractions, can have a significant influence on performance outcomes.
- Concentration is best understood as a mental spotlight that shines at targets either in the external world or in the internal world of thoughts and feelings.
- Whenever the concentration beam shines at a target that is irrelevant to the job at hand, focus can be lost.
- One is truly focused when there is no difference between doing and thinking.
- To concentrate effectively, one needs to prepare properly (by deciding to focus on a job that is under one’s control), be single-minded, and remember to re-focus when distracted.
- Popular practical concentration techniques include setting action goals for performances, following pre-performance routines, using trigger words to remind oneself about what to concentrate on, and using imaginations to “see” and “feel” exactly what to do next.

**References**


