It is commonly accepted that mental preparation for athletic pursuits is essential for best performance, and that athletes generally perform better with knowledge and application of psychological principles and strategies. The primary goals of sports psychology are to describe, explain and predict the attitudes, feelings and behaviour of sports participants, including athletes, coaches and even spectators. This chapter explores how sports psychology has been used to:

- prepare athletes for major competitions
- help reduce tension and stress that has caused a decline in performance
- help an athlete maintain high-level performances over a long period of time.

In developing a positive state of mind, the critical factors are:

- motivation
- personality
- aspiration
- anxiety and arousal.
Motivation

Motivation can be defined as that which induces a person to behave in a particular way. This behaviour can be either positive or negative. Motivation is the drive towards a goal. It is what keeps a person striving for success.

Motivation is very important in both improving and maintaining athletic performance in an individual. Without motivation individuals will not be as disposed to attend all training sessions, will not train with full intensity at these training sessions and will not perform at the highest standard they are capable of during competitions. Consider swimmers who have to attend training sessions on most mornings of the week and then again after school or work in the afternoons. Without effective motivation they will train less often, miss training sessions or apply less effort during their training sessions. This will lead to lower levels of fitness and skill and a decrease in their performance at the upcoming swim meets.

Motivation can be categorised in different ways.

Positive and negative motivation

Positive motivation is the recognition, praise and (possibly) reward of good performances. It is an important aspect of training. The athlete is motivated to reproduce this performance to receive the rewards.

Negative motivation is the feedback athletes receive when coaches, parents or friends consider a certain aspect of their behaviour to be unacceptable or substandard. This causes athletes to avoid this type of behaviour for fear of...
negative reactions by others. An example of this type of motivation can be seen when coaches drop players to a lower grade when they fail to perform.

Although both forms of motivation are used in sport, coaches need to carefully assess all players and treat each player individually. Because of personality differences, individual players respond differently to positive and negative motivation. If motivation techniques are used incorrectly, they can lead to a decline in performance. Positive motivation is usually more acceptable to most athletes and is a more sustainable technique than negative motivation. It is also more successful in improving and maintaining motivation than negative approaches.

Motivational influences on behaviour can come from internal (intrinsic) or external (extrinsic) sources.

### Intrinsic and extrinsic motivation

**Intrinsic** forms of motivation come from within the individual; that is, the individual is personally concerned about his or her performance and is motivated to higher levels by a need for satisfaction. The satisfaction may come from greater fun, enjoyment or competence, and is not necessarily related to any external measuring factor, such as trophies or public recognition. Rather, it is the personal knowledge that the individual has done his or her best. Such intrinsic motivation is a powerful motivational tool. An example of intrinsic motivation is the athlete who continues to finish a race despite knowing that there is no chance of winning. The desire to finish satisfies a personal need. This self-satisfaction with the performance is often referred to as *internal reinforcement* and ensures that this type of behaviour will occur again.

Without some kind of *reinforcement* for effort the athlete will always find it difficult to maintain motivation. Reinforcement is the reward that encourages the athlete to continue to apply effort. There are two types of reinforcement: positive and negative. *Positive reinforcers* are occurrences that serve to produce the desired response; for example, receiving a trophy. *Negative reinforcers* serve as reinforcers when they are withdrawn; for example, the athletes’ knowledge that they will not receive 100 push-ups if they refrain from talking during training.

**Extrinsic** forms of motivation are often associated with *material reinforcement*. These external forms of material reinforcement might include money, trophies and recognition. They serve to reinforce a particular behaviour. Examples of such extrinsic rewards are the financial payments given to professionals in return for their services.

Intrinsic and extrinsic motivation coexist for an athlete, and an important coaching skill is an understanding of what motivates athletes.

*Social reinforcement* means that the reinforcement occurs in front of others; for example, teammates, parents and/or the audience. An example of positive social reinforcement is recognition and approval from the coach in front of teammates at a game. Negative social reinforcement would be disapproval and rebuke in front of teammates at the game.

**Figure 6.2** Negative social reinforcement can motivate players to perform at their best


**Practical application**

**Motivation and reinforcement**

View the YouTube video featuring golfer Tiger Woods (see above). Describe the types of motivation and reinforcement he is receiving.

Personality

Personality is a critical factor in performance. Different personality types deal with motivation, arousal, anxiety, goal-setting and psychological techniques in different ways. Consequently, personality traits are closely linked to arousal and performance. In recent years, much attention has been placed on identifying the specific personality traits that enable an athlete to function optimally, whether as an individual or in a team. Central to this is the aspiration of the athlete.

Aspiration

Aspiration is the athlete’s ambition to succeed. It is therefore a critical factor in success. Not all personality types are well-suited to striving to achieve ambitions. In many instances, aspiration causes high levels of anxiety. The terms ‘anxiety’ and ‘arousal’ are often used interchangeably. However, they are not synonymous. They are measured differently, and different techniques are used to regulate each.

Anxiety and arousal

Anxiety is an emotional response to a perceived threat. Arousal, on the other hand, can be defined as the emotional, mental or physiological activation required to produce a response.

Anxiety reflects a person’s feelings and is a heightened level of emotion that causes physical and psychological discomfort. A person who is worried about an examination might have trouble sleeping. An athlete might have a fear of failing or a fear of being judged. In such circumstances, the athlete might:

- feel threatened
- be unable to think clearly
- exhibit physiological responses
- seize up
- suffer the ‘choking phenomenon’ (the inability to perform to previous standards or expectations because of pressure).

Critical inquiry

1. Read the case study below.
   Sarah is a very talented hockey player and has received a scholarship to the Australian Institute of Sport. To retain her scholarship Sarah must train hard during the off-season to improve her strength and aerobic fitness. Her coach has also suggested that she plays in a summer league to maintain her skills. Upon her return at the start of the year Sarah has played quite well, but has not lived up to expectations. She seems lazy and disinterested at practice, and her school work also has deteriorated.

   b. Propose a range of motivational strategies that could be employed to improve Sarah’s level of motivation.

Research and Review

1. Investigate the type of motivation used by current professional athletes.

2. Imagine you are an under-10s soccer coach. Describe the type of reinforcement you would provide to your players.

Figure 6.3 Anxiety will be felt by a basketball player before an important free throw.
Trait and state anxiety

It is common to distinguish between ‘trait anxiety’ and ‘state anxiety’.

**Trait anxiety** (‘A-trait’) is the athlete’s general predisposition to perceive a situation as threatening or non-threatening. This is a personality trait. Those who display high levels of trait anxiety usually perceive more situations as threatening than those who have low levels of trait anxiety.

**State anxiety** (‘A-state’) refers to the emotional response of the athlete to a particular situation. This response might be fear, worry, tension, nervousness or apprehension.

A-state might be controlled by managing the athlete’s situation, whereas A-trait must be controlled by the athlete as it exists within the athlete.

Two important variables in performance are:

- the importance of the situation to the individual
- the uncertainty of the outcome of the situation.

Both these factors have a direct impact on state anxiety and trait anxiety. The relationship between the individual and the situation—and the effects of these on anxiety and performance—highlight the role and importance of personality and its impact on the aspiration of the performer.

Athletes with high A-trait have an underlying tendency to react in a certain way (with high levels of anxiety) when confronted with stressful information. In contrast, an athlete with low A-trait but high A-state will appraise the present situation first. The athlete will then make a judgment as to whether this particular situation is threatening. Athletes with high A-trait will probably become more anxious before a competition (and might experience acute illness) than will athletes with low A-trait. The athlete with high A-trait will also tend to demonstrate A-state reactions beyond that which is necessary, given the nature of the situation.

A-state and A-trait can be measured using inventories or questionnaires. Athletes are scored on a continuum for each, depending on their responses.

Sources of stress

**Stress** is the non-specific response that the body makes to demands placed upon it. Stress can be good or bad, but the physiological reactions in the body are basically the same. When athletes compete, they might experience too much stress (hyperstress), too little stress (hypostress), ‘good’ stress (eustress) or ‘bad’ stress (distress). Stress is very closely linked to state anxiety.

Stress can come from internal or external sources, which might or might not be under the direct control of the performer. Table 6.1 lists some of the sources of stress on performers. Because individuals vary, what one person finds stressful, another might not.

**Table 6.1  Sources of stress**

<table>
<thead>
<tr>
<th>Under the athlete’s control</th>
<th>External stress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal stress</strong></td>
<td></td>
</tr>
<tr>
<td>Self-esteem, self-confidence</td>
<td>Skills</td>
</tr>
<tr>
<td>Fear of success or failure</td>
<td>Reactions to opposition</td>
</tr>
<tr>
<td>A-state</td>
<td>Focus on event</td>
</tr>
<tr>
<td>Personal expectations</td>
<td>Aspects of environment</td>
</tr>
<tr>
<td>Mental rehearsal</td>
<td>Planning</td>
</tr>
<tr>
<td>Coping style</td>
<td></td>
</tr>
<tr>
<td>Appraisal of situation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not under the athlete’s control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal stress</strong></td>
<td></td>
</tr>
<tr>
<td>Injury</td>
<td>Audience, spectators</td>
</tr>
<tr>
<td>Illness</td>
<td>Media</td>
</tr>
<tr>
<td>A-trait</td>
<td>Expectations of others</td>
</tr>
<tr>
<td>Previous success/failure</td>
<td>Environment (weather, field, referee)</td>
</tr>
<tr>
<td></td>
<td>The opposition</td>
</tr>
</tbody>
</table>

practical application

Anxiety and arousal

1. Complete the sport competition anxiety test (SCAT) questionnaire (see above).
2. Analyse the questions being asked and outline the reasons for their use.

WEB

The SCAT questionnaire that is required for the task can be accessed via www.oup.com.au/pdhpe12
More experienced and skilled athletes use techniques to cope with stress before, during and after events. Methods used by performers to cope with sport-related stress include:

- practice
- planning
- refocusing
- blocking out
- concentration
- anxiety and arousal control
- mental rehearsal.

Some of these skills can also be transferred to everyday life.

**Optimum arousal**

Arousal levels and performance are directly linked to motivation. In terms of sports performance, arousal refers to the degree of energy release and the intensity of readiness of the performer. This varies on a continuum from deep sleep to high excitement. The arousal levels of athletes can be measured by heart rate, respiration, muscle tension, skin temperature and brain wave activity. Arousal has also been called drive, activation, readiness or excitation, and is a requisite for optimal sports performance. The level of arousal can be measured in relation to performance.

Attempts have been made to explain, theoretically, the relationship of arousal to performance. The first theory was Clark Hull’s (1943) drive theory. This theory assumed a direct relationship between arousal and sports performance. This meant that the possibility of the desired response occurring increased with higher arousal levels. This theory is not viable for all sports and can be applied only to simple motor tasks, not to complex ones.

Another theory, the inverted U theory was suggested. According to this theory, for optimal performance to occur, the individual must attain a moderate level of arousal. Optimal doesn’t mean maximal; too little or too much arousal leads to a decline in performance. This theory takes into account the complexity of the task, and is useful in many situations. However, it fails to explain why, how or when arousal affects performance.

An example is an athlete whose high anxiety affects performance but whose drop in anxiety does not bring about improved performance, as the inverted U would suggest. Many factors other than anxiety will inhibit performance, so decreasing anxiety will not always lead to a better performance.

![Inverted U theory and drive theory](image)

**Critical inquiry**

1. **Explain** why different sports require different levels of arousal for optimal performance to occur (see Figure 6.5).

2. A number of other theories predict a relationship between performance and arousal. **Distinguish** these from the inverted U theory.

![Applications of the inverted U theory](image)
Alternative theories

There are so many individual variations in anxiety level that measuring a performer’s optimal level of arousal is almost impossible, especially using just one theory (such as the inverted U theory). Alternative theories need more research but might provide further explanation of optimal levels of arousal.

Zone of optimal functioning theory

The zone of optimal functioning (ZOF), which was proposed by Yari Hanin in 1980, is one alternative theory. It suggests that a simple formula can be applied to measure the optimal arousal level of performers.

Catastrophe theory

The catastrophe theory, proposed by John Fazey and Lou Hardy in 1988, also questions the inverted U theory by suggesting that the relationship between stress and performance is not symmetrical. That is, after an athlete reaches an optimal level of arousal, if the athlete continues to be anxious and aroused his or her performance will decline dramatically. The theory addresses how performance is influenced by physiological and cognitive factors of arousal. It also notes that performance in sport is rarely predictable.

Flow theory

The flow theory, put forward by Mihaly Csikszentmihalyi in 1975, suggests that an optimal performance can be achieved when the performer’s mind is totally absorbed in the task being undertaken. The flow experience is an interaction between skill and the level of challenge. The flow experience is more likely to occur when a performer is highly skilled and personally challenged by the situation. Supporters of this theory use an inventory to determine the individual’s flow state scale (FSS). Nine characteristics of the flow state, and also factors that facilitate its occurrence, have been identified.

Reversal theory

The last of the alternative theories is the reversal theory (Michael Apter 1982). This theory places the athlete’s interpretation of arousal as central to explaining and predicting the effect of emotions on performance. The reversal theory contends that high arousal can be seen as either excitement (pleasant) or anxiety (unpleasant). Similarly, it contends that low arousal can be considered as relaxation (pleasant) or boredom (unpleasant). The quadrant illustrated in Figure 6.6 explains this in terms of a continuum. Consider the example of a task that initially is seen as dangerous or risky and causes heightened arousal (anxiety) but, upon being mastered, elicits excitement. There has been a reversal in the emotional response to the task.

It is ultimately the responsibility of the athlete and coach to determine the optimal arousal level for competing in a particular event because these theories might not provide full explanations. These theories might help to explain some responses, some of the time, but often individuals will need to determine for themselves the difference between feeling ‘up’ and feeling ‘uptight’. Such responses will also vary from time to time, based on individual and environmental factors.

**Figure 6.6** Arousal–stress continuum of the reversal theory

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**practical application**

**Optimum arousal**

Construct a graph or diagram to explain each of the four alternative theories described here.
Strategies to enhance motivation and manage anxiety

In the sporting arena today, there are only minute differences in the skills of top-class athletes, such as levels of strength, speed and endurance. Also, most athletes now have a sound knowledge of diets, training techniques and equipment, and this has eroded the advantage that some athletes used to have. So the edge given by psychological preparation might be the difference between winning and losing or the difference between gold and silver. The ability to manage anxiety and maintain motivation for training and performance is critical if the individual is to maximise his or her results in competition. All athletes can benefit from developing specific mental plans and from practising mental strategies and skills.

Concentration/attention skills

Often, during practice or competition, players will hear someone say to them: ‘Keep your eyes on the ball’, ‘Watch the ball into your hands’ or ‘If it’s not in the strike zone don’t swing’. Such comments are intended to make the player focus attention on the task at hand. By improving the ability to focus on relevant cues and to ignore irrelevant ones the individual will be able to improve his or her performance.

Attention describes the process whereby individuals use their senses to perceive what is going on around them. Attention involves taking control of the mind and, with clarity, focusing on what is important. It might mean withdrawing concentration from one thing to focus on another. Terms commonly used when describing attention include ‘alertness’, ‘focus’, ‘selectivity’, ‘arousal’, ‘consciousness’, ‘mental state’ and ‘concentration’.

Attention can be considered as a mental process that is:
- selective—can focus on some things, but not others
- shiftable—can change voluntarily or involuntarily
- divisible—can maintain more than one focus at the same time.

The ability of an athlete to attend to appropriate stimuli during competition is called attention, focus or concentration. It involves focusing attention on relevant environmental cues, and maintaining that attention. The performer will need to adjust focus at various stages during a competition. For example, what cues are relevant or irrelevant when a rugby union goal-kicker is taking a kick for goal? Relevant cues might be ensuring that the kicker goes through the usual pre-kick routine of take five steps back, take two steps to the side, look at the posts, look at the ball, tap the right boot twice on the ground, put the foot beside the ball, head over the ball, and so on. Irrelevant cues might be the crowd behind the goal posts, the players running towards the kicker to ‘charge down’, and the score. The ability of the kicker to focus on relevant cues and to filter out all extraneous noise and movement is critical to the execution of this skill. Attention involves the use of all senses: sight, sound, smell, touch and feel.

Research and Review

1. Explain how anxiety and arousal differ physiologically and psychologically.
2. Identify the limitations of the inverted U theory.
3. Describe the advice you would give to an under-aroused athlete and to an over-aroused athlete.
4. a. Identify some causes of state anxiety in sport.
   b. Describe four coaching strategies to reduce state anxiety.

Figure 6.7 Maintaining focus is important when performing under pressure
Two different dimensions of style of attention were identified by Robert Nideffer in 1976. They are width and direction. As indicated in Figure 6.8, the width dimensions of attention range from narrow to broad, and the direction dimensions range from internal to external. Four types of attention are therefore possible, as shown in Figure 6.8. The amount of information and environmental field that an athlete tries to perceive can be broad (a lot) or narrow (a little). The athlete can focus either on stimuli from sources that are internal (one’s own thoughts and cues) or on those that are external (such as environmental cues and one’s opponent). Measures of attention and focus exist, but these are generally better able to measure width than direction. Measurement is also difficult because sports vary markedly. Listed in the Critical Inquiry task on page 124 are some particular attention and focus skills of a few sports and activities. A flexible style seems to be the predominant feature.

How does a marathon runner stay focused for two to three hours while competing? Surely the runner doesn’t need to concentrate for the whole time? Elite marathon runners have two possible strategies to maintain concentration: associative and dissociative. Associative attention strategies involve the performer concentrating on bodily functions and feelings (for example, heart rate, breathing and muscle tension). Dissociative attention strategies, on the other hand, require the athlete to concentrate on external cues (for example, people, cars and the course) rather than those occurring in his or her body. Being a “dissociator”—one who “tunes out” to body cues—might cause problems later in the race when the athlete is extremely tired.

**Figure 6.8** Characteristics of the four types of attention

- **Broad–External**
  - Peripheral awareness
  - Ability to read and react to the environment
  - Good at scanning, picking the open teammate
  - A requirement in open skill team sports

- **Narrow–External**
  - Focused targeting
  - Ability to block out distractions and remain focused on specific ones
  - Will stick at a task for long periods
  - Typical attentional focus for target sport athletes

- **Broad–Internal**
  - Analysis, problem solving and creative thinking, planning
  - The strategists and ‘thinkers’ in sport
  - Good at competition planning, developing an alternative plan of attack, debriefing

- **Narrow–Internal**
  - Ability to focus on a single thought or idea and stay with it
  - Enhanced kinaesthetic (body) awareness
  - Often an indication of dedication and capacity to follow instructions, to stick to a game plan
Mental rehearsal/visualisation/imagery

Mental rehearsal

The ability to picture a performance or aspects of it is a skill that will enhance performance. Mental rehearsal, visualisation and imagery are used by athletes to manage and reduce anxiety during a performance.

Mental rehearsal occurs when a performer rehearses in his or her mind the physical skills that the performer wishes to practise. In this process, there is no visible physical movement. The process involves imagining the performance, and rehearsing the activity in the mind, in an attempt to prepare the mind and body for competition. Through extensive practice, performance can be enhanced. A key feature of mental rehearsal is that it can often replicate the feelings of anxiety the individual will experience during the performance while allowing the individual to visualise success. This provides the athlete with a positive frame of mind for competition.

Mental rehearsal has been found to be effective both in the acquisition of new sports skills and in the performance of well-learned skills. Many studies have found that a combination of mental and physical practice results in better performances than mental or physical practice alone. Mental rehearsal allows the athlete to:

- practise old skills
- learn new skills
- gain confidence
- feel the experience
- experience success
- control anxiety and arousal levels
- train in any conditions
- find motivation
- concentrate and refocus
- prepare for training or competition
- develop coping strategies
- change self-image.

It is believed that mental rehearsal works because imagining an action creates electrical activity in the muscles involved in the movement, and the muscle is thus actually contracting without visibly moving. Mental rehearsal also allows the brain to work out problems and propose alternative solutions and decisions. Good mental imagers not only see the image, they also feel it.

Guidelines for mental rehearsal include the following:

- Mental rehearsal should occur in the performance environment to include environmental cues in the imagery.
- The rehearsal should be of the total performance or of those sections that are particularly difficult for the athlete.
- The mental rehearsal of the performance should be successful in order to reinforce success.
- The rehearsal should occur immediately before performance in an attempt to focus the athlete.
- The actions and imagery should occur at the same rate as they do in the real performance to reinforce the specificity of the activity.
- The athlete should imagine the feelings in the muscles as the mental task is performed because this will provide the body with the correct pattern of functioning.

Figure 6.9 Mental rehearsal should occur immediately before performance in an attempt to focus the athlete.
Visualisation and imagery

Visualisation, or mental imagery, is a mental rehearsal technique that involves the participant creating a picture of one aspect of performance in his or her mind. This makes it different from mental rehearsal, which involves rehearsal of the whole performance. The picture might be an 'internal' picture (with the athlete imagining what it looks like from the athlete's perspective as the performance unfolds) or an 'external' picture (with the athlete imagining the crowd's perspective of the performance). It is also possible to visualise a picture other than one of the actual performance. The picture might be of the environment at the event, of a safe and secure place or of the moment of victory.

Visualisation may also involve the individual focusing on just one aspect of the skill, such as a diver seeing himself or herself leaving the board in a certain way. This process can happen immediately prior to the performance. It will improve the confidence of the diver because in his or her mind the dive has begun successfully. A high jumper may use mental imagery to focus on clearing the bar or planting the take-off foot before attempting the jump.

Anything can be visualised, but not all people find it easy to visualise. First, the person must believe that the strategy is effective. Second, it is a skill that requires practice, patience and time — and might require practice every day.

Imagery can be used to help athletes ‘switch on’ or ‘switch off’; that is, to arouse or relax them. Clear, vivid imagery can assist a person to:

- see and experience success
- refocus (before or during an event)
- practise skills
- prepare for a performance
- motivate
- perfect skills
- familiarise.

As athletes develop and practise their mental rehearsal and visualisation skills their level of performance will improve. As their technique improves, so will their concentration and attention skills. They will gain greater confidence in their ability to perform well. In addition, the neural connections (nerves) between the brain and the muscles that are required to create the movement will improve.

Relaxation techniques

Relaxation techniques are often used by sports performers to calm themselves, thereby decreasing anxiety and controlling arousal. An astute and experienced performer will be able to relax in stressful situations and to respond with composure (control and calmness) without becoming under-aroused. Relaxation can be useful before, during or after an event and

Critical inquiry

Copy Figure 6.10. Place the letter or number of each of the following sports and coaching skills in the appropriate quadrant of the diagram. Figure 6.8 (page 122) may help you in this task.

**Sport skills**
- Tackling in football
- Putting in golf
- Psyching up for the game
- Rebounding in basketball (when the ball has hit the rim)
- Listening to instructions
- Planning a gymnastics routine
- Executing a gymnastics routine
- Running a marathon

**Coaching skills**
- Developing a game plan
- Helping an athlete correct an error
- Listening to a player
- Deciding how to respond to an official’s bad call
- Delivering a speech
- Analysing your competency as a coach
- Giving directions at the beginning of practice
- Resolving a conflict with a player


Figure 6.10  Analysis of attention
practical application

Mental rehearsal and imagery

1 Perform this task as a class group.
   a Propose a suitable practical experiment to test the effects of mental rehearsal on athletic performance.
   b Carry out the experiment, tabulating the scores.
   c After completion, construct a graph of the results.
   d Discuss any differences between the results.

Here is an example of a suitable experiment:

- Three groups perform a number of basketball free-throw trials. The first group undertakes physical practice only, the second group undertakes mental practice only and the third group uses a combination of physical and mental practice.
- Group 1 (physical practice) performs 50 free throws in a row.
- Group 2 (mental practice) engages in a 10-minute mental rehearsal session on free-throw shooting, and then shoots 50 free throws.
- Group 3 (mental and physical combination) engages in a 10-minute mental rehearsal session, and then shoots 25 free throws. The group then engages in another 10-minute mental rehearsal session, followed by the final 25 free throws.

2 Assess your own imagery skills by completing the following task. Select a specific skill or activity in a sport you play. With no one else present, imagine yourself performing the skill or activity at the place where you usually perform it. Close your eyes and, for 2–3 minutes, try to see yourself at this place. Hear the sounds, feel the body movements and be aware of how you feel. On a scale of 1–5 (with 1 being very poor and 5 being very good), assess how well you did each of the following:
   a saw yourself performing the activity
   b heard the sounds of performing the activity
   c felt yourself performing the activity
   d were aware of your mood
   e were able to control your image.

usually precedes a mental imagery session. As with mental rehearsal, visualisation and imagery, it must be practised so that it becomes a natural response.

There are a number of relaxation techniques and they usually have one or more of the following characteristics:
- procedures for tensing and then relaxing muscles
- a focus on breathing
- a focus on feelings of heaviness and warmth
- mental imagery.

For most sessions, the person needs to sit comfortably or lie down. Sessions should be performed regularly and frequently—two or three times per day. Four factors are necessary to elicit a relaxation response. They are:
- a quiet environment
- a positive attitude
- decreased muscle tension
- a relaxation device or procedure.

There is a number of relaxation devices and procedures, including progressive relaxation, autogenic training, meditation, biofeedback and hypnosis. Each procedure is explained below. Each procedure differs from the others, but they all produce essentially the same result: calmer, more relaxed performers who feel positive about the next bout of exercise. When athletes become relaxed they are better able to put their performances in training and competition into perspective. They will be less worried about the results and will be better able to focus on the performance. This will make them less anxious and more motivated, which ultimately will improve their performances.
Progressive relaxation

*Progressive relaxation* involves the systematic tensing and then releasing of muscles. If all muscles are relaxed, it is impossible to experience feelings of stress and tension.

The following is one progressive relaxation technique:

1. Make a fist with the right hand and squeeze tightly for 5–7 seconds.
2. Concentrate on being aware of the strain in the back of the hand and up the arm.
3. Let the hand relax completely, and feel the difference.
4. Continue the process using other individual muscle groups.

By concentrating on each muscle group in a similar manner, the person becomes progressively better at relaxing. Eventually the person is able to relax the muscles without first tensing them; sometimes a ‘cue word’ is enough to produce the feeling of relaxation. This technique is particularly useful for neck and shoulder tension, tension headaches and tight jaw muscles.

**Autogenic training**

*Autogenic training* relies on using self-suggestion to generate feelings of heaviness and warmth in the muscles. The limbs will feel heavy because of lack of muscle tension and they will feel warm because the blood vessels dilate. Autogenic training is composed of three basic parts:

- the creation of the feelings of heaviness and warmth—the most important part of the process
- the use of imagery of relaxing scenes accompanied with the feelings of heaviness and warmth
- the use of specific themes to assist in bringing about the relaxation response; for example, self-statements that the body is totally relaxed.

Meditation

*Meditation* involves total concentration on a word, phrase or image—often called a ‘mantra’. This concentration frees the mind from distracting thoughts that might have caused stress. Meditation gives the body time to relax and recuperate after stress or physical activity.

Biofeedback

*Biofeedback* uses instruments that measure changes in bodily functions. These give athletes better control of these changes because it makes them aware that the changes have occurred. The instruments can measure changes in skin temperature, sweating, heart rate, breathing, muscle activity and brain waves.

For example, a heart rate monitor alerts the person to a fast heart rate, and the person then concentrates on lowering the heart rate by relaxation and similar means. Performers can use the instruments in training, and can develop skills to control feelings of anxiety or arousal. The same strategies can be applied in the competitive environment to relax. Biofeedback is a very effective relaxation tool. The main drawback is the expense of the equipment.

Hypnosis

*Hypnosis* is the creation of a sleep-like condition in cooperation with another person. It is used to induce a state of deep relaxation, and has some similarities to autogenic training and meditation.

**Figure 6.11** Meditation involves total concentration and can relieve stress
practical application

Relaxation

1. Conduct the following relaxation activity with your class. The activity should be conducted in a quiet place. The participants must believe that the relaxation will occur, and that it is useful.

   a. Lie down comfortably on your back and close your eyes.

   b. Deeply relax all the muscles in your body, beginning with your toes and progressing up to your face. Make all your muscles feel very heavy and totally relaxed.

   c. Breathe through your nose and become aware of your breathing. As you breathe out say the word ‘one’ silently to yourself. Every time that you breathe out say ‘one’. Continue for 20 minutes.

   d. When you have finished, open your eyes slowly and lie still for a few more minutes.

After the activity, design a mental imagery activity to do as part of this relaxation session.

2. Read the case study below, then answer the questions that follow.

   John had been in this situation a hundred times before. It is the final, and he is on the free throw line. The scores are equal, with one shot to come, and 15 seconds on the clock. Suddenly everything freezes. He hears the crowd, and sees the opposition. The hoop is far too small for what appears to be a beach ball that he is now holding. Everything is hazy. He cannot feel his hands. He has 10 seconds to make the match-winning shot.

   a. Explain the physiological and psychological responses that are taking place in John’s body.

   b. Identify what might have caused this situation to arise.

   c. Propose some psychological skills that John could put into action to make this shot successful.

Figure 6.12

Anna Meares won a silver medal at the 2008 Olympics after fighting her way back from injuries suffered in a cycling accident earlier that year.

Goal-setting

Goal-setting for performance can provide motivation, commitment and direction. By having short-term and long-term goals, an athlete is more likely to be motivated and aroused to strive for these goals. These goals will provide a clear aim and, if collectively ‘owned’ (by coach, parent, friend and athlete), will be more likely to elicit a higher level of commitment and direction.

Direction refers to what the athlete wishes to achieve and how the athlete might achieve this. Behavioural goals need to be specific, observable, modifiable, measurable and set in a supporting environment. The athlete needs to be able to assess the achievement of the goals over a period of time and be supported in the pursuit of those goals. It is important that goals be based on the athlete’s own standards, not on those of others. The athlete must feel that he or she ‘owns’ the goals.

Goals serve a number of purposes. These include providing focus, motivation and direction, and helping to produce better results. Goals can be process-orientated (that is, related to the quality of the performance) or outcomes-orientated (that is, related to the result or outcome). They might be based on technical, tactical, psychological or physiological factors. They might be set in the short term or in the long term.

Short-term goals

Short-term goals are goals that can be achieved over a short period of time and that lead the athlete to certain points (‘flags’) that are intricately linked to long-term goals. Short-term goals should be realistic and appropriate and should provide feedback about immediate performance accomplishments. They can be set for a single training session.
session or for days (or weeks) ahead. Short-term goals will often help to achieve long-term goals. Some examples of short-term goals are:

- Train four times per week for the next six weeks.
- Increase weights by 10 per cent every three weeks.
- Work on defence at training tonight.
- Get six rebounds in the game today.
- Engage in the mental rehearsal of a difficult task once a day.

Long-term goals

Long-term goals should reflect where the end-point of training might be. Such goals are focused on what might be possible in a few months time, or in one year or even in four years. Some examples of long-term goals are:

- Secure a top-five position at the competition.
- Represent Australia at the next Olympic Games.
- Represent the region in a chosen sport.
- Receive the Most Valuable Player award.

Successful goal-setting

There are a number of useful principles that can aid both coach and athlete in the formation of goals. These principles include:

- Make goals specific not general.
- Set deadlines, write down the goals and set priorities.
- Provide clear and regular feedback about progress towards the goals.
- Ensure goals are challenging but achievable.
- Make goals flexible.
- Describe goals in behavioural terms.
- Use short-term goals to help achieve long-term goals.
- Make goals performance-orientated not outcomes-orientated.
- Ensure goals are accepted and ‘owned’ by the athlete or team.

As an athlete begins to achieve short-term goals his or her level of motivation will improve. The athlete is more likely to train harder, which will lead to the achievement of further goals. This increased motivation can lead to improved performances by the athlete. Additionally, the athlete will have less anxiety if he or she sets realistic goals. Rather than focusing on any one performance in particular, the athlete will be able to reflect on each performance in relation to achievement of the overall goals.

practical application

Goal-setting

1. **a** Determine a long-term performance goal towards which you can work.
   
   **b** Determine your current level of achievement with regard to this goal.
   
   **c** List three progressively more challenging short-term goals that will move you towards achieving your long-term goal. For each of these three short-term goals:
   - Set a date by which you want to achieve the goal.
   - Describe two actions you could take to help you reach that goal on time.

Critical inquiry

1. **a** Choose a famous sportsperson and gather information about that person’s psychological preparation for competition. Research the following about the person:
   - motivation
   - goals
   - psychological skills used.
   
   **b** Compare your athlete with a classmate’s chosen athlete:
   - What similarities and differences are evident?
   - Why are these evident?
   - How does each athlete’s psychological skills affect his or her performance?

Research and Review

1. **Identify** how improved concentration and attention can improve performance.

2. **Discuss** ways in which mental rehearsal and imagery can be utilised by a golfer.

3. **Distinguish** between the terms ‘outcomes-orientated goals’ and ‘performance-orientated goals’.
Chapter Summary

Motivation can be positive (a reward for a good performance) or negative (a desire to avoid a consequence for a poor performance).

Reinforcement sustains motivation and can include internal reinforcement (pride), extrinsic reinforcement (money) or social reinforcement (praise in front of others).

Anxiety is the emotion felt by an individual when he or she is placed in a stressful situation. It can cause the individual to undergo both physical and psychological changes.

Athletes can experience anxiety when they place themselves under pressure (trait anxiety) or when they are placed into a stressful situation (state anxiety).

Arousal is a measure of how enthusiastic an individual is to perform during an event.

The inverted U theory links under-arousal and over-arousal with a decline in performance. It sees the point between these extremes—where performance is at its peak—as the point of optimal arousal.

A range of psychological strategies can be used to enhance motivation and manage anxiety.

Concentration and attention skills allow the athlete to focus on the task at hand and not be put off by the surrounding events.

Mental rehearsal and visualisation allow individuals to conduct perfect practice in their mind prior to performance, thereby enhancing their ability to physically perform the skills when required.

Relaxation techniques allow the athlete time to calm the mind and focus on the important parts of a performance.

Goal-setting provides the athlete with ongoing challenges regardless of particular results.

Revision Activities

1. Distinguish between mental rehearsal and visualisation.
2. Explain why a state of complete relaxation is not always beneficial for sporting performance.
3. Develop a set of goals for a junior elite netball team that includes fitness, skill level and tactical considerations.
4. a. Identify some causes of state anxiety in sport.
   b. Describe four coaching strategies to reduce it.

Extension Activities

1. Research how athletes from different sports utilise psychological strategies to improve their motivation and control their anxiety.
2. Propose a plan to motivate the individuals in an under-10s soccer team.
3. Rank the following Olympic sports from the one that would benefit from the most arousal to perform to the one that would require the least arousal: archery, tae-kwon do, boxing, sailing, shooting, football, swimming and weightlifting. Outline the reasons for the ranking you used.
4. Undertake at least two of the relaxation techniques outlined in the chapter. Explain the benefits that could be gained by their use.

Exam-style Questions

1. Outline the difference between intrinsic and extrinsic motivation. (3 marks)
2. Identify the sources of stress an athlete may face prior to and during a performance. (3 marks)
3. Describe how optimal arousal can enhance performance. (5 marks)
4. Discuss the effect of motivation on performance. (6 marks)
5. a. Describe the relaxation and goal-setting techniques that can be used to manage anxiety. (4 marks)
   b. Evaluate their effect on performance. (6 marks)