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## **Abstract (50 – 100 words)**

Mindfulness has not always been seen as a natural part of sport and exercise. However, mindfulness fits exquisitely with the aim of psychological skills training where the purpose is to develop performance, increase enjoyment and gain greater satisfaction from the activity. This chapter begins by exploring what is mindfulness and discussing the importance of mindfulness in sport and exercise. It then provides an introduction to the practice of mindfulness, offering tangible applied examples. The chapter reviews the current evidence and research around eastern mindfulness and the findings around sport and exercise. Finally, the chapter concludes with suggestions for further practice, as well as ideas for researchers to establish stronger evidence for the impact of mindfulness.

Key words: Eastern Mindfulness, practise, sport, exercise, psychological skills training.

## Mindfulness in Sport & Exercise

*"Concentration is a fine antidote to anxiety."*

- Jack Nicklaus

The modern age is full of opportunities and information. Today's exerciser and athlete can access new ideas and theories quickly. Furthermore these findings can be put into practice almost instantaneously. However, often people are untrained to deal with such opportunities, and at times the novelty and sheer volume can render them overwhelming. Such is perhaps true of modern life generally, which is replete with information and distraction. Given this context, athletes and coaches as well as regular exercisers are starting to acknowledge, now more than ever, the benefits of learning skills to ground them in the present moment. A particularly valuable method of attention training that can help athletes and exercisers in this respect is mindfulness.

This chapter begins by exploring what is mindfulness and discussing the importance of mindfulness in sport and exercise. It then provides an introduction to the practice of mindfulness, offering tangible applied examples. The chapter reviews the current evidence and research around eastern mindfulness and the findings around sport and exercise. Finally, the chapter concludes with suggestions for further practice, as well as ideas for researchers to establish stronger evidence for the impact of mindfulness.

### What is mindfulness?

*"Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment"*  
(Kabat-Zinn, 2003, p.145)

It is useful to think of mindfulness in two main ways: (a) as a quality/state of mind, and (b) as a meditation practice that can allow one to cultivate this quality/state. Its origins lie in Buddhism, an Eastern religious philosophy founded by Gautama Siddhartha – better known by his honorific title 'The Buddha,' meaning 'enlightened one' – who is believed to have lived around 2,500 years ago in present-day Nepal. One of his foundational teachings is the 'Discourse on the establishment of mindfulness,' which includes instructions for paying

close attention to the act of breathing. This teaching masterfully communicates both aspects of mindfulness noted above: (a) as a quality/state (of awareness), and (b) as a practice for establishing this state (paying attention to the breath). This teaching has influenced contemporary operationalisations of mindfulness, such as the definition above provided by Jon Kabat-Zinn, who was pivotal in bringing mindfulness to the West via his pioneering ‘Mindfulness-Based Stress Reduction Programme (Kabat-Zinn, 1982). His definition positions mindfulness both as a quality/state (‘...the awareness that emerges...’) and as a practice that helps one to cultivate this state (‘... through paying attention on purpose...’).

It is important to differentiate between these two aspects. As a quality/state of mind, mindfulness does not ‘belong’ to Buddhism. Mindfulness as a quality/state is simply a way of being in this world, involving being non-judgementally aware of one’s thoughts, emotions, sensations, and so on. Many people who have never meditated may have moments in the day that could be characterised as mindful, moments when they are not mentally lost in a whirlwind of thoughts, but are simply aware of what is happening right now – the sights, the sounds, and how their body is feeling. Indeed, you the reader may have been graced with moments of this kind of heightened, receptive awareness during particularly good sporting performances or training sessions.

Crucially, this quality/state of mind is not something that simply happens, but is something that can be *practised*. Like any skill, it takes time and dedication to learn and master. In order to understand its value further here, the next section elucidates the significance and potential of mindfulness in sport and exercise.

### **The importance of mindfulness in sport and exercise**

Mindfulness has not always been seen as a natural part of sport and exercise. However, mindfulness fits exquisitely with the aim of psychological skills training where the purpose is to develop performance, increase enjoyment and gain greater satisfaction from the activity. Traditionally in sport the focus for mental preparation has been on cognitive-behavioural techniques that improve self-regulation by controlling internal factors (Weinberg & Gould, 2014; Sappington & Longshore, 2015). Often the aim is to avoid or regulate negative internal states to create an optimal environment for peak performance. These practices may be useful but at other times inadequate. Whilst negative internal states may hinder peak performance, controlling them does not guarantee peak performance. Thus it

could be highly beneficial to include skills training focused on developing greater awareness and acceptance as well as controlling negative internal states.

During the past decade sport and exercise scientists and coaches have started to suggest that it could be valuable to include the practice of mindfulness as part of the athlete's psychological skills training (Baltzell, 2016; Gardner, & Moore, 2007; Pineau, Glass, & Kaufman, 2014). Tolerance and acceptance towards feelings, thoughts and emotions could help athletes to stay present and focused on the task at hand (Goodman, Kashdan, Mallard & Schumann, 2014). The ability to act with awareness within sport and exercise routines, as well as the ability to reduce task irrelevant thoughts such as worrying, are instrumental skills for an athlete. Studies have shown that mindfulness training can indeed promote these skills and thus provide an advantage in both training and competition settings (Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011).

Research suggests the benefits of mindfulness are manifold. Mindfulness practice can make exercising more enjoyable, and moreover help practitioners to focus, thereby lowering the likelihood of injury (Ivarsson, Johnson, Andersen, Fallby, & Altemyr, 2015; Brani, Hefferon, Lomas, Ivtzan, & Painter, 2014). It has been used in rehabilitation settings to promote commitment to rehabilitation behaviours and to build certainty around returning to sport (Mahoney & Hanrahan, 2011). It has been found to help establish better work-life balance by increasing the ability to stay focused on the moment at hand, whether a sport performance situation or family-orientated activities (Longshore & Sachs, 2015). Finally, it has been found to positively influence the coach-athlete interactions through improved wellbeing, reduced stress and lower levels of anxiety (Longshore & Sachs, 2015). Thus, there is robust evidence for the value of mindfulness in a sporting context and these benefits are just as useful for the regular exerciser. It is then certainly useful to try to implement this practise as part of athlete's training routines, starting with simple practises that enable the cultivation of this skill.

### **How to practise mindfulness**

Mindfulness can be practised in various ways. Formally speaking, people practise mindfulness through mindfulness meditation. 'Meditation' is an overarching label for a variety of practices that all involve developing one's attention and awareness (Walsh & Shapiro, 2006). *Mindfulness* meditation then specifically means trying to cultivate

mindfulness, in contrast to other meditation practices, in which one tries to cultivate other valuable states of mind.

In line with the conventional image of meditation, you can choose to sit in a quiet place, and to try to be mindful of your breath. The important thing is that you sit with your back relatively straight, enacting a posture, which encourages alertness and attentiveness and at the same time feels comfortable (Austin, 1998). Mindfulness can be practised during any daily activity, from doing the dishes to gardening. Whatever you decide to do, engage with it with awareness and attention, experiencing it moment-to-moment. You can draw your attention inwards to yourself (e.g. by focusing on the breath) or outwards (by perceiving what is happening around you). Here's how you can try it out:

### **Take time to notice**

1. Look around you. Notice one thing that you can see. What does it look like? What are its colours? Its shape? Is it far away or close by?
2. Now close your eyes. Notice one thing that you can hear. How does it sound? Is it loud? Is it subtle? Is it harmonious – or chaotic?
3. Keep your eyes closed. Now notice one thing that you feel in your body. What do you feel? What does the feeling feel like? Is it strong? Or is it weak?

*As this gets easier, develop this exercise by noticing two or three things in each category (e.g. seeing, hearing, feeling). This exercise can be used e.g. at the beginning of a training session if you are feeling unfocused and your mind keeps drifting to other tasks.*

When people start practising mindfulness meditation, it is common that they feel irritated or frustrated when their thoughts wander or their attention escapes. That is a very common experience. Of course, not everyone finds mindfulness meditation suitable for them and indeed, in certain circumstances, people may find mindfulness unhelpful. For instance, while mindfulness has been successfully used to help prevent people from relapsing into depression (Ma & Teasdale, 2004), it is generally not recommended for people who are currently depressed, as they may get drawn further into introspection and rumination (Lustyk et al., 2009). As noted above, mindfulness can be difficult at first, especially given the mind's

tendency to wander off. But with practice it teaches you to accept this habit of the mind, allowing you to acknowledge where the mind goes, and then gently escort it back to the task at hand.

Through practice, we can develop our attention skills, and thus our capacity to be mindful (Chiesa, Calati, & Serretti, 2011). When that happens, our ‘meta-cognitive’ abilities are enhanced, which in turn facilitates wellbeing (Vago & Silbersweig, 2012). For instance, mindfulness can eventually increase tolerance towards uncomfortable emotional states (e.g. fear) by allowing us to ‘decentre’ from these qualia (i.e. to ‘step back’ and view these with greater objectivity and detachment) (Fresco, Moore, van Dulmen, Segal, Ma, Teasdale, & Williams, 2007). For example, we might be able to view feelings of anger as ‘the anger,’ rather than ‘my anger,’ hence making it easier to let it go. This acceptance towards emotional cues helps to build resilience by increasing the capacity to tolerate discomfort. This is opposite to other, perhaps more traditional western approaches, which aim to decrease discomfort. Mindfulness practice can increase awareness that life unfolds in moments, and help realize opportunities for growth and transformation (Kabat-Zinn, 2009).

### **The value of mindfulness practise in sport and exercise**

*“You can’t stop the waves but you can learn to surf.” (Kabat-Zinn, 2009, p.30)*

Most people are aware of the benefits of regular exercise. Nevertheless despite all the advertised benefits some are left wondering why it is often difficult. A regular exerciser might encounter varying struggles with enjoyment, goal setting and adherence. Furthermore, too often our bodies are treated as vehicles for something: to have more energy, to bring us health or to look attractive. This can easily lead to forgetting how to enjoy the exercise and to pushing our bodies too hard, beyond what is beneficial. This can then lead to decreased motivation towards the practice.

Similarly athletes may experience various challenges during their experience in sport. Some athletes may at times struggle with training related challenges such as motivation, focus, goal setting and team cohesion. Others may battle with competition specific issues such as anxiety, arousal regulation, external and internal distractions and uncertainty about the future. Often athletes’ careers entail both training and competition related challenges in

varying combinations. This yields a clear need for psychological skills training that provides ways to stay in the present, whilst acting with awareness and acceptance.

### **How can mindfulness help athletes and exercisers?**

An unmindful mind is excellent at reminiscing upon past failings: competitions that were unsuccessful, the one training when performance was under par, or the time when spectators were unforgiving. The mind is asking the unavoidable question: *‘Will this happen again?’* Often without any effort this will open up an avenue of opportunities for the mind: the failings that are in the future and the terrifying ‘If’s’, ‘But’s’, and ‘What if’s’, making it hard to keep things in perspective. Furthermore, a stressed mind is less able to think of diverse and creative solutions to problems because stress engenders the ‘fight or flight’ response (Fredrickson, 2001; Isen, Daubman, & Nowicki, 1987). Hence it can be very useful for athletes and regular exercisers to pay attention to their inner dialogue i.e. what they are thinking during the competition or training. Often these ‘conversations’ happen in the background without real awareness. This makes it difficult to address the potentially harmful thought patterns that can influence performance. Thus the key is to learn how to be aware of these thoughts so that they can be addressed without judgement. This is how you can try it out:

#### **Practise being aware of your inner talk**

1. Please take a moment to acknowledge your own inner dialogue.
2. For example, what are you thinking and telling yourself when you are competing?
3. Are you thinking: *“I can’t swim that fast”* or *“This audience really hates me”*.
4. Is this useful information? Is this relevant for your performance?
5. Acknowledge and be aware of your inner dialogue and if non-productive, gently escort it out.
6. Bring your awareness back to the present moment, for example by noticing where you are or by following your breath. Let the mind quieten.

*You can start trying out this exercise in training settings to get used to it. It is important to acknowledge these inner dialogues without*

*judgement so that you can handle them as momentary states and leave them out of your performance. By being more aware it is possible to focus on the task at hand. This exercise can easily be adapted for an exerciser: just consider the inner dialogue that goes on during your exercise session. E.g. what are you thinking at the gym: are you thinking, “Oh everyone is watching me, I can’t do this”. Follow the steps described above.*

Due to its focus on awareness and acceptance, mindfulness can additionally have an effect on other psychological skills, such as adjustment, the ability to relax, and imagery. For the same reasons, practising mindfulness can lower levels of anxiety, sadness and confusion that are sometimes a part of athletes’ careers (Keng, Smoski, & Robins, 2011; Peterson, & Pbert, 1992) as well as reduce stress and burnout (Gustafsson, Skoog, Davis, Kenttä & Haberl, 2015). An enhanced ability to be aware and accept emotions might additionally play a significant role in enhancing team performance. There is already evidence for this in team athletes, as mindfulness practice seems to be linked to building effective team cohesion (Baltzell, Caraballo, Chipman & Hayden, 2014; Pineau, Glass, Kaufman, & Bernal, 2014). In team settings, experiencing a sense of control can be difficult, associated with the presence of others. Having more affect tolerance can help to see one’s own emotions as well as others’ emotions as information, thus making it easier to accept them. In turn this may contribute to a more supportive and collaborative environment.

### **Effortless activity in sport and exercise**

Effortless activity in sport and exercise is the outcome of years of practice and experience. It often shows in peak performance and is described as being in *flow* or being *in the zone* (Csikszentmihalyi, 2008; Jackson, & Csikszentmihalyi, 1999). Flow is defined as being absorbed by the task at hand, where self-consciousness and sense of time are reduced. The activity itself is so important that there is no attention left for anything other than what you are doing (Csikszentmihalyi, 2008; Jackson, & Csikszentmihalyi, 1999).

Similarly, when the regular exerciser focuses on what they are doing, they are more aware of how their bodies feel and how each movement feels especially when they are new to the activity. This makes it more likely that they enjoy the activity and less likely that they get injured (Ivarsson, Johnson, Andersen, Fallby, & Altemyr, 2015; Brani, Hefferon, Lomas,



Ivtzan, & Painter, 2014). This way the exerciser can additionally be present whilst being physically active, and focus on the journey of practising rather than the outcome of being fit. Choosing *not* to pay attention to how an activity feels may also be a conscious strategy undertaken by some exercisers and athletes.

Flow has been studied in sport and is seen as a key component of peak performance (Jackson, & Csikszentmihalyi, 1999; Privette, 1983; Privette & Brundrick, 1991; Young & Pain, 1999). Flow is achieved when an athlete works at an optimal level of challenge and ability, thus immersing themselves completely in the activity at hand which is intrinsically rewarding. Sport and exercise psychologists have been talking about ‘*staying in the moment whilst competing*’ for a long time (e.g. Jackson, & Csikszentmihalyi, 1999; Orlick, 1990). However, only lately has the practice of mindfulness started to become a more common part of psychological skills training. Furthermore the value of these skills in both training and competition settings are understood better. The benefit of early inclusion of mindfulness practice is that these skills can be learned gradually during the athletic career and put into practice both in training and competition.

Furthermore, mindfulness practice has been found to have an effect on the challengeability aspect of flow through self-efficacy (Cathcart, McGregor & Groundwater, 2014; Pineau, Glass, Kaufman, Bernal, 2014). Self- and team efficacy refer to the belief that the individual or the team has concerning their ability to perform their athletic task successfully. As such, it is an important aspect of peak performance (Bandura, 1994; Weinberg, & Gould, 2014). It is further connected to motivation, self-confidence and performance in general (Feltz, 1992; 2007; Feltz & Lirgg, 2001; Pineau, Glass, Kaufman, Bernal, 2014). Due to these various benefits, the potential of mindfulness in sport and exercise has been gradually acknowledged. This has led to the development of mindfulness programmes that are designed specifically to athletes such as:

- Mindful Sport Performance Enhancement (MSPE) (Kaufman, Glass, & Arnkoff, 2009; 2016).
- Mindfulness-Acceptance-Commitment (MAC) (Gardner & Moore, 2004; 2007).
- Mindfulness Meditation Training for Sport (MMTS) (Baltzell, & Akhtar, 2014; Baltzell, 2016).

- Mindfulness training for achieving flow (Aherne, Moran, & Lonsdale, 2011).

Mindful Sport Performance Enhancement (MSPE) by Kaufman, Glass, & Arnkoff (2009; 2016) is designed to be adapted to different sports and has had positive results from different sports already. Similarly, the Mindfulness-Acceptance-Commitment (MAC) by Gardner & Moore (2004; 2007) has sport-focused practices in it. These results are suggesting that mindfulness could be a highly beneficial addition to psychological skills training. For an excellent review of these interventions please see: *Mindfulness in Sport Performance* by Pineau, Glass & Kaufman, 2014.

Currently, further empirical evidence is needed to understand how these interventions fit different sports and different individuals. As sport and exercise psychology is moving strongly towards a ‘person fit’ approach in assigning skills training, it is crucial to understand for whom particular mindfulness intentions are most and least beneficial.

Additionally there is interest in Langer’s conceptualization of mindfulness (Langer, 1989; 1992; Langer & Moldoveanu, 2000) and some researchers suggest that this perspective could have great potential in sport (Pineau, Glass & Kaufman, 2014). However, due to the lack of empirical evidence among sport settings it has not been included in this chapter. Nevertheless, future research should investigate its potential in sport and exercise settings. For an excellent systematic comparison of these two different schools of thought in mindfulness (Langer’s and Kabat-Zinn’s) please see: *Mind the gap in mindfulness research: A comparative account of the leading schools of thought* (Hart, Ivztan, & Hart, 2013).

It seems clear that mindfulness is here to stay and has attained the attention of exercisers, athletes, coaches and researchers. Thus, we need now to collect further knowledge about the applications of mindfulness in different sports, how it fits with different individuals as well as gather further understanding about best practises and long term effects.

The aim of this chapter was to provide you with an introduction to mindfulness and its applicability to sport and exercise. As we have hopefully shown, mindfulness can be a very useful skill to master, whether in coaching, exercising for leisure or practising as an athlete.

We also want to emphasize that these skills can be applied to life beyond exercising and sport.

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