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Summary and Keywords

Within sporting contexts, goal setting is a commonly used technique that can lead to enhanced performance. Recommendations for goal setting have been widely embraced in sport and performance settings by researchers, practitioners, athletes, and coaches. However, it could be argued that these recommendations are overly simplistic, and that a lack of critical commentary in the sporting literature fails to acknowledge the complexity of goal setting in practice. For example, there has been limited acknowledgement within the applied recommendations of important factors such as personal differences with those individuals setting goals, contextual and environmental factors, and the characteristics of goals being pursed. Equally, the focus of goal setting research and practice has predominantly been on goal progress or goal attainment, thus overlooking the wider benefits of effective goal pursuit on additional aspects such as well-being. Similarly, the interactions between these factors has gained little attention with the academic literature or applied recommendations. This may result in diminished effectiveness of goal setting for athletes, and ultimately lead to sub-optimal performance and well-being.

Critical and comprehensive reviews of the literature are timely and necessary, in order to develop a deeper understanding of goal setting in sport and performance. Combining research from both within sport and from theorists examining goals within other contexts can enhance our understanding of how to promote and support adaptive goal pursuit within sport and performance. Overall, this may lead to more appropriate and useful recommendations for researchers, athletes, coaches, and applied practitioners, ensuring that goal setting can be an effective technique for a range of individuals within sport and performance contexts.

Keywords: goal setting, goal pursuit, goal motives, goal self-regulation, goal difficulty, individual differences, well-being, sport psychology, coaching, goal disengagement

The pursuit of important objectives is a prominent part of everyday life. Research has been conducted for over a century (e.g., James, 1890) to help us to understand how goals can impact cognitive, behavioral, and affective outcomes. Goals have been defined as "an

end state that the organism has not yet attained (and is focused toward attaining in the future) and that the organism is committed to approach or avoid" (Moskowitz, 2012, p. 1). In a sporting context, goals are broadly defined as an objective or aim that an athlete is trying to accomplish, usually within a specified time frame (Weinberg, 2013).

Goal setting is a frequently utilized tool within sport and performance (Weinberg & Butt, 2011). Athletes regularly pursue a range of short-, medium-, and long-term goals, which may relate to winning an event (known as outcome goals), obtaining a personal best (performance goals), or improving technique or strategy (process goals). These goals might be used in isolation (i.e., only setting outcome goals), or as a combination (i.e., setting process, performance, and outcome goals which might be associated with the same or different objectives).

Goal Setting Theory

A prominent theory which has been extensively employed in goal-setting research and practice is Goal Setting Theory (GST). Locke and Latham (2002) suggest that goals can enhance performance through four mechanisms. First, setting goals directs effort and attention toward goal-related activities and away from irrelevant activities. Second, goals can energize an individual within a task, with higher effort expected for more challenging goals than easier goals. Third, goals impact persistence in tasks relevant to goal pursuit. Finally, goals can impact action through the adoption of task-relevant strategies and knowledge.

Locke and Latham (2002) also propose several moderators of the goal-setting–performance relationship. For example, high levels of commitment to goals are expected to have a positive impact on performance, particularly for difficult goals (Klein, Wesson, Hollenbeck, & Alge, 1999). Goal commitment can be facilitated through the importance of goal attainment and the extent to which individuals believe the goal to be attainable. Additional moderators of the goal-setting–performance relationship are feedback and task complexity. Feedback is important in goal striving, as it informs individuals about how they are progressing toward their goals and allows them to make any necessary adjustments to their effort or task-relevant strategies. Furthermore, goal setting may be less effective for complex tasks, where the ability to discover appropriate goal strategies may be more important than the level of goal difficulty.

There is wide-ranging support for GST from research in business contexts, where the theory was originally developed and tested. In addition, goal setting is a widely used practice in high level athletes (Orlick & Partington, 1988), and evidence provides some support for the principles of GST in sporting contexts (e.g., Kyllo & Landers, 1995). Aligned with the key tenets of GST, recommendations for applied goal setting in sport have been produced. For example, it is suggested that athletes set goals which are specific, measurable, attainable, realistic, and time-bound (S.M.A.R.T.; Doran, 1981). More extensive recommendations are provided by Weinberg and Butt (2014), who propose seven principles of effective goal setting. These include setting specific,

measurable goals which are realistic yet challenging. Weinberg and Butt also suggest setting short- and long-term goals, making plans of how goals are going to be attained, and continually reevaluating goals to make necessary adjustments and maintain motivation.

Given the extensive information regarding goal setting in sport and performance, questions might be raised over the need for another article on this topic. However, goal setting is not without challenges, a point which is not always acknowledged in the applied recommendations. Furthermore, there are a range of factors that need to be considered more widely within goal setting in sport and performance. These aspects relate to the individuals engaged in goal setting, the environment within which they are setting goals, and the characteristics of the goals set. As such, the focus of this encyclopedia article will be to critically examine the goal-setting literature, with suggestions for future research and guidelines for coaches, athletes, and sport psychology practitioners.

Despite the extensive support for GST (Locke & Latham, 2002) from research in business contexts, the findings are less robust when applying these principles to goal setting in sport (Burton, Naylor, & Holliday, 2001; Larsen & Engell, 2013; Moran, 2012). Indeed, a meta-analysis of goal-setting research in sport found limited support for the principles of GST (Kyllo & Landers, 1995). In comparison to business contexts, goals in sport may be more complex, with their success dependent on more than just the effort invested by the athlete. For example, the achievement of a goal can be impacted by interactions with teammates, opponents, coaches, and other important individuals (such as parents or peers). In addition, the mechanistic goal-setting–performance relationship which is often employed in research might limit the validity of the findings in the complex real world of competitive sport, as it can fail to account for the cognitive, affective, and behavioral responses which underpin successful sporting performance (Maitland & Gervis, 2010). As highlighted by Burton et al. (2001), goal setting is a paradox—a straightforward technique which is often more complicated in practice. It could therefore be argued that the current recommendations for goal setting fail to acknowledge these complexities.

Evidence from case studies demonstrates that athletes and coaches experience challenges when goal setting, supporting the notion that goal setting is not a technique that is always simple to apply (Burton et al., 2001). When providing psychological support to a collegiate women's soccer team, Gillham and Weiler (2013) found mixed success with individual- and team-level goal-setting interventions. While there were positives of the experience, such as greater focus in training and greater involvement of players in non-starting positions, some athletes did not initially commit to goal setting. Even when engagement was higher, the athletes struggled to set specific goals. Furthermore, coaches struggled to find time to provide athletes with feedback on their goals, hindering the effectiveness of the goal-setting process. There were also problems related to the flexibility of team-level goals. Specifically, when goal difficulty was adjusted upwards (i.e., goals made more difficult due to the coaches perceiving the opposition to be weaker),

performance improved. However, when goal difficulty was lowered, due to the coaches' perceptions that the opposition was of a better quality, performance decreased.

In addition, while it is suggested in the goal-setting literature is that athletes should set both short- and long-term goals (e.g., Weinberg, 2013), this is not a view necessarily endorsed by athletes when engaging in goal setting. Maitland and Gervis (2010) showed that athletes found it hard to see how their short-term goals were related to progress toward their longer-term goals. Within this applied research there were also challenges identified which related to the coaches' engagement in their athletes' goal pursuits, demonstrating how coaches could impact the effectiveness and outcome of goal-setting programs both positively and negatively. Additionally, the athletes did not use the formal methods of goal setting outlined within the literature. For example, processes such as writing goals down, setting dates for goals to be achieved, using S.M.A.R.T. principles (Doran, 1981) or monitoring progress were not adopted by the athletes. This draws comparisons with other criticisms of the applied recommendations for goal setting, which identifies ambiguity in the interpretation of the S.M.A.R.T. term (Wade, 2009). Maitland and Gervis (2010) suggested that if coaches rely on simplistic goal-setting processes without considering the wider social motivational choices of players (such as why they choose to pursue specific goals), then the goal-setting practice may be ineffective. This reinforces the complex nature of goal setting, and suggests why factors such as motivation might need to be acknowledged.

While the applied recommendations for goal setting might be clear to follow in principle, some might be difficult to implement in practice. For example, goal difficulty has been identified as an important consideration, with Locke and Latham (2002) suggesting that difficult goals are more effective than "do your best" goals. Weinberg (2013) echoes this statement, suggesting that while goals which are too difficult can negatively impact motivation and persistence, goals which are too easy may result in complacency and a lower investment of effort. His recommendation is that immediate goals should be set at no more than 5% above current performance, whilst acknowledging that smaller targets could still be indicative of performance enhancement. The criticism of this formula is that it broadly only applies to performance and outcome goals which can be measured in terms of terms of percentages, and not for process goals which may also lead to enhanced performance. Therefore, it could be questioned whether a 5% improvement target is a useful recommendation for all goal setting for all athletes.

A further criticism of the goal-setting literature is the focus on performance-related outcomes. The majority of the literature examines the goal-setting–performance relationship, without considering how goal pursuit might also impact (positively or negatively) other important aspects, such as well-being. Goal attainment, and in particular winning, is undoubtedly an important part of athletic identity. However, given that research has demonstrated elite athletes judge their success in relation to a range of outcomes and experiences (Carless & Douglas, 2012), research and applied practitioners could also consider how goal setting might have benefits for a range of outcomes. Until

recently, the literature has failed to acknowledge the impact of goal pursuit on athlete well- and ill-being.

Goal Difficulty

Goal difficulty has been highlighted as a key aspect to goal setting (Locke & Latham, 2002), with difficult goals being deemed to be most effective. Research from sporting contexts suggests athletes should pursue moderately difficult goals (Kyllo & Landers, 1995). This suggests that goal difficulty is a stable variable in the goal-setting– performance relationship. However, goal difficulty can be fluid. While some goals are of a fixed difficulty (e.g., running a marathon in a specific time), other goals might change over time (e.g., recovering from an injury), becoming more or less difficult based on a range of controllable (e.g., commitment to rehabilitation) and uncontrollable (e.g., reoccurrence of injury) factors. Goal difficulty can also increase over time. For example, a team might set the goal of winning the league for the coming season. The difficulty of that goal might increase over the course of the season, based on their performances and those of other teams within the league. This is an important consideration when engaging in goal setting for two primary reasons. First, while goal difficulty might be able to be objectively measured, individual athletes will have different levels of perceived goal difficulty. In addition, how athletes respond to changes in goal difficulty (both actual and perceived) may impact the success of their goal setting.

Goal difficulty is also related to the commitment to and performance in a goal. The findings of a meta-analysis of the goal commitment literature showed that the relationship between goal commitment and performance was moderated by goal difficulty (Klein et al., 1999), with a stronger relationship when goal difficulty was high, in comparison to moderate and low goal difficulty. From the findings of this meta-analysis, it was concluded that that difficult goals do lead to greater performance than "do your best" goals (i.e., supporting GST; Locke & Latham, 1990), and that it is important that individuals commit to difficult goals in order to be successful. The studies included within the meta-analysis were from a range of contexts. When relating these findings to a sporting domain, these results might need to be interpreted with some caution, given the earlier meta-analysis by Kyllo and Landers (1995), which found moderate goals to be more effective than difficult goals in sport. While goal difficulty is clearly an important consideration, the findings are perhaps not as conclusive in sport as within other contexts (e.g., business).

There is also evidence that when individuals are assigned goals (for example, by their coach), goal difficulty can influence any goals that they might set themselves. Bueno, Weinberg, Fernández-Castro, and Capdevila (2008) conducted a study where they assigned endurance athletes to either an attainable or unattainable goal in a treadmill running task. The athletes were asked to report their own self-set goal for the task. Interestingly, athletes who were assigned the unattainable goal set their own goal significantly higher than those athletes in the attainable goal condition. However, in both

conditions the distances covered were largely similar, and athletes achieved distances which the researchers had deemed to be unattainable. In other words, athletes' performed similarly in the task regardless of the level of goal difficulty or their self-set target. This poses interesting questions, particularly in light of the aforementioned meta-analyses (Klein et al., 1999; Kyllo & Landers, 1995). For example, if assigned goals of different objective difficulty result in similar levels of performance, does the objective or subjective goal difficulty matter? Other factors such as goal efficacy (an individual's belief about their ability to achieve a goal) might also need to be considered in relation to whether moderate or difficult goals lead to greater performance. For example, it might be beneficial if an athlete feels more efficacious about achieving a moderate goal than a difficult goal. On the other hand, another athlete might benefit from having a more difficult goal, as this could enhance their commitment to the goal. Such nuances are not reflected within applied implications. Research could explore how individual athletes respond to different levels of goal difficulty, in order to understand the optimum goal difficultly for athletes based on a range of individual and task specific characteristics.

Goals can also become more difficult once striving has commenced. In some circumstances, athletes may be able to invest extra effort in order to achieve a goal which has become more difficult. In contrast, there may be some occasions in sport where goal difficulty changes to such an extent that a previously attainable goal becomes unattainable. In this situation, persistence is not an adaptive self-regulation mechanism, and it would be more beneficial for an athlete to cognitively and behaviorally disengage from the goal. This could allow for reengagement in other goal pursuits, which might lead to the attainment of the same higher order goal or the development of new goals (Carver & Scheier, 2003). This is somewhat contrary to the "if at first you don't succeed, try, try, try again" or "quitters never win and winners never quit" mantras professed by some coaches and aspects of the media. However, where persistence is futile, positive outcomes can occur if individuals can successfully disengage from their goals which have become unattainable and reinvest their efforts in other worthwhile pursuits (Wrosch, Scheier, Carver, & Schulz, 2003).

Despite sport being a highly goal-driven environment, limited research has explored goal disengagement and reengagement in this context. A notable exception is the work of Nicholls, Levy, Carson, Thompson, and Perry (2016), who explored how athletes' capacity to adjust their goals could predict well-being, mediated through task appraisals and coping strategies. In contrast to Wrosch and colleagues (Wrosch et al., 2003; Wrosch, Miller, Scheier, & Pontet, 2007), they expected that goal disengagement would be negatively associated with well-being. The authors hypothesized that in athletic populations, the acceptance that one's personal resources are insufficient to meet the demands of a task might be a source of threat. This could lead to disengagement- and distraction-oriented coping, which overall would lead to lower psychological well-being. On the other hand, when athletes reengage with a goal, this may be perceived as a challenge. This was expected to lead to task-oriented coping, and thus have a positive impact on well-being. Nicholls et al. (2016) tested these hypotheses in relation to a specific competition, measuring goal adjustment capacities and challenge and threat

appraisals two days prior to a competition. Athletes completed measures of coping and psychological well-being within three hours of completing the competition.

The results of this study broadly supported the hypothesized model, demonstrating that in terms of athlete well-being it is important to consider how athletes respond to unattainable goals. The obvious limitation to this work is that the athletes were responding to their general goal adjustment capacities, as opposed to their actual goal disengagement and reengagement from an unattainable goal. Nevertheless, given the high use of goals with the sport domain, it seems crucial that research explores the factors which can help facilitate adaptive goal disengagement and reengagement, and the consequences of such processes for performance and well-being. It is also important that applied practitioners and coaches are mindful of when goals may become unattainable, to support athletes in their disengagement from futile objectives and help them to reengage in worthwhile goals.

Individual Differences in Goal Striving

Within the goals literature, there has been some consideration of how individual differences might impact the effectiveness of goal setting. One such example is the Competitive Goal Setting Model (CGS-3). Within this model, Burton and Weiss (2008) argued the importance of considering both different types of goals, and the preferences of the athletes setting them. They suggested that outcome goals are important in developing commitment to a goal, but performance and process goals are crucial stepping stones which lead to success. Burton and Weiss also argued that athletes will have different goal-setting styles, which may be determined by their dispositional goal orientations (e.g., a disposition for either mastery- or performance-oriented goals; Dweck, 1999) and their perceived ability. Three goal-setting styles are proposed: performance-oriented, success-oriented, and failure-oriented.

Athletes who have a performance-oriented goal-setting style are likely to define success in terms of their own improvement and learning. As a result, they are likely to set challenging goals with the primary aim being to increase their own competence. Within their CGS-3 model, Burton and Weiss (2008) predicted that athletes with this goal-setting style are likely to exert high effort regardless of task difficulty. In addition, if they experience failure in their goal striving athletes are likely to remain focused and to develop problem-solving skills in order to continue making progress toward their objectives. Athletes with this style would be expected to prioritize process goals, followed by performance, and then outcome goals.

In comparison, the success- and failure-oriented goal-setting styles are based on a premise that talent and competence are limited, with success normally being defined in relation to competitive outcomes or comparisons with others. As a result, athletes with these styles are likely to set outcome goals, followed by performance, and process goals. The primary distinction between these two styles comes in athletes' perceptions of their ability. Specifically, success-oriented athletes are likely to perform well in competition in

comparison to their opponents. As a result of these high social comparisons, athletes are likely to have high perceptions of their own competence and ability. In contrast, failure-oriented athletes perceive themselves to have low ability, due to performing poorly in comparison with opponents.

There are different predictions within the CGS-3 model for athletes with success- and failure-oriented goal-setting styles. Of the three proposed goal-setting styles, performance-oriented athletes are expected to have a more successful career than athletes of similar ability with a success- or failure-oriented goal-setting style. Athletes with a success-oriented goal-setting style are likely to set goals which focus on winning, as this is an opportunity for them to demonstrate competence. Success is attributed to their high ability (as opposed to hard work), whereas failure is likely to be interpreted as a product of low effort or poor mental preparation. Failure is likely to be responded to in a constructive manner through increased effort and problem solving. However, Burton and Weiss (2008) suggest that success-oriented athletes will avoid goals which are challenging if they fear they will result in numerous mistakes or significant public failure. Therefore, it is expected that these athletes will prefer to set moderately difficult goals, and that the effort they invest in the pursuit of their goals will vary depending on the perceived task difficulty. Specifically, when the perceived goal difficulty is high, effort will be increased to achieve their goals. However, when goal difficulty is perceived as being low, success-oriented athletes will reduce their effort as this situation provides an opportunity to demonstrate high ability. When task difficulty is very high, athletes with success-oriented goal-setting styles will invest effort until they feel that a successful social comparison can no longer be made, before investing their effort in goals where there is still an opportunity to be successful.

Athletes with a failure-oriented goal-setting style are primarily focused on ensuring that others do not discover their (perceived) low ability. As a result, they are likely to underperform in competitive situations due to the fear associated with the events. When they experience failure, they are likely to reduce effort and withdraw from the task, predominantly attributing this failure to their own perceived low ability. In contrast, successes are likely to be attributed to aspects such as low task difficulty or luck. When adopting goals, they are likely to either strive for targets which are exceptionally difficult, giving them an excuse for failure, or very easy, as they are already proficient in the task.

Given the aforementioned differences outlined by Burton and Weiss (2008), it is not surprising that they expected goal-setting programs to have differential impact on athletes with different goal-setting styles. Specifically, it is predicted that athletes with performance- and success-oriented goal-setting styles would experience large and medium performance improvements respectively as a result of a goal-setting program. In contrast, it is expected that failure-oriented athletes would experience a decrease in performance when incorporating a goal-setting program into their training. These predicted differences may be attributed to the motivational consequences of the goal-setting process. While athletes with performance- and success-oriented goal-setting styles are expected to experience positive motivational consequences, such as optimistic future

expectancies and satisfaction when they experience success, those with a failure-oriented style are likely to experience negative motivational consequences. For example, given that they are expected to attribute success to external, uncontrollable factors such as luck, they are unlikely to feel satisfied when they experience goal attainment. Equally, they are predicted to have negative future expectancies due to their previous low social comparisons.

As identified by Burton and Weiss (2008) when reviewing and updating the CGS model, there has been limited research which has directly tested the model predictions. However, there is some empirical evidence to support the major propositions of the model (e.g., Pierce & Burton, 1998). While not a direct test of the CGS-3 model, research by Burton, Pickering, Weinberg, Yukelson, and Weigand (2010) did identify differences in the goal-setting practices of elite athletes. Using a person-centered approach, a cluster analysis categorized elite athletes' goal-setting practices into four distinct profiles. The first profile, termed disillusioned process goal setters, consisted of athletes who had high belief in the effectiveness of performance goals, but low belief in short-term or psychological goals. Contrastingly, the disillusioned competitive goal setters were athletes who felt short-term and psychological goals were effective, but were less efficacious about the benefit of competitive goals. Multifaceted goal setters had high belief in short-term, psychological, and competitive goals while goal non-believers reported low effectiveness for all three types of goals. Between group differences were found on variables such as career success, goal commitment, frequency of setting goals, and trait sport confidence, with the multifaceted goal setters reporting the greatest benefits and the goal non-believers the lowest scores. While not a direct test of goal-setting styles, this research does suggest that there can be important individual differences in the goal-setting practices of elite athletes.

When reanalyzing the same sample as reported in Burton et al. (2010) in relation to goal-setting styles, Burton, Gillham, Weinberg, Yukelson, and Weigand (2013) found support in line with Burton and Weiss' (2008) predictions for the success- and performance-oriented goal-setting styles. However, the proposed failure-oriented style was split into two distinct groups. The first of these groups, Stage 1 failure-oriented, was characterized by low self-confidence, very high competitive outcome orientation, and very low competitive performance orientation. Athletes in the Stage 2 failure-oriented style reported very low self-confidence, with their outcome and performance scores being just below and above the sample mean respectively. The authors suggested that while Stage 1 failure-oriented athletes were still committed to trying to win, the infrequency of winning was unable to maintain their high perceptions of ability. Those in the Stage 2 failure-oriented group had lost so frequently that their self-confidence was very low, but were starting to adapt their goal focus toward more process and performance goals in order to work toward more attainable goals. When examining between-group differences in goal-related variables (e.g., goal-setting experience, goal effectiveness, goal frequency), performance-oriented athletes consistently reported the most positive outcomes of goal setting. Conversely, those with the Stage 2 failure-oriented profile experienced the lowest perceived success in relation to their goal setting. There were few differences found between athletes with

either performance- or success-oriented goal-setting styles; however, performance-oriented athletes did feel that performance improvement or conditioning goals were more important than winning, whereas those with a success orientation placed more importance on goals related to winning.

There may be other individual differences which can impact the effectiveness of goal setting. For example, personality variables can impact the effectiveness of goal-setting programs. In two studies which examined whether performance strategies (including goal setting) moderate the relationship between personality and training behaviors, Woodman, Zourbanos, Hardy, Beattie, and McQuillan (2010) found that goal setting was important in predicting training behaviors over and above levels of the personality traits of conscientiousness and extraversion. Specifically, both conscientiousness and goal setting were significantly related to athletes' perceived quality of preparation for competition (conceptualized as "the strategies and goals that are practiced in training for use in subsequent competition," Woodman et al., 2010, p. 186), but the hypothesized interaction between these two factors was not supported. The authors tentatively concluded that goal setting was important in helping all athletes to prepare for competition, regardless of conscientiousness. However, within the same gymnasts it was shown that goal setting moderated the relationship between extraversion and distractibility ("propensity to become distracted in training," Woodman et al., 2010, p. 186), whereby extraversion was related to distractibility only when goal setting was low. In other words, goal setting may be more beneficial in reducing distractions for extroverted, as opposed to introverted athletes.

Research investigating personality variables in the wider sport psychology literature has shown that the effectiveness of psychological skills such as relaxation strategies, self-talk, and emotional control is moderated by an athlete's level of narcissism (Roberts, Woodman, Hardy, Davis, & Wallace, 2013). While this study did not examine goal setting, it does support the notion that psychological skills (such as goal setting) may might have differential benefits across athletes based on their individual personality traits. As such, it seems reasonable to suggest that personality variables might moderate the effectiveness of goal-setting programs in athletic populations. For example, given that narcissist individuals have been shown to perform better in situations where there is a perceived opportunity for glory (Wallace & Baumeister, 2002), it might be that such individuals find (or perceive) competitive outcome goals to be more effective than performance or process goals used in training contexts. Given different imagery perspectives can be more or less useful for narcissists (Roberts, Callow, Hardy, Woodman, & Thomas, 2010), it seems plausible that the same might be true for different types of goal. This is a suggestion which could be explored with future research in this area.

Volitional Goal Setting: Motives Matter

Research has recently begun to examine the motivational underpinnings (as opposed to motivational consequences) of goal setting and striving. Distinguishing between the

motivational underpinnings and consequences is important, as this may explain why some individuals are more successful when pursing important goals. Grounded in Self-Determination Theory (Deci & Ryan, 2000), one model which examines the motives underpinning goals is the Self-Concordance Model (SC model; Sheldon & Elliot, 1999). Within this model, Sheldon and Elliot (1999) propose that the motives with which individuals strive for goals may not always be integrated with their own values or interests.

They proposed that individuals can strive for goals with two broad types of motives. Reflecting intrinsic and identified motivation regulations, autonomous goal motives are associated with striving for the enjoyment, interest, or personal value provided by the goal. As these goals are likely to align with an individual's self-concept, athletes striving with autonomous motives are likely to feel that they have freely chosen to pursue their goal. The other type of motives proposed by Sheldon and Elliot (1999) are controlled goal motives. In contrast to autonomous motives, individuals striving for goals with controlled motives do so as a result of internal or external pressure, or because they seek external recognition and approval. These motives are reflective of extrinsic or introjected motivation regulations, and are less integrated with an individual's core values and interests. Within the SC model, Sheldon and Elliot suggest that individuals pursuing goals with autonomous motives are likely to invest greater effort in order to achieve their goal, resulting in higher levels of goal attainment. They also proposed autonomous goal motives would lead to higher levels of psychological well-being, through the satisfaction of the basic psychological needs for autonomy, competence, and relatedness. It is important to note that these motives are not stable; aligned with the principles of SDT they can be influenced by personal dispositions and aspects within the social environment. As such, individuals' motives may change over time, although research has tentatively suggested that the motives at the beginning of goal striving are important for goal attainment (Healy, Ntoumanis, Veldhuijzen van Zanten, & Paine, 2014). Equally, individuals may report high (or low) levels of both autonomous and controlled goal motives for the same goal, or higher in one goal motivation regulation than the other (e.g., Healy, Ntoumanis, & Duda, 2016).

The SC model has largely been supported by empirical evidence, both in sport (e.g., Smith, Ntoumanis, & Duda, 2007) and other contexts (e.g., Carraro & Gaudreau, 2011; Sheldon & Houser-Marko, 2001). In the initial application of the model to sport, Smith et al. (2007) found that autonomous goal motives were related to goal attainment, mediated through increased effort. Controlled motives were unrelated to both effort and goal attainment Further work by Smith, Ntoumanis, Duda, and Vansteenkiste (2011) replicated these findings of the course of a competitive season. Additional research which examined goal motivation over the course of a competitive season showed that autonomous (but not controlled) goal motives at the end of the season were related to perceived goal attainment (Healy et al., 2014). The different goal motives have also been shown to be differentially related to coping strategies. Specifically, research exploring self-set goals within applied, naturalistic settings (Smith et al., 2011) and prescribed goals within a laboratory study (Ntoumanis, Healy, Sedikides, Duda, et al., 2014) found

autonomous goal motives to be associated with task-oriented coping, whereas controlled goal motives were linked to disengagement-oriented coping strategies. On the whole, research supports autonomous motives as being more adaptive when pursing important goals.

Impact of Goals on Well-Being and Health

Aligned with the major propositions of the SC model, research has demonstrated that autonomous and controlled goal motives are differentially associated with not just goal attainment, but also well-being in athletic populations. This advances the literature by acknowledging that effective goal pursuit might have benefits for outcomes other than performance. For example, Smith et al. (2007) demonstrated that autonomous motives led to psychological well-being, mediated through goal attainment and basic psychological needs satisfaction. Controlled motives were directly and negatively associated with well-being. These findings were partially replicated by Smith et al. (2011) over the course of a competitive season, whereby autonomous motives at the beginning of the season were associated with well-being at the end of the season through enhanced effort, goal attainment, and basic psychological needs satisfaction. However, in contrast to earlier findings (Smith et al., 2007), controlled motives were unrelated to well-being. The majority of these studies examined relative well-being, whereby scores from indicators of ill-being (e.g., negative affect, burnout) were subtracted the scores of indicators of well-being (e.g., life satisfaction, positive affect) to produce a composite score. More recent research has explored the individual relationships between autonomous and controlled goal motives and indicators of well- and ill-being. Specifically, Healy et al. (2014) demonstrated that autonomous goal motives were positively associated with well-being and negatively associated with ill-being. Controlled goal motives were only positively associated with ill-being. This research also explored the association between autonomous and controlled goal motives and salivary secretary immunoglobin A (salivary S-IgA), a psychobiological indicator of ill-being. This immunological protein which is secreted by mucosa in the respiratory and gastrointestinal tracts protects against the invasion of infection agents, and is impacted by both chronic and acute stress. Healy et al. (2014) found a significant negative relation between autonomous goal motives and salivary S-IgA, suggesting that athletes striving with autonomous motives had lower levels of biological markers of stress prior to training. Overall, it could be concluded that autonomous motives can lead to enhanced well-being, whilst also protecting athletes from ill-being, whereas controlled goal motives are only associated with ill-being.

Goal Motives and Goal Difficulty

Research has begun to explore the role of goal motives when difficulty fluctuates during goal pursuit. The extent to which athletes can persist in the face of mounting challenge has been shown to be impacted by the motives with which they were pursing the goal. Ntoumanis, Healy, Sedikides, Duda, et al. (2014) found that when goal difficulty increased through the course of a cycling task, individuals with personal or primed autonomous

goal motives demonstrated higher persistence toward the goal than those with personal or primed controlled motives. This is further evidence that autonomous motives can lead to adaptive goal self-regulation when goal difficulty might be variable.

Additionally, Ntoumanis, Healy, Sedikides, Smith, and Duda (2014) explored athletes' responses to unattainable goals. Specifically, they explored how autonomous and controlled goal motives might predict individuals' ease of disengagement and reengagement. In two studies, they found that athletes with higher autonomous motives for a prescribed goal reported more difficulty in disengaging from a goal which had become unattainable. However, autonomous goal motives were also associated with higher reported ease of reengagement in an alternative goal. Controlled motives were unrelated to both ease of disengagement and reengagement. In contrast to Nicholls et al.'s (2016) research on goal disengagement in sport, Ntoumanis et al. (2014) experimentally manipulated goal attainment in an initial task, before offering participants an opportunity to behaviorally disengage from the primary task and reengage in an alternative task. Research by Smith and Ntoumanis (2014) found the same pattern of results in a cross-sectional study of athletes, with autonomous goal motives being negatively and positively related to goal disengagement and reengagement respectively, and controlled goal motives unrelated to either variable.

The research on goal disengagement and reengagement demonstrates the importance of understanding goal adjustment in sporting situations, as there might be implications for future performance and for athlete well-being. However, as noted by Nicholls et al. (2016), these studies are the only ones to explore goal disengagement and reengagement in sport. While there is not extensive research in this area, autonomous goal motives appear to be important for effective goal self-regulation, ensuring that athletes can persist in pursuit of difficult albeit attainable goals, but can also disengage from futile goal pursuit to allow for reengagement in other worthwhile objectives.

The Role of Coaches in Athlete Goal Setting

It is important that athletes are pursuing their goals with the most adaptive motives, in order to bring about positive outcomes for both goal attainment and well-being. Furthermore, research suggests that coaches, practitioners, and other important individuals who engage with athletes during goal pursuit should be aware of the motives underpinning athletes' goals. Specifically, studies have examined how goal motives can be influenced by others. This can be through exposure to other individuals pursing goals with a given goal motivation. For example, when priming goal motives using a video of another athlete describing their goal pursuit for an unrelated task, Ntoumanis, Healy, Sedikides, Duda, et al. (2014; Study 2) replicated previous findings that found autonomous goal motives could lead to greater persistence toward an increasingly difficult goal, along with benefits for well-being, and interest in future task engagement. In this study the actors in the video primes were unknown to the participants. As such, it

demonstrates the power of other individuals in influencing the motives with which athletes pursue their goals.

There is also evidence that goal motives can be influenced by the behaviors used by important others when interacting with athletes. For example, research has shown that the behaviors adopted by coaches can have a substantial impact on the motives underpinning their athletes' goals. When coaches use more autonomy supportive behaviors (e.g., offering choice, providing rationale for activities, acknowledging athletes' perspectives; see Mageau & Vallerand, 2003, for an in-depth description of such behaviors) and limit their use of controlling coach behaviors (e.g., using threatening behaviors or punishments to encourage athlete engagements, the use of conditional rewards; Bartholomew, Ntoumanis, & Thogersen-Ntoumani, 2009, 2010), athletes are more likely to strive for their goals for autonomous reasons (Healy et al., 2014; Smith et al., 2007; Smith, Ntoumanis, & Duda, 2010; Smith & Ntoumanis, 2014). However, when controlling coach behaviors are prevalent, athletes are more likely to pursue goals with controlled goal motives, which may have negative implications for goal attainment and well-being. Coaches are a key influence in the goal-setting process, and may often set goals for their athletes to work toward. This body of research goes further by showing that coaches can also impact goal pursuit indirectly, through the manner in which they engage with their athletes. Therefore, it is vital that coaches consider how their behavior within the competitive and training environment can promote adaptive goal striving, both through specific goal setting and their everyday engagement with their athletes.

There is further evidence of the important role that coaches can play when athletes are pursuing important goals outside of the goal motives literature. Maitland and Gervis (2010) interviewed elite youth male and female soccer players about their goal setting, particularly in relation to the role of coaches. While coaches were the preferred source of feedback for athletes when pursuing their goals, the players perceived a lack of engagement from the coaches in the goal-setting process. This manifested in the players not feeling that the coaches understood the contents of or rationale for their goals. However, players did report that given the important role their coach played in their progression to playing at the highest level—thus offering the opportunity to meet their longer-term goals and aspirations—they often aligned their goals to be congruent with the objectives their coaches were pursuing.

There may be multiple explanations for this. For instance, this effect may be explained by goal contagion (Aarts, Gollwitzer, & Hassin, 2004), whereby exposure to goal being pursued by another individual (such as a coach) can influence the selection goals. Equally, research has shown that goal pursuit can be intensified by the awareness that another individual is pursuing the same goal (Shteynberg & Galinsky, 2011). Overall, it is clear that coaches play a crucial role in the selection of goals and the motives with which athletes strive for important objectives.

Beyond Goal Research in Sport

Looking beyond the sporting literature, there is a wide-ranging body of research from theorists examining goal processes. Currently, this research is largely unexplored within sporting contexts. Hall and Kerr (2001) suggested that goal processes can operate differently in this environment given that athletes may have higher levels of commitment as they have chosen to engage in their sport. Therefore, it cannot be assumed that the findings from non-sporting contexts can be directly translated to sport. However, using athletic populations to examine goal processes previously untested in sport could have wide-ranging practical implications for athletes and others supporting athletes' goal pursuits.

It could be argued that the research from goal theorists outside of sport provides a much broader understanding of the goal construct than the sporting literature. For example, research has explored how it is that an individual begins to pursue a given goal (i.e. goal activation). Early literature suggested that goals were consciously activated; however, more recent research has argued that goals can be activated outside of an individual's conscious awareness (for a review, see Fishbach & Ferguson, 2007). Of particular interest to athlete goal pursuit is evidence which suggests that goals can be non-consciously primed by both exposure to a related end-state (e.g., obtaining a personal best; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001) or the representation of an important other (e.g., a coach, teammate, or parent; Shah, 2003). While there has been some research which used ecologically valid primes to prime goal motives within sporting contexts (e.g., Healy, Ntoumanis, Stewart, & Duda, 2015; Ntoumanis, Healy, Sedikides, Duda, et al., 2014), on the whole there is sparse research which investigates the conscious and non-conscious activation of athletes' goals.

Research has also explored whether it is more effective for individuals to focus on what they have already achieved in pursuit of their goal, or what progress they still need to make. Specifically, in a series of studies Koo and Fishbach (2008) found that when participants were highly committed to a goal, it was more important for individuals to focus on what they still had to accomplish in pursuit of their goals. Conversely, when commitment to a goal was lower, motivation to persist with a goal was enhanced by focusing on what had already been achieved. Coaches and other practitioners might have a positive impact on athletes' motivation to persist toward a goal they are not highly committed to by highlighting what progress they have already made toward their goal. Equally, for those athletes who are highly committed to their goals, being given information about what they still need to do to achieve their goal may help to maintain motivation. It is plausible that these effects could be moderated by the motives underpinning goal striving, given that research has demonstrated that athletes can pursue goals with different motives which could have implications for their commitment (e.g., Healy et al., 2014; Smith et al., 2007, 2010). Therefore, studies which attempt to replicate the findings of Koo and Fishbach (2008) within athletic populations could prove

vital for understanding how the focus of goal progress can facilitate sustained persistence toward important goals.

In addition, within the goals literature an area of high relevance to athlete goal setting is multiple goal pursuit. Despite athletes being encouraged to set a range of goals (e.g., process, performance, and outcome goals) over different time frames (e.g. short-, medium-, and long-term goals), limited empirical studies have explored the dynamics of multiple goal pursuit in sport. Shah and Kruglanski (2002) showed that priming an alternative goal has an impact on the pursuit of a goal. Specifically, when alternative goals are unrelated to the focal goal, commitment wanes, which can draw an individual's attention and resources away from the pursuit of the focal goal. Conversely, when the alternative goal is perceived to be facilitative of the focal goal, attention and resources are focused more intently on the pursuit of the focal goal. Additional research by Shah, Friedman, and Kruglanski (2002) found that when individuals were highly committed to their primary goal, they were able to shield this goal from the potential distraction caused by an alternative goal. While some research has explored multiple goal pursuit with athletic populations (Healy et al., 2016), this has only been in situations where individuals were pursing goals in different contexts (e.g., sport and education). Thus, it would be worthwhile for studies to examine how the presence of alternative goals can facilitate or interfere with goal pursuit when athletes are pursuing multiple goals in their sport.

Recommendations

Applied Practice

As has been highlighted throughout this encyclopedia article, goal setting is a commonly used technique to enhance performance within sport settings. Coaches and their athletes are aware of some of the techniques they may wish to adopt in order to make their goal-setting practice most effective. Through the research discussed within this article, it could be argued that the recommendations need to be more extensive than simply setting short-, medium-, and long-term S.M.A.R.T. goals. Therefore, based on this review of the literature the following suggestions could make useful additions to the existing recommendations.

First, it is important for coaches, applied practitioners, and athletes themselves to consider the types of goals they may prefer, and the reasons why they have chosen to pursue their goals. Ensuring that athletes are pursuing the right goals with the most adaptive goal motives may make it more likely that they will experience success in their goal pursuit. Furthermore, this approach may lead to benefits for well-being in addition to goal attainment.

Second, support and education should be offered to coaches to enable them to engage more effectively with their athletes' goal-setting practice. This might include explicit behaviors related to the pursuit of athletes' goals, for example regularly reviewing with

their athletes the goals which are being set and the progression being made toward these goals. Equally, coaches should be encouraged to adopt more autonomy-supportive behaviors (Mageau & Vallerand, 2003) in their everyday encounters with their athletes. This could result in athletes pursing their goals with more adaptive goal motives, ultimately leading to positive outcomes for goal attainment and well-being.

In addition, it has been shown that goals and the motives underpinning them can be primed through interactions with others. While not this has not been directly and empirically tested within the existing literature, coaches and applied practitioners might want to consider their own behavior and motives for their own goals in order to best support the athletes with whom they are working. It is also plausible that teammates who are simultaneously engaged in goal pursuit could have a positive or negative impact on the motivation of their fellow athletes, through the direct or indirect priming of goal motives.

Finally, athletes and those supporting them in goal setting should remember that goal pursuit is unlikely to be without challenges. While there will undoubtedly be times where extra effort and persistence will lead to goal attainment, there may also be times where persistence toward a goal which has become unattainable is futile. Indeed, long-term goals might be achieved via multiple different short-term goals, and disengaging from goals which have become unattainable might not always mean giving up on long-term aspirations. Therefore, it might be worthwhile for athletes to set a variety of short- and medium-term goals, which offer multiple routes to their longer-term aspirations, in order to enable effect disengagement and reengagement when experiencing challenges in goal pursuit.

Research

While the goals literature is already extensive, there are several ways in which future studies could further enhance our understanding of how to make goal setting and striving most effective. This research might integrate and extend some of the concepts which have been discussed, as well as examining theories from goals research in other contexts within a sport setting. For instance, despite evidence suggesting that athletes can have different preferences of goal types (e.g., Burton et al., 2010), to date there have been no studies which have examined the impact on goal attainment when athletes set goals which are either aligned with or contrary to their preferences. For example, if an athlete with a success-oriented goal-setting style is prescribed or sets a process goal (as opposed to their preference of an outcome goal), are they less likely to achieve this goal than an athlete with a performance-oriented goal-setting style (with a hypothesized preference for process goals)? Furthermore, research could investigate how an athlete's goal-setting style interacts with their goal motives for pursuing a specific goal. This would represent a significant advancement of the extant literature.

As suggested within this article, it is plausible that personality factors such as extraversion and narcissism could impact upon the effectiveness of goal-setting

programs. However, there is limited research which has specifically examined these factors. Therefore, studies which specifically focus on understanding how personality variables can influence goal setting would be beneficial and help us to understand how to make goal setting effective for all athletes.

A final avenue for future research may be to further explore the impact of goal difficulty, both perceived and objective, within the goal-setting–performance relationship. This would help athletes and coaches to set goals of an appropriate level. It may also help individuals to better understand when to persist in the face of increasing goal difficulty and when to disengage from a goal which has become unattainable to allow for reengagement in other worthwhile goal pursuits.

Conclusion

To conclude, it has been shown that goal setting is an important and valuable process which can help athletes enhance their performance and experience within sport. However, it can also be acknowledged that there is greater complexity to this process than described in previous articles on the topic. As such, athletes, coaches, and applied practitioners should be aware of the range of factors that can be influential when goal setting, to ensure that the process is as effective as possible.

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