

Sport and Exercise Psychology

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LearningMatters

Chapter 10

Coping with competition pressure

Learning Objectives

This chapter is designed to help you be able to:

1. define choking and understand when choking is likely to occur in sport;
2. outline theoretical explanations for choking in sport;
3. understand the role of dispositional self-consciousness in choking susceptibility;
4. understand what is meant by the term 'ironic mental process';
5. identify potential strategies for reducing choking in sport.

Introduction

When we think about sport we are often reminded of great sporting triumphs and successes. Young athletes who dream of sporting success may see themselves on the Olympic podium or hear the crowd roar as they score a winning goal in a cup final. Newspaper articles and media headlines frequently report the pride and happiness that are associated with sporting success. However, it is important to remember that to be successful in sport an athlete may often have to deal with adversity. On the other side of the success stories, we hear of athletes who 'choke' when it really matters. These may be individuals or teams who cannot cope with the pressure of a crucial moment in sport, such as a penalty kick or serving for the Wimbledon tennis final. They do not perform up to expectations and their performance often crumbles under the pressure of the occasion.

These negative experiences in sport are not uncommon. Evidently, some athletes are able to cope with adversity and achieve sporting success, whereas others choke under pressure and fail to achieve their sporting goals. In this chapter, we consider the psychological processes involved in coping with adversity in sporting competition. We examine theoretical explanations for why some athletes choke under pressure and we focus on two explanations of choking. First, we consider the catastrophe theory that links choking to increases in cognitive anxiety and physiological arousal. Second, we discuss the conscious processing hypothesis that suggests that choking is caused by an increase in pressure resulting in a change in attentional focus. Specifically, we examine the work of Masters and Baumeister, who offer two different perspectives on the role of dispositional self-consciousness in choking. Finally, since it is clear that some athletes are able to triumph despite adversity we examine how athletes may be taught to cope in high pressured or anxiety-provoking situations, using strategies such as music and pre-performance routines.

Stress and choking in sport

There are a number of situations in sport that we can identify as particularly highly pressured because they induce high levels of stress. Even as a spectator we may have felt the pressure that has built up in a specific

match situation. Think back to the last time that you watched a sporting event that contained a high level of pressure. This may have been a penalty shoot out in football or an important event such as an Olympic final. Consider how you felt about that event even as a spectator. Maybe you felt that you were unable to watch the events that were about to unfold, or maybe you found yourself shouting at the television willing your team to succeed. Whatever your reaction you were probably aware of the high levels of stress that your team were under. As we saw in Chapter 8 there are a number of individual difference factors that may influence both behaviour and performance outcomes in sport. These can include the individual's levels of self-confidence, motivation and their focus of attention. In addition, for an athlete to be successful they must also be able to withstand the pressures of sporting competition. Thus to help any athlete to thrive under pressure it is important to understand and be able to apply the psychological theories that explain choking in sport.

Learning Activity 10.1

Imagine the following scenario:

You are working as a sport psychologist and are approached by the manager of your local football team. He tells you that his team are currently bottom of the league. Although they are a team of strong players whenever they are in a penalty situation they seem unable to score. Sometimes the shots that they take are so wide of the goal that the manager is embarrassed by their performance. Even the local press have branded the team as 'chokers'. He has tried to solve this performance problem by increasing the number of penalty practices in the team's training sessions, and has found that in training his players are quite capable of scoring. Now the manager is unsure how to help his team further and would like to enlist your assistance.

From the situation outlined above it can be suggested that the players are choking under pressure. Consider what knowledge or information you would need to be able to help in this situation. Discuss your ideas with a partner and check your responses with those suggested below.

- *Knowledge of the problem itself:* Before you could work with this team you would need to understand what is meant by the term 'choking'. The manager tells you that the team's problem has been branded as choking by the press but you would need further knowledge of how choking is defined before you could conclude that this is a problem of choking and not something else such as a lack of skill.
- *Knowledge of when choking may be likely to occur:* The manager has explained that choking occurs during penalty shootouts – but what is it about this situation that makes the players more prone to choking under pressure? Are there particular situations that may be more likely to make a player choke?
- *Knowledge of the theoretical explanations of choking:* This would help you to understand why the team may be choking. It is important to understand the causes of the team's inability to score penalties. This may also tell you whether some individuals are more prone to choking under pressure than others and if this is related to a particular personality type.
- *Knowledge of strategies that may help to prevent choking:* These strategies may include ways of preventing choking or interventions that may help a player who is already prone to choking. Consequently if you were going to work with this team to try and solve the problem you would need to have some awareness of interventions that may be effective.

What is choking?

We often read newspaper articles or hear broadcasters refer to athletes as ‘chokers’, but what does this term mean? Although researchers do not always agree on an operational definition Baumeister and Showers (1986, page 361) define choking as, ‘the occurrence of inferior performance despite striving and incentives for superior performance.’

This definition indicates that there are two main features that help us to define choking. First, choking will always be indicated by inferior performance. Thus someone who is not good at sport can not be labelled a choker; this term is only relevant to an athlete who usually achieves higher performance standards. Second, this definition implies that the athlete is motivated to achieve. This means that an athlete who lacks motivation and therefore gives up in a high pressured situation cannot be labelled a choker. Wallace *et al.* (2005) further emphasised that individuals will feel performance pressure when they care deeply about the outcome of an event and when they perceive that their performance is instrumental in the attainment of a personal goal or outcome.

When does choking occur?

We know from the example in Learning Activity 10.1 that choking can occur in situations such as penalty shootouts, but are there particular situations in which athletes are more likely to choke? There are thought to be three likely situations in which choking occurs:

- *Performing well in training but not in competition:* This type of choking may be more likely to occur in athletes who are sub-elite. This is because if they are able to perform well in training but not in competition they are unlikely to have reached an elite level. An elite athlete has had to compete well to have achieved this level of performance. This means that we might hear athletes who have suffered from this type of choking say, ‘I could have made it but I just couldn’t handle the pressure of competing.’
- *Performing well in competition until the ‘big match’:* This type of choking will occur in athletes who are able to play well in less important events such as qualifying rounds yet who choke under pressure when it really counts. Examples of this kind of choking occur in players who play really well up until the finals of a competition or match and then choke in the final. We might expect an athlete who chokes in this kind of situation to say, ‘I play really well until it really counts and then I can’t hold it together.’
- *Performing well, even in ‘big matches’ until critical points in the match:* This type of choking will occur when athletes are able to play well, even in an important match, but when it comes to a critical moment in competition they choke under pressure. Examples of this might be a tennis player who chokes on the final point of a match or a golfer who misses the final short putt of the competition. We could also include the example outlined in Learning Activity 10.1 of the local football team that is unable to score penalties. In this situation we would be likely to hear a player say, ‘I play very well, even under pressure, but when it comes to the most critical point in the match, such as penalties, then I lose it.’

Theoretical explanations of choking

You may be able to find a number of examples in the media of athletes who have choked under pressure. There are a number of theoretical explanations that help us to understand the causes of choking. The two main explanations are *catastrophe theory* and the *conscious processing hypothesis*.

Catastrophe theory

Catastrophe theory (Hardy and Fazey, 1987; Figure 10.1) suggests that if an athlete who is anxious experiences continual increases in arousal then this will lead to a sudden and dramatic decline in performance levels. To explain this decline in performance, catastrophe theory examines the relationship between cognitive anxiety, physiological arousal and performance. Cognitive anxiety refers to the thought component of anxiety and is characterised by worry and apprehension. Physiological arousal refers to the athlete's level of physiological activation such as heart and respiration rate.

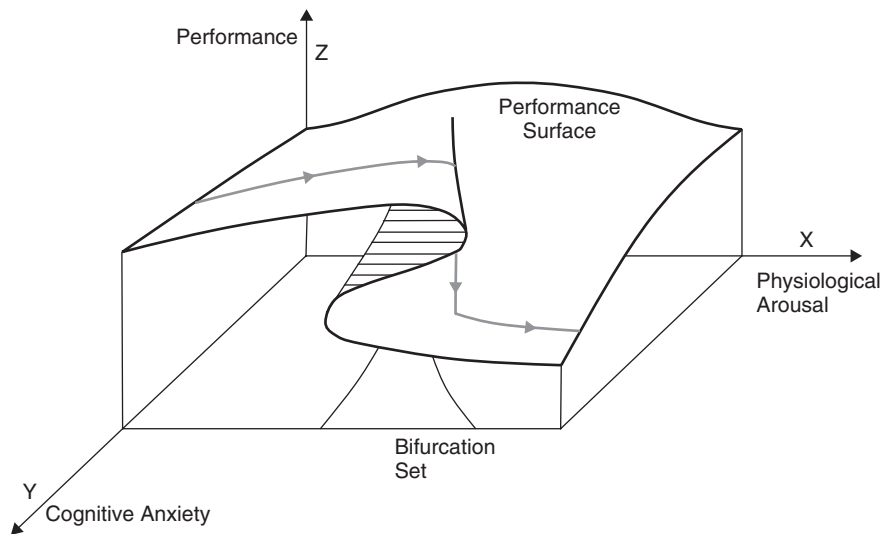


Figure 10.1 Catastrophe theory.

To understand this theory, imagine that you are playing in the Wimbledon tennis final. In the opening sets of the match you have moderate levels of cognitive anxiety and physiological arousal. Since it is an important match we would expect you to experience elevated levels of cognitive anxiety and physiological arousal. As the match progresses and you take the lead you realise that you could be on your way to winning the title. As you start to win more points you feel your levels of cognitive anxiety and physiological arousal increase further. As this happens, initially your performance starts to improve slightly. However, the closer you get to winning the final set the higher your levels of cognitive anxiety and physiological arousal. As these levels start to increase, you reach what is termed the 'cusp' of the catastrophe model. This part of the model is similar to the crest of a wave. At this point, any increase in physiological arousal will lead to a sudden and dramatic decline in performance. The top surface of the model is the performance surface. We can see that as an athlete reaches the cusp of the performance surface then performance deterioration is sudden and the athlete chokes.

Learning Activity 10.2

What you may also notice about this model is the relationship between physiological arousal and cognitive anxiety. Look at the performance surface of the model. Try to answer the following questions:

1. What would happen to performance if an individual had high levels of physiological arousal and a low level of cognitive anxiety? Is choking likely to occur?
2. What would happen to performance if an individual had high levels of cognitive anxiety and a low level of physiological arousal? Is choking likely to occur?
3. Is there an optimum level of cognitive anxiety and physiological arousal for performance?

Consider your answers in relation to the explanation that follows. The first question suggests that if cognitive anxiety is very low then choking will not occur. However, the slope of the performance surface indicates that performance will still deteriorate, although not as rapidly as the deterioration that is associated with choking. It is also worth noting that choking can still occur, even with moderate levels of cognitive anxiety and high levels of physiological arousal. The second question highlights that even if cognitive anxiety is very high choking will not occur without high physiological arousal. Finally, the third question asked you to identify the point on the model where performance was highest. You can see from the model that this occurs with moderate levels of cognitive anxiety and physiological arousal.

One final presupposition of the catastrophe model that you may have noticed is that once choking has occurred it becomes very difficult to regain previous performance levels. Even if the individual is able to lower their levels of cognitive anxiety and physiological arousal then they do not return to the same level of performance they had achieved previously. This means that once an athlete has choked they will find it difficult to recover and to regain their previous level of performance.

Conscious processing hypothesis

The catastrophe theory explains choking by focusing on the relationship between anxiety and arousal. In contrast, the conscious processing hypothesis posits that it is an increase in performance pressure that leads to choking. This increase in pressure may result when an individual is highly motivated to achieve in an important situation.

When an individual cares deeply about the outcome of their performance they may try to do everything possible to ensure that they execute each element well. Unfortunately, these extra efforts can ironically sometimes cause them to fail. This is because they begin to consciously control aspects of their performance which previously they did not think about. When we try to consciously control performance our attention shifts from a more external focus (e.g. watching where the next player is that you will pass to) to a more internal focus (e.g. thinking about where to position your foot when striking the ball). This switch to conscious processing may then result in choking.

The effects of conscious processing can be seen in the very simple children's nursery rhyme called the Centipedes Dilemma that is outlined below.

*A centipede was happy quite,
Until a frog in fun
Said, 'Pray which leg comes after which?'
This raised her mind to such a pitch,
She lay distracted in the ditch
Considering how to run.*

This rhyme shows us the essence of conscious processing, that when we are put under pressure our attention is drawn inward and we are unable to perform the task successfully. Consider an activity that you are able to do quite easily (or automatically) without having to think about it, such as driving a car. Once we have learned to drive a car we very rarely need to think about the actions of our feet in order to change gear or to pull out at a junction. But consider what would happen if someone asked you to explain exactly how to drive a car as you were trying to do this. The likelihood is that once you are asked to consider this it would slow down your actions as you would be forced to revert back to thinking about how you perform this task. Similarly, when faced with a high pressure situation individuals will often revert back to conscious processing. A simplified explanation of what happens to an individual when there is an increase in performance pressure is as follows: when we have no pressure we perform skills automatically, but an increase in performance pressure causes anxiety, which causes us to focus on ourselves and what we are doing. By thinking about what we are doing we start to consciously control the skill and we don't perform as well (choked performance).

This explanation illustrates that important competitions or important moments in competition can increase arousal. In turn, this results in an attentional focus on oneself and disruption of well-learned skills.

Liao and Masters (2002) examined the role of self-focused attention in novice basketball players and demonstrated that self-focused attention increased levels of anxiety. Basketball players were asked to perform a basketball free throw shot. When focusing on the mechanics of shooting the ball their performance suffered significant decrements. This research supports the conscious processing hypothesis, illustrating the deterioration in performance when attention was focused inward. The further reading section at the end of this chapter includes a paper by Mullen and Hardy (2000) which describes a study into conscious processing in relation to motor performance.

Reflection Point

Try to think of a time when you knew that someone was assessing you or when you knew that you were being watched in your sport. Think about how it influenced your thoughts and your performance: Did you make mistakes, if so what were these? This increase in pressure may have made you much more conscious of the skills that you were performing.

One method of increasing pressure in a laboratory setting has been to include an audience. Butler and Baumeister (1995) systematically manipulated audience support in laboratory experiments and found that participants did not perform as well in front of supportive as opposed to unsupportive audiences. This may not be what we would intuitively expect but often a supportive audience can increase the amount of performance pressure on the individual. This may have strong implications for athletes who

are playing competitive matches in front of a home crowd. Wallace *et al.* (2005) proposed that the so-called home advantage might be better titled the 'home disadvantage'. They highlight that audience support actually magnifies performance pressure and induces performers to avoid failure rather than to strive to achieve success. In front of a home crowd Wallace *et al.* suggest that an individual would be more likely to have an increased self-focus, which in turn may then disrupt the execution of skilled performance and lead to choking.

Individual differences in choking: the role of dispositional self-consciousness

Although the conscious processing hypothesis explains what happens when an individual chokes, this cannot answer the question of why some individuals thrive under performance pressure whereas others are more susceptible to choking. We can all probably think of examples of athletes who have been able to overcome the greatest amounts of performance pressure and triumphed. So what makes these individuals able to cope with pressure whereas others may choke in the same situations? Research has considered individual differences in susceptibility to choking by examining differences in the tendency to become self-focused (referred to as trait or dispositional self-consciousness) and in the propensity to reinvest conscious control (referred to as reinvestment).

Box 10.1 Definitions: Trait self-consciousness and high reinvestment

- An athlete with high levels of *trait self-consciousness* will show a high level of self-awareness and self-focus.
- An athlete who is a *high reinvestor* will show a propensity to consciously control their movements.

Research has investigated these individual differences by examining individuals who are high and low in reinvestment and self-consciousness in high and low pressured situations. The measure most frequently used in sport psychology research to assess these variables (e.g. Masters *et al.*, 1993) is the reinvestment scale (Fenigstein *et al.*, 1975). This measure contains 20 items drawn from three scales that are used to predict individual propensity for reinvestment of controlled processing. It includes 12 questions from the self-consciousness scale and asks participants to rate themselves on questions such as:

- I reflect about myself a lot;
- I am alert to changes in my mood;
- I am concerned about the way I present myself;
- I'm self-conscious about the way that I look;
- I'm always trying to figure myself out;
- One of the last things I do before leaving my house is look in the mirror.

Research has proposed that both the self-consciousness scale and the reinvestment scale can be used to identify individuals who are more likely to choke under pressure. We now examine two opposing approaches to self-consciousness and choking which have used these scales.

Self-consciousness and choking: Baumeister's approach

There are two conflicting approaches to the role of self-consciousness in choking. According to Baumeister (1984) those individuals who are habitually self-conscious should find it easier to cope with situations that engender self-consciousness because they are accustomed to performing in these situations. This means that an individual who has high levels of self-consciousness would be less likely to choke. According to Baumeister this is because even in situations with no performance pressure the habitually self-conscious individual will still have to perform skills well while highly self-conscious. Consequently, when there is an increase in performance pressure the highly self-conscious individual is already accustomed to performing skills when their attention is turned inward. On the other hand, the individual who is habitually low in self-consciousness is not accustomed to performing with a high level of self-consciousness. Thus when the low self-conscious athlete is placed in a pressured situation, they are not familiar with performing skills with such levels of self-consciousness and are therefore more likely to choke.

Baumeister (1984) conducted six experimental studies to examine the conscious processing hypothesis and the role of self-consciousness in choking. The task that was used for experiments one to five was a 'roll up' game in which two rods were attached to a vertical board at one end and the participant was instructed to hold the other end with his or her hands. A metal ball was used and the participant was instructed to score points by moving the rods apart so that the ball dropped into the platform beneath the rods. The results of these experiments are summarised below.

Experiment 1

- *Method:* Participants were divided into two groups. Group 1 were instructed to focus on hand position (internal focus), group 2 were instructed to focus on the ball (external focus).
- *Result:* Group 1 (internal focus) performed worse than group 2 (external focus).

Experiment 2

- *Method:* Group 1 were instructed to focus on hand position (internal focus), group 2 were given no focusing instructions.
- *Result:* Group 1 (internal) performed worse although this was not significant.

Experiment 3

- *Method:* Group 1 were instructed to focus on hand position (internal focus). Group 2 were given no focusing instructions. Dispositional self-consciousness was measured.
- *Result:* Performance disrupted in low self-conscious individuals in group 1.

Experiment 5

- *Method:* Participants were offered a monetary incentive to perform at a target level.

- *Results:* Participants high and low in self-consciousness showed signs of choking, although the effect was stronger for those low in self-consciousness.

Experiment 6

- *Method:* Participants were customers playing 'Pac-man' at a video arcade. Previous score was recorded and participants were then offered a free game and asked to achieve the best possible score.
- *Result:* Average change was a 25 per cent drop in performance.

Experiment 4

Experiment 4 highlights the essence of Baumeister's theory. Participants performed with a confederate (a researcher pretending to be another participant; this allows their performance on the task to be manipulated). There were three experimental conditions: high pressure in which the confederate performed better than the participant, and low pressure in which the confederate performed worse than the participant, and a control condition. Table 10.1 presents the results from this study for individuals who were high and low in self-consciousness. Higher scores on the game indicated higher levels of performance.

| | High pressure | Low pressure | Control |
|---------------------|---------------|--------------|---------|
| High self-conscious | 74.0 | 80.1 | 67.2 |
| Low self-conscious | 65.1 | 83.3 | 81.2 |

Table 10.1 Experiment 4

The table shows that both the high and low self-conscious participants performed best in the low pressure condition. However, the decrease in performance between the low and high pressure conditions was significantly greater for the low compared with the high self-conscious participants. Results from these experiments therefore support Baumeister's assertions that highly self-conscious individuals will be less likely to choke under pressure.

Self-consciousness and choking: Masters' approach

Masters (1992) offers an alternative explanation for the role of self-consciousness in choking. He proposes instead that it is the highly self-conscious individual who is more likely to choke under pressure. According to Masters' theory, the more self-conscious we are the more likely the execution of the skill will be disrupted. In general, sport psychology research has shown more support for Masters' explanation than for Baumeister's. One such study that has supported Masters' theory was conducted by Chell *et al.* (2003). This study looked at performance under pressure in high versus low reinvestors. Participants were asked to perform a wall volley task in two conditions: alone (no pressure) and with an audience (high pressure). As expected, performance deteriorated in the high pressure condition in comparison to the low pressure condition. Chell *et al.* found the greatest reduction in performance in the high reinvestor group. This supports the assertions of Masters, demonstrating that high reinvestors exhibited greater performance reduction under pressure than low reinvestors.

Research Focus

In order to understand choking in sport it is important to appreciate the research methodology that is typically used to investigate this phenomenon. The study by Jackson *et al.* (2006) is illustrative of research that has examined the role of self-consciousness in sport performance. Jackson *et al.* undertook two experiments, the first of which is outlined below.

The aim of this study was to understand how attentional demands interact with situational pressure and dispositional reinvestment to influence skilled performance. To do so the study examined the performance levels of both high and low reinvestors when asked to focus on different aspects of performance in both low and high pressure conditions.

In their first experiment field hockey players were asked to perform a dribbling task in three experimental conditions. In the first condition (single task) participants were instructed to complete the dribbling task as quickly and accurately as possible. In the second task (skill focus) participants completed the same dribbling task but were asked to pay attention to the position of their hands throughout the trial. Every 6 seconds, on the sound of a tone, participants were instructed to identify whether their hand position was up or down. In the final condition (dual task) participants were instructed to generate a random letter of the alphabet on the sound of a tone every 6 seconds. Participants performed the single task, skill focus task and dual task in both high and low pressure conditions. To induce pressure in the high pressure condition participants were told that they were being filmed for a governing body film on field hockey. Reinvestment was measured using the reinvestment scale.

Results showed that in the low pressure condition performance was best on the dual task in which participants generated random letters of the alphabet. In the high pressure condition high reinvestors slowed (an indication of performance deterioration) significantly more than low reinvestors, showing support for Masters' theory. Further, performance deterioration in the skill-focused condition was compounded by the high pressure condition. This suggests that a combined skill focus and pressure condition may have additive effects, resulting in an even poorer performance.

Learning Activity 10.3

The study outlined above is from Jackson, RC, Ashford, KJ and Norsworthy, G (2006) Attentional focus, dispositional reinvestment, and skilled motor performance under pressure. *Journal of Sport and Exercise Psychology*, 28, 49–68. Read through the second experiment reported in this paper and try to write a similar outline to the one provided for experiment one. It may help you to use the following subheadings: aims, method, results and conclusions.

Sport-specific examples of choking

Some researchers have suggested that there are sport-specific forms of choking that can have more long-term implications for performance. These sport-specific examples have included 'dartitis' (darts), in which the player is unable to release the dart, 'the yips' (golf and cricket), in which the golfer is unable to sink even

simple putts and the cricket bowler is unable to bowl, often either completely losing his or her technique or being unable to release the ball, and 'lost move syndrome' (acrobatic sports such as diving, gymnastics and trampolining), in which previously learnt and often simple skills can not be performed.

Bawden and Maynard (2001) examined the yips in cricket, concluding that the mechanisms associated with this condition represent an extreme form of choking which is constantly reinforced by poor performance and thus becomes a chronic performance problem. Similarly, Day *et al.* (2006) examined lost move syndrome in trampolinists, finding that the loss of skill in competitive trampolinists was often linked to an over-analysis of the skill, an increase in negative cognitions and a switch in attentional focus. Consequently, although choking most often occurs during a crucial match or at a crucial moment, there is some evidence to suggest that specific sporting movements may suffer from a long-term switch to conscious processing, resulting in a more chronic form of choking.

Is it possible to prevent choking?

Now that we have gained an understanding of why choking may occur it is also important to consider whether there are any strategies that can be put in place to prevent an individual from choking. Here we focus on three main strategies: the type of learning, distractions and pre-performance routines.

Skill acquisition: implicit versus explicit learning

First, let us go back to the conscious processing hypothesis to examine whether it is possible to prevent choking. According to Masters, skill disruption will be less likely if the skill has been learned implicitly. Implicit learning means that skills have been gained using very few instructions or rules. Thus the gymnast using implicit learning to perform a handstand is able to develop this skill without being instructed on where to place his or her hands or how much force with which to kick up his or her legs. Instead they are able to learn by trial and error, experiencing what works and what does not until they are able to master the skill. On the other hand, explicit learning uses instructions and rules to teach an individual how to perform the skill. Thus the same gymnast may be shown the precise hand position for a handstand and taught how to kick up to a straight position. The explicit learner would be aware of facts and rules of how to perform the skill and would be able to articulate these. The implicit learner would 'know' how to perform the skill but would be less aware of the mechanics by which this is done and would therefore be less able to articulate these. Try to think back to how you learnt the skills of your sport; was this explicit or implicit learning? Masters suggests that we learn skills by following the basic rules of skill execution and as we progress these skills become more automatic. Increased pressure, however, makes us become more conscious of skill execution and we revert back to the rules by which we originally learnt the skill. The more rules we used to learn the skill the more chance we have of choking. Masters' suggestions about the role of implicit versus explicit knowledge when placed under performance pressure demonstrates that as we become well practised at a skill we become more autonomous at performing that skill.

When the skill is well-learned we do not need to focus on the mechanics of carrying out the skill and are able to perform the skill with very little conscious attention. We have therefore progressed from a cognitive through to an autonomous stage (Fitts and Posner, 1967). However, an increase in performance pressure causes us to revert back to conscious processing. Masters (1992) suggests that skills that have been

learned implicitly will be more robust under pressure, whereas skills that have been learned explicitly will be more vulnerable to the effects of pressure and may therefore suffer performance decrements. This is because under pressure the individual will begin to think about how he or she is executing the skill and will attempt to perform the skill with his or her explicit knowledge of its mechanics. Masters suggests that if explicit learning is minimised in the skill acquisition phases when progressing from novice to expert then the athlete will have less conscious knowledge of the rules for executing the skill and therefore will not be able to reinvest this knowledge when put under pressure. Consequently the athlete will be less likely to choke in high pressure situations. Further reading on this idea can be found at the end of the chapter.

Ironic mental processes

Research has clearly demonstrated that focusing on the skill mechanics while performing a skill is detrimental to performance, suggesting that we should encourage an athlete to adopt an external focus in all high pressured situations. However, ironic mental processing suggests that this may not be such a simple solution. Wegner (1989) suggested that controlling thought processes is often more difficult than it seems. The act of exerting mental control may occasionally cause the athlete to dwell on the very thought or action that she or he was trying to avoid. Thus the footballer who consistently misses penalty kicks may try not to dwell on previous performance mistakes, yet find himself inextricably obsessed with the possibility that the next penalty may also be missed. Thus the term 'ironic mental processes' refers to the tendency to feel, act and think in a way that is opposite to the intended direction of emotion, behaviour and cognition. This means that telling our footballer not to concentrate on the position of his foot when taking a penalty may lead to an increased focus on the very thought that he was trying to avoid. Further suggested reading on this process can be found at the end of the chapter.

Reducing choking: distractions and pre-performance routines

Within choking studies, researchers have generally found that using a dual task reduces the likelihood of self-focusing and improves performance under pressure. Such tasks have included random alphabet letter generation every 6 seconds (Jackson *et al.*, 2006) and counting backwards in multiples of two (Lewis and Linder, 1997). Completing such tasks is proposed to distract the athlete from self-focusing by providing them with an alternative task. Given results from these studies it could be proposed that asking athletes to complete similar tasks at crucial moments of performance would limit the risk of choking. However, in actual competition it is unrealistic to expect athletes to verbalise the alphabet or count backwards.

Instead, Mesagno *et al.* (2008) suggest that using a pre-performance routine could alleviate the effects of choking. Using a ten pin bowling task, participants were trained in a pre-performance routine that involved a series of physiological, psychological and behavioural steps. This training included modifying optimal arousal levels, behavioural steps, attention control and cue words. During a high pressure condition participants improved in accuracy when using the pre-performance routine. Qualitative results also indicated that participants were able to reduce self-awareness and decrease conscious processing when using the pre-performance routine. Mesagno *et al.* (2009) published a similar experiment in which a music intervention was used instead of a pre-performance routine. Again, participants improved their performance with the use of the music intervention. These studies demonstrate that both pre-performance

routines and music can be used as intervention techniques to reduce self-focus and to minimise explicit monitoring, which may in turn reduce the likelihood of choking.

Chapter Review

At the start of this chapter we defined the term choking under pressure (Learning Objective 1) categorising it using two main factors: the occurrence of inferior performance and the striving of the individual to achieve a personally significant goal. We also outlined three potential situations in which choking is most likely to occur in sport (Learning Objective 1). Following this we identified two main theoretical explanations for choking: the conscious processing hypothesis and the catastrophe theory (Learning Objective 2). We outlined that catastrophe theory explains choking by examining the relationship between cognitive anxiety and physiological arousal. In contrast, the conscious processing hypothesis posits that choking is caused by an increase in performance pressure that may cause the individual to revert to consciously monitoring their movements while performing the skill. We discussed two approaches to the role of dispositional levels of self-consciousness in choking (Learning Objective 3). After reviewing the research evidence we acknowledged that although Baumeister's experiments indicated that low self-conscious individuals will be more likely to choke, the sport psychology literature has shown more support for Masters' proposal that high self-conscious individuals will be more susceptible to choking. Finally, we examined how we might be able to prevent choking under pressure. In discussing this we outlined what is meant by ironic mental processes and explicit learning and why these may cause difficulties for an individual who is choking under pressure (Learning Objective 4). Nevertheless we were able to identify potential strategies for reducing the likelihood of choking in sport such as pre-performance routines and the use of music (Learning Objective 5).

Learning Activity 10.4

Test your understanding

1. Explain what is meant by the term choking under pressure and identify when this is most likely to occur in sport.
2. Outline why choking occurs in sport using two theoretical perspectives.
3. Identify why some individuals may be more susceptible to choking than others.
4. Outline possible methods of reducing the likelihood of choking and identify possible barriers to their effectiveness.

Further Reading

Janelle, CM (1999) Ironic mental processes in sport: Implications for sport psychologists. *The Sport Psychologist*, 13: 201–220.

This paper provides a clear outline of theory on ironic mental processes in sport.

Masters, RSW (1992) Knowledge, knerves and knowhow: The role of explicit versus implicit knowledge in the breakdown of a complex motor skill under pressure. *British Journal of Psychology*, 83: 343–358.

This paper details Masters' experiment in which participants developed a golf putting skill either explicitly or implicitly and were then tested in stressful conditions.

Mullen, R and Hardy, L (2000) State anxiety and motor performance: Testing the conscious processing hypothesis. *Journal of Sports Sciences*, 18: 785–799.

This paper extends Masters' earlier experiment by also examining Eysenck's (1992) processing efficiency theory.