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20.1 Introduction

Motivation is crucial in sports, from professional to recreational forms and including physical education as well as exercising for health reasons. This makes motivation a key aspect of sport psychology. The field of sport psychology involves “research on basic psychological knowledge, on the psychological processes in sports and on the effects of these processes on the sport. This knowledge is used to derive scientifically grounded training and practice for optimising behaviour in the specific sport” (Beckmann & Elbe, 2015, p. 5). There are specific conditions that distinguish sports, especially elite sports, from other areas of life. For example, athletes typically experience high physical load which is combined with large amounts of psychological stress during competitions. Sport psychology research investigates the causes and effects of the stress experience. However, since sport psychology is first and foremost an applied discipline, research ultimately focuses on the development

of interventions to support and optimise behaviour in professional sports, physical education and exercise. Because poor performance is frequently caused by a lack of motivation, a central objective of sport psychology is to explain what causes a lack of motivation and help to improve motivation in athletic contexts. For about 30 years, sport psychologists, just like researchers in other fields, have been aware of the fact that motivation alone is not enough to explain human behaviour. Fitness training and strength and conditioning are not always fun, although professional athletes often push themselves to the brink of exhaustion and have to sacrifice other parts of their lives. Why and how can runners, for example, complete a marathon although their motivation is gone when they hit “the wall” after 21 miles (35 km)? The question of how individuals keep going even if it is exhausting and tiresome with little obvious progress in the short term is a central one for health-related physical activity. Extreme sports are becoming increasingly daring. Why do individuals put their health and even life at stake in such sports? All of these topics are of interest in sport psychology. The topic of motivation relates, for example, to an understanding of the motivation of individuals in health-related fitness or extreme sports, to answer the question of how individuals set their goals to achieve high performances. Volition deals with topics like how athletes manage to concentrate on their activities in spite of fear, stress and exhaustion. This chapter

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focuses primarily on competitive and professional sports. Health-related physical activity will only be addressed briefly.

20.2 Theoretical Background of Motivation

20.2.1 The Central Approach of Motivational Psychology

Since McClelland (1953) modern motivational psychology has focused on incentives. The affect-laden incentives of a positive target state energise and direct behaviour. Incentives attract or “pull” a person towards them in contrast to needs and drives which are assumed to “push” the person (see Chap. 4). In sports such incentives can be perceived in proving competence, e.g. when running a world record or when beating all others and becoming Olympic or world champion. In modern sports financial incentives also play a substantial role, and this anticipation of affective change can constitute the core of this incentive. Athletes anticipate the affect resulting from achieving their goal, e.g. winning a medal, and also strive to restore the affect they associate with a certain outcome based on their earlier experience. This explanation for the emergence of incentives based on anticipated affective changes has been confirmed by more recent neurophysiological and biopsychological approaches (see Beckmann & Trudewind, 1997; Schultz, 2000).

Incentives are a component of motivation associated with the anticipation of obtaining a desired goal state (i.e. the value component in expectancy-value models; see Chap. 5). The majority of motivational research is based on the expectancy-value model (see Chap. 5 in this volume). According to this model, the motivational state is determined by the incentive of the target state (value) multiplied with the probability (anticipation) of its realisation. In his expanded model of motivation, Heinz Heckhausen (1977) describes different relevant forms of expectancies and values. Concretely, there are incentives that are inherent to the activity (intrinsic incen-

tives) and others that depend on the consequences of the activity (extrinsic incentives). The most important forms of expectation include the expectancy of the results of the behaviour, i.e. to achieve certain results with our own behaviour, such as becoming world champion, and the expectancy of the consequences following the result, i.e. that achieving a certain result will lead to the desired consequences, such as becoming famous, scoring well-paying advertisement contracts and so on.

However, these are only the situational aspects of motivation: the potential incentives indicated by a particular situation and how likely it seems that these incentives can be attained. Whether such situational aspects appeal to an individual, however, also depends on personality factors. Not everyone will be interested by the prospect of skiing down a steep slope, and, similarly, not everyone considers demonstrating their skills in front of 70,000 spectators in a football stadium a positive incentive.

Modern motivational psychology thus subscribes to an interactionist approach: the situational aspects of incentives are thought to interact with personality traits. These determinants of motivation found inside the person are called motives and are relatively stable evaluative dispositions for classes of situations that share certain characteristics. Thus, it depends on motives how a person evaluates athletic contexts. Each social motive, i.e. evaluation disposition developed through socialisation, has a positive approach component and a negative avoidance component. For the achievement motive, these components are hope for success and fear of failure, respectively. Motivation is ultimately the result of the product of incentive, expectation and the motive related to the overall theme (here achievement). The resulting motivational tendency which ultimately determines the action taken is the result of the sum of the approach and avoidance tendencies generated by the two components of the motive.

As the above case study shows, everybody working in an athletic context, such as teachers or coaches, needs to consider the various aspects of

Example*Motivational Deficit*

In the early morning, a ski instructor prepares a challenging slalom course for a group of advanced students. The instructor expects that the course will motivate his students. However, unexpectedly, none of his students wants to ski the course. Because all of the students study sports at university and have a high achievement motive (with a much higher hope for success than fear of failure), the teacher assumes that the course should represent a rewarding challenge to them and thus be perceived as an incentive. Consequently, he is surprised to find that his students are not particularly enthusiastic about the course, and some even refuse to ski at all. Later, when talking with the students, he learns that because of the icy conditions, the student's expectation of safely navigating the course is zero. The whole product consisting of motive, incentive and expectation therefore equals zero as well.

motivation, namely, motive, incentive and expectation, equally if they wish to obtain high motivation. The case study highlights an important feature of the motivation formula that is highly relevant to its application: motive, incentive and expectation are multiplied! Thus, the resulting motivation equals zero if only one of the individual factors is zero. In what follows we will have a look at different motives that can play a role in this calculation. First, however, we need to consider fundamental differences between motives.

Summary

The “expectation-times-value” model, whether it might be used in research or in applied contexts, is extremely helpful in order to understand and influence the motivation of athletes. Situational incentives which are influenced by an individual's motive structure and the individual expectations to master the situation are fundamental for the

prediction of motivation in sports. All three aspects need to be considered.

20.2.2 Implicit and Explicit Motives

At the most basic level, motives can be divided into conscious (explicit) and subconscious (implicit) motives (see Chap. 9 in this volume). According to McClelland et al. (1989), implicit motives are inaccessible to conscious introspection and can thus only be measured indirectly. They are based on affect-laden preferences for certain types of incentives and are acquired during early childhood. Because they lack a verbal representation, they cannot be assessed with questionnaires. On the other hand, explicit motives are self-ascribed motives that reflect individuals' self-image, conscious values and goals as well as perceptions of motives. Thus, explicit motives can be measured with questionnaires. While implicit motives are associated with spontaneous and recurring long-term behavioural tendencies, explicit motives tend to predict short-term conscious choices or the conscious setting of goals, e.g. the choice of achievement-related tasks (Brunstein & Hoyer, 2002). Many studies have found no correlation between measures of implicit and explicit motives (e.g. Köllner & Schultheiss, 2014; Spangler, 1992; Thrash & Elliot, 2002).

Measures of explicit motives have so far been dominating sport psychological research and its application (Allmer, 1973; Elbe, 2003; Elbe, Wenhold, & Müller, 2005; Frintrup & Schuler, 2007). However, Gabler (1972) transferred a measure of an implicit motive, Heckhausen's thematic apperception test (TAT) for the achievement motive, to the athletic context a number of years ago, showing that high-achieving swimmers have higher scores of implicit motives than swimmers at a lower achievement level. The achievement motive measured with the sports-specific TAT was positively correlated with the swimmer's performances and amount of exercise, but it did not correlate with

their (explicit) self-reports. Gabler's approach, however, did not result in much consecutive research; this is probably due to how much more time-consuming the TAT is compared to the use of questionnaires.

Recently, research has more clearly addressed the differentiation between implicit and explicit motive measures in sports psychology (Schüler & Wegner, 2015). Findings reported by Wegner and Teubel (2014) suggest that implicit and explicit motives predict different classes of behaviour in the athletic context. In their study sports students' explicit achievement motive was predicted relatively well when distance to a goal in handball and football or to the hoop in basketball was chosen in a performance test. Predictions for the choices were not as good with the implicit motive. However, the implicit motive was a good predictor for performances in competitive contexts in several matches played in these three types of sport, which in turn was not significantly associated with the explicit motive. Wegner et al. (2014) reported similar differences in the prediction of behaviour for the affiliation motive. The implicit affiliation motive was more closely associated with nonverbal social interactions in real competitions, whereas the explicit affiliation motive was associated with verbal exchanges within the same team. Two studies by Gröpel et al. (2015) showed significant differences in the achievement profiles of professional and recreational athletes with both the implicit and explicit achievement motive being stronger in the former group. Additionally research has shown that congruence between implicit and situational conditions in an athletic context can result in higher well-being and a more frequent experience of "flow" (Schüler & Brandstätter, 2013). Schüler and Wegner (2015) also showed that a match between set goals and implicit motives (motive congruence) is positively associated with well-being as well as motivation for upcoming athletic activity. Interestingly, this also holds true for goals set by others, e.g. the goals set by coaches as long as they are congruent with an individual's goals. According to a study by Sorrentino and Sheppard (1978), such congruence can even lead to better performance.

In their study swimmers with a strong affiliation motive performed better if they swam as part of a team (for team success) than when they swam for their own success in a competition. These findings are of high applied relevance for both competitive sports as well as health-related exercise.

Kuhl (2001) stated that positive and negative affect are crucial determinants for the access to one's own personal implicit motives. Thus, negative affect hinders access to the implicit self, personal preferences and implicit goals (cf. Brunstein, Schultheiss, & Grässmann, 1998). The choice of personal athletic goals is therefore strongly dependent on the ability to regulate negative affect. Professional athletes who are under consistent pressure benefit in particular from being able to regulate their negative affect. This ability allows them to constantly pursue self-selected goals and identify which goals are congruent with their motive and which goals are not. Additionally, it seems to be extremely important for health-related exercise to be able to access one's self-system even under stress and pressure (Baumann, Kaschel, & Kuhl, 2005). Positive affect, on the other hand, facilitates access to behaviour. Without positive affect, according to Kuhl, initiative is blocked, and intentions are not translated into behaviour.

20.2.3 Activation

Arousal and activation are extremely important topics in sports. Activation, understood as being ready for competition, is an important prerequisite for successful athletic behaviour. In part, this energisation is generated through the affective cores of incentives. A purely cognitive representation of goals is not sufficient to elicit behaviour. Activation and motivation are sometimes equated in sports (Roberts, 1992). Frequently, an athletes' failures are attributed either to a lack of motivation or to "overmotivation". When "overmotivation" is stated as a cause of failure, it is usually meant that the activation was too high. The 1908 so-called Yerkes-Dodson law on the relationship between arousal and performance is a common

point of reference here. According to this rule, a moderate level of activation is the optimal condition for good athletic performance. Even though the Yerkes-Dodson rule is too simplistic to apply to the relationships in question and must therefore be dismissed as a general rule (Beckmann & Rolstad, 1997), it is still often used by coaches and athletes as a basic guideline for the optimal activation for competitions.

The first shortcoming of the Yerkes-Dodson rule is its one-dimensional conceptualisation of activation which equates activation with arousal. Later approaches differentiate the concept of activation and distinguish it from arousal (Schönpflug, 1993). In the Yerkes-Dodson conceptualisation, activation is seen as a general arousal of the central nervous system. Increases in such arousal are assumed to be helpful if athletes, for example, need to exert strong physical force. But the situation is more complex and two aspects must be distinguished: intensity and selection. Intensity refers to how much energy is mobilised, while selection answers the question of where this energy is directed. Originally, researchers thought that the ascending reticular activation system was unspecific; now, however, a stronger degree of selectivity is assumed (e.g. control of selective attention; cf. Birbaumer & Schmidt, 1990). According to Schönpflug (1993, p. 135), energy is distributed from central to peripheral locations (top-down activation). Moreover, energy is a limited resource and can therefore only be distributed to a limited number of functions (cf. Heemstra, 1988).

A certain level of general activation (arousal) is required for more specific activation processes. Thus, activation emanating from the brain stem (ARAS) provides the foundation for more specific processes (cf. Gray, 1991). On the one hand, such activation facilitates the excitability of receptors and thereby the processing of stimuli; on the other hand, it allows for the general ability to centrally initiate behaviour. Tucker and Williamson (1984) therefore postulated the existence of two neural control systems of which one, the activation system, regulates an organism's willingness to take action. The other control system, the regulation of arousal, supports alertness

and the ability to react to stimuli. Thus, both systems dynamically manage an organism's reactions to its surroundings.

According to Schönpflug (1993), there is a limited amount of energy (activation) which needs to be assigned to the function required for performing well on a task demanding high concentration: "Strong concentration seems to require two things: a high mobilisation of energy and a preference to use this energy for a preferred activity" (p. 136). Therefore, higher degrees of activation can be concentrated on specific functions without necessarily resulting in negative side effects such as anxiety.

20.2.3.1 Relationship Between Activation and Performance

Yerkes and Dodson (1908) originally postulated an inversely U-shaped relationship between the performance shown in a difficult discrimination task and the intensity of electric shocks as punishment (cf. Bäumlér, 1992). According to the generalised Yerkes-Dodson hypothesis, the optimal condition for good performance is a moderate level of arousal. In spite of much theoretical criticism and contradicting findings, this hypothesis appears to be very resistant to being abandoned in academic and applied sport psychology.

The Yerkes-Dodson rule suffers from two fundamental problems. The first problem is the aforementioned assumption that arousal is a one-dimensional concept. Additionally, the rule does not sufficiently differentiate between tasks with different performance characteristics apart from difficulty. Neiss (1988, p. 355) therefore states that findings on the Yerkes-Dodson rule merely reflect the mundane observation that motivated people perform better than apathetic and highly anxious ones. Moreover, in the case of anxious individuals, many results also suggest that performance does not only depend on physiological components (arousal) but also on cognitive appraisal (apprehension).

On the basis of such criticism, Hanin (1997) developed the model of "optimal zones of individual functioning". This model states that each

athlete has an individual optimal activation level. Several studies have supported the existence of such optimal zones: before competitions successful athletes tend to report activation levels that are much closer to their individual optimal zones than less successful athletes (Raglin & Hanin, 2000). Sport psychologists should therefore try to develop interventions for individual optimal levels of activation together with athletes.

According to Beckmann and Rolstad (1997), processes of cognitive appraisal are critical mediators on the relationship between activation and performance. They list several findings that stress the important role of cognitive appraisals and how they are crucial to determine whether activation processes impede or promote performance. If a situation is interpreted as a challenge, i.e. a difficult goal that can be achieved, there does not seem to be an upper limit for beneficial activation. Being “too motivated” and thus performing worse appears to be impossible under such circumstances. If, however, a situation is perceived as a threat, i.e. uncontrollable or impossible to achieve, cognitive and physiological processes that impede performance can occur. Perception of threat involves anxiety which is a central emotional component in the explanation why athletes fail to perform up to their potential in important competitions (known as “choking under pressure”; Mesagno & Beckmann, 2017).

Summary

The Yerkes-Dodson rule assumes an inversely U-shaped relationship between an athlete’s arousal and performance. Thus, it assumes that moderate levels of activation are associated with good performance. Empirical findings have shown that this relationship can be seen as a rough guideline or rule of the thumb at best. The actual relationship is much more complex. There seem to be substantial interindividual differences in how arousal is perceived and what degree of arousal leads to optimal performance. In addition, different requirements that are specific to different types of sports demand different levels of arousal. A more useful model in this context is Hanin’s concept of individual zones of optimal functioning (IZOF).

20.2.4 Distinctive Features of Motivation in Sports: Incentives in Sports

After having discussed some fundamentals and general models pertaining to the role of motivation in sports, this section will address domain-specific motivation in sports. The question of motivation for sports refers to what makes people take up sport and exercise. For instance, we might want to find out what could motivate nonathletes in their mid-fifties to take up jogging. In contrast, motivation in sports deals with factors that motivate people while exercising or what stimulates a person to go for a run three times a week regardless of the weather.

Motivation for sports and in sports are both related to the particular incentives offered by sport activities prompting individuals to even experience some discomfort and potentially face risks instead of sitting on the couch and watching TV. In general, individuals should anticipate that athletic activity will lead to affective change as proposed by McClelland (1953). Both the affective consequence of the results of an athletic activity, e.g. finishing a marathon, and its consequences are important here. The latter factor might be doing something good for one’s health, making new friends, gaining recognition and prestige and eventually perhaps even earning (a lot of) money, whereas the former could be related to a feeling of satisfaction or pride after having reached a relevant goal.

Experiencing athletic activities itself contains specific forms of incentives. The enjoyment of being active can encourage people to exercise after phases of physical inactivity. The kinaesthetic experience of movement is experienced as an incentive. Duncker (1940), for example, referred to the specific affective experiences when driving fast or skiing as “dynamic joys”. According to Caillois (1958), certain forms of movement such as rotating the body, gliding, moving at high speed and speeding up during circular movement (e.g. pirouettes in ice skating) constitute special states that can function as incentives. He calls them “ilinx” (the Ancient Greek word for “swirl”).

Feige (1976) describes five dimensions of motivation in sports. The first dimension refers to a drive-like foundation of the motivation to physical activity and represents the desire to move and be physically active. The second dimension is emotional affective bonding. Concretely, people exercise in order to feel certain emotions. The third dimension concerns the direction and stabilisation of the motivation to exercise due to individual and social needs. Sports offer many opportunities to satisfy the needs of independence and self-actualisation. Furthermore, individuals can experience self-affirmation, competence, gregariousness and mutual support when exercising. The fourth dimension according to Feige is the intellectual reinforcement of motivation. People can be motivated to exercise by rational thoughts such as the idea that exercising is good for one's health. Feige's final dimension that is placed at the highest structural level for explaining a person's motivation to exercise is making volitional decisions based on goals and values. This dimension refers to superordinate values that determine the extent and intensity of athletic behaviour over long periods of time.

Excursus

Gabler's (1993) Classes of Incentives of Exercising

- Pursuit of self-knowledge: One's performance provides information about oneself in comparison to others.
- Pursuit of rewards: Achievement can result in extrinsic rewards such as material gains or higher status.
- Pursuit of pleasure: Achievement can be pleasant. Anticipating the emotional and affective consequences of one's activity can be perceived as the actual source of motivation in this case.
- Rewarding oneself: This reflects the notion of achievement motivation as a system of self-reinforcement. Individuals

reward themselves immediately following the completion of an activity if they achieve their goal.

- Pursuit of task realisation: Relates to striving to meet the requirements that are immanent to the task at hand.
- Pursuit of efficacy: This striving does not relate to the realisation of a particular goal itself but rather the experience of one's own efficacy in interactions with the environment.
- Pursuit of excellence: During the course of development, the pursuit to experience one's own excellence emerges from the pursuit of efficacy. This paves the way for the formation of the concept of achievement-related self-esteem.
- Pursuit of self-realisation: In accordance with Maslow (1954), self-actualisation is the highest level of pursuit which is related to finding out what a person's full potential is and the realisation of that potential.

In addition to incentives, personality has been an important consideration. It comes as no surprise that Gabler (1972) focused primarily on the achievement motive as a pivotal personality component in high achievement sports. However, outside of high achievement sports, several other motives appear to be of significance. Abele and Brehm (1990) suggest 15 motives that are relevant to athletic leisure activities. They can be assigned to ten areas; however, the differentiation between motive and motivation is unclear:

- Health and fitness
- Well-being (fun/well-being, relaxation/balancing stress)
- Physical appearance (athletic body, losing weight)
- Achievement (effort/strain, improving one's performance, comparison/competition; this corresponds to the achievement motive)

- Experiencing one’s body
- Experiencing companionship
- Social contacts (foster friendships, meeting new people; this corresponds to the affiliation motive)
- Excitement and discovering something new through sports (similar to sensation seeking)
- Aesthetics of physical activity
- Self-presentation

According to Hueppe and Uhlig (1992), other authors suggest similar dimensions as relevant to athletic behaviour (e.g. Singer, Eberspächer, Bös, & Rehs, 1980). Surprisingly, the power motive is not included in this list.

Using motorcycling as an example, Rheinberg (1989) examined the motivational incentives of risky behaviour. The underlying rationale is that, apart from motivation based on behavioural outcomes, activities themselves can have strong incentives as the abovementioned “dynamic joys” and can thus be motivating and instigate behaviour. Ultimately, according to Rheinberg’s empirical findings, the risky behaviour of riding a motorcycle can be characterised as an activity in which savouring of the incentives of dynamic driving (dynamic joys) is intensified through the perception of potential threat which is perceived to be controllable by one’s own competence (Rheinberg, 1996). The combination of experienced competence, exciting perception of threat and uncommon states of movement can be found in other risky leisure activities as well (e.g. skiing, BASE jumping). This kind of matching of task demands and competence can create special experiences in other areas than sports as well. Csikszentmihalyi (1975) called this special quality flow experience (see Chap. 14 in this volume). Although flow can be experienced in all areas of life, it is reported with particular frequency in sports.

20.2.5 Intrinsic and Extrinsic Motivation

One central component of motivation in sports is the role of incentives that are inherent to an

Example

In the 800 m race at the German championships an athlete who had been successful internationally for the last few years is leading the field after 400 m. Suddenly, however, she slows down and leaves the track. When journalists ask her why she dropped out of the race, she replies: “I was simply tired”. Psychologically speaking, we can see a loss of motivation here. How could we explain it? In the past, the athlete had particularly enjoyed running (incentive intrinsic to the activity) when she was in second place and then could “switch on her turbo” to overtake the runner leading the field and win. Her “turbo” was paired with images of the “Road Runner”, a bird of the Loony Tunes cartoons that with a “beep beep” can run at such a high speed that its legs start to look like rapidly turning wheels. This is the image the athlete saw whenever she switched on the “turbo”. With the image of the turning wheels of the road runner and a “beep beep” to herself, she would start to fly along the track. Not long before the German championship, she had started to work with a new coach. He had strictly instructed her to be aware of her mental race plan each second of her race. Following these instructions left no room to act spontaneously. Consequently, she was no longer able to resort to individual resources of performance-enhancing self-regulation, so intrinsic motivation and self-regulation ability were literally left behind.

activity. If an activity is performed for its own sake, i.e. if “there is a thematic convergence between means (behaviour) and end (goal of behaviour)”, behaviour is intrinsically motivated (Heckhausen, 1989, p. 459; see Chap. 14 in this volume). If, however, an activity is primarily performed because of its expected results, e.g. prize money, it is extrinsically motivated. Intrinsic incentives can be felt in various ways, ranging from performing athletic activities themselves

(e.g. kinaesthetic experiences) to achieving results through one's own behaviour. The latter is particularly true in cases of achievement-related behaviour. Thus, professional sports are intrinsically motivated if their primary goal is to achieve high performance. It is extrinsically motivated if the performance is nothing but a means to an end (e.g. money or prestige).

Gabler (1972) showed that there are no fundamental differences in the motive structures of professional and recreational athletes. Intrinsic and extrinsic motivation are of course intertwined in professional sports. Enjoying exercise is often linked to monetary incentives and the pursuit of prestige. In general, the coexistence of intrinsic and extrinsic motivation is not problematic. However, intrinsic motivation can be compromised by extrinsic incentives. In a study by Orlick and Mosher (1978), children who were rewarded for excellent performance in a balancing task subsequently practised less than the children who showed similarly good performance but were not rewarded (cf. corruption effect in Chap. 14 in this volume). However, some differentiation is necessary at this point. If athletic activities are performed in order to test one's own capability, consequences in terms of self-evaluation (e.g. pride) play a crucial role. Several studies show that intrinsic motivation is not reduced by extrinsic rewards if obtaining the extrinsic incentive is contingent on achievement (Weinberg & Jackson, 1979; Weinberg & Ragan, 1979). Deci and Ryan (1985) emphasise that the perception of self-determination is essential for intrinsic motivation. Sports can offer great opportunities for feelings of competence and self-determination, and according to Deci and Ryan, exercising creates many ways in which one's own abilities and competences can be compared with personal and intersubjective standards. This, in turn, can provide meaningful feedback for intrinsic motivation and consequently strengthen it. If this aspect of feedback, however, becomes less important and individuals feel externally controlled instead, their intrinsic motivation

decreases. Several studies have confirmed this "theory of cognitive appraisal" in sports. Athletic programmes allow athletes to pursue individual preferences, have a choice between different alternatives and determine personal performance goals and group goals and rules themselves resulting in higher intrinsic motivation compared to programmes that do not meet these criteria (Gould, 1986; Thompson & Wankel, 1980). With regard to control, a study by Ryan (1980) is of particular interest. In this study with athletes from 12 colleges, football players on scholarships were found to be less intrinsically motivated than those without a scholarship. However, the study also yielded effects of type of sport and sex. Male wrestlers with scholarships and female athletes with scholarships in the sample had higher intrinsic motivation than their colleagues without scholarships. Ryan argues that the crucial criteria for whether intrinsic motivation persists or not does not relate to the receipt of a reward per se. Rewards should always be viewed in the context of whether they constitute feedback contingent on performance or as an attempt to control the behaviour of the actor. While male wrestlers and female athletes interpreted their respective scholarships as confirmations of their competence, football players focused on the aspect of external control.

Summary

Extrinsic and intrinsic motivation roughly refer to externally set incentives versus incentives that are immanent to an activity itself, respectively. In professional sports in particular, intrinsic and extrinsic incentives can coexist. Athletes' personal evaluations are important for the ascertainment of intrinsic motivation if external incentives are given at the same time. It seems to be particularly important for the retention of intrinsic motivation whether a reward is interpreted as feedback or rather as control.

The next section will address specific motives that seem important in the athletic context and have been studied in empirical research.

20.2.6 Motives in Sports

20.2.6.1 Achievement Motive/ Achievement-Motivated Behaviour in Sports

One important incentive of engaging in sports is to experience one's own competence, and this experience is gained by a constant quest for excellence. One of the key incentives in professional sports is to find out who performs best and how far achievement can be pushed, following the Olympic theme of "faster, higher, stronger". A career as a professional athlete requires a strong achievement motive (cf. Elbe, 2003; Gabler, 1972; Schneider, Bös, & Rieder, 1993). Thus, most studies on motives in sports focus on the achievement motive.

The achievement motive is defined as comparing one's performance with a certain standard (see Chap. 6 in this volume). Actors wish to do something well or better than before or better than others. The evaluation of behavioural outcomes is based on certain standards such as finishing a 100 m race in 14.3 s. This evaluation process results in outcome-related affect. The outcome-related affect is according to the incentive model of motivation the ultimately aspired objective of the activity. The evaluation depends on subjective aspiration levels. A runner who has never before finished a race in less than 15 s might be happy about finishing in 14.3 s (if the runner compares the race with an individual reference norm, i.e. previous performances) and be proud of his achievement. For somebody who only cares about winning the 100 m race (win orientation; social reference norm), however, 14.3 s might be a huge disappointment resulting in negative affect (shame) if others were faster. Simply anticipating positive affect resulting from achieving an aspired goal (satisfying the motive) can motivate new behaviour (McClelland, 1953). Achievement behaviour contains both "binding self-commitment to standards of excellence for the completion and products of behaviour and self-evaluation based on consequences following the behaviour" (Heckhausen, 1989, p. 231).

The achievement motive has two components: the approach component "hope for success" and the avoidance component "fear of failure." Coded categories for the success motive in the thematic apperception test or the picture story exercise (PSE was derived from the TAT by McClelland, Atkinson, Clark, & Lowell, 1953; Validity and reliability see Schultheiss, Liening, & Schad, 2008) include the need for achievement and success, instrumental behaviour for goal achievement, expecting success, praise for good performance and positive emotions. Fear of failure, on the other hand, is coded if stories contain the need for avoiding failure, instrumental behaviour for avoiding failure, certainty of failure or uncertainty of success, criticism and reprimand, negative emotions or failure. Based on the two components, hope for success and fear of failure, a total motivation score can be calculated by adding both values or determining net hope by subtracting fear motivation from hope motivation.

In competitive sports, the achievement motive has a superordinate significance for training and competitions. In a study conducted in 1981, it was found (in Gabler, 1995) that "higher confidence to succeed and lower fear of failure are important conditions for maintaining the motivation to practise over an extended period of time" (Gabler, p. 90). Dunleavy and Rees (1979) found the strength of the achievement motive to be directly dependent on an athlete's interest in competitive sports. Furthermore, according to Gabler (1995), the lower one's confidence to succeed and the higher one's fear of failure (i.e. low net hope), the more likely it is that practise will be reduced and individuals drop out of athletic careers. Vanek and Hosek (1977) found a positive relationship between the strength of the achievement motive and athletic performance (achievement level of athletes in the study). A study by Thomassen and Halvari (1996) reported a positive relationship between the success motive and both how much an athlete trained and how successfully an athlete performed. In contrast, a strong failure motive correlated negatively with athletic success. Elbe, Beckmann and Szymanski (2003) confirmed the results reported by

Thomassen and Halvari in a longitudinal study by finding that young athletes have less fear of failure than comparable pupils who did not engage in competitive sports.

Other studies using questionnaires to assess the achievement motive yield similar results. Using the sport orientation questionnaire, Gill and Deeter (1988) showed in particular that American competitive athletes have a higher competitive orientation than nonathletes. White and Duda (1994) confirmed in a study using the Task and Ego Orientation in Sport Questionnaire that competitive athletes have a higher competitive orientation than people engaging in sports without participating in competitions.

Hayashi and Weiss (1994) suggest that socio-cultural factors might affect the degree of athletic achievement orientation. When comparing American and Japanese marathon runners, they found that Anglo-American female runners expressed higher competitiveness than Japanese male and female runners. Li et al. (1996) examined task and competitive orientation in sports in a sample of male college athletes and found that both task and competitive orientation were stronger in American than in Taiwanese and Thai students. Elbe (2003) found a higher achievement orientation in adolescent female athletes in the United States compared to female adolescent athletes in Germany.

Achievement-motivated individuals in sports are thought to be keen on proving their ability and competence in achievement-related athletic situations (Nicholls, 1984). According to Duda and Nicholls (1989), however, it is not quite that simple. Two different ways of setting goals are evidently important in sports. On the one hand, athletes are motivated by situations that are characterised by a social comparison or a competitive framework. The comparison with the performances of others allows for deciding whether an individual has succeeded or failed. On the other hand, athletes feel motivated by situations that focus on learning and mastering a task. In order to appraise success and failure, however, an individual standard is applied in such situations in contrast with competitive situations.

In part, White (1959) already theoretically described this difference earlier. White's theory of competence motivation has been highly influential in sports. White assumed that intrinsically motivated individuals strive to prove themselves as effective and competent in their social and physical environment and thus to master relevant situations. If their efforts result in positive achievements, respectively, the experience of competence and positive feeling of efficiency will result. In line with McClelland's approach, White states that competence motivation is strengthened through those emotional responses.

Based on White's approach, Roberts et al. (1981) compared children who engaged in sports with those who did not. The former group showed much higher scores of cognitive and physical competence than the latter. Moreover, children engaging in sports scored higher on "general self-esteem" and "future expectations of success". Feltz and Petlichkoff (1983) reported similar differences between students who continuously participated in a school sport programme and those who dropped out. Amongst gymnasts, however, Klint (1985) found a very different pattern: adolescent gymnasts who had ended their career perceived themselves as more physically and socially competent than gymnasts who were continuing their career. Klint and Weiss (1987) did a follow-up study to explain these contradicting findings. The second study found that adolescents who report high physical competence were most strongly motivated by opportunities to further develop their gymnastic abilities. Gymnasts with high social competence, however, were more strongly motivated by the social aspects of sports.

As mentioned earlier, an individual's future motivation is significantly influenced by the evaluation of the assumed causes of success and failure (see also Chap. 15 in this volume). The assumed causes of success and failure have a large impact on the affective responses. The process of ascribing causes to the result of a behaviour is known as attribution.

Möller (1994) recommends that athletes should strive to develop functional patterns of

attribution because such patterns can affect self-esteem, motivation and thereby athletic performance. Thus, athletes should attribute failure to external variable factors and success to internal stable factors. Studies in sports, however, have shown that this “self-serving bias”, i.e. attributing success to one’s abilities and attributing failure to external factors, e.g. bad luck, seems to be less pronounced in athletes than in the general population (Grove, Hanrahan, & Mc Inman, 1991; Mark, Mutrie, Brooks, & Harris, 1984). Therefore, Mark et al. (1984) postulate that there is a unique norm in athletic situations, which they refer to as “sport outcome responsibility norm”. According to this norm, athletes assume full responsibility for their behaviour and internalise both their success and their failure. Moreover, Tenenbaum and Furst (1985) found that athletes in individual sports and athletes in team sports show different patterns of causal attribution. Compared to athletes in team sports, athletes in individual sports show more internal attributions. They take full responsibility for their performances and are less prone to believe that external factors have influenced their performance. These different attribution patterns also affect susceptibility to depressive episodes which are more common amongst athletes in individual sports than athletes in team sports (Nixdorf, Frank, & Beckmann, 2016).

Duda and Nicholls (1992) found task and ego orientation to correlate with different causal attributions for success. The ego-involved goal of superiority was associated with the belief that success requires high ability, whereas task orientation (the goal of gaining knowledge) was associated with beliefs that success requires interest, effort and collaboration with peers.

20.2.6.2 Affiliation Motive

Sepp Herberger, coach of the 1954 German national soccer team that won the World Championship that year, demanded of his players to “be eleven friends”. Thereby, he intended to evoke team spirit believing that this would be a necessary condition for good performances in team sports. The idea of friendship even surpasses the notion of team spirit and refers to har-

monic and close social relationships. Weiss and Petlichkoff (1989) report in their review on children’s motivation in sports that joy, competence, fitness and affiliation are the most commonly stated reasons for exercising. Affiliation, the final item in this list, is defined by a person’s need to feel a sense of involvement and “belonging”, the opportunity to make friends and maintain friendships. These are the themes of the affiliation motive, which is the pursuit of initiating, maintaining and reestablishing warm and amicable relationships with others (Atkinson, Heyns, & Veroff, 1954). “The theme of the affiliation motive is the wish to turn strangers into acquaintances and acquaintances into friends as well as the experience that such efforts can also be rejected” (Heckhausen, 1989, p. 343).

The affiliation motive is often considered a core motive for sport participation (Ashford, Biddle, & Goudas, 1993). However, this seems to primarily apply to recreational sports and exercise for health reasons rather than competitive sports (Gröpel et al., 2015). In fact, strong affiliation motivation might interfere with striving to be the best. French (1956) asked participants in an experiment whether they preferred working on a task with a lazy friend or a competent person whom they disliked. The results showed that people with a strong achievement motive and a low affiliation motive chose the latter while people with the reverse motive pattern picked the friend. Similarly, a high affiliation orientation might not be beneficial to achievement-oriented sport performance. Therefore, a dominance of the affiliation motive should be more likely in recreational sports than in professional sports. In a study with 522 pupils, Janssen and Strang (1982) found their athletic activity and leisure behaviour to be mostly determined by the affiliation motive. Once the focus is more on winning than on amicable relationships, this may become problematic. Particularly in team sports, a conflict between affiliation-motivated athletes and those who focus on an achievement orientation can arise. Beckmann and Kellmann (2004) reported such a conflict even in training sessions of a first division female basketball team. In most athletes of the team, the affiliation motive was dominant.

The coach, however, had assumed that the achievement motive was dominant instead. Because he viewed practice as simulation of competition, he expected his athletes to put maximum effort into the practice sessions, fighting against each other like in the real competition. The achievement-oriented players on the team complied with these expectations. But their behaviour conflicted with the preference for a harmonious community of the affiliation-oriented players. Due to the motive conflict, several affiliation-motivated players avoided training sessions by calling in sick.

In line with this, an aspect of self-regulation might be to inhibit inadequate motivational tendencies. In fact, Sieber and Mempel (2015) found that, apart from energising behaviour by prompting, for instance, the achievement motive, inhibiting motivational tendencies that would be detrimental to athletic performance such as the tendency to have amicable relationships is an important ability for athletic success. According to these authors, it may even be considered a form of talent. In many cases, inhibiting affiliation-related behaviour in competitive situations results in achievement-related advantages.

20.2.6.3 Power Motive

Power-related behaviours can frequently be found in sports. Athletes might strive to “dominate their opponents” or “control the field”. Coaches expect that athletes follow their instructions, and team captains take responsibility for the performance of their teams. Referees are also in a clear position of power. The power of sponsors, the media and associations could also be included in this list.

The power motive is the desire to have impact on other people, to affect their behaviour or emotions (Winter, 1973). Like other social motives, the power motive consists of a positive (hope for power) and a negative, fear component. Winter (1973) found that students with a strong and positive power motive hold more student offices, tend to be more active in organisations and participate more often in public events and discussions. He also found students with a strong power motive to participate in different types of competitive

sports. Therefore, one might assume that strong power motives should be found in athletes in competitive sports.

There are only a few studies on the power motive in sports. Wegner et al. (2015) found the fear component of the implicit power motive to be associated with practice time in elite karateka and tennis players. In a study Tusak (2000) conducted in team sports, adult competitive athletes had a stronger explicit power motive than adolescent athletes. A further study involving athletes' power motive is described in the box below. It seems plausible that coaches and referees might have a particularly strong power motive. According to Brand (2002) there is no empirical evidence for this assumption. However, the studies conducted to investigate this issue did not use standard measures of the power motive. Moreover, they did not include measurements of the implicit power motive. It may also be possible, that the power motive plays an important but slightly different role in sports than has been suggested so far. Rheinberg (1996, p. 104) assumes that the power motive is crucial in extreme endurance sports as a feeling of “having control/power over oneself”. Schultheiss and Rohde (2002) found an instigation of the power motive in competitive situations which supported implicit learning.

Summary

Understandably, the achievement motive has received more attention in sports than other motives. As expected, interest in competitive sports is associated with the strength of the achievement motive. Yet, the success motive is also a good predictor of the extent and intensity of practice. It is also related to athletic success even though success in sport depends on many factors. The affiliation motive is strongly related to recreational sports. In competitive sports, it can be more of a hindrance to be too keen to make friends or focus on amicable relationships. Although it is plausible to assume that certain functions in sports, e.g. regarding coaches, referees and officials, are associated with a strong power motive, there have only been few studies on the role of the power motive.

Excursus

Does the “V Profile” Motive Combination Have the Same Significance in Sports as in Business?

According to McClelland (1985), the classic triad of motives consists of the achievement motive, the affiliation motive and the power motive. Krug and Kuhl (2006) reported that 80 % of empirically analysed stories belong to these three motives. McClelland assumed that a certain combination of the three motives might be associated with successful leadership in business. This combination is V-shaped with moderate to high achievement motive, low affiliation motive and high-power motive. Many studies have confirmed the relationship between this V profile and economic success (e.g. Jacobs & McClelland, 1994; McClelland & Boyatzis, 1982; Wainer & Rubin, 1971). According to Krug and Kuhl, the ideal motive profile of competitive athletes also features a V shape. However, there are slight differences across different sports. The affiliation motive should be low in competitive athletes as it is for business leaders. Players on the same soccer team should thus not be “eleven friends”. In technical sports the achievement motive should dominate (be very high) in combination with a moderate to high-power motive. In endurance sports both achievement and power motive should be moderate to high. Lastly, in interaction sports and martial arts, the power motive should dominate (be very high) with a moderate to high achievement motive. Gröpel et al. (2015) could confirm these assumptions only in part. They found professional and recreational ski free riders to set more achievement-related than affiliation-related goals (explicit motive). The achievement motive (both implicit and explicit) was significantly stronger in professional than in recreational sport. However, in either group the amount of

power goals set was not higher than the amount of affiliation goals set. In interaction sports the assumptions could only be confirmed in part for professional and recreational athletes. As Krug and Kuhl had expected, the implicitly measured power motive was dominant in these interaction sports (e.g. martial arts) athletes. The V profile that Krug and Kuhl postulated was neither found for explicit nor implicit motives. Even though the (implicit) affiliation motive was significantly weaker than the (implicit) power motive, the (implicit) achievement motive was not significantly stronger than the affiliation motive. However, these differences cannot be found in explicit measurements of the motives. The (explicit) achievement motive was significantly stronger in professional athletes than in recreational athletes.

20.2.7 Aggression

Aggression is a term that frequently occurs in sports. Its everyday use, however, differs partly from its scientific meaning. For instance, if soccer coaches state that their players did not play aggressively enough during a lost game, they criticise their players’ lack of investment. Motivational psychologists would therefore rather speak of a lack of effort or achievement orientation. However, high achievement orientation can indeed result in more frequent fouls because players act “in the heat of the battle” or strive to win “at all costs”. If others are purposefully harmed, the psychological criterion for aggression is met.

Scientifically speaking, the term aggression spans forms of behaviour that are performed with the intention to directly or indirectly harm another person. For aggression in sports, however, there is an even more specific definition. Athletic behaviour is “only called aggressive if its goals do not conform to the norms that actors perceive as binding” (Gabler, 2002, p. 112) or, more gen-

erally, to the rules of the specific sport. Thus, behaviour in martial arts that aims at knocking out the opponent is not defined as aggression as long as it does not transgress the rules of the sport. Blows below the belt or biting off the opponent's ear, on the other hand, would be seen as aggression.

Because aggression is such a diverse phenomenon, some qualifications appear to be needed. One reasonable criterion for differentiation is whether the situational or personal factors trigger aggressive actions. Furthermore, the distinction should take into account the consequences for the acting individual. Dollard et al. (1939) proposed the frustration-aggression hypothesis which suggests aggression only occurs in reaction to frustration. Frustration thus always leads to aggression aiming at harming the person causing the frustration. The authors defined frustration as resulting from an interference with a goal response, i.e. an impediment to the realisation of behavioural goals. However, the hypothesis that aggression is always preceded by frustration has been met with criticism. It is possible to intentionally harm opponents without preceding frustration in many types of sports. Thus, it can be expedient to foul a key player on the opposing team in such a way that he cannot continue playing. This is an example of rational thinking as foundation for the aggression, which is also referred to as instrumental aggression. Aggression following frustration, on the other hand, can turn out to be detrimental to the actor's actual athletic goals if the fouling player ends up being sent off the pitch and being banned for the next match.

Berkowitz (1983) suggested adjustments to the frustration-aggression hypothesis. Thus, frustration may merely trigger an emotional reaction (e.g. fury, anger) that in turn can increase an individual's readiness to act aggressively. Aggression occurs if additional situational cues for aggressive behaviour that are related to the cause of the felt emotions are present. The result is anger-aggression that is determined primarily by feeling angry.

While aggression research with a primarily social psychological focus usually concentrates

on situational determinants of aggression, Kornadt (1982) developed a motivational psychological process model of aggression (see Fig. 20.1) that adds the personality trait of the aggression motive with an approach and avoidance components to the situational factors addressed in the social psychological models. Gabler (2002) further elaborated on this model from a sports psychological perspective by including emotions that accompany behaviour, behavioural control and processes of self-evaluation.

Like other social motives, the aggression motive consists of two components: aggression tendency and aggression inhibition tendency. Aggressive behaviour occurs when, for example, an external frustrating factor is present and the aggression tendency becomes more strongly activated than the aggression inhibition tendency. Kornadt (1982) specifies the mediating factors until aggressive behaviour is initiated or inhibited in more detail in his process model. After a frustrating situation has caused anger, the aggression motive system with its both components is activated. If the aggression tendency is stronger than the aggression inhibition tendency, it can cause aggressive behaviour in two different ways: (1) a concrete aggression goal is generated involving the anticipation of positive incentives resulting from its attainment or (2) potential (acquired) behavioural patterns are activated followed by an evaluation of their respective expectancies of success. Attaining the aggression goal results in the deactivation of the aggression motivation. If aggression inhibition is activated, negative behavioural consequences involving anticipated negative incentives are considered. If the (avoidance) aggression inhibition tendency is stronger than the (approach) aggression tendency, no aggressive behaviour occurs.

Every now and then, sport is suggested as a potential antidote to aggression. The so-called catharsis hypothesis assumes that "letting off steam" through athletic activity should decrease frustration and thereby aggression. However, the catharsis hypothesis is amongst the most controversial concepts of research on aggression (Zumkley, 1978). An experiment by Stützle-

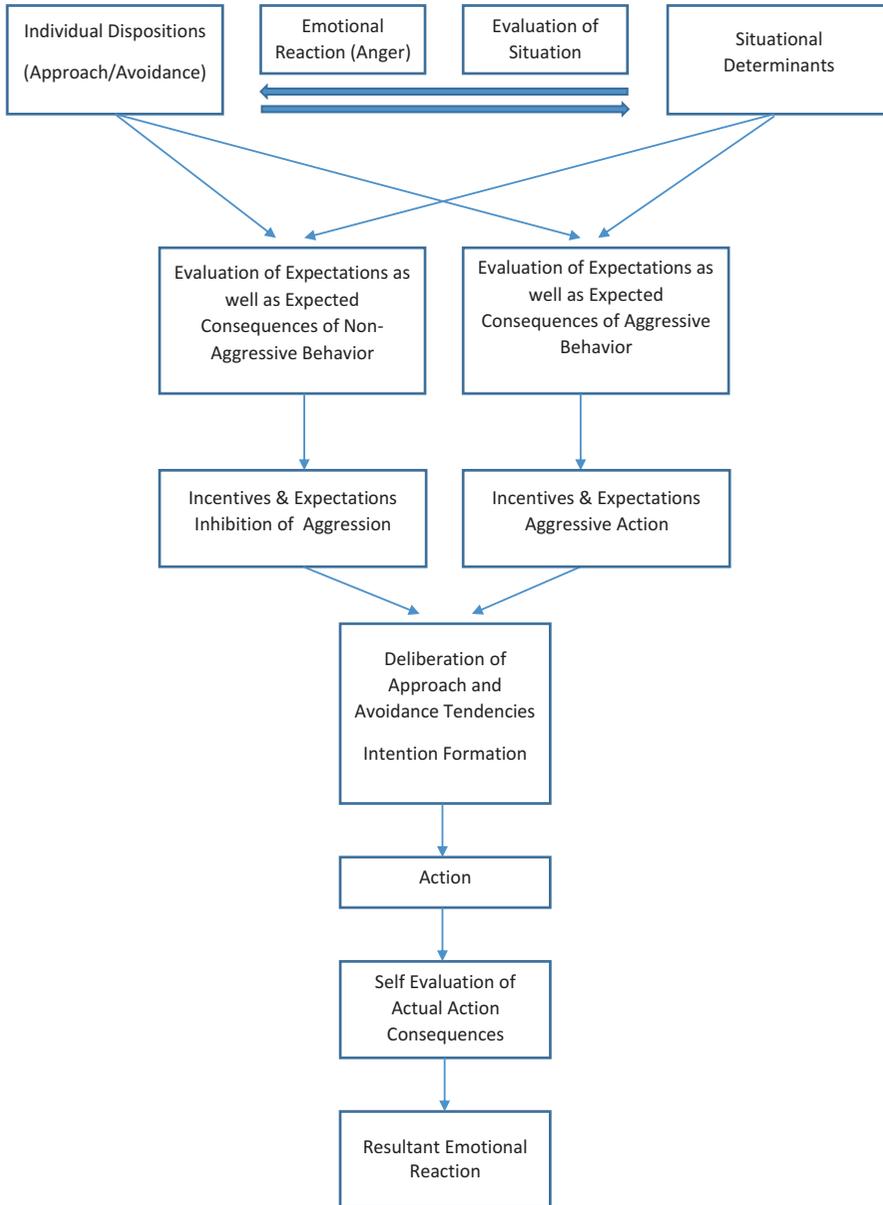


Fig. 20.1 Process model of aggression motivation (Modified from Kornadt, 1982, p. 85)

Hebel (1993) found that participating in exhausting ski gymnastics could not reduce earlier provoked aggression. In contrast, aggression was reduced if it was followed by an activity requiring a high degree of concentration. For the purpose of “letting-off-steam” athletic activity thus does not seem to work. On the other hand, however, distraction through exercise seems to have a positive effect. This was already discovered by

Konecni (1975) and is in line with research on the persistence of anger emotions.

Peper (1981) presented a very elaborate study in which participants were frustrated in a ball game. An associate of the experimenter impeded goal achievement of the participants in the experiment. Expectedly, this aroused an aggression tendency in the participants. Following this aggression-inducing experience, the participants

engaged in intensive exercising. No “valve function” as suggested by the catharsis hypothesis in the form of reduced aggressiveness was found. The aggression tendency in the intense exercise group was not lower than in an experimental group that worked on tasks requiring dexterity rather than exercise. However, there was an experimental group in which aggression decreased. In this group participants could take revenge on the person who had frustrated them earlier (vicariously through verbal punishment by the experimenter). Bushman et al. (1999) provided interesting additional insights. They found that individuals with a positive attitude towards the idea of catharsis were more willing to perform a cathartic activity (punching a punching bag) after negative feedback. However, no catharsis resulted from the activity as these individuals became more aggressive towards an invisible opponent after punching the bag than participants in an anti-catharsis condition who had previously punched the punching bag only rarely. The increased aggressive behaviour in the pro-catharsis condition was independent of whether the invisible opponent was responsible for the negative feedback or not.

Some researchers have suggested that catharsis could even occur indirectly. They assume that spectators of sport events experience symbolic catharsis. Watching aggressive behaviour in sport events should decrease their own aggression motivation without acting aggressively themselves. There have only been few studies examining the influence of observing aggressive behaviour in sports on the aggressive tendencies of observers. But these studies seem to support the opposite. Arms et al. (1979) found that people who had watched a wrestling match or an ice hockey game expressed greater hostility and acted in less considerate ways than spectators of swimming contests. These findings directly contradict the symbolic catharsis hypothesis.

Krahé (2001) concludes that living out aggression as defined by the catharsis hypothesis is not only ineffective for reducing aggressive response tendencies, but also counterproductive. The

cathartic expression of aggressive feelings seems to rather promote an increased probability to act aggressively later on.

20.2.7.1 Aggression in Fans and Hooligans

Aggressive sport fans, particularly hooligan soccer fans, have caused problems for many years. The aggressive behaviour of sport fans can be caused by lost matches or aggressive behaviour on the field (Russell, 1983). Wann (1993) points out that aggression can be influenced by how strongly an individual identifies with a certain team. According to Snyder et al. (1986), spectators whose identification with a team is low tend to distance themselves from the losing team in order to preserve self-esteem. Cialdini et al. (1976) named this reaction “CORFing” (“cutting off reflected failure”). Because “CORFing” is not an available strategy for fans who identify strongly with a team, however, they tend to “blast” (Branscombe & Wann, 1994). Thus, they act aggressively towards players and fans of the opposing team. This aggressive behaviour is a strategy applied to restore their lost sense of self-esteem.

In many instances, however, violent behaviour of fans has only little to do with the sport event itself (Gabler, 1998; Pilz, 1998). Even though soccer may serve as vehicle to violent behaviour for hooligans, it is not frustration about a bad or lost game that causes aggression in them. Major soccer events may simply provide the occasion for aggression and in particular violent clashes with supporters of other teams or of hooligan groups who associate themselves with the opponent team. Kerr (1994) suggests that a discrepancy between preferred and actual level of arousal motivates aggressive behaviour in hooligans. He characterises the behaviour as compensation based on the “reversal theory”. In an environment that is perceived as boring, hooligans are looking for excitement by engaging in dangerous and delinquent behaviour. According to Kerr, there is no difference between the motivation of soccer hooligans and bungee jumpers.

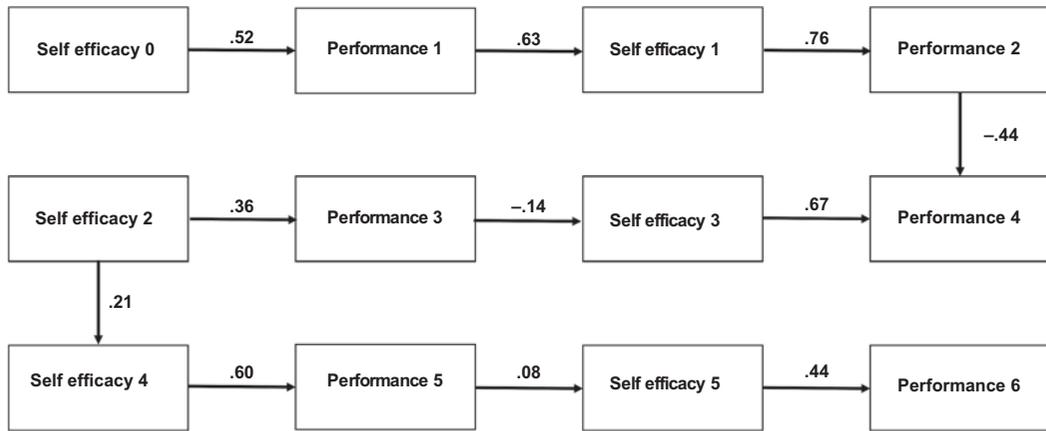


Fig. 20.2 Interaction between perceived self-efficacy and athletic aptitude from Lowther et al. (2002)

Summary

The definition of aggression in sports depends on the goals of aggressors and the specific rules (norms) of the sport in question. According to the frustration-aggression hypothesis, aggressive behaviour is caused by frustrating situations. However, other factors can also lead to aggression as, for example, quite deliberate considerations in instrumental aggression. Furthermore, personality factors mediate the process of whether aggressive behaviour actually occurs. That intense physical activity, especially boxing, could help to eliminate aggressive tendencies; the so-called catharsis hypothesis appears to be a myth that persists even though empirical research proves the opposite.

20.2.8 Perceived Self-efficacy

So far we have talked about incentives and motives. The concept of expectation is the third component of the motivation formula. As mentioned earlier, Heckhausen (1977) distinguished several types of expectations (see also Chap. 1 in this volume). For sports the action-outcome expectancy and the outcome-consequence expectancy are of particular relevance. These expectancies are determined by previous experiences. Perceived self-efficacy can be understood as a generalised concept of expectation. While self-

confidence and self-esteem constitute personality traits that are relatively stable over time, self-efficacy can be altered by short-term experiences (see Fig. 20.2 from Lowther, Lane, & Lane, 2002).

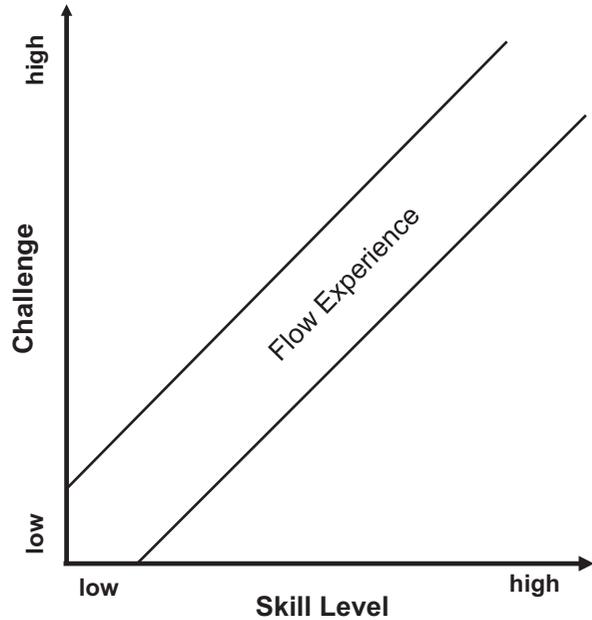
Bandura (1986) defined self-efficacy as people's beliefs regarding their capabilities of successfully accomplishing tasks. In contrast to self-esteem, self-efficacy is relatively specific to situations and domains. Thus, young athletes might believe to have higher capabilities in athletic achievement situations than in academic ones. Self-efficacies may vary between and even within athletes. Sport psychologists often work with athletes suffering from particularly low self-efficacy, which might even result in a downward spiral of failure: low self-efficacy causes athletes to expect poor performances, and if they then in fact fail, their self-confidence is reduced even further (see Fig. 20.2).

Bandura (1986) distinguished between two effects of self-efficacy:

1. Self-efficacy influences the thoughts, affective reactions and behaviours that follow.
2. Self-efficacy is positively associated with positive motive strength.

The second effect confirms the role of self-efficacy as the expectation component of the motivation formula. Research on self-efficacy in

Fig. 20.3 Flow channel
after Csikszentmihalyi
(1988)



sport has shown that it constitutes a positive predictor for learning and performing motor skills as well as athletic performance in general (Treasure, Monson, & Lox, 1996).

20.2.9 Flow

The experience of flow that was described by Csikszentmihalyi (1975, 1990) is particularly relevant in sports. Sometimes it is also referred to as “being in the zone”. When athletes experience flow, things seem to go automatically and without conscious control, while they are completely immersed in their behaviour. No thoughts or worries distract them even though they are fully concentrated. Thus, flow appears to be an optimal condition for outstanding performances (peak performances).

Csikszentmihalyi (1975) states that flow can occur when abilities meet task demands at a perfect match. Figure 20.3 depicts the so-called flow channel inside of which the chances of experiencing flow are highest (see Fig. 20.3).

Rheinberg (1996, p. 109f.) considers flow a motivational phenomenon “that is difficult to assess with a rationalistic-reflexive subject model”. This calls for alternative assessment

methods. Standard methods are used to assess feelings and thoughts only in retrospect. The experience sampling method claims to have a form of “online” access which is adequate to studying flow. The experience sampling method, also referred to as a daily diary method, asks participants to stop at certain times and make notes of their experience in real time.

According to Csikszentmihalyi, flow should represent an experience beyond boredom and fear. However, using the experience sampling method in a study with climbers, Aellig (2002) found that although lead climbers and followers in fact experienced flow in the form of excitement, alertness and concentration, such feelings were potentially linked to fear, stress and nervousness. Stops and Gröpel (2016) found that highly skilled and experienced ski free riders felt fear and inhibition during a ride. But these feelings did not interfere with their performance. A study by Schubert (1986) found evidence that apart from the conditions that Csikszentmihalyi described, additional factors might be even more important for experiencing flow, namely, self-dependence, increase in competence, challenge, experiencing efficiency and “just fun”. These are the aforementioned central elements of intrinsic motivation according to Deci and Ryan (1985).

Schüler and Brandstätter (2013) showed that provided athletes perceive their athletic environment as satisfying their basic needs, flow experience increases if there is a congruence with their implicit motives. Schattke et al. (2015) found that flow increased with difficulty in experienced climbers (high performance). This result is in accordance with Csikszentmihalyi's (1975) flow channel that requires matching task difficulty and individual aptitude. Particularly noteworthy in this study, however, was the finding that this relationship was only found for athletes with a high congruence of implicit and explicit achievement motive but only if climbing was perceived as an achievement-related activity. Schüler (2010) explained this observation by stating that in the case of athletes with motive discrepancies, situations with strong achievement-related stimuli would trigger the internal conflict between the implicit and the explicit achievement motive and thus undermine the experience of flow. Therefore, it is possible to interpret the results of Schattke et al.'s (2015) study as an example of how motive congruence is prompted by thematically appropriate stimuli, which in turn results in experiencing flow.

Box

In accordance with the results presented in this section, Rheinberg (1996) claims that risky sports in particular meet the conditions for flow. "Unusual, yet enjoyable activities promoting flow experience create increased states of arousal which intensify the quality of the experience, leading to a basic and significant experience of own competence while trying everything to remain unscathed in the face of potential threat" (p. 114).

20.3 Volition in Sports

Volition can be considered the overarching concept covering all processes of self-regulation. Volition essentially refers to the regulation of an

individual's mental states by the individual itself. Every time intended behaviour is facing internal or external obstacles, volitional processes are required to overcome the obstacles and maintain action control. Thus, Kuhl (1983) referred to volition as auxiliary processes supporting the execution of an action, for example, to complete a marathon although the motivation is gone after hitting "the wall" at mile 21 (Km 35). These self-regulation processes are based on people's meta-cognitive and meta-motivational knowledge about themselves. Volition supports fundamental processes such as attention, motivation and the regulation of emotions in the process of achieving desired goals if the original motivation does not suffice. There are fundamental individual differences with regard to the use and efficiency of volitional processes, sometimes referred to as "willpower" or "mental strength". In this section we will address individual differences mediating volition respectively self-regulation.

20.3.1 Theoretical Concepts

20.3.1.1 Volition and Behavioural Control

In the mid-1970s, Julius Kuhl discovered that motivation alone is not sufficient to explain behaviour. Several studies had only found a disappointingly weak connection between people's intentions and their actual behaviour (for an overview see Kuhl, 1983). Kuhl argued that there must be supporting processes in addition to motivational processes; without such support, intentions might not be translated into behaviour and maintained until a goal is reached. He referred to these processes as volition thereby resuming the strand of research on the will which was abandoned around the 1930s (Kuhl & Beckmann, 1985). Particularly in sports, such volitional processes play a crucial role (Beckmann, 1999).

20.3.1.2 A Model of Self-regulation: The Theory of Action Control

Kuhl's (1983, 2001, see Chap. 13) theory of action control is one of the fundamental modern theories of volition. The theory focuses on

processes of self-regulation that can be applied throughout the entire course of an action in order to transfer motivation into action and support the continuation of the action until goal achievement should resistance arise. Resistance to behaviour can take on various shapes, e.g. unclear decision structures or competing action tendencies that might tempt people to give up an important, yet strenuous activity in order to pursue temporarily more interesting and seemingly more pleasant alternatives.

Action control becomes necessary if conflicts between competing action tendencies occur. An athlete might, for example, be tempted to skip practice in favour of going out with friends even though he knows that he really needs the practice. Essentially, in Kuhl's terminology there are two possible forms of action control to solve the problem and manage to focus on doing what is considered most important: self-control and self-regulation. Self-control refers to the inhibition of competing behavioural tendencies and associated distracting thoughts. In contrast, self-regulation coordinates personal subsystems (motivational, affective, cognitive) to strengthen and promote the intended behavioural tendency. According to the theory of action control, volitional processes are influenced by personality differences with regard to action and state orientation. State-oriented people are characterised by chronically negative affect and a lack of positive affect. They tend to ruminate excessively about failure or decision alternatives. Especially, their chronically negative affect impedes their self-regulation. Mostly, therefore, they have to rely on the less sophisticated self-control strategies. In contrast, action-oriented people are characterised by highly efficient self-regulation.

Excursus

Self-control and Self-regulation

- Instead of giving in to the temptations of highly pleasurable activities, successful athletes will mostly force themselves to

be conscientious and practise regularly with the necessary vigour. Kuhl and Beckmann (1994) define this as self-control. Everyday language calls such behaviour self-discipline or willpower. Self-control is well exemplified by an exhausted marathon runner who is about to drop out of the race. When he sees a television camera focusing on him, he mobilises his last resources and coerces himself to carry on.

- Self-regulation is the alternative to self-control. According to Kuhl and Beckmann (1994), consider self-regulation to be much more convenient and beneficial in the long run. Self-regulation attempts to influence the motivational basis of present behaviour in a way that reduces the temptations of behavioural change. To do this, an athlete might, for example, choose aspects of his/her training that are particularly enjoyable or challenging to him/her, or he/she imagines which goals that are important to him/her he/she may eventually realise if he/she practises long enough and hard enough.

In the long run, people benefit more from self-regulation than from self-control. The latter may eventually result in alienation from what athletes actually would like to do if it is the dominant volitional strategy (cf. Kuhl & Beckmann, 1994). They develop the feeling that they do not act in line with what they actually want but suppress their individual needs and interests because of feeling obliged to do so. Thus, they lose their sense of self-determination and competence that forms the foundation of intrinsic motivation (cf. Deci & Ryan, 1985). Several studies have shown that blocked access to (implicit) self-results in a loss of creative potential. Midfielders in soccer, for example, may not be able to demonstrate their potential as creative playmakers (Beckmann & Trux, 1991; Kazén, Kuhl, & Quirin, 2015; Kuhl & Beckmann, 1985).

As the above given examples have shown, volition is essential in sports, for example, for enduring long-term comprehensive practice schedules throughout an athletic career or for hanging on during exhausting competitions. Young athletes in industrialised societies have several competing options as to how to live their lives. Thus, hanging out with friends might be a tempting alternative to swimming length after length in the pool. Emerging athletic talents appear to possess the volitional ability to strengthen their intentions regularly in spite of occasionally negative training and practice experiences. Beckmann et al. (2006) conducted a longitudinal study on the volitional development of adolescent athletes going to a school with a sport focus, with one group of them living in a boarding school on campus and another group living with their parents compared to students attending regular schools. The results showed the volitional development in adolescent athletes to be more proficient than that of the regular students. This was particularly true for the athletes living in the boarding school compared to athletes living with their parents. Interestingly, the strongest leap in the volitional developmental occurred after students enrolled in the school with a sport focus. After school enrolment, students living in the boarding school were found to spend more time with their peers than those commuting home. This could be the reason for the advantages of the boarding school students over the commuting students. Boarding school students had more self-determined time with peers than the commuters. Additionally, the young athletes' advantages over regular students with regard to volitional abilities were already partly present before enrolment, suggesting a selection effect (Elbe, Szymanski, & Beckmann, 2005). Interestingly, it becomes more likely that young athletes end their careers (dropout) if supervisors (trainers, boarding school staff) do not acknowledge their already well-developed self-regulation and interfere with self-determined self-regulation (Elbe et al., 2003).

Summary

Kuhl (1983) defined volition as processes that support the execution of an action that faces

obstacles. Particularly in sports these volitional abilities are of high importance because both training and competition demand of athletes to always give their best in order to perform at the highest possible level.

20.3.2 Action Vs. State Orientation and Athletic Performance

The theory of action control (see Chap. 12 in this volume) has stimulated a large number of sport-related studies (for a summary see Beckmann, 1999). Some of these studies examine the influence of stressful events (failures, attempted records, time pressure) on motor performance. Kuhl's (1983) construct of action vs. state orientation is of particular relevance in this context. Athletes with a personality disposition to state orientation are more likely to ruminate over failure (failure-related state orientation) or have more difficulties with making decisions (decision-related state orientation). Both can negatively affect subsequent athletic performance. If a soccer player is petrified after missing a goal, he might not be ready to help his team defend. If a goal keeper cannot decide whether to stay between the posts or run towards an approaching opponent, this indecision might give an advantage to the attacking team. Kuhl (1981) found that after inducing "learned helplessness" through a series of failure experiences, state-oriented participants' performance on a subsequent cognitive tasks was impeded. The performance of action-oriented participants was not affected by the failure experience. In an analogous manner, Strang et al. (1987) found in a study with student athletes that state-oriented participants made more mistakes on a complex motor tasks following failure training. The performance of action-oriented students, however, was not affected by preceding failure.

In addition to these findings, Haschke et al. (1994) found psychophysiological correlates to the helplessness effects in the brain. An increased encephalographic DC signal (a DC EEG refers to a signal value that is not changing), indicating impaired behavioural control, was found in state-oriented, but not action-oriented, soccer players after failure training.

Definition

Action orientation as a personality variable refers to the disposition to volitionally direct one's attention to factors supporting the execution of an action. The self-regulation does not have to be consciously represented. State-orientation as a personality variable associated with a tendency to redirect attention more frequently on situational factors and a tendency to ruminate. Both tendencies interfere with the intuitive execution of an action. The individual dispositions of action vs. state orientation have a particularly significant impact on action in stressful situations such as athletic competitions.

The higher capacity of action-oriented athletes to deal with pressure is particularly evident if they try to set a personal record on a task requiring fine motor skills and concentration. This was shown in a study by Heckhausen and Strang (1988). The instruction to aim for a personal record in a basketball task resulted in higher effort in both action-oriented and state-oriented players. The consequences for several performance characteristics, however, differed significantly between the two groups. State-oriented players ran faster when they were given the record instruction, but their scoring (number of basket they made) was not exceptionally well. Action-oriented players when given the record instruction performed substantially better in both categories (cf. Sahre, 1991). The reason for this difference might be that action-oriented players are able to regulate their available resources more efficiently and only invest just as much as needed for improved performance. State-oriented players, however, appear to be unable to regulate their efforts in a similarly efficient manner. Given personal record instructions, they deplete their resources quickly. Häger et al. (2015) found a relationship between an individual's disposition to action vs. state orientation and Higgins' (1997) regulatory focus theory. This theory distinguishes between goals with a promotion focus (i.e. a focus on hope and realisation) and goals with a

prevention focus (i.e. focus on obligation and security). Amongst the basketball players in Häger et al.'s (2015) study, failure-related state orientation was found to be associated with a chronic prevention focus. Action-oriented players, on the other hand, more commonly focused on promotion (RFQ). According to the regulatory focus theory, a promotion focus is associated with the realisation of ambitions or ideas that are very important to the acting individual.

Our discussion so far seems to suggest that state orientation is always detrimental to athletic performance. Indeed, psychological research in general not only in the field of sports indicates less efficient self-regulation in stressful and demanding situations or the appropriate use of resources (strength and concentration) of state-oriented compared to action-oriented individuals. However, sport-related studies draw a much more complex picture. For example, in a study in track and field athletics, Beckmann (1987) found an advantage of state-orientation athletes in disciplines requiring short-time, maximal exertion of strength such as in shot put, javelin and 100 m races. The study included state-oriented Olympic gold medal winners and world champions in these disciplines. In endurance sports which demand careful management of one's resources over an extended amount of time, action-oriented athletes were found to be more successful. In martial arts which require athletes to remain unperturbed after failure (opponent placing hits), action-oriented athletes excel as they stay confident, better anticipate the opponent's movement and react quickly (Beckmann & Kazen, 1994).

The previous paragraph highlights that it is important to take into account the specific demands of different sport disciplines. Depending on the specific qualifications required by a certain sport discipline action orientation could be advantageous. In sport disciplines with other demands, state orientation could be beneficial. Even a differentiation of players according to action and state orientation regarding different positions within teams in game sports has proven to be beneficial. In certain positions the rumination tendency of state-oriented athletes can be to their advantage. Because they contemplate different moves and strategies, they have developed

the capacity to play in more variable ways than action-oriented players. There is in fact empirical evidence that key players in high-performance professional sports (German first and second league volleyball and basketball) tend to be state-oriented rather than action-oriented, whereas the strikers were mainly action-oriented (Beckmann & Trux, 1991). State-oriented players tend to restrict themselves to supportive roles in critical game phases, i.e. they avoid risks, shoot less and confine themselves to passes and dribbling. Action-oriented basketball players shoot more frequently and score more reliably in stressful situations than their state-oriented teammates (Sahre, 1991). This also confirms Kuhl's (2001) assumption that state orientation results in a comparatively rigid and context-insensitive acceptance of rules set by others (see also prevention focus in Häger et al., 2015).

Two studies by Roth (1991) on tactical decisions in sport games under time pressure and physical stress further confirmed these results. In general, Roth found that state-oriented players followed the instructions they were given on how to make decisions (e.g. stressing the quality of decisions over their speed or the other way around) more thoroughly than action-oriented players. However, action-oriented players were found to make more precise decisions under psychological (time pressure) and physical stress (which is comparable to game situations) than state-oriented players. Interestingly, this pattern was reversed under conditions of low psychological and physical stress.

Another aspect of the individual differences is especially interesting for coaches. Findings suggest that it should be easier to work with state-oriented players because they tend to follow instructions and tactics more willingly than action-oriented players (Beckmann & Trux, 1991). However, this is only true as long as their cognitive state, i.e. tendency to ruminate, does not intervene with such behaviour. Sahre (1991) showed that action-oriented in contrast to state-oriented players tend to keep their nerves and score more reliably in critical game situations, namely, close scores near the end of a game.

Coaches appear to be quite good at estimating their players' dispositions of state vs. action ori-

entation as was shown by Haschke et al. (1994). Coaches' judgement corresponded well with the results of the action control scales. Coaches can actively incorporate assessment of their player's action control dispositions and the possible behavioural consequences for performance in a competition into their tactical considerations.

Empirical evidence also provides information about interventions that can improve action control. Experiences of failure do not result in a decrease of performance if the execution of the motor behaviour is accompanied by speaking aloud. A verbal structuring prevents a feeling of acting "planlessly" (cf. Strang et al., 1987).

State-oriented athletes seem to need instructions from their coaches that are as concrete and precise as possible. At the same time, such instructions might conflict with the flexible self-regulation potential of action-oriented athletes. The latter group, however, can benefit from high-pressure situations (high goals in competitive situations), while state-oriented players (without additional instructions) should avoid them (Heckhausen & Strang, 1988) and perform better when relaxed.

Hartung and Schulte (1994) have shown that state orientation is by no means a totally fixed trait. It can in fact be changed during the course of a behaviour therapy. However, as was shown above, state orientation can be beneficial in certain sports under certain conditions. A kind of (self-) selection during the early career of athletes seems to occur. Athletes with a disposition to state orientation remain successfully in disciplines that require short-term maximised effort or get into the position of a playmaker on sport teams. In disciplines that require the management of resources and "keeping one's cool", state-oriented athletes may drop out so that at a high achievement level, action-oriented athletes prevail. The same appears to apply to the top striker position on a team (Beckmann, 1987; Beckmann & Trux, 1991; Sahre, 1991).

Several studies have suggested such a process of self-selection as successful athletes gravitate towards disciplines or team positions that "match" their respective dispositions with regard to action control (Beckmann & Kazen, 1994; Beckmann & Trux, 1991). However, knowing

young athletes' dispositions could also be used in order to selectively introduce them to different disciplines or positions in which their personal dispositions might promise particular success.

Research has shown that it is also important to consider a combination of the various aspects of action and state orientation. In his 1987 study, Beckmann found that the successful state-oriented athletes in disciplines requiring short-term maximised effort had a combination of failure-related state orientation and performance-related action orientation. This combination essentially connects an energising effect of state orientation caused by its tendency to imagine the results of potential failure with the concentration aspect of action orientation. Overall, this could be considered an ideal condition for high athletic performance.

Summary

The construct of action vs. state orientation plays an important role in sports. Even though action-oriented people tend to perform better under pressure, there are findings showing that state-oriented athletes excel in certain disciplines. State orientation is particularly advantageous if short-term maximised effort is required. Action-oriented athletes tend to be more successful if scoring reliably is a concern and managing resources as in endurance disciplines is essential. When it comes to sport games like soccer, action-oriented players appear to be superior as strikers (traditionally the position of the centre-forward), whereas state-oriented players can be resourceful play-makers as long as they stay focused.

20.3.3 Regulation of Stress and Recovery

In order to maintain high athletic performance over time, it is crucial to avoid excessive training and burnout by aiming for a balance between stress and recovery (Kellmann & Beckmann, 2018). A lack of deactivation after activities – particularly failure – is not only a stressor, but can also result in continuous rumination that impedes or interferes with subsequent recovery. Recently, the importance of post-actional deactivation for recovery has been realised, and, hence,

volitional processes as relevant volitional processes have been addressed in research on stress and recovery (Beckmann, 2002). Empirical results suggest that the disposition of action vs. state orientation and volitional skills influence both the perception of stress and recovery. The self-regulation of state-oriented people is generally less efficient than that of action-oriented people, particularly when under stress and dealing with failure. Consequently, their stress-recovery balance tends to be less favourable than that of action-oriented people. This means that their stress level remains relatively high for longer periods of time, while recovery levels tend to be comparatively low (Beckmann & Kellmann, 2004).

Summary

Research on action control has so far discovered numerous volitional determinants of athletic performance. These empirical findings have been used for the development of mental skills training stabilising performance (Beckmann & Elbe, 2015). However, the overall goal of this volitional research is not so much applying specific control processes but rather on supporting an adequate understanding of the cognitive-emotional state associated with “being in the zone” promoting peak performance (Csikszentmihalyi, 1975).

20.4 Comprehensive Models of Motivation and Volition

The next section will briefly address theoretical models that integrate motivation and volition. Generally, such models attempt to explain how intentions are formed and transferred into action, thereby overcoming a shortcoming of classic motivational psychological, the so-called “action gap” (Heckhausen, 1989).

One of these models is Ajzen's (1985) theory of planned behaviour. According to Ajzen, a person is likely to act in a particular way if he positively evaluates this behaviour (attitude) and if additionally he believes others to also positively evaluate this behaviour (subjective norm). Initially, attitudes and subjective norms determine the formation of intentions or, in other

words, whether a person intends to behave in a particular way or not. Whether or not a person manages to cross the “action gap”, i.e. actually translate the intention into behaviour, depends on two components: the strength of the intention and perceived behavioural control. The latter component is volitional and refers to the perceived individual potential for actually initiating and executing the intended behaviour. Perceived behavioural control includes the evaluation of internal and external resources that can support overcoming obstacles towards the realisation of the intention. Numerous studies provide empirical evidence for the validity of the theory of planned behaviour in areas such as consumer behaviour but also in sport-related contexts, namely, attending sport events (Cunningham & Kwon, 2003; Lu, Lin, & Cheng, 2011). Moreover, several studies found the theory to successfully predict the actual extent of health-related exercising (e.g. meta-analysis by Hausenblas et al., 1997). For instance, Hausenblas and Symons Downs (2004) showed in a study with pregnant women that attitudes and subjective norms were good predictors for the intention to exercise as suggested by the theory of planned behaviour. They especially found that whether or not these intentions were realised depended primarily on perceived behavioural control.

Other sport-related studies have been inspired by Heinz Heckhausen’s Rubicon model of action phases (Heckhausen, 1987, 1989; see Chap. 11 in this volume) that distinguishes between motivational and volitional phases. The first phase specified by this model is a pre-decisional motivation phase during which information about the incentives and expectations of various behavioural options are appraised in light of the given situation in an objective, undistorted way. The goal of this phase is to form an intention. Once a person has crossed the Rubicon by committing herself to that intention, the next step is a volitional phase during which the intended behaviour is implemented in a way that is as close to the intention as possible. The focus of the volitional phase is to process information relevant to the behaviour in question. This information might be distorted

if this benefits the realisation of the original intention, i.e. helps to maintain action control (cf., Beckmann, 1984). The acting person’s primary concern is not being realistic (reality orientation) but rather realisation. When the performance has obtained an outcome, a motivational, post-actional phase during which the results and their consequences are evaluated objectively (reality orientation). This concludes the action episode.

The post-actional phase is of particular importance in sports and for sport psychological interventions. This phase aims at evaluating and deactivating completed behaviour, which is required to switch to new behaviour. Inefficient deactivation can be a central obstacle to new behaviour. This can, for example, relate to the process of moving on after failure during an ongoing athletic activity. For example, a golfer may need more strokes on the first hole than expected but has to move on to the next hole and tee off with self-confidence. In decathlon it is essential for an athlete to stop thinking about an unexpected below standard performance on the previous discipline in order to focus on the upcoming discipline. Beckmann (1994) showed that this process can be particularly difficult for state-oriented individuals because they might get stuck in a self-evaluation loop after failure including internal, stable attributions.

The Rubicon model received particular attention in the context of participation in health-related exercising (Höner & Willimczik, 1998). The formation of implemental intentions (planning) as a type of volitional strategy has stimulated the development of new models in health and sport psychology (cf. overview by Fuchs, Göhner, & Seelig, 2007; Sniehotta & Schwarzer, 2003; Sudeck, 2006). The phase structure of the Rubicon model was confirmed by Höner et al. (2004) in a study on the implementation of exercising during recovery from a heart attack. A path analysis furnished a significant direct effect of strength of motivation on strength of intention as well as of the latter on strength of volition. But only the strength of volition showed a significant effect on actual participation in exercising.

Excursus*Berlin Stage Model (Fuchs, 2001)*

The Berlin stage model by Fuchs (2001) combines elements of the trans-theoretical model by Prochaska and DiClemente (1982) as well as the Rubicon model of action phases (Heckhausen, 1989). The Berlin stage model distinguishes between eight distinct behavioural stages. Two of these stages have a pre-decision (motivational) orientation, whereas the other six focus on processes after decision-making (volitional). The model has been implemented successfully for increasing participation in health-related exercises (Fuchs, 2006).

20.5 Diagnosis

20.5.1 Measuring Motives

According to a recent review by Clancy et al. (2017), the six most highly cited motivation questionnaires in sport are the Sport Motivation Scale (SMS; Pelletier et al., 1995), the Intrinsic Motivation Inventory (IMI; McAuley Duncan & Tammen, 1989), the Situational Motivational Scale (SIMS; Guay, Vallerand, & Blanchard, 2000), the Perceptions of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998), the Behavioural Regulation in Sport Questionnaire (BRSQ; Lonsdale, Hodge, & Rose, 2008) and the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989).

Interestingly, these questionnaires do not represent the range of motives and motivation addressed in motivation theory. Solely two theoretical approaches, achievement goal theory with the two specific achievement goals of task and ego orientation (Nicholls, 1984) and Deci and Ryan's self-determination theory (Deci & Ryan, 1985), are covered by the questionnaires. Merely two measures address personality components, namely, task and ego orientation (Duda, 1989; Roberts, Treasure, & Balague, 1998). The other four questionnaires are closely related measures of intrinsic and extrinsic motivation.

Only four of these six questionnaires are domain-specific measures focusing on sport (Duda, 1989; Lonsdale, Hodge, & Rose, 2008; Pelletier et al., 1995; Roberts, Treasure, & Balague, 1998). The other two are general measures of intrinsic and extrinsic motivation.

Clancy et al. (2017) conclude that despite some variance in their psychometric properties, conceptualisation, structure and utility, the six questionnaires are psychometrically strong instruments. However, given the range of important motivational concepts in sports, the sample presented by Clancy et al. is insufficient. That the authors found these measures to be the most cited does not indicate that they are the most important measures especially for applied sport psychology. Furthermore, all of the measures are self-report questionnaires. Self-report measures primarily address the explicit motive but not the implicit motive. Because there are some differences between the implicit and the explicit motives a need for assessing the implicit motives in sport seems to be required. In what follows, we will therefore briefly address the necessity of sport-specific measures, a broader range of motive measures and also alternatives to self-report questionnaires in order to also capture implicit motives.

The domain-specific assessment of personality traits such as motives is a frequently debated topic. In the 1950s French (1958) already showed that specific incentive dimensions affect different motives. Spence and Helmreich (1983), for example, question whether the use of general instruments for the assessment of achievement motivation is appropriate in athletic situations at all. This means that athletes who are motivated by athletic achievement situations might not react equivalently in achievement situations that have nothing to do with sport such as academic tests. Therefore, it is a central question to what extent the general achievement motive influences an athlete's motivation or whether a sport-specific achievement motive has a larger impact. Using a projective instrument, namely, Heckhausen's (1963) TAT, Steiner (1976) found a relatively high but far from perfect correlation ($r = 0.60$) between the (implicit) general and sport-specific achievement motive of competitive athletes. The

study presented participants with the general TAT and a second one that only featured sport-related pictures. According to Steiner, these results seem to “suggest the existence of a rather superordinate construct that is independent of the current situation” (1976, p. 223). Elbe, Wenhold, & Müller (2005) also found evidence for this relationship between the general and sport-specific achievement motives. However, in contrast to Steiner (1976), the authors used two questionnaires: the Achievement Motive Scale (Gjesme & Nygard, 1970) and a sport-specific version of the same questionnaire (AMS-Sport). These findings suggest that also with measures of the explicit motive a similar relationship of the general and the domain-specific motive can be found. However, the results reported by Elbe, Wenhold, & Müller (2005) only show a significant relationship between actual athletic performance and the sport-specific assessment of the achievement motive but not for the general measures. The reason for this might be that domain-specific measures outperform general measures for predicting domain-specific performances. Moreover, athletes seem to be more accepting of sport-specific methods than general ones (Beckmann & Kellmann, 2004).

Similarly, sport psychologists recommend assessing sport-related phenomena with sport-specific instruments (Gill & Deeter, 1988) in order to get results that are relevant for athletic situations. The “Task and Ego Orientation in Sport Questionnaire” by Duda and Nicholls (1989) measures the extent to which respondents are activated by task-oriented and competitive situations. Gill and Deeter (1988) developed the Sport Orientation Questionnaire (SOQ) that measures respondents’ attitudes towards competitions using three separate yet related scales. A general scale on this questionnaire measures the intensity of the desire to be successful in athletic situations (competitive orientation). The other two scales measure success orientation, i.e. the wish to win in situations of comparisons with others, and goal orientation, i.e. the wish to realise personal goals in sports.

As was mentioned in the section on implicit and explicit motives, Gabler (1972) developed a sport-specific version of the thematic apperception test (TAT) that allows for the measurement of the sport-specific implicit achievement motive. Initially, sport psychologists tended to neglect this approach as they relied on questionnaires which are much more economical in their use. Driven by the finding that implicit and explicit motives represent different motive systems that facilitate different kinds of predictions, however, a new interest in measuring implicit motives has recently emerged. The operant motive test (OMT) by Kuhl and Scheffer (1999) takes much less time than the classic TAT while surpassing the TAT with regard to psychometric criteria as Scheffer et al. (2003) showed. Therefore, recent studies measuring implicit motives in athletic contexts have used the OMT (Schüler & Wegner, 2015).

20.5.2 Measuring Volition

Several questionnaires measuring volition have also been adapted and validated for use in the field of sports. For instance, Beckmann and Wenhold (2009) developed a sport-specific questionnaire for measuring action and state orientation (HOSP), while Wenhold et al. (2009) developed a questionnaire on volitional components in sports (VCQ-Sport).

Summary

Even though the issue of domain-specific instruments remains controversial, the advantages of sport-specific measures have been shown in various studies. Particularly in the area of motivation research in sport, several sport-specific measures have been developed. After having been neglected for some time, new attention has recently been given to measuring implicit motives. Besides established instruments for assessing motives and motivation in sports, HOSP and VCQ-Sport have become accepted sport-specific instruments for the measurement of volitional components.

20.6 Practical Consequences: Boosting Motivation and Volition

At this point the question arises which practical consequences result from the sport psychological research on motivation and volition regarding how to motivate athletes. Answers to this question are of particular interest to coaches and PE teachers but also to people working in the area of health and exercise. In general, motivation is primarily an intrapersonal process. Strictly speaking, we cannot directly motivate others but only provide conditions which are suited best for a single athlete to inspire and maintain motivation and several studies confirm this idea.

Frequently, motivating athletes is associated with leadership behaviour. Several sport psychological studies have addressed this issue. For example, Saborowski et al. (2000) found the motivational climate during practice sessions amongst young athletes to be influenced by various factors. These factors, however, were not stable over time. In fact, leadership behaviour was an important source for motivation. Higher motivation was found with coaches who support participation of athletes, provide sport-specific explanations and give social support. Fuchs et al. (2000) found that instructors who “focused internally” were more likely to attract participants in health and leisure exercise groups than instructors who “focused dually”. Instructors who focus internally address incentives for exercising which are located within the participants (e.g. enjoyment of exercising). Instructors who focus dually use both internal and external aspects (e.g. using attendance lists) in their attempt to motivate participants. Moreover, which kind of leadership behaviour sport participants prefer depends on various factors. Whether or not athletes perceive their instructor’s behaviours as motivating includes instructor characteristics such as age of the instructor (Carron & Hausenblas, 1998), skill level (Würth, Saborowski, & Alfermann, 1999), sex

(Chelladurai & Saleh, 1978) and cultural background (Chelladurai, Malloy, Imamura, & Yamaguchi, 1987; Hastie, 1993). Ames (1992) found that a motivational climate which involves acknowledging effort, improvement of performance and personal records is particularly successful for the development of effective motivational strategies in children. Similarly, Scanlan and Simons (1992) highlighted that positive emotions are particularly important for the motivation to start and keep exercising.

Moreover, sport-relevant aspects can be derived from insights into how motivation can be boosted in general. Hecker (1984), for example, stressed several such factors, namely, an ideal match of aptitude and task requirements, self-determination with regard to task choice and realistic performance standards. People with fear of failure in particular benefit if they are given more time to practise individually and are instructed to compare their performance to an individual rather than a social reference norm (cf. Rheinberg & Krug, 1999).

Applied sport psychology provides a number of specific interventions to boost motivation (for an overview see Beckmann & Elbe, 2015). According to Weinberg (1992), how goals are set in sports can have a huge impact on motivational outcomes. In fact, most disciplines have a tendency to systematically set difficult specific goals as described by Locke and Latham (2002). Evidence also suggests that a disposition to state orientation can be changed into action orientation with behaviour therapy (Hartung & Schulte, 1994). Altfeld et al. (2017) also found that mental training can increase players’ action orientation in basketball. A century ago Lindworsky (1923) already compared willpower to a muscle that requires training. Sport seems to provide an excellent framework for such training. Young athletes frequently have to deal with failures and need to overcome them. Several studies have shown that this necessity can strengthen volitional capabilities (e.g. Beckmann et al., 2006).

20.7 Summary

Motivation and volition play a central role in sports. Achievement motivation is of course indispensable for competitive athletes. Whereas the affiliation motive is a central trait for the motivation of recreational athletes, it seems to be more of a disadvantage to competitive athletes. Therefore, volitional inhibition of the affiliation motive might lead to better performance in competitive situations. Several sport psychological studies have provided insights into the specific conditions for motivation and volition in athletic contexts. These include the development of sport-specific instruments for measuring motives, motivation and volitional factors. The differentiation between implicit and explicit motives has only recently received more attention after explicit measures had dominated research and its application for a long time. Congruence between the external conditions for motivation and the motive strengths of individuals is highly conducive to high motivation in training and competitions. Ideally, this applies to both implicit and explicit motive measures. Volition (self regulation) is a component that is required for enduring exhaustion in training sessions as well as the stressful conditions athletes face in competitions. Thus, sport psychological interventions focus on self-regulation to a great deal. Strategies of self-regulation can be acquired through practice. However, volition (or self-regulation ability) is apparently also boosted by the circumstances of (competitive) athletic contexts themselves, e.g. attending schools with a focus on sports.

Review Questions

1. *Question: Why can affiliation motivation be detrimental in competitive sport?*

Answer: Competitive situations are usually about beating an opponent. This goal conflicts with a focus on harmonic cooperation at least in athletic contexts.

2. *Question: Is it possible to reduce aggression through sports as the catharsis hypothesis claims?*

Answer: Most empirical evidence contradicts the catharsis hypothesis. Only if sport offers an opportunity to take revenge on the person who has frustrated the acting individual and thus caused the aggression, it is possible to reduce aggressive motivation.

3. *Question: What is the difference between self-control and self-regulation?*

Answer: Self-control inhibits conflicting reactions, whereas self-regulation facilitates processes that support motivation.

4. *Question: Are state-oriented people always less successful athletes than action-oriented people?*

Answer: State-oriented individuals can even be the more successful athletes in disciplines requiring short-term maximised effort (e.g. weightlifting, shot put). Additionally, they have been shown to develop more creative potential as key players on teams than action-oriented athletes. This holds true as long as negative affect is kept low.

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