

## How to Optimize Performance, Process, & Outcome Goals—An In-Depth Analysis

Researched and Composed by Gabriel "Venom" Wilson, BSc. (Hons), CSCS

### Abstract

There are literally thousands of studies that demonstrate the effectiveness of goal setting in enhancing performance. Three such goals that have been investigated are performance, process, and outcome goals. Evidence suggests that all three may be beneficial. However, it is absolutely crucial that these goals are emphasized at certain times during a training season. Therefore, the purpose of this paper was to give a template on how to properly apply these goals to a training program.

---

### Introduction

Knowlden (2003) suggests that "Goals are desired outcomes. They provide the direction for all decisions and for criteria against which actual work accomplishments can be measured." The benefits of goal setting are well documented, being demonstrated with over 40,000 participants and 90 varying tasks (Locke et al., 1981; Locke & Latham, 1990; Weinberg & Gould, 2003). Studies also have found that successful athletes believe in and apply goal setting frequently in their programs (Weinberg, R.S., D. Burton, D. Yukelson, & D. Weigand, 2000). Thus, the question is not whether goal setting works, but rather, how to optimize goal setting in a training program.

Proper goal setting is suggested to enhance self efficacy, narrow in and direct attention and effort, increase intrinsic motivation, promote persistence, and enhance learning, among other benefits (Gould, 1998).

There are various types of goal setting techniques. In a recent review on goal setting, Knowlden (2003) in [Muscle Mind Doctrine - Theoretical Concepts of Strategization](#) and [Muscle Mind Doctrine - Goal Sheets](#) discussed the benefits of and how to properly design various kinds of goals, including the importance of specific goals, and long and short term goals.

Building on his findings, the purpose of this article was to narrow in on three specific types of goals, and give a template on how to properly apply them to a training program. These goals are: performance, process, and outcome goals. In order to optimally implement goal setting, the reader will need to study this article, as well as the review by Knowlden (2003).

### Performance, Process, and Outcome Goals

Three types of goals Psychologists have focused particular attention to are outcome, performance, and process goals.

*Outcome goals*, also known as *competitive* or *ego goals*, focus on comparing yourself to others, and defeating them. For example, focusing on out performing someone in an event, or winning a bodybuilding competition. These types of goals are in large part out of the control of the individual, because athletes can not control how their competition prepares for an event. For instance, the competition in a bodybuilding contest may be well above expectations; and though an athlete showed up in the best shape of their life, if they lose, they would still be disappointed, because they lost.

*Performance goals*, also known as *mastery goals*, focus on your overall performance (self comparison). For example, improving your 1 repetition maximum (1RM) on squats by 20 pounds, or losing 2 inches off your waist. Unlike outcome goals, these types of goals do not involve comparison of yourself with others, and therefore, are in your control.

*Process goals* focus on improving form, strategy, and other processes an individual must go through during a task to perform a skill successfully. For example, focusing on keeping your back erect during dead lifts, or recording your diet on a daily bases, and following certain guidelines such as eating 2 tablespoons of [essential fatty acids](#) per day.

A large amount of research has focused on the benefits of a mastery (or performance) rather than an outcome oriented mentality. The next section will discuss this topic in-depth.

## **Mastery vs. Outcome Oriented Goals**

Motivation can be defined as the intensity and direction of effort (McCullagh, 2005). Intensity refers to the quantity of effort, while direction refers to what you are drawn too. Evidence suggests that enhanced motivation promotes learning, performance, enjoyment, and persistence in sport, among other benefits (McCullagh, 2005; Wilson, 2005; Fry & Fry, 1999). Therefore, methods to enhance motivation have been thoroughly investigated.

Nicholls (1989), a renowned educational psychologist, dedicated years of his life to developing a model to predict motivation. Models are vital to research because they offer a framework for many areas of research aimed at the nature of the topic, addresses possible mechanisms, and suggest several specific interventions (McCullagh, 2005). Nicholls *Achievement Motivation Theory* suggests that two types of goals—outcome and mastery goals—determine how an individual determines their success in an achievement situation. In review, a mastery goal orientation has to do with self comparison and looking at how you improve (performance goals). Whereas, outcome goals, also known as competitive or ego goals, focus on comparing yourself to others, and defeating them. Thus, an individual who is mastery oriented defines success by mastering skills, effort, and improvement over time. While an individual who is outcome oriented defines success by normative terms, meaning, when they out perform their competitors; they are also less concerned with improvement and effort.

Nicholls hypothesized that a mastery orientation would promote persistent, effort, enhance performance and enjoyment, and individuals would seek out more challenges, all of which would enhance motivation. While outcome orientations,

particularly when the individual has a low capacity for their activity, would decrease persistence, effort, performance, enjoyment, and individuals would avoid challenges, all of which would decrease motivation.

It is important to understand that goal orientations are just one factor which determines performance. Therefore, Nicholls suggested that no matter the ability of the individual (be it high or low), they would maximize *their* potential by adopting a mastery oriented perspective.

Nicholls theory has been investigated thoroughly, and is well supported by the research (McCullagh, 2005; Weinberg & Gould, 2003).

Fry and Fry (1999) used the Theory of Achievement Motivation to examine the goal perspectives and motivational responses of 171 (48 females and 123 males) elite junior weight lifting athletes. Participants were asked to fill out a survey while competing in the 1995 National Junior Weightlifting Championships and the 1996 Junior Olympics. The survey analyzed several variables including: goal orientations, enjoyment, effort, perceived ability, and physical self-worth. Results on gender differences found that females had significantly higher task orientations than males; they correspondingly tended to have greater enjoyment than males. Correlation data between the predictor variables (goal orientation) and criterion variables (enjoyment, effort, perceived ability, and physical self-worth) found that a mastery goal orientation was positively and significantly correlated to the athletes' perception of enjoyment and effort. Conversely, a high outcome orientation coupled with a low mastery orientation was significantly correlated with low effort, less physical self-worth, and interestingly enough, a high perception of ability. The fact that those high in outcome orientations tended to have a high perception of their ability further supports Nicholls theory. Nicholls predicted that people that have a high ego orientation, but a low perceived ability would quit, because their success is determined by their ability to defeat others. It is suggested that these individuals must convince themselves that they have a high ability, in order to persevere in sport. However, individuals who are mastery oriented have a more accurate perception of their ability, because ability is not as critical a factor for them. Thus, no matter what their perceived ability, they will still give high effort, seek challenges, and persevere. Therefore, collectively, these results supported Nicholls Achievement Motivation Theory.

Newton and Duda (1993) examined elite young tennis players, and found that athletes high in outcome orientation believed that the major cause for success in their sport was being gifted, or knowing how to impress the coach. Whereas athletes high in mastery orientation believed that effort was a vital factor for success in sport, and did not believe that external factors, such as equipment, or cheating, or being able to deceive the coach, contributed to being successful at tennis. It is suggested that believing effort, rather than natural ability or cheating is the cause for your success will result in greater sport success, because effort is in the control of the athlete; further, if they perceive they have a low ability, they may quit. Similar results were found with elite downhill skiers (Duda and White, 1992)

Other studies also indicate that mastery oriented individuals engage more in problem solving during stressful events (Pensgaard & Roberts).

Ommundsen and Roberts (1996) examined over 200 athletes participating in the Norwegian Sport Association. Results indicated that athletes high in mastery orientations claimed that they trained to enjoy social interactions, and to assist them in maximizing their athletic performance. While outcome oriented athletes also trained to maximize sport achievement, they also trained to increase their social status and gain personal recognition.

Numerous other studies have found that a mastery goal orientation results in increased effort, intrinsic interest, enjoyment, greater performance, less boredom, greater persistence, and seeking more challenging activities (Duda, Fox, Biddle, & Armstrong, 1992; Duda & Nicholls, 1992; Solmon & Boone, 1993). Conversely, studies indicate that outcome orientations promote numerous adverse behaviors which decrease motivation, such as declines in concentration; further, this mentality commonly promotes unsportsmanlike conduct, including purposely harming others, and cheating (Duda, Olson, and Templin, 1991; Newton, & Duda, 1993; White, & Zellner, 1996). So clearly, having a higher mastery goal orientation is beneficial for motivation.

The other factor in Nicholls' theory is the motivational climate, which is established by the coaches, peers, and adults. A mastery oriented climate occurs when coaches reward athletes for effort, improving skills, and cooperation. While an outcome oriented climate occurs when coaches reward winning, and competition. In this context, Ommundsen, Roberts, and Kavussanu (1998) indicated that athletes, who perceived they were in a mastery motivational climate, had greater enjoyment, satisfaction, a greater desire to learn during practice, and a greater appreciation for developing skills. While athletes who perceived they were in an outcome motivational climate, were not as interested in having fun or being satisfied, and believed sport should facilitate a better social status. Therefore, the motivational climate and intrinsic goal orientation of the athlete are both vital factors to consider for motivation.

Studies in academic settings also support mastery over outcome goal orientations. Ames (1990) has convincingly shown this in several in-depth investigations on the effects of goal orientations on academic performance. His findings indicate that a mastery oriented classroom enhances academic performance in reference to an outcome oriented classroom. So it would benefit teachers to pay close attention to this article!

Further support for a mastery goal orientation comes from studies on [Rewards and Competition vs. Cooperation](#).

Therefore, psychologists have been strong advocates of a mastery oriented goal orientation and motivational climate.

However, Nicholls suggested that goal orientations are independent, meaning that one may be high in both mastery and outcome orientations, or low in both orientations, or high in one orientation, and low in another. Further, he suggested that athletes exhibit both orientations to some extent. In this context, it is important to understand the influence of combining both goal orientations.

Hom, Duda, and Miller (1993) examined goal orientations in youth basketball players. Results indicated that athletes who had both mastery and outcome goal

orientations had greater levels of enjoyment and competence, than athletes with only a master or outcome oriented goal. Similarly, Fox, Goudas, Biddle, Duda, and Armstrong (1994) found that athletes from various sports who had both goal orientations had greater perceived sport competence, and enjoyment, than athletes who adopted only mastery or outcome goals. Roberts, Treasure and Kavussanu (1996) found similar results too these two studies.

Other studies have also found that athletes with both mastery and outcome goal orientations persist longer in sports, and report the greatest years of sport participation (Duda, 1988, 1999). Studies also suggest that athletes with both goals have higher intrinsic motivation (Fox et al., 1994; Hom et al., 1993).

One argument against these studies, is that they are correlative in nature, and therefore, do not confirm causality. Further, studies have failed to examine the effects of a multiple goal motivational climate.

In this context, Steinberg, Singer, Murphey, & Milledge (2000) performed perhaps the most comprehensive experiment ever on Nicholls (1989) Achievement Motivation Theory. Participants consisted of 72 college students, enrolled in a beginning golf class. The motivational climate was a mastery/competitive situation. Participants were assigned to 4 conditions: master/competitive goal, mastery, competitive, and no goal (control) conditions. Participants practiced golf putting for 18 sessions, over a 6 week time span on a putting green. Participants in the mastery group were given the goal to improve by 5% each week on a mini golf task, and a target putting task. Participants in the outcome condition were given the goal to win at least 50% of solo best ball games and 50% of the team best ball games played. Participants in the mastery/competitive group were given the goal of achieving one mastery goal and one competitive goal.

Results indicated that participants in the mastery/competitive condition had the highest persistence during training, in that they trained almost twice as much as the other participants, had greater intrinsic motivation, as inferred by greater enjoyment/interest and effort/perceived importance, and performance tended to increase to a greater extent, probably due to greater motivation and practice.

There are several theoretical rationales for these results. Duda (1989) suggests that "a person who stresses both goal perspectives has two sources of success and several reasons to continue participation in the activity" and that a multiple goal orientation "provides the participant with mastery standards to fall back on if he or she is not the best at a specific task" (p.103). Thus, having both goal orientations is suggested to increase [incentive motivation](#), and reinforcement opportunities. Swain and Hardwood (1996) have been so bold to suggest that someone with both goal orientations cannot fail to be satisfied!

Roberts (1992) suggests that people that enter into a motivational climate, which conflicts with their motivational goals may perceive conflict in motivations, leading to decreased motivation. For example, if an athlete has an outcome oriented goal, and the motivational climate is mastery oriented, this may decrease motivation. This was supported by Steinberg et al. (2000), who found that participants in the mastery oriented condition actually had decreased intrinsic motivation!

Thus, multiple goals may allow for motivational coping strategies (i.e. enhanced adaptability to various situations). In a real world setting, this has practical significance, as sports often entail using both goal orientations. For instance, an athlete may first begin their sporting career by focusing on mastery goals, then focusing on outcome goals, then going back to mastery goals, etc. Therefore, adaptability is imperative.

Steinberg et al. (2000) suggest that the issue may not be mastery vs. outcome goal orientations at all. But instead, when to emphasize such orientations, as evidence suggests both can be important at certain times. Optimal times to implement goal orientations will be discussed further on.

Steinberg et al. concluded that (the notes in brackets are mine), "Perhaps, the optimal achievement strategy would be one that not only focuses on opportunities for growth and development [mastery goals], but also allows for recognition of a normative basis [outcome goals]. Such a strategy should make an individual better equipped to cope with the task at hand, and therefore, provide the best possibility for attaining athletic excellence."

Therefore, the current author suggests that the athlete should focus on a mastery goal orientation, and coaches should foster a mastery oriented motivational climate. However, we should *not* be dogmatic with these practices, and ignore outcome goals. We should acknowledge outcome goals and reinforce them when they are done. For example, athletes/coaches should acknowledge and celebrate victories. Or in an academic setting, students/teachers should acknowledge and celebrate high grades. This should optimize incentive motivation, persistence, reinforcement opportunities, intrinsic motivation, and performance. More practical applications will be discussed further in the article.

Next, the benefit of process goals, particularly when compared to other goal setting strategies, will be discussed.

### **Process vs. Performance Goals**

In review, process goals focus on improving form, strategy, and other processes an individual must go through during a task to perform a skill successfully. For example, focusing on keeping your back erect during dead lifts, or recording your diet on a daily bases, and following certain guidelines such as eating 2 tablespoons of essential fatty acids per day.

But before moving on, we need to discuss a concept called imagery. Imagery can be defined as creating or recreating images in the mind. Imagery involves all the senses including visual, kinesthetic, auditory, and olfactory senses. It also involves moods and emotions (Simons, 2005). Sport Psychologists are strong advocates of the use of imagery for athletes. For instance, Weinberg and Gould (2003) state that, "evidence from scientific experiments in support of imagery is impressive and clearly demonstrates the value of imagery in learning and performing skills." There are various techniques for applying imagery, and these techniques can have differing effects on performance.

In this context, Singer, Bouchard and Pena (2001) compared the effects of a process orientation (imaging planning, organizing, and preparing) versus a performance goal orientation ('imaging doing well on tests,') on tennis skills and written tests. Participants consisted of 76 university students. Participants in the process orientation condition imagined steps which would allow them to be successful on the written exam and skills test. For example, for the skills test they imagined practicing sufficiently, with a commitment to improve, and planned the time of day they would practice. And for the written test, they imagined studying efficiently and successfully, with complete focus in a quiet place. Participants in the performance condition imagined the joy of doing well on the exams. For example, imaging the feeling of being happy after a perfect stroke. Results found that participants in the process condition outperformed the performance condition in the skill test. While all conditions improved on the writing test, there was no significant difference between conditions. The authors suggested that the reason participants did not differ in tennis scores on the written exam, may have been that the written tennis exam was not perceived as important, and also, it was not performed in front of their peers.

This is in agreement with the findings of Taylor Pham, Rivkin, and Armor (1998) who found that using process goal imagery facilitated performance for a psychology exam.

Singer, Bouchard and Pena (2001) also found that participants in the process goal imagery condition spent more time out of the class room preparing for their test, which is in agreement with other studies (Martin & Hall, 1995; Pham & Taylor, 1999). It is suggested that process goals may enhance intrinsic motivation for participants to perform their activity; and also save them time through mental preparation.

In a revolutionary experiment on this topic, Kingston and Hardy (1997) examined the effects of performance and process goals on various criterion variables during a golfing season. Participants consisted of 37 experienced golfers. The experimenters performed a longitudinal study over 54 weeks of a competitive golf season. They took data during week 1 (baseline) (test 1), week 23 (test 2), and week 54 (test 3). They measured performance based on their scores; state anxiety and self confidence were measured with the Competitive State Anxiety Inventory (CSAI-2) questionnaire, which has been demonstrated to be both reliable and valid (McCullagh, 2005); lastly, the Sports-Related Psychological Skills Questionnaire (SPSQ), which has also been demonstrated to be valid and reliable (Nelson and Hardy, 1990), was used to measure self efficacy (a task-specific self confidence), cognitive anxiety control skills (the capacity to control anxiety), and concentration skills.

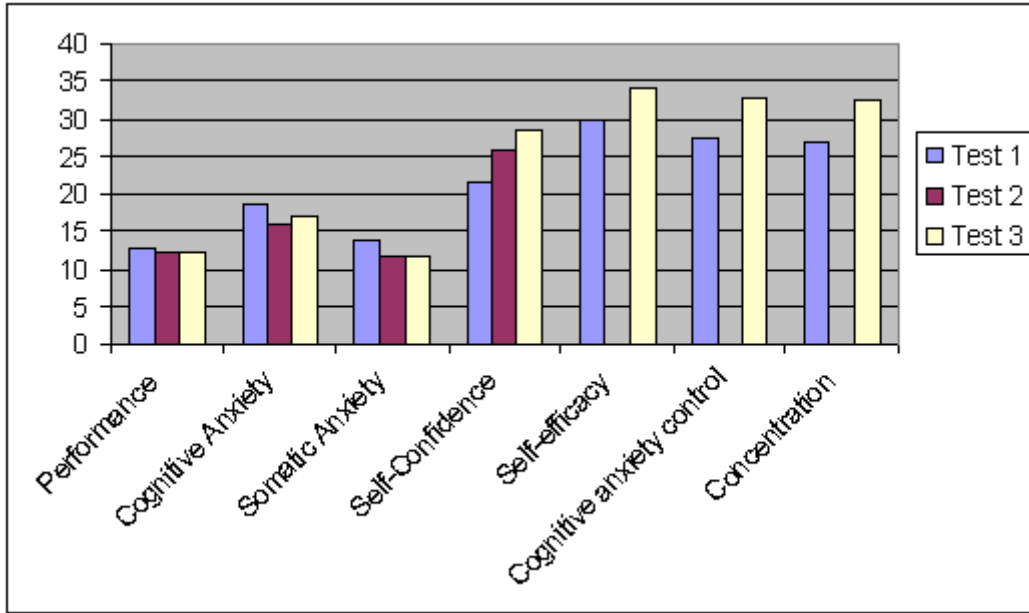


Figure 1.

*The Effects of Process Goals on Various Criterion Variables of Golfing Skills*

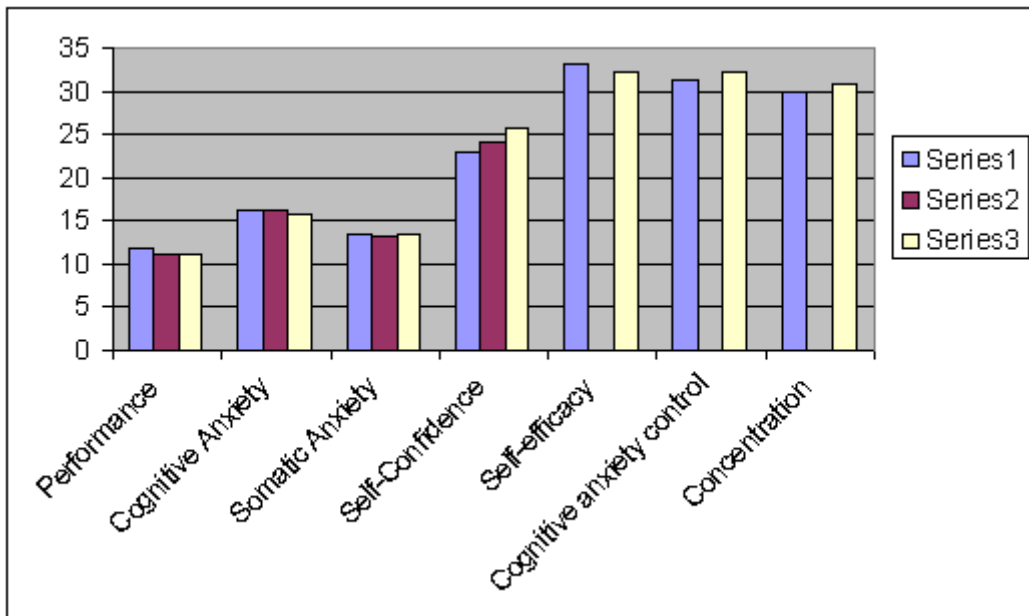


Figure 2.

*The Effects of Performance Goals on Various Criterion Variables of Golfing Skills*

**Note:** A lower score indicates a greater capacity and skills for the following measurements: performance, cognitive anxiety (mental anxiety), and somatic

anxiety (bodily anxiety). A higher score indicates a greater capacity and skills for the following measurements: self confidence, self efficacy, cognitive anxiety control skills, and concentration skills.

Figure 1 and 2 graphically depicts the results of this experiment. The results indicated that the process goal condition significantly improved in performance based on their scores from test 1 to 2; while the performance goal condition did not improve from test 1 to 2, but did significantly improve between test 1 and 3. Therefore, process goals may facilitate learning at a significantly faster rate than performance goals.

Based on the CSAI-2 measurement, results indicated that both goal setting conditions had significantly lower anxiety and higher self confidence than the control condition. Further, process goals had a trend to produce lower anxiety and greater self confidence than performance goals.

The SPSQ revealed that process goal condition significantly improved self efficacy, cognitive anxiety control skills, and concentration skills. While neither the control or performance goal conditions significantly altered any of these variables.

This is consistent with earlier studies that indicate that process goals reduce anxiety and facilitate performance during otherwise stressful competitive situations (Kingston, Hardy, & Markland, 1992).

The reason performance goals are not as effective at reducing anxiety, and may actually increase anxiety, can be better understood better when analyzing what actually generates anxiety. Locke and Latham (1985) suggest that things that can generate anxiety are: task importance, action requirement, and something that may not always be achieved (uncertainty). Consequently, performance goals contain all of these properties.

Process goals also allow the administrator to breakdown complex goals into discrete behaviors (processes) which can make the transition much smoother and faster. For example, if you are going on a strict diet, focusing on process goals and recording your diet can be very helpful. For instance, recording that you need: 6 meals a day, 3 low carb meals, certain vitamins and minerals, etc. This will be discussed more further on.

Concerning process goals ability to enhance concentration, it has been suggested that process goals facilitate the allocation of attentional resources to the task at hand, and decrease focus on superfluous thoughts, such as what you are going to do later in the day, increasing concentration. For instance, instead of focusing on getting 10 reps on a squat (performance goal) focusing on the process (i.e. just squatting smoothly during each rep, and leaving all other thoughts out of your mind) will narrow your attention to the activity to a greater extent.

Another factor is that process goals enhance your control. As stated, outcome goals are commonly outside of your control, because you cannot control how your competitors train. Further, performance goals are not always entirely in your control (though much more so than outcome goals). External factors such as your partner can also influence this. However, process goals are almost entirely in your control, as they are totally focused on what it takes to pursuit a performance goal.

As process goals can be achieved very consistently, this is the reason why process goals are suggested to increase self efficacy (as demonstrated in the aforementioned experiment).

All of these factors would lead to enhanced performance, which again was demonstrated in the above experiment.

One potential problem with process goals has been proposed by Baumeister (1984) and Masters (1992). Evidence suggests that when learning a skill, the participant goes through a phase called cognitive verbal, in which their performing of the skill is slow and requires a great deal of cognitive attention. However, well learned skills become 'automatic' and require little cognitive effort or attention. In this context, it has been suggested that process goals, that increase cognitive effort on the skills being performed, may cause the participant to relapse to conscious control of skills, which is slow and not optimal for performance. For more information on this, refer to the following articles on the [Specificity Hypothesis](#).

Several solutions have been proposed for this problem, based on the learning process.

For beginners, focusing on key parts of the movement should facilitate learning of skills, and future autonomy. However, for advanced athletes, they should set holistic process goals, which means goals based on the entire movement, rather than breaking it up into parts. For instance, someone squatting should not focus on keeping their back straight, going down in 3 seconds, up in 2 seconds, and looking up, etc. Instead, just focus on one holistic term such as being smooth on your lifts. For other sports such as hockey, many of the skills such as skating are automatic; by focusing on the process, the player can focus their attention on the many cues in the environment, such as opposing players.

A good example of how to use process goals as you proceed along the learning curve is demonstrated in the following quote by a very successful pistol shooter:

I would write what I wanted to do and say to myself, 'What am I going to do this training session?' I wouldn't just get on the line and pump rounds down the range, but would actually go to the line with an intent, a goal, even if it was just to make sure everything was smooth. When I go to the line, and set everything up, and take up the gun in my hand, I also mentally go through my shot plan checklist before I shoot. This strategy started out very mechanically, with a physical list of words which I have on the shooting table and which I read exactly. These words represented every single step involved in shooting a shot. Then, I reduced these to key words so that I could go through the list faster. Finally, I didn't need the list anymore. I would usually write on word to emphasize what I wanted such as, 'trigger' or 'smooth'. Then this shot-plan rehearsal became a mix of simple verbal reminders and images which I ran before each shot (Orlick & Partington, 1988, pp. 111-112).

As you see, at first, he was very mechanical and slow, and it took a great deal of cognitive effort for him to shoot. However, as he progressed, he became much more efficient, faster, and 'automatic.' Therefore, he only used one process term such as 'trigger' or 'smooth' just to get him to focus on the movement as a whole (not parts).

The main point is that your attention should be focused on the task at hand. Any other thought, such as saying you have to achieve 10 reps (a performance goal) will decrease your concentration of the task at end, and potentially elicit other adverse effects.

### **Process, Performance, & Outcome Goals—tying them together**

So what is best—performance, process, or outcome goals?

To answer this question, Filby, Maynard, and Graydon (1999) investigated the effects of a combination of outcome, performance, and process goals, or using each goal separately, on performance. Participants consisted of 40 soccer players, who were tested on a soccer task. Performance was measured over 5 weeks, and then in a competition. Results found that multiple goal setting strategies (outcome, performance, and process goals) resulted in significantly greater performance than using one type of goal.

Therefore, the question asked at the introduction of this section is not something that can really be answered. Rather, what we need to focus on is the degree to which we prioritize process, performance, and outcome goals in various situations, as evidence clearly suggests all three can be beneficial.

Filby, Maynard, and Graydon (1999) suggest that:

The benefits of adopting an outcome goal are realized only when the outcome goal is combined with the prioritization of a process orientation immediately before and during performance (p. 242).

Similarly, Kingston and Hardy (1997) suggest that:

Kingston and Hardy (1994) have highlighted how golfers may use different types of goals within the framework of preparation and execution of skills. For example, a golfer might set an outcome goal of winning a tournament in order to motivate himself or herself to go out and practice. He or she might set a series of performance goals to increase the salience of practice. Finally, he or she might use process-oriented goals to aid concentration and the allocation of attentional resources during both practice and competition. What is important is the degree to which we prioritize the goals within different situational contexts (Kingston & Hardy, 1994). In short, outcome and performance goals might be very important to get one to the practice ground, but process goals might be much more important to ensure that one uses the time spent at the practice ground to best effect.

Based on the evidence, the current author therefore suggests the following:

- Performance and outcome goals should be set prior to events. For example, before actually working out or competing.
- An emphasis should be placed on performance goals, as results clearly demonstrate that they result in greater performance, among many other important variables, when compared to outcome goals. However, evidence suggests that having two goals—performance and outcome goals—results in

- greater performance, and increases in other measurements such as intrinsic motivation than having one goal orientation. Therefore, the current author suggests that the athlete should focus on a mastery goal orientation, and coaches should foster a mastery oriented motivational climate. However, we should *not* be dogmatic with these practices, and ignore outcome goals. We should acknowledge outcome goals and reinforce them when they are done. For example, athletes/coaches should acknowledge and celebrate victories. Or in an academic setting, students/teachers should acknowledge and celebrate high grades. This should optimize incentive motivation, persistence, reinforcement opportunities, intrinsic motivation, and performance.
- When working out, practicing, or competing, the athlete should focus on process goals. This will effectively allocate attention towards the task, decrease various measures of anxiety, and enhance performance. So instead of focusing on defeating someone on squats, or getting 10 reps on squats—both of which can enhance anxiety—the athlete should just focus on the actual process of squatting when they are squatting. This can be applied to any exercise. The point is, during actual physical activities, you should focus your attention on the process of the movement.
  - Process goals can also be highly beneficial before competitions. You can set process goals for diet, training consistency, among other areas of interest. This will be discussed more in practical applications.

In conclusion, outcome and performance goals should be emphasized before and after exercise, with a greater emphasize on performance goals; while process goals should be emphasized during exercise and before and after exercise.

## Conclusion

The results clearly indicate the performance, process, and outcome goals can greatly impact performance. For practical applications, Click [Here](#).

Keep it Hardcore,

Venom

Vice President of ABCbodybuilding.com

[Venom@abcbodybuilding.com](mailto:Venom@abcbodybuilding.com)

## References

Ames, C. (1990, April). Achievement goals and classroom structure: Developing a learning orientation in students. Paper presented to the annual meeting of the American Educational Research Association, Boston.

Baumeister, R.F. (1984). Choking under pressure. Self consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, 46, 610-620.

Duda, J.L., K.R. Fox, S.J.H. Biddle, and N. Armstrong. (1992)Children's achievement goals and beliefs about success in sport. *Br. J. Educ. Psychol.* 62:313–323. 1992.

- Duda, J.L., and J.G. Nicholls. (1992). Dimensions of achievement motivation in schoolwork and sport. *J. Educ. Psychol.* 84:290–299.
- Duda, J.L., L.K. Olson, and T.J. Templin. (1996). The relationship of task and ego orientation to sportsmanship attitudes and the perceived legitimacy of injurious acts. *Res. Q. Exerc. Sport.* 62:79–87.
- Duda, J.L., and S.A. White. (1992). Goal orientations and beliefs about the causes of sport success among elite skiers. *Sport Psychol.* 6: 334–343.
- Duda, J. L. (1988). The relationship between goal perspectives, persistence and behavioral intensity among male and female recreational sport participants. *Leisure Sciences*, 10,95-106.
- Duda, J. L. (1989). Goal perspectives, participation, and persistence in sport. *International Journal of Sport Psychology* 20, 42-5 6.
- Filby, W.C.D., I.W. Maynard, and J.K. Graydon. The effect of multiple-goal strategies on performance outcomes in training and competition. *J. Appl. Sport Psychol.* 11:230–246. 1999.
- Fox, K., Goudas, M., Biddle, S., Duda, J., & Armstrong, N. (1994). Children's task and ego goal profiles in sport. *British Journal of Educational Psychology*, 64, 253-261.
- FRY MARY D. and ANDREW C. FRY. (1999). Goal Perspectives and Motivational Responses of Elite Junior Weightlifters. *The Journal of Strength and Conditioning Research*: Vol. 13, No. 4, pp. 311–317.
- Gould, D. (1998). Goal setting for peak performance. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (3rd ed., pp. 182-196). Mountain View CA: Mayfield.
- Hom, H. L., Duda, J. L., & Miller, A. (1993). Correlates of goal orientations among young athletes. *Pediatric Exercise Science*, 5, 168-176.
- Kingston, K.M., and L. Hardy. (1994). Factors affecting the salience of outcome, performance and process goals in golf. In A. Cochran & M. Farally (Eds.), *Science and golf 2* (pp. 144-149). London: Chapman-Hill.
- Kingston, K.M., and L. Hardy. (1997) Effects of different types of goals on processes that support performance. *Sport Psychol.* 11:277–293.
- Kingston, K.M., L. Hardy., and Markland, D. (1992). Study to compare the effect of two different goal orientations and stress levels on a number of situationally relevant performance subcomponents. *Journal of Sport Sciences.* 10, 610-611.
- Locke, EA. & Latham, G.P. (1985). The application of goal setting to sports. *Journal of Sport Psychology*, 16, 212-215.

- Locke, EA. & Latham, G.P. (1990). A theory of goal setting and task performance. Englewood Cliffs, NJ: Prentice Hall.
- Locke et al. (1981). Goal setting and task performance: 1969-1980. *Psychological Bulletin*, 90, 125-152.
- Masters, R.S.W. (1992). Knowledge, nerves, and know-how. *British Journal of Psychology*. 83, 343-358.
- Martin, K. A., & Hall, C. R. (1995). Using mental imagery to enhance intrinsic motivation. *Journal of Sport & Exercise Psychology* 17, 54-69.
- McCullagh, Penny. (2005) Sport and Exercise Psychology Lecture. Cal State University East Bay.
- Nelson, D., & Hard. L. (1990). The development of an empirically validated tool for measuring psychological skill in sport. *Journal of Sport Sciences*, 8, 71.
- Newton, M.L., and J.L. Duda. (1993). Relationship of task and ego orientation to performance-cognitive content, affect, and attributions in bowling. *J. Sport Behav.* 16: 209–220.
- Newton, M.L., and J.L. Duda. (1993). Elite adolescent athletes' achievement goals and beliefs concerning success in tennis. *J. Sport Exerc. Psychol.* 15:322–341.
- Nicholls, J.G. (1989). *The Competitive Ethos and Democratic Education*. Cambridge, MA: Harvard University Press.
- Ommundsen, Y., and G.C. Roberts. (1996) Goal orientations and perceived purposes of training among elite athletes. *Percept. Mot. Skills.* 83:463–471.
- Ommundsen, Y., G.C. Roberts, and M. Kavussanu. (1998). Perceived motivational climate and cognitive and affective correlates among Norwegian athletes. *J. Sports Sci.* 16:153–164.
- Orlick & Partington (1988). Mental links to excellence. *The Sport Psychologist*, 2, 105-131.
- Pham, L. B., & Taylor, S. E. (1999). From thought to action: Effects of process versus outcome-based mental simulations on performance. *Personality and Social Psychology Bulletin*, 25, 250-260.
- Pensgaard, A.M., and G.C. Roberts. Competing at the Olympics: Achievement goal orientations and coping with stress. IXth European Congress on Sport Psychology Proceedings: Integrating Laboratory and Field Studies. FEPSAC, Brussels, Part II. 701–708.
- Roberts, G.C. (1992). Motivation in sport and exercise: Conceptual constraints and convergence. In G. Roberts (Ed.), *Motivation in sport and exercise* (pp. 3-31). Champaign, IL: Human Kinetics.

Roberts, G.C. & Treasure, D.C. (1992). Children in sport. *Sport Science Review*, 1,46-64.

Roberts, G.C., Treasure, D.C., & Kavussanu, M. (1996). Orthogonality of achievement goals and its relationship to beliefs about success and satisfaction in sport. *The Sport Psychologist*, 10, 398-408.

Simons, Jeff. (2005) Sport and Exercise Psychology Lecture. Cal State University East Bay.

Singer, Robert Downs, Danielle Symons Bouchard, Lester Pena, Derek de la. (2001). The Influence of a Process Versus an Outcome Orientation on Tennis Performance and Knowledge. *Journal of Sport Behavior*.

Solmon, M.A., and J. Boone. (1993) The impact of student goal orientation in physical education classes. *Res. Q. Exerc. Sport*. 64:418–424.

Steinberg, Gregg M. Singer, Robert N. Murphey, Milledge. (2000). The Benefits To Sport Achievement When a Multiple Goal Orientation is Emphasized. *Journal of Sport Behavior*.

Swain, A.J. & Harwood, C.G. (1996). Antecedents of state goals in age-group swimmers: An interactionist perspective. *Journal of Sports Science*, 14, 111-124.

Taylor, S. E., Pham, L. B., Rivkin, I. D., & Armor, D. A. (1998). Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist*, 53, 429-439.

White, S.A., and S. Zellner. (1996). The relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety among high school, intercollegiate, and recreational sport participants. *The Sport Psychologist*. 10:58–72.

Weinberg R, & Gould, D (2003). *Foundations of Sport and Exercise Psychology: Human Kinetics*.

Weinberg, R.S., D. Burton, D. Yukelson, and D. Weigand. (2000). Perceived goal setting practices of Olympic athletes: An exploratory investigation. *Sport Psychol*. 14: 279–295.

Wilson, Jacob. (2005). [Hull's Quantitative Equation on Human Performance](#). *Journal of Hyperplasia Research*.