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RESEARCH NOTE: Psychological Skills for Successful Ice Hockey Goaltenders

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Introduction

Goaltending in ice hockey may be one of the most demanding positions to play given the high level of pressure and stress (Miller, 2001). Ken Dryden, former goalie for the Montreal Canadiens, expressed the mental aspect of goaltending in the following quotation;

Because the demands on a goalie are mostly mental, it means that for a goalie, the biggest enemy is himself. Not a puck, not an opponent, not a quirk of size or style. Him. The stress and anxiety he feels when he plays...[is] in constant ebb and flow, but never disappearing. The successful goalie understands these neuroses, accepts them, and puts them under control. The unsuccessful goalie is distracted by them, his mind in knots, his body quickly following. (<http://www.msu.edu/user/baujason/quote.html>)

In order for goaltenders to maintain 'control' and perform optimally, they must use a combination of organized mental skills. When the mental skills are utilized effectively, goaltenders consistently appear to be in the right position at the right time that is, being 'in the groove'. Alternatively, when goaltenders are 'off' or 'fighting the puck', something has interfered with the organization of their mental skills. According to Goldberg (1998), achieving ultimate sport performance is having the mind and body work together in perfect harmony. The purpose of this applied paper is to outline various psychological skills ice hockey goaltenders can use to strengthen their mental game thereby attaining or regaining control between the posts, ultimately leading to greater performance.

Numerous coaches and athletes maintain that the ability to reach optimal sport performance is 90 percent mental (Porter, 2003). According to Daccord (1998), professional goaltenders claimed that their mental skills contributed most to their ability to stop the puck. Theoretically speaking, a goaltender in ice hockey spends almost the entire game following the play. This leaves the goaltender with ample time to think about what has happened or what is to come, and many times this could be to the demise of the goaltender. Thus, psychological skills training is vital to a goaltender's success. Gaining knowledge in areas such as concentration, arousal control, imagery, and self-talk will provide goaltenders with the tools needed to take control of their game.

Concentration

It is believed that effective concentration is a vital prerequisite of athletes achieving optimal performance (Moran, 2004). Wilson, Schmid and Peper (2006) defined concentration as the ability to focus on relevant tasks cues while ignoring distractions, and is considered to be an important component of attention. Researchers have found favorable performance outcomes as a result of manipulating athletes' attentional focus in competitive situations (Mallet & Hanrahan, 1997; Morgan, 2000). Based on the principle that different sport situations require different attentional demands, Nideffer (1976) argued that attention varies along two dimensions of focus: width (broad and narrow) and direction (internal and external). On the one hand, broad attention refers to perceiving several occurrences simultaneously. In the case of goaltenders, there are times when they have to attend to several stimuli such as a three-on-two developing from a turnover. On the other hand, narrow attention occurs when responding to only one or two cues (e.g., focusing on a breakaway). Insofar as direction is concerned, external focus directs attention outward to an object (e.g., focusing solely on the puck). Finally, internal focus directs attention inward to thoughts and feelings (e.g., ruminating over a previous goal). Therefore, goaltenders must realize that different types of concentration are required during a game. Given that this is a complex element it must continually be practiced in order to achieve consistency in performance.

Porter (2003) suggested that an individual's concentration skills are dependent on the individual's motivation to maintain them. As a result, one role of a goaltender is to keep his/her mind focused on the game and to disregard other distracting cues or thoughts. Moreover, hockey is essentially a game of starts and stops and as such, goaltenders may experience difficulty in maintaining focus during those stops. Concentration exercises can be used to help develop a goaltender's ability to maintain focus during a game, practice, and stops in action, thus improving overall performance.

One exercise a goaltender can do is what Park (1985) identified as Eye Control. Here, goaltenders are instructed to give their full attention to the puck, trying to pick up the spin, attempting to see the label, or focussing on the edge of the puck. In other words, during practice or a game, the goaltender plays only one shot at a time, focusing on some aspect of the puck, which is smaller than the puck itself. The adage of "keeping your eye on the puck" is really tested in this exercise, and will help improve a goaltender's concentration when practiced on a regular basis.

Another concentration exercise involves the use of several dozen pucks that have been painted three different colors. A player shoots these colored pucks at the goaltender. The goaltender's task is to correctly place each colored puck in its designated area after making the save. For example, one color is to go to the left side of the net, another color is to go to the right side of the net, and the third color is to be passed back to the shooter. With each colored puck, the goaltender will have to make the save, control the rebound, and place the puck in its designated area. This exercise places increased pressure to watch the puck, make quick decisions, and control the puck, thus enhancing concentration.

Arousal Control

Arousal is a general physiological and psychological activation, varying from deep sleep to intense excitement (Weinberg & Gould, 2003). All athletes have an optimal level of arousal, a level where peak performance is possible. Too little or too much arousal can negatively affect performance. Some goaltenders may need to "psych" themselves up, while others may need to relax in order to reach their peak performance level. Given that athletes require different levels of arousal for optimal performance, it is important that athletes learn to identify which mental and emotional states are necessary for success. Once athletes have identified their optimal level of arousal, they can learn to voluntarily program these responses.

Conversely, anxiety is a negative emotional state in which feelings of nervousness, worry, and apprehension are associated with activation or arousal of the body (Weinberg & Gould, 2003). Anxiety is a multidimensional construct comprised of mental, physical, and behavioral components. Controlling anxiety, especially cognitive anxiety (Cashmore, 2002), is an important mental skill for athletes to develop. Dunn (1999), in his research examining the cognitive anxiety of collegiate ice hockey players, found they worried about fear of failure, negative social evaluation, injury or physical danger, and the unknown. As such, athletes need to learn to regulate anxiety levels. Regulating anxiety means the athlete must become aware of his feelings during practice and competition, and learn to control or adjust those feelings accordingly (Hanin, 2000).

One of the most obvious and debilitating effects of too much anxiety is muscle tension, reduced flexibility, and reduced mobility (Hanin, 2000). When anxiety is high, co-ordination is low. One way in which too much anxiety can affect a goaltender's performance is by hampering his concentration, more specifically narrowing the attentional field (Weinberg & Gould, 2003). When anxiety increases, the goaltender may narrow the attentional field, decrease environmental scanning, which causes a shift to the dominant attentional style. Consequently, this shift to the dominant attentional style may lead the goaltender to focus on inappropriate cues.

If a goaltender is plagued with high levels of anxiety, one technique to reduce it is through relaxation. Adapted from Jacobson's (1938) Progressive Relaxation, and based on the notion that tension and relaxation are mutually exclusive; goaltenders can tighten and relax muscles of the body as a way to reduce anxiety. Beginning with the major muscles in the arm, athletes tense up each muscle for 5 seconds, then relax the muscle.

The athlete repeats this one to two more times then moves on to the next major muscle group (i.e. legs). Muscle relaxation is designed to increase awareness of muscle tension, reduce anxiety, and enhance energy levels by identifying between sensations of tension and deep relaxation.

Another method, which can be beneficial during practice or competition, is breath control or centering. Williams and Harris (2006) suggested practicing breath control in numerous situations in a practice or a competition. A smooth, slow, and regular breath during inhalation and exhalation cycles, counting to 5 for each cycle, is a general guideline that can be used to increase relaxation. Centering, much like breath control, includes an awareness of muscle tension in which the athletes may achieve physical balance and mental focus (Nideffer, 1994). In a recent intervention with elite level goaltenders (i.e., Junior A), Rogerson and Hrycaiko (2002) found that the mental skills of centering and self-talk were effective in improving game performance, operationalized as save percentage.

Aside from controlling one's arousal as a means to relax, some goaltenders may need to become more energized or psyched up. Many attempts to energize oneself or one's team have come at the wrong time, thereby over-arousing the athlete (Cox, 2002). Athletes must first identify the signs and symptoms of low energy and then decide which of the following techniques is best suited to their needs. Orlick (1986) suggested that athletes need to be aware of the signs that accompany low levels of arousal such as heavy feelings in legs or arms, lack of concern with performance, a wandering attentional style, slow moving, poor preparation, and lack of enthusiasm. Suggestions for generating more energy would include repeating positive self-talk statements such as "get going", "I can do it", and "get tough". Moreover, a pre-competitive workout can enhance activation. It is not uncommon for athletes to feel fatigued on the day of competition. Therefore, a light workout several hours prior to competition can combat this fatigue.

Whether it is relaxing or "psyching up", goaltenders' ability to effectively regulate arousal is one of the most important techniques in ensuring athletic success. Goaltenders need to know how and when to relax or become energized in both training and competition. Using the techniques and exercises outlined above will aid athletes in achieving optimal arousal levels.

Imagery

The process of creating or recreating an experience in the mind is known as imagery (Vealey & Greenleaf, 2006). Researchers and athletes alike have long been interested in imagery and its effect on sport performance. Some sport psychology researchers and consultants have gone so far as hailing it the "central pillar of applied sport psychology" (Perry & Morris, 1995, p. 339). According to Munroe, Giacobbi, Hall and Weinberg (2000), athletes can use imagery for a number of functions and in different situations. Controlling one's emotions is an area where imagery is useful. Athletes can imagine past situations where they lost control over their emotions or 'choked', and instead picture themselves dealing with the situation in a positive manner. This may help a goaltender

overcome drops in performance (i.e., slumps), or even prevent a reduction in performance following a bad goal, due to interfering emotions.

In addition to controlling arousal, imagery can also serve to enhance sport skills and strategies, achieve goals, and enhance confidence (Munroe et al., 2000). With respect to the latter, goaltenders can use imagery to correct errors or flaws in goaltending. A goaltender can imagine an error made in practice and then quickly replace that image with the correct behaviour. Bandura (1986) indicated that imaginal experiences are a great source of self-efficacy (situation specific self-confidence). A goaltender can then picture himself/herself making the “big save”, thus increasing confidence levels.

Given that imagery is a skill, it needs to be practiced in order to be effective. An exercise to help a goaltender is “event-day” imagery. This can take place the night before the game in which goaltenders can spend a few minutes imagining themselves entering the hockey arena and going through their pre-game routine, on-ice warm up, and game-time situations, before falling asleep. This type of exercise is more effective when athletes incorporate all senses to enhance the experience (Weinberg & Gould, 2003). Thus, goaltenders should try to imagine the smell of the hockey rink, the feeling of stopping the puck, or the sound of the crowd after a big save. The image should be positive and not negative (Hall, 2001) and the athlete should be in the proper frame of mind and right mood (Gregg, Hall, & Hanton, 2004) prior to beginning an imagery sessions.

Imagery is an integral part of many psychological skills training programs due to its wide range applicability and the fact that imagery can be implemented virtually anywhere and anytime. Moreover, every athlete can benefit from the use of imagery (novice and expert) providing the imagery is built into an individual’s daily routine and fits the needs of the athlete.

Self-Talk

Hardy (2004) defined self-talk as overt (out loud) or covert (in your head) sport related statements that are addressed to the self and serve as instructional and motivational for the athletes. Self-talk plays a pivotal role in a goaltender’s reaction to situations and directly affects future actions and emotions. The underlying goal is to reduce conscious control and work toward automatic action. Self-talk should focus on achievement rather than ability. That is, goaltenders should use constructive criticism and positive statements when they self-talk, not negative statements or put-downs (Bull, Albinson, & Shambrook, 1996). Halliwell (1990), in his sport consultancy work with hockey players, noted that self-talk was used by athletes as a means to control their inner dialogue. This enabled the hockey players to approach the game in a more confident and positive manner. Empirical support for this mental technique is found in the recent research with Junior A goaltenders where it was found that a mental skills package incorporating centering and self-talk improved save percentage (Rogerson & Hrycaiko, 2002).

Self-talk is a mental skill that can be done prior to, after or during an event. During a game, goaltenders may want to consider adopting the following self-talk strategy. For example, as the play develops, a goaltender may overtly say “focus”. A goaltender could then overtly count the number of opposing players and keep them within in his peripheral. Combining the two, he should say to himself, “Focus! Where are one, two, and three?”. This allows the goaltender to be in position, focused on the present, and focused on all relevant cues. This example can be applied to many situations in hockey. On a penalty-kill, for example, a goaltender can utilize the same strategy, adding two more opposing players to his count. He would say, “Focus! Where are one, two, three, four, and five?”. This may seem more complex; however, it forces a goaltender to really concentrate on the environment and not just the puck. As for play down in the opposing end of the arena goaltenders may overtly say to themselves “Stay in it” or “Alert”. This will allow the goaltender to stay focused for an extended period of time.

It is important that goaltenders practice positive self-talk. Moreover, goaltenders should be encouraged to analyze the content of their self-talk and be on the look out for negatively framed statements. When negative statements enter one’s mind, they should be immediately replaced with positive statements. Furthermore, athletes need to ensure their self-talk incorporates both instructional and motivational statements. Athletes who invest in improving their self-talk will find their efforts well rewarded.

Conclusion

The position of the goaltender is psychologically demanding (Miller, 2001). Strong mental skills will help goaltenders be consistent in their play and ultimately lead to optimal performance. The benefits of these psychological skills have been supported by research, as well as the anecdotal reports from athletes. It is important to remember that these psychological skills can be learned, practiced, and applied in both training and competition situations. These skills will be beneficial if goaltenders are committed to putting the time and effort into learning and mastering them.

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