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## Psychological training in sports

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### Abstract:

The primary task of a coach in competitive sports is the support and guidance of athletes in their development to achieve the individual top level of performance. Therefore, coaches should acquire a working knowledge of all areas affiliated with performance enhancement. Psychological training is one pillar a today's coach should be familiar with. This article illustrates some components with psychological background knowledge for consideration when applying psychological training. It is imperative for coaches to gain a familiarity with this often neglected facet of training in order to provide support and guidance for athletes on their way to achieve peak performance in competitions along their sports career. With this article science meets real life experience and thus it enhances the body of knowledge for coaches for new thoughts to train elite athletes.

Key words: Psych Regulation Training, Mental Training, Goal-setting, Self-confidence, Self-efficacy

### 1. INTRODUCTION:

Whether in biathlon, ski jumping, athletics, gymnastics or other sports - psychological training has become increasingly established in competitive sports (Beckmann-Waldenmayer & Beckmann, 2012) and pursues the following objectives: to release blockages in the mind during competition and to reduce self-doubt, and to enable the athletes to fully exploit their own potential. In competitive sports, mental strength often determines success or failure, pleasure or frustration. Mental strength requires a pronounced self-confidence which can be achieved by physical training. According to current knowledge, today's athletic training consists of the following pillars:

- Technique training,
- Tactics training,
- Physical training,
- Psychological training.

Statements such as "winning is with the mind" or "winners don't doubt" and "doubters don't win" are often quoted. Baumann (2006) states in this context: "You will not achieve a victory that you cannot imagine, even if you have the physical abilities to do so" (Baumann, 2006, p.155). This underlines the increasing importance of psychological training as part of the training of elite athletes. So mental training seems to play a decisive role in contributing to the success in sports, and the focus on this subject seems to increase gradually (Gross et al., 2018). Gabler (1995, p.37) stresses that "[...] the psyche is the basis of all training." It is a general consensus that an athlete who enters a contest is a mind-body organism and not only a physical machine (Coleman, 2013). Ultimately, the psychological state of the athlete in the probationary situation of competition determines whether the level of performance of training is achieved or exceeded within a competition (Kratzer, 1991, 1994). Instructions of coaches often imply "You just have to believe in it" - but unfortunately it is not that simple, because every athlete has his/her own physical and psychological limits. However, both can be brought to a higher level by a suitable training. Psychological aspects must always be taken into account in the event that there are major discrepancies between the performance in training and the one in a competition. Sports psychology represents the interface between psychology and sports science and provides the basic knowledge for the field of psychological training. It aims to develop mental skills within athletes that improve their athletic performance, i.e. skills that help them to perform optimally at the right time (Crust & Azadi, 2010; Gucciardi et al., 2009; Hanin, 2000; Mahoney et al., 2014). However, it should be noted that psychological training and physical training cannot be substituted. Moreover, psychological training is trainable, which is somehow similar to physical training. Running, practicing Pilates, or lifting weights just once will not change much, but regular

exercise will build up muscles and improve skills. The situation is similar with psychological training. Small but regular exercises will have an impact (Crust & Azadi, 2010; Gucciardi et al., 2009; Mahoney et al., 2014). For this reason, this facet of training will be examined in detail in the continuation so as to provide a contribution to the body of knowledge for coaches in this area.

## **2. THEORETICAL APPROACH**

The world as we perceive is a construct of our thoughts, i.e. the result of subjective processes in our brain. Since every person evaluates, perceives and interprets things differently, this means that mental processes such as perception, thinking and drawing conclusions, i.e. "cognition" are of relevant importance for the individual athlete. Even if athletes are highly trained in sport techniques, this is no guarantee that they will have their cognition, feelings and thoughts under control in a competition. Mental processes such as fears or doubts resulting in concentration problems inhibit athletes from achieving their best performance (Hanin, 2003, 2010). Psychological training in sports is generally referring to the training of psychological processes for the systematic optimization of the psychological prerequisites for action with the help of psychological methods (Gabler & Maier, 1998; Hottenrott & Seidel, 2017; Seiler & Stock, 1994). Psychological training considers factors such as motivation, enjoyment, self-confidence and self-efficacy (Abbott & Collins, 2004; Côté, Baker, & Abernethy, 2007; Csikszentmihalyi, Rthunde, & Whalen, 1997). It means that athletes or their coaches adjust and control the athlete's sports behaviour by adopting specific ways to promote psychological state. Basically, it is about the ability to ignore all psychological and social disruptive factors in the training process and/or competition and instead focus on achieving a set goal. With psychological training, actions that have already been learned can be supported through targeted mental preparation or new actions can be learned more quickly. "It is not the thing themselves that move us, but our views of them" (Epictetus, 50 – 138 AD), from this it can be deduced that the views lead to success or failure, especially in stressful situations. Thoughts such as: "I can do this" or "I am super prepared" are in contrary to thoughts like "I cannot do this, the others are better". Psychological training is helpful to optimize the psychological prerequisites for top performance. There are many methods in psychological training, some of them will be highlighted in the following.

### **2.1 Mental training**

Mental training ("mental imagery") is one of many training methods in sports psychology. According to Igel (2000, 2001), there is no uniform definition of mental training, but all definitions have in common the "repeated imagining of movement sequences without actually executing them (Igel, 2000, p.24). In this kind of training, the real movement or situation is not practiced, but it occurs in the athlete's mind, i.e. it is internally generated, by oneself or under the guidance of a sports psychologist or coach (Farah, 1984). It is a mental form of situational anticipation in which an athlete imagines how he wants to think, feel and act in a certain situation (Annett, 1995; Igel, 2000, 2001). The more detailed and concrete movement sequences or special situations that an athlete has to deal with are practiced in the imagination, the more effective such training is. Within this process, ideas about the optimal implementation of a specific movement and/or action sequence are activated in a targeted manner. Mental training offers the option to concentrate in the imagination on certain details in order to reinforce them or fade them out. Statements from athletes such as: "I'm ready" are indicators of the quality of this preparation. Cognitive research has proven that merely visualized images (events experienced only in thought) are similar to what is actually experienced (Farah, 1984) and thus leads to increased activation of the brain areas involved in actual movement or actual coping with a situation. Imagining a movement causes the occurrence of electrical action potentials in the muscle groups which are involved in the actual movement, the so-called Carpenter effect (Gabler et al. 1995). Mental training and practical movements use the same neural structures, and therefore, the primary motor cortex is of great importance during movement imagination (Mayer & Hermann, 2009). Every thought triggers electrochemical processes in the brain and thus influences performance. Erlacher (2010) speaks of activation in the supplementary motor areas and the premotor cortex.

Everything we perceive in reality or in our thoughts is based on neuronal structures. There is a direct connection between mental and neural activity. This means that what we focus our attention on, and what we think or feel, ultimately shapes our brain. Active regions receive more blood flow because they need more oxygen and glucose. The genes in the neurons are therefore activated to a lesser or greater extent in dependency of what we stress. Neural connections that are relatively inactive gradually disappear, while neurons that are activated together become wired and strong ("Neurons that fire together, wire together" (Hebb, 1949)).

The "key word" visualization is currently one of the mainstreams in competitive sports training. The problem is, that humans will fall back into old behaviours (tendency to regress), in the event of having an overload of stress and the visualization has not been conditioned sufficiently. Thus, it should be noted, that mental training works, similar to physical training, through frequency, regularity and intensity. It is particularly effective when combined with physical training. Mental training can in no way replace physical training, it can only complement it, i.e. mental training and physical training have a complementary effect.

### **2.2 Psych regulation training**

Psych regulation is generally understood as the adaptation to changing conditions (Duden, 2017; Hackfort, 2018). Mentally strong athletes have the ability, regardless of the changing competition conditions, to perform at the upper performance limit. As a basic principle, it can be said that energy follows the thought(s), whereby it should be noted that every human being has an optimal range of psychophysical performance (Nitsch & Hackfort 1979). Some need a high level of arousal to achieve their best performance, some need a low level, some athletes already have a high level of self-confidence and a strong will, and others must develop and train it. The nice thing about psych regulation training is that you can train the individual components, either yourself or in cooperation with a mental coach. Some of the effective forms of psych regulation training are presented in the following subchapters.

### 2.2.1 Self-efficacy training → strengthening the self confidence

In the 1940s, the British psychoanalyst Donald Winnicott coined the concept of effectiveness, according to which only trust in one's own abilities for a personal goal leads to success. Athletes who are convinced of their skills and abilities can recall their top performance better than athletes who have doubts about their capability (Bandura, 1977; Mahoney & Avener, 1977). The strong belief that one's own abilities and skills can master (difficult) tasks and difficult situations is defined as the expectation of self-efficacy by Albert Bandura (1997). He demonstrated that strong personal triumphs are likely to affect this transformational restructuring of self-efficacy beliefs as the result of a "powerful mastery experience" (Bandura, 1997, p. 53). However, self-confidence is not a coincidence; it can be specifically increased through psychological training. Self-efficacy, i.e. the belief that you can have a positive influence on things, generally has positive effects on various areas of life and also promotes performance and motivation in sport. It is known from motivational psychology research that set and achievable goals can only be achieved if there is the belief in successful action (Baumann, 2006; Beilock & Feltz, 2007; Deci & Ryan, 1993). If athletes do not believe in their ability, i.e. their self-efficacy expectations are low, they perceive tasks as a risk of failure and, in the worst case, even assume that they will not be successful. This is expressed in statements such as "I should not..." or "This is not going well" (Oudejans et al., 2011). However, if they are convinced that they can cope with the sporting tasks, they accept the situation as a challenge and believe in success, because "doubters don't win and winners don't doubt". Moritz et al. (2015) proved this with their meta-analysis. By examining 45 studies, they were able to show a positive correlation between self-efficacy and athletic performance. In psychological training, it is therefore important to strengthen or develop the athlete's strong belief in the own abilities and thus in their self-efficacy. Mothes et al. (2017) have also found that one's own expectations have a strong influence on how strenuous sport is experienced, with the experience of exertion in turn playing a significant role in what athletes think of themselves (Stangl, 2021). In order to create a strong self-efficacy belief, Bandura (1977) explored four sources that can influence or modify an individual's self-efficacy expectations:

- *Performance Accomplishments*
- *Vicarious Experience*
- *Verbal Persuasion*
- *Emotional Coping/Arousal Coping*

#### *Performance Accomplishments*

The strong personal triumph in mastering a challenging task can create an increased individual belief that other tasks with equal or greater difficulty can be overcome in the same way (Samuels & Gibb, 2002; Samuels et al., 2010). The experience of mastering situation(s) creates so-called somatic markers in the emotional memory of experiences. Every deep experience that a person has made is stored in his emotional experience memory and can be activated again in similar situations in the future. This stored information can be positive or negative, i.e. positive and negative markers intuitively point to positive or negative options for action. In the situation, this affective evaluation happens within 200 milliseconds in the implicit area (gut feeling). It is a body-based, spontaneous and intuitive navigation system, i.e. an emotional subconscious evaluation of a situation, which is based on previous goal achievement. These somatic markers then trigger corresponding bodily reactions. In psychological training, it is therefore important to identify and analyse the expected situation and then mentally recall the memory of similar situations that have been mastered positively and dock on there mentally. According to the principle of "strengthening strengths" and "weakening weaknesses", it is important to focus on strengths and positive coping.

#### *Vicarious Experience*

In psychological research, a distinction is made between personal and general self-efficacy expectations (Schwarzer & Jerusalem, 2002). The self-efficacy expectation can be influenced by two experiences:

1. Mastery Experience
2. Vicarious Experience

Although the vicarious experience is secondary, it can also increase self-efficacy. Vicarious experience is the representative experience in which someone else is observed by doing a certain sport activity successfully and the observing person then draws conclusions about his own sense of competence (Schwarzer & Jerusalem, 2002). Observing successful world-class athletes and drawing conclusions for the own technique or tactical behaviour are well-known examples in sport. Observing elite runners in being successful create the thinking and makes us

more belief to run in a similar way. In easy words, the imagination to run like a world champion improves our performance.

#### *Verbal Persuasion (self-talk & coach-talk)*

Verbal persuasions are verbal encouragements from the athlete himself (self-talk) and/or from external persons (coach-talk) to be able to carry out a certain activity, i.e. to increase or stabilize the expectation of self-efficacy. Coach-talk and self-talk are means of directing the focus, and this ensures that the corresponding brain areas are active and thus promote that athletes can perform at their best (Spitzer, 2002). A self-talk or self-instruction always begins with thought processes which, like the motivation, can be positive (what do I want to achieve) or negative (what do I want to avoid). This orientation determines the actions very strongly. The American sports psychologists Mahoney and Avener (1977) were able to prove in national qualifying competitions that the thoughts and self-talks of qualified and non-qualified differed. The successful ones were task- and goal-oriented and had thoughts of achievement and repressed negative thoughts with self-talk, while the unsuccessful were thinking about possible negative consequences, i.e. thoughts of avoidance with a focus on avoiding mistakes.

The Self-talk (Hatzigeorgiadis et al., 2011; Tod, Hardy & Oliver, 2011) We put our thoughts into words by talking to ourselves and thus trigger that the energy follows the thoughts that are clearly expressed through the self-talk. In psychology, the term "self-instruction" is also used in this context. Self-instruction is based on the effect that our mind and body believes what we tell them in other words "fake it till you make it". Talking to yourself prompts the subconscious to send positive (or negative) thoughts. A self-talk can be mute, quiet or loud, but when it takes place it has an impact on our actions because our energy follows the thoughts. Self-talk or external persuasion can be used to:

- Memorize a sequence of movements (e.g. "push-pull" or "left aaand hop!")
- Motivate oneself (e.g.: "I'm ready, I'm well prepared." "I'll do it", "I can do it", "I'll keep the pace today")
- Regulate anger or arousal (e.g.: "stay calm, you've already done more difficult things!", "quiet now" or "now put all your energy into the jump").

Positive self-talk activates energy, while negative self-talk drains energy. The naïve sportsman wisdom "Only when we give up in the head then our legs stop running" clearly expresses that the head always gives up first. Self-talk and action are closely related. In difficult situations beyond the comfort zone, the inner self-talk first turns negative, "I can't follow anymore" or "I can't do it" - after that, the person physically shifts down a gear or gives up. Namely, the negative turn is always first in the head, only then the concrete reactions and decisions follow. This means that destructive self-talk becomes a negative cycle of thought, i.e. one negative thought leads to the next, which leads to the next, and this creates a negative spiral. The problem is that this negative spiral is difficult to switch off, but it is rather an automatism. However, this automatism can be broken in the following steps:

- Become aware of the negative spiral (and stop it).
- Change or stabilize the mood: The way you feel is a personal contribution and depends on the self-talk, which can be either a complaint or an acceptance of the challenge, e.g.: The tempo is too hard = complain, or, this tempo puts me on the podium = acceptance.
- Increase in motivation: Motivation is regulated by self-talk,
- Orientate on the action: Actions support on the way to results and goals. You can talk to yourself about the necessary action steps in self-talk, then you carry out these actions more precisely and efficiently and, as a side effect, you distract yourself from negative thoughts.

A self-talk is recommended to be "appreciatively", because appreciation is one of the great psychological needs of human beings (Maslow, 1943), it should be clear and not generalized and it must be in the present tense such as "I do that" instead of "I could do that".

#### The Coach-talk

The external address of the coach-talk can also trigger internalization, which generally takes place in four steps. The first step is the external verbal instruction by the coach (coach-talk), which then gives a template for the following sequence of a possible self-talk. The sequence of the steps is as follows:

- External verbal instruction (coach-talk).
- Saying out loud yourself.
- Inner voice.
- Shortened internal speaking.

These steps enable an improvement in action control (Munzert, 1997). According to Munzert (1997), the effectiveness of self-instruction in motor skills (sporting performance) in adults is relatively unexplored, but he points out that weaker performers in particular can benefit from this type of attention control (verbal instruction). Beilock et al. (2008) used functional magnetic resonance imaging to demonstrate increased neuronal activation of premotor and primary sensorimotor areas of the brain when instructional sentences were spoken. Namely, through instruction with words motoric areas were activated, which help to anticipate the effects of actions.

### Emotional coping → arousal regulation

Emotions have a fundamental impact on self-image as well as decisions and actions. This also applies to the ability to call up one's top level of sports performance on the point. Sport is inherently emotional, so emotions and emotional arousal influence the performance of athletes positively or negatively (Beckmann & Elbe, 2011, 2015; Beedie et al., 2000; Hanin, 2003; Lane et al., 2016; Lazarus, 2000) and thus emotional coping (arousal regulation) is crucial to optimize the performance in training and competition (Hanin, 2000). The emotional state of the athlete can make the difference between victory and defeat (Craft, Maygar, Becker & Feltz, 2003). Under stress, positive emotions can create the “undoing effect” (Fredrickson et al., 2000) which means negative stress is at least neutralized. It is therefore important to be able to control the emotions or influence them in a goal-oriented manner. Hyper-hypo- or an unstable level of arousal (emotions) can be impacted by coaching and/or self-coaching. This can be preventive (before the competition) or retrospective (after the competition). In sports, there are negative emotions such as fear, neutral emotions such as tension and relaxation, and positive emotions such as fun and joy. Negative emotions lead to dissatisfaction and disappointment, while positive ones can lead to flow and maximum performance. Flow is a kind of balance between over- and under-challenging, i.e. matching the demand to the abilities and skills of the athlete (Csikszentmihalyi 1987; Csikszentmihalyi & Jackson, 2000). Emotions are always linked to motivation; positive as well as negative. Cognitive-physiological theories view emotions as a combination of arousal and the cognitive assessment of a current situation (Lazarus, 1984). So the intellectual assessment of a situation plays a crucial role in controlling emotions. The limbic system is responsible for our emotions. This system serves the processing of emotions and the emergence of drive behaviour. It makes you feel good when you think of a win or some other positive situation. The reward centres are all the more active, the higher the apparent chance of winning. In the brain, messenger substances such as dopamine (promotes targeted action, spurs us on to achieve a desired goal), oxytocin (trust hormone) and various endogenous opioids (feel-good substances) are produced. All of these substances ensure that a person moves towards a goal. Emotions influence the biochemical processes of the body (Le Doux, 2003) and they are in contrast to affects aimed to a goal and therefore they can be used consciously (Brandstätter, Schüller, Puca & Lozo, 2013) and, thus emotions can be learned to control to some extent. Increasing positive emotions and dampening negative ones, activating or suppressing certain emotions or perceiving or evaluating them differently is the approach within psychological training in sports.

This coping can be achieved by different strategies, such as:

1. Solving a problem/situation which creates negative emotions (fear, sadness, sorrow, depression) and thus changing the situation.  
For solving the problem, an athlete must experience success in training and/or competition and based on that, he can develop self-confidence and the belief that he can master a given task. This can be developed by the principle of progression by going from simple to complex, from slow to fast, from low to higher intensity and from easy competitions to high level competitions within one season or more seasons' progress. Also the part-to-whole method in learning sport techniques in order to master something in pieces is a practical approach. Nevertheless, the task for developing the athletes' self-confidence should meet his sweet spot, with suitable achievable but demanding tasks (Gilbert, 2017). This way enables the athlete to recall mastery and establish a sense of capability going into a new and more demanding competition.
2. Perception change: With this method, negative emotions are re-evaluated/reinterpreted into positive situations by changing the perception of the stressful situation without changing the situation itself (Benadada, K., Chaffar, S. & Frasson, C., 2008). It is important for changing the perception to analyse where the athlete's strengths are, because strengths are the only way to win. This means that both, the coach and the athlete, should not analyse failure but success. By recalling strengths and visualizing what worked already the dysfunctional thoughts will disappear. They will not be deleted or forgotten, but they will be pushed back. This results in a re-evaluation from performance-impairing thoughts (threat) into a challenge. This can lead to self-talk as an accompanying self-instruction. Furthermore, even failure can be positively interpreted as just a step on the path of development.
3. Raising or consciously triggering of positive emotions (Benadada, K., Chaffar, S. & Frasson, C., 2008). Some usable instruments to achieve this effect are:

#### ➤ The use of music:

The neurologist Manfred Spitzer (2002) states that the brain sends out impulses to produce feel-good hormones when listening to pleasant music. This is explained by the fact that music signals go directly to the zones of long-term memory via the limbic system through neural circuits. This allows people to be put into an altered state before rational mental operations begin. Gorn (1982) was able to demonstrate classical conditioning in the field of advertising by pairing positively rated music with a product. This principle is also used in sports. The use of music can increase or calm down arousal and create positive emotions. Depending on the type of sport and the character of the athlete, it is important to note that some sports disciplines, such as sprint, require a high level of arousal while others, such as darts, require a rather low level of arousal. Similarly with athletes, while one is showing too low arousal level, another may need to calm down. As a consequence, in order to use music within psychological training effectively, a trainer must know his athletes.

- External persons (coaches/ fans/ teammates):

Emotions are transferrable or contagious. Special nerve cells, known as mirror neurons, form a resonance system in the brain that enables us to empathize. This means that emotions from others and external triggers are recorded and emotionally processed, i.e. reflected. This means positive emotions from coaches, fans and especially teammates in team sports can be contagious. The group dynamics and the community experience also cause positive emotions, such as joy, good mood and thus give energy.

- Success:

Success is one of the greatest motivators that drives intrinsic motivation by positive emotions. Actively recalling success situation(s) can therefore generate positive emotions, as well as success in a competition itself. Just think of the effect of five hits in biathlon or the lead-goal in soccer.

- Power poses:

Priming research has shown that unconscious anchors influence behaviour. For example, if you consciously assume a dominant posture, the testosterone level in your blood will rise (Thomashoff, 2021). The most known Power Posing is to rise the hands in the air, as if you are passing as first the finish line. The posing influences mental and psychological processes because our brain connects a power pose with a successful situation and, thus body language can suppress negative emotions such as fear and convert them into positive ones. The often heard statement “winners can be recognized at the start, losers too” is based on this kind of body language. An example of this is e.g. in cross-country skiing the aggressive posture with the flexed (strongly bent) arms and aggressively outward-pointing elbows in the mass start which is a power pose. With power posing the athlete can influence his own emotions.

- Avoiding negative emotions and negative judgment circles (Frese & Keith, 2015):

It is well known in sports that dysfunctional thoughts (negative thoughts) and inappropriate states of arousal (emotions) prevent optimal performance. Athletes can usually achieve their best performance when they feel good, when they are filled with joy, good humor, fun and contentment (Baumann, 2006). If you feel joy and contentment, you cannot be anxious and have dysfunctional thoughts at the same time, because our brain cannot process completely different types of arousal impulses simultaneously and in parallel. Joy and a good mood give energy, the other way around, the energy is reduced by fear or too much seriousness. Negative emotions such as sadness, sorrow, depression, anger and in worst case fear are dominant when athletes experience performance impairments and setbacks.

*Dysfunctional thoughts:* Dysfunctional thoughts are e.g. "I hope I don't fall in the mass start"; "I hope the skis work"; "I hope I don't fall on the descent", etc. Such thoughts hinder optimal performance in sport, as they focus on avoidance and not on achieving something.

*Anger:* Lazarus (2000) describes "anger" as a "dangerous emotion" because the so triggered tendency to act can hardly be suppressed. Anger can trigger two forms of reaction in competitive sports. On the one hand, anger can trigger an impulse to “counterattack” to repair wounded self-esteem. On the other hand, discouragement and loss of motivation are also a possible result of anger.

*Fear:* The most influential negative emotion in sports is fear. It is one of the most important human emotions and helps us to ensure our survival by drawing our attention to possible dangerous situations. Fear is a psychological phenomenon and is, so to speak, a negative emotional state characterized by nervousness, worry and apprehension. It is characterized by changes at the physiological, experiential, and behavioural levels. This state arises from an indefinite starting position before the actual event and the uncertainty about the outcome of this situation (Ehrlenspiel & Mesagno, 2020). In addition to physical dangers, social situations such as belonging or recognition in a group (e.g. sports team) also play a role (Hoyer & Härtling, 2019). In competitive sports, one's own expectations, fear of failure or a lack of trust can trigger feelings of fear when important values and goals are threatened, such as the existential future of the athlete. The evaluation of these emotional states is often decisive for success or failure (Craft et al, 2003). Fear always triggers avoidance reactions, while joy and fun increase activation levels (Baumann, 2015; Kogler, 2006).

Whether and how we experience fear is depends on individual and subjective features. It arises anticipatory and is an expression of the perception of a future sporting situation that is seen as threatening. Fear is generally performance-reducing, but it can be prevented or minimized through forms of psychological training through cognitive regulation (Eberspächer, Immenroth & Mayer, 2002). Through psychological training, controlled emotion regulation, i.e. emotion management, can cause the right emotions (physiological arousal level) to be evoked. It is therefore important for athletes (with the support of the coach) to cope with the situation or to strengthen their awareness of their ability and not to let the fear arise in the athlete (Ehrenspiel et al., 2011, 2018).

### 2.2.2 Training of willpower - “Skill your will”

"Winning takes place in the mind" is a statement often quoted by athletes and coaches. Hopeful positive reports from trainers such as "well prepared", "efficient" - "ready" are often not reflected in the results and just as often

there are so-called surprise winners which are not expected according to their paper form. It is assumed that this is due to the volition, the will to win. The failure of well-trained athletes often has the following causes:

- Emotional instability and
- Lack of will to win.

Will power as well as physical fitness and skill are essential in successful participation in athletic competitions. Building confidence and the belief in oneself is essential for winning. In elite sports, success is often admired, but the way to get there is often not perceived. This is comparable to a mountain tour where you admire the summit but do not see or ignore the mountain itself and the exhausting path to the summit. This means that you need a motivation (= summit) to start, but without willpower you will never reach your goal.

In 1923, Johannes Lindworsky wrote in his book 'The Will School', "If you want, you can do anything. You just have to be able to want it" and relied entirely on the power of the own will. The often quoted saying, "whether you think you can do it or not, you will be right in any case" goes in the same direction. As US football coach Vince Lombardi put it, "The difference between a successful person and others is neither lack of strength, nor lack of knowledge but lack of will." In order to achieve a sporting goal, the will has a special meaning. Only when a specific goal has the necessary strength (initiation of action) and top priority (focus) the peak athletic performance can be achieved. Volition training is always linked to motivation and is particularly important when internal and external disturbances, distractions or short-term, easily achievable goals, distract/disrupt from the actual goal and, consequently lead to motivation problems (Li, 2007; Liang, 2007). Motivation is the setting of desirable and achievable goals. There are two motivational systems in the human brain that are activated by different stimuli: 1) The activation system (appetizing), 2) The avoidance system (defensive). Depending on which system dominates, the general behavioural strategy is determined. Motivation thus explains how the behavioural strategy arises, it either is dominated by the drive to achieve something or to avoid something. However, being motivated does not automatically mean taking action. Especially in the event of adverse external conditions, more than motivation is required (Bhattacharya, Mach, & Moallem, 2011). In this case, will-power or volition is required to launch and then maintain the initiation of action. Volition (willpower) thus explains how the idea (motivation) is translated into success (Searle, 1983; Zhu, 2004). In competitive sports, where you have to leave your comfort zone, volition is an essential component for top athletic performance (Beckmann, 1999). Only when a concrete idea has the necessary strength and highest priority (initiation of action) does it come to peak sporting performance (will to win). It hence requires a clear goal first, so that a strong will can be developed. This goal then becomes the driving force. This goal also serves as a control of action – a comparison between what is aimed for and what has been achieved, i.e. success or failure. Willpower is a skill that is always needed when there is a conflict of goals between quick, immediate gratifications (short-term relief = evasive action/distraction) and most long-term goals. Short-term alternative activities lure you away from the actual and arduous path and are experienced by the brain (short-term) as a reward by setting free the neurotransmitter or feel-good hormone dopamine (Keller, 2018). Training the will means not giving in to these short-term needs ("rewards"), instead suppressing them and pursuing the higher goal. It should be noted there that the need for sleep, sex or consumption is easier to suppress than the need for food and drink. The most difficult thing is not to be distracted from work (the actual goal), i.e. the hard training in sport (Stritzelberger & Ernst, 2015) and to leave the comfort zone. Willpower resides in the prefrontal cortex, the area for volitional decisions that only humans, unlike animals, are capable of (Frith, 2013). The will works like a muscle and will tire or become exhausted under too much of stress, but it can also be trained like a muscle with the principle of exertion and relaxation (Baumeister, 2012; Baumeister & Tierney, 2012). Normally in top-class sports, a period of more than 10 years of intensive training out of the comfort zone has to be accepted. The purpose of psych regulation is to activate all psychological factors in such a way that an optimal action result is achieved (Baumann, 2006). Psych regulatory measures can be taken by the athlete himself (self-regulation) or by coaches, supervisors, psychologists, etc. (external regulation). The training of the will represents such a psych regulation.

### **2.2.3 Self-fulfilling prophecy**

The self-fulfilling prophecy is a psychological phenomenon that can affect our own behaviour as well as that of those around us. At its core, a self-fulfilling prophecy states that when we expect a certain behaviour or outcome, we ourselves help ensure that behaviour or outcome actually occurs. It is, as a matter of fact, an active influencing of the construction of reality (Felfe, 2009) in that the one or those who believe in the prophecy behave in such a way (usually unconsciously) that the prophecy is fulfilled. In any case, the application of the self-fulfilling prophecy strengthens the optimistic attitude towards achieving something. The thought of it activates the energy in that direction because the energy follows the thoughts. However, there is also the opposite effect, referred to as the suicidal prophecy. Our involvement ensures that a result does not occur. This counterpart of the self-fulfilling prophecy changes human behaviour so negatively that the outcome is more negative than the possible outcome without this prophecy (Stangl, 2021). In competitive sports, this is often reflected in the failure to achieve the training performance or in the inability to call up the maximum performance. Doubts about one's own performance potential in a competitive situation prevent from achieving the training performance in competitions. The suicidal prophecy is therefore a "brain issue" that can even prevent

normal training performance. If there is no conviction that a goal/performance can be achieved, then there is also no energy for action. The lack of success is then seen as a confirmation of the negative expectation.

Basically, it should be noted that the energy follows the thoughts. Good thoughts strengthen while bad thoughts weaken. Becoming aware of these self-reinforcing tendencies can already be a step in the right direction to improve performance. Through the way we think, i.e. our neuronal activities, we also change our brain. If we base our thinking on worry, self-criticism, and anger, then our brain will gradually take on that shape and develop neural structures that express fear, low self-esteem, etc. However, through positive self-esteem and the belief in the achievement of a sporting goal, our brain will gradually take the shape of strength and confidence.

## **2.3 Focus control and goal setting**

It is known from attention research that it is possible to be busy with several things at the same time, but that this can reduce skills by up to 10% (Meckel, 2007). In sports, this means that only focused athletes can achieve their full potential. On the one hand, the focus in sports is based on goals, and on the other hand it can either be aimed at individual weaknesses or strengths in the here-and-now (present moment).

### **2.3.1 Long-term focus on goals**

Locke and Latham's (1990) goal setting theory states that there is a connection between goals and performance based on the following two basic assumptions:

1. Difficult challenging but achievable goals lead to better performance than moderate or easy goals.
2. Challenging and specifically formulated goals guarantee better performance than general, unclearly formulated goals.

Only if an athlete considers a goal as challenging and achievable he will be willing to go beyond the comfort zone to achieve his goal. A goal must be formulated in concrete terms so that it is clear and meaningful. It should be specific, measurable, demanding, realistic and terminated. The basis in the area of goal setting is the clarity of the athlete and the coach as to which goal is to be pursued and achieved. Only those who know their goals can take the right steps. "Once it is determined what the goal should be, the way to it is easy to find." (Carl von Clausewitz, 1812). This means that the goal guides action and the activities are aligned, organized and controlled towards the goal. Intermediate goals make it easier to achieve incremental progress on the timeline, thereby increasing and maintaining motivation. However, the right goal setting is complex and is divided into result goals, performance goals and process goals.

A result goal (= ranking on the result list, placement goal, podium place, top ten place, etc.) sets the direction and influences motivation and thus increases the willingness to make an effort and persevere in training and competition. It must be realistically achievable, because goals that are too high can trigger stress and fear of failure and thus disrupt concentration on the sporting activity, and goals that are too low hardly pose a real challenge (if it does not challenge you, it does not change you). In addition, a result target is also influenced by the rivals who are at the start and this external factor can cause a result target to fail even though you have done everything right yourself. A performance goal defines performance parameters that only depend on oneself, such as the goal of improving one's own running performance on a route by 10%, or achieving a specific target time, number of hits or scoring points in the competition, regardless of placement (result goal). Performance goals are important for steady performance progress because they indicate the athlete's performance development.

Process goals describe in the short and/or long term which actions are required to achieve performance or result goals. In the short-term, attention is paid to the manageable area in the "here-and-now" of movement execution in order to make the best of it at that particular moment (execution quality of the technique/partial aspects of a technique). An example of this would be the focusing on the gliding phase in cross-country skiing. These short-term action goals also help to stop negative thoughts because attention is drawn to the action.

In the long-term area, the steps and actions that have to be completed on the timeline in order to achieve result goals and/or performance goals are defined via process goals. An example of this would be the high-altitude training camp in the training control or the time window and content of the preparation or competition training phase(s).

Goals set by the athletes themselves, by the trainer, or by a club or association must be realistic. They must neither be too simple nor irrationally exaggerated. It is also important whether a goal is formulated positively or negatively. A negative goal is, so to speak, an avoidance goal such as "I don't want to drop out of the team" or "I don't want to come home without a medal". A positive goal, on the other hand, is a promotion goal, which says exactly what the athlete wants to achieve, such as "I want the podium", "I want to qualify for the team" or "I want to beat XY-rival". Goals should always be positive, i.e. goals to be achieved instead of goals to be avoided. This is because the human brain has a harder time processing negation. The simple test of not thinking about a blue elephant actually makes us think about one, so we do what we're not supposed to do. It is also known from children's research that we are unconsciously drawn to exactly what we should not do. It also seems important that goals set externally by the trainer tend to be problematic. Goals only become effective if they are accepted as one's own, which in turn can only happen if they are assessed as achievable and relevant and the task is therefore seen as a challenge. If the subjective ability to achieve a goal becomes unreal, the drive to make the effort decreases again. The motivation of the athlete must come from within, hence, so the coach can hardly



motivate, but can only help and support the athlete's own motivation (Eberspächer, 2004a, b). The basis for self-motivation is always the question of meaning.

### 2.3.2. Action focus on the here-and-now („Tunnelling“)

The observation of top athletes shows that some appear to be completely focused “on themselves and their own performance” in a competition: in technical terms, this is referred to as being in the “tunnel”. This means they can consciously ignore disruptive factors and distractions (e.g. bad weather, noise, incidents, applause, their own doubts and fears, etc.) and focus entirely on the essentials of the moment. With this focus they take away the chance for negative thinking. For this focus it is necessary to keep one’s goals in mind and to be in the “here-and-now” by interacting mind, body and feelings. This means ignoring the other competitors and paying attention (thoughts) on one's own performance and, own movement. Possible measures that help to focus can be e.g. rituals, listening to music (stimulating or calming), self-talk, imagery and/or conscious breath control. In Particular deep breathing help the athletes to focus on their awareness (“I am here and now”), and thus eliminates anxious thoughts about the future.

## 3. RECOMMENDATIONS FOR COACHES AND ATHLETES

Knowing is not enough; we must apply. Willing is not enough; we must do (Goethe, 1749-1832). Hence, doing is ultimately crucial in the psychological training of top athletes. For this reason, some concrete recommendations for action for coaches and athletes can also be derived from the theory (cp. Chapter 2).

- Create personal victory formulas. This means consciously recalling successful moments in the past and summarizing the athlete's words, phrases, images, feelings about a successful moment into one sentence. This must be positive and formulated in the present, such as: "I'm well prepared!", "I can run 5000m in xx minutes", "I can place 5 hits in 20 seconds" or the famous sentence "Yes I can".
- Reinterpret negatives into positives, e.g. in biathlon the thought "I'm afraid of missing" into a thought like "Now I can prove myself", or "I'll clear the 5 targets".
- Avoid negative self-evaluation circles and strengthen the awareness of ability (emotional coping) → call consciously thoughts of success into your world of thoughts. (e.g. imagine crossing the finish line as winner).
- Consciously use power posing → Body language influences thoughts and actions.
- Train deep breathing → Deep breathing helps the athlete to be focussed on the here and now.
- Identify and promote cues that lead to intentional remembering (successful situations). Give the athlete, or yourself as an athlete, cues to something that has succeeded.
- Identify and eliminate cues that lead to unwanted recall.
- Define clear, challenging and realistic goals – define them in a positive way and visualize them.
- Carry out repeatedly acts of will. Train psychological measures with a balance between tension and relaxation.
- Always formulate the verbal instruction(s) (coach-talk or/and self-talk) with thoughts and words of achievement that focus on anticipating the positive experience, such as "Hold on..." "You can do it..." "I can do it".
- Anticipate the success in the thoughts and/or in self-talk → this results in a mental putting into the success situation (e.g.: cheering at the finish line, medal presentation, (Eberspächer, 2007) and in the best case a mental putting into the flow.

## 4. SUMMARY

A lot of psychology is applied in sports. Realizing athletic high performance is multifactorial and includes physical capabilities and training as well as psychological qualities and their training (motivation, enjoyment, and self-efficacy) and coaching expertise at state-of-the-art (Abbott & Collins, 2004; Côté, Baker, & Abernethy, 2007; Csikszentmihalyi, Rthunde, & Whalen, 1997). In general, one can say, in the event that there is a discrepancy between training and competition performance, the cause is usually the neglect of mental abilities (mental strengths), especially the lack of volitional abilities (the will to win). Will power or psychological competence is also as essential as physical fitness for successful participation in athletic competitions at highest level. Mental strength is nothing supernatural, not a “primordial state”, but it can be trained and those who possess it, can become “supernatural”, the so-called “winners”. With psychological training, psychological factors can be activated in such a way that an optimal action result is achieved. The measures can be carried out by the athlete himself (self-regulation) or by coaches, supervisors, psychologists, mental trainers, etc. (external instruction/regulation). Psychology in sports enables the athletes to develop positive attitudes and therefore, they are ready to face challenges with a positive mind knowing that success is possible whatever the situation (Hak, K.D., 2022). In general, athletes can only be successful in competition if they are psychologically ready and have the will to win. In order to build self-confidence (by the coach) the strengths have to be brought to mind. Athletes always win through their strengths, never through weaknesses. Therefore, emotion control in the event of failure is also a (psychological) coach task. Dysfunctional thoughts and inappropriate states of excitement

such as insecurity, anger or fear are to be transformed: instead of storing failure, in sport it is necessary to "check off and look ahead positively"!

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