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*Comparing mental training techniques used by NHL and AHL  
ice-hockey referees to achieve optimal performance*

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## Abstract

In this investigation, National Hockey League (NHL) and American Hockey League (AHL) ice-hockey referees were compared on pre-selected psychological techniques they used in order to achieve an Ideal Performance State (IPS). In-depth interviews were conducted with referees as they responded to questions related to how they create, maintain, and recreate optimal performance. The mental training techniques as they were related to the psychology of officiating were examined in the following areas; 1) motivation, 2) game routine, 3) goal-setting, 4) focus, 5) mental imagery, 6) stress, 7) self-talk, 8) mental toughness, 9) confidence, and 10) learned optimism. Questions were designed to compare and gain a deeper understanding of the mental training techniques used by the NHL and AHL referees to officiate at a consistently high level of performance.

The results of this investigation can also provide insight into the specific mental skills techniques used by referees to achieve peak performance. In addition, results of this study can sensitize referees to develop the psychological tools needed to enhance their level of performance and help young referees continue their careers by acquiring and improving their mental skills.

Two NHL and two AHL referees were interviewed and their responses were compared. The data were transcribed, analyzed, and coded using qualitative analysis techniques as illustrated in previous qualitative sport psychology research by Gould,

Jackson and Finch (1993) and by Gould, Tuffrey, Udry and Loehr (1996). Given the explanatory nature of this investigation, the results of this study may not indicate whether or not significant differences occur between both sets of officials. However, it seemed that both NHL and AHL officials excelled in all the psychological characteristics discussed. However, with the exception of game routines and goal-setting, in comparing NHL and AHL officials, NHL referees appear to have more established and elaborated cognitive strategies in order to achieve optimal performance. Thus, NHL referees reported more intrinsic sources of motivation while AHL officials were more extrinsically motivated. Moreover, NHL referees discussed more tactics to stay and regain focus, pictured clearer, more vivid images in their mental imagery, utilized more techniques in coping with stress, and had a higher quantity and quality of key-words in their self-talk. In addition, it appeared that NHL referees were quicker to rebound from experiences that were mentally tough, had more effective plans to increase their confidence, and attributed their success and failure to a more optimistic explanation.

## Sommaire

La psychologie du sport connaît une expansion extraordinaire depuis une vingtaine d'années et elle réussit de mieux en mieux à s'intégrer dans plusieurs contextes sportifs. Les revues littéraires dans ce domaine observent, expliquent et prévoient les facteurs qui contribuent à optimiser la performance des athlètes. A l'aide d'entrevues, cette étude vise à comparer les techniques psychologiques utilisées par deux arbitres de la LNH (Ligue Nationale de Hockey) et deux arbitres des ligues mineures de la LAH (Ligue Américaine de Hockey). Les objectifs de cette recherche visent aussi à relever les aspects psychologiques qui mènent à la préparation mentale en vue d'une performance optimale. Cette étude permettra à d'autres arbitres moins expérimentés de mieux saisir les caractéristiques psychologiques d'une performance idéale. De plus, le but de ce mémoire est de sensibiliser les arbitres à la réalité selon laquelle les avantages liés à la profession sont plus nombreux que les inconvénients.

Les recherches qui ont observé les caractéristiques favorisant la performance optimale des athlètes (Jackson, 1996, Gould, Jackson & Finch 1993, Csikszentmihalyi, 1990), nous permettent maintenant de mieux comprendre les divers éléments ou paramètres liés au rendement de cette performance optimale. Dix aspects pré-selectionnés, considérés comme les plus importants, ont été relevés. Ce sont : la motivation, la routine, la fixation d'objectifs, le focus, l'imagerie mentale, le stress, le dialogue interne, la résistance mentale, la confiance et l'optimisme.

En ce qui concerne la recherche reliée à la motivation, Vallerand, Deci et Ryan (1987) expliquent les facteurs qui influencent le comportement de deux façons : les comportements liés à la motivation intrinsèque et ceux liés à la motivation extrinsèque. D'une part, les athlètes qui sont attirés principalement par le plaisir de la compétition sont motivés intrinsèquement et, d'autre part, les athlètes qui sont attirés surtout par la récompense monétaire sont motivés extrinsèquement.

Les recherches liées à l'aspect de routine publiées par Boutcher et Crews (1987), Boutcher et Rotella (1987) et Singer (1988) démontrent qu'une séquence systématique et séquentielle donne aux athlètes une zone de confort qui leur permet de mieux performer.

Selon les recherches visant à améliorer la fixation d'objectifs (Defrancesco et Burke, 1997, Locke et Latham, 1983, Locke, Shaw, Saari et Latham, 1981), l'arbitre doit tenir compte de cinq caractéristiques spécifiques, regroupées sous l'acronyme SMART (Spécifique, Mesurable, Ajustable, Réaliste et défini dans le Temps). Une autre suggestion importante serait d'éviter les objectifs vagues et d'imposer non seulement des buts à long terme mais aussi des objectifs quotidiens qui permettront à l'officiel d'atteindre ses buts. De plus, le critère le plus important est de se concentrer sur le processus (la façon d'atteindre les objectifs) plutôt que sur le résultat final.

En ce qui a trait au focus, portant principalement sur les dimensions attentionnelles proposées par Nideffer (1976), quatre types de focus attentionnels sont présents : large-interne, large-externe, étroit-interne et étroit-externe. Le focus attentionnel interne, par exemple est relié aux pensées et aux émotions. En décrivant le focus externe, l'accent est

mis sur les joueurs, les équipes, l'entraîneur etc. Dans les deux cas, on peut avoir un focus large qui met l'emphase sur plusieurs stimuli (large) ou seulement sur un stimulus (étroit). Le contrôle attentionnel est primordial et dépendamment de la situation de jeu, l'arbitre devrait se concentrer sur les tâches spécifiques reliées à la performance plutôt que sur d'autres éléments qui favorisent la distraction.

En ce qui concerne l'imagerie mentale, celle-ci porte sur l'importance d'utiliser tous les sens pour imaginer la réussite dans une performance sportive (Richardson, 1967a; 1967b). L'utilisation de tous les sens (la vue, l'ouïe, l'odorat, le toucher et le goût) favorise l'efficacité de l'imagerie mentale. La perspective interne, le contrôle et la manipulation des images sont également importants.

Les principes de base du stress sont définis par Taylor, Daniel, Leith et Burke (1990). L'étude de VanYperen, (1998) illustre le fait que les arbitres décident de quitter leur poste quand il y a des promotions impartiales et un manque de supervision pour développer les atouts d'autres arbitres. Il s'avère intéressant de souligner que dans la recherche de Rainey (1995), quatre facteurs causent le stress des arbitres au baseball : la peur de commettre une erreur, la peur d'abus physiques, les contraintes de temps et les pensées irrationnelles.

Rushall (1976) nous a sensibilisés à l'importance du dialogue interne en prenant conscience du fait que les athlètes se parlent en jouant. En utilisant des mots-clés positifs

comme « je suis prêt » ou « plaisir », l'arbitre facilitera l'atteinte d'une performance optimale.

Afin de mieux comprendre la résistance mentale, les chercheurs intéressés s'inspirent en grande partie du travail de Seligman (1998) qui a souligné qu'il existe différentes approches face aux obstacles de la vie. Sans une perception de contrôle sur l'environnement, d'une part, les gens abandonnent et se sentent désespérés. D'autre part, les gens qui considèrent que leurs efforts vont changer leurs résultats sont en mesure de rebondir lors des situations stressantes.

Les nombreuses recherches effectuées sur la confiance en soi (Dorsel, 1988; Kendall, G. Hrycaiko, Martin & T. Kendall, 1990; Rosin & Nelson, 1983), nous permettent de mieux comprendre que les athlètes qui croient vraiment en leurs capacités d'atteindre leurs objectifs et leurs démarches sont ceux ou celles qui réussissent le plus souvent.

Quant à l'optimisme, le style d'attribution démontre qu'il existe précisément trois dimensions pertinentes pour expliquer les événements de la vie (Maier & Seligman, 1976): les liens de causalité (internes ou externes), les liens de stabilité (stables ou instables) et les liens de globalité (globaux ou spécifiques). Par exemple, une attribution interne, stable et globale d'un événement positif est présentée comme optimiste alors qu'un événement négatif est attribué à des raisons externes, instables et spécifiques.

Les méthodes théoriques, méthodologiques et les hypothèses adoptées dans cette étude sont basées sur plusieurs recherches. Dans la première étude, la recherche de Jackson (1995) souligne les facteurs psychologiques qui contribuent et nuisent à une performance optimale. La deuxième étude utilisée comme référence est celle de McCaffrey et Orlick (1989) qui a trouvé que les athlètes de golf professionnel possèdent une pensée plus efficace que les joueurs amateurs. Les aspects d'engagement, la qualité de la pratique, la fixation d'objectifs, l'imagerie mentale et le contrôle des distractions sont aussi mieux maîtrisés par les professionnels. Les autres études ajoutent des éléments additionnels qui démontrent que les athlètes élités ont plus de facilité à se concentrer (Gould, Weiss & Weinberg, 1981; Highlen & Bennett, 1979), sont plus motivés et ressentent moins d'anxiété (Gould, Eklund & Jackson, 1992; Gould & Weinberg, 1985; Mahoney, Gabriel & Perkins, 1987) que les athlètes non-élités. Une autre recherche, celle de Shin et Lee (1994) ajoute un élément important : la résistance mentale. Cette dernière différencie l'aptitude psychologique des athlètes d'un niveau élite et non élite. L'étude démontre que, au fur et à mesure que l'athlète vit des compétitions à un niveau plus élevé, ses habilités mentales s'améliorent et deviennent plus efficaces.

Cette recherche fait ressortir que les arbitres de la LNH, à part les thèmes de la routine et de la fixation d'objectifs semblent appliquer des stratégies psychologiques plus détaillées et efficaces que les arbitres de la LAH.

Bien que cette étude soit limitée à quatre arbitres au hockey, les résultats confirment ceux d'autres études : l'athlète d'élite développe une pensée plus avancée que l'athlète

non élite. De plus, les résultats peuvent aussi aider d'autres arbitres à mieux se servir d'outils psychologiques pour améliorer leur performance. Finalement, cette étude peut aussi encourager les arbitres à ne pas décrocher en dépit des éléments négatifs qui peuvent perturber le hockey d'aujourd'hui.

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For my parents Etty and Joseph

Chapter 1  
Introduction

## **Introduction**

The field of sports psychology is enjoying rapid growth in a number of areas. The body of scientific literature is expanding, a number of new sport psychology books are being published, and more courses and seminars are now available. More people are realizing that psychological techniques can equip athletes with mental skills to enhance sport performance. When athletes are committed to optimizing their performance, they can reap the benefits that the field of applied sports psychology is able to offer. Achieving an IPS (Ideal Performance State) is what athletes aspire to achieve. In the competitive realm of elite amateur and professional sport, ordinary results are not good enough. Achieving athletic excellence, at the right time, in the right place, distinguishes those athletes who succeed from those who do not. This ability to constantly thrive under pressure, triumph in adversity, and prevail in opposition requires a rigorous work ethic not only physically but more importantly mentally.

Success is constantly challenged by difficulties, losses, and setbacks but working towards and achieving one's goals becomes even more satisfying. As athletes participate at higher levels of competition, more emphasis is placed on improving mental skills because the differences between the athletes' highly developed technical, tactical, and physical skills is often negligible.

Achieving total control over one's own body, mind, and actions is a powerful feeling that can lead to impressive performance results. The mental skills of elite performers can be learned, practiced, and utilized to help them achieve successful

performances in competitive situations. With athletes becoming more aware of the relationship that exists between mental preparation and superior athletic performance, there is an increased demand to hone psychological techniques.

Most of the applied sports psychology research deals with the players' perspective on mental skills training whether it examined motivation (Vallerand & Losier, 1999), stress (Gould, Jackson, & Finch, 1993), enjoyment in sport (Scanlan, Stein, & Ravizza, 1989), or the general psychological characteristics of peak performance in sport (Jackson, 1996). Jackson and Roberts (1992) described peak performance as the state of superior functioning resulting in personal bests and outstanding achievements. Very little consideration from researchers has been devoted to the components of peak performance from other participants such as the referees who serve an integral role in determining the quality of the athletic competition.

### The Role of the Referee

A referee - the very words convey so many things to so many people: a mediator, judge, and administrator. Since the referee can be the center of attention, the job is not for the faint of heart. Since the early 1900's, the officiating crew in the NHL (National Hockey League) consisted of only one referee. Although three officials work a game, the referee has the main role of calling penalties. The other two officials, known as linesmen, assist the referee by mostly calling off-side and icing infractions as well as major infractions or misconducts that the referee could not see due to poor positioning or due to attention focused elsewhere. In response to the complexity of the referee's task demands,

as of the 2000-2001 NHL regular season, a second referee has been delegated to work the game.

The referee's job is to apply the rules of the game. The official must master and be sufficiently knowledgeable in the playing rules while demonstrating impartiality and integrity as outlined in the comprehensive referees' code of ethics. According to the Canadian Hockey Association rule-book, their mission statement believes in "amateur hockey for all individuals through progressive leadership by ensuring meaningful opportunities and enjoyable experiences in a safe sportsmanlike environment". Officials are evaluated on their ability to arbitrate the game without becoming part of it.

Although there are many advantages to being an on-ice official, there are also some disadvantages such as the enormous amount of pressure and stress associated with refereeing. Their reputation is somewhat tainted since the job is under constant public scrutiny and evaluation by other contestants of the game such as the players, coaches, fans, GM's (general managers), and the media. When officials do make mistakes, especially controversial calls during critical game situations, their errors are often amplified by the slow motion replay while the members of the media, players, and coaches review and critique the officials' decision. It is inevitable that officials will make mistakes over the course of the year but they must maintain their composure and confidence while seeking consistency. The job requires an enormous amount of mental toughness to deal with the adversity, pressure, and verbal abuse pointed directly at the

officials. Players, fans, and coaches voice their displeasure and at times denigrate the profession of hockey officiating.

Hockey officials work in a business that is somewhat thankless. Their decisions are seemingly wrong half of the time. While the players and coaches on one team question the referees' judgment to penalize a team, the opposing team will agree with this decision. In a sport where the prestige and public praise is heavily based on scoring goals and winning Stanley Cups, officials do neither and often get little recognition from the participants. Referees' decision making, judgment, and rule interpretations are often inspected, second-guessed, and criticized. It is the nature of the business. Raucous fans can have a misguided enthusiasm, booing a referee's decision and cheering when officials either fall down or get hit with the puck. Players and coaches sometimes show their disagreement by yelling sarcastic remarks, screaming obscenities, and, in the heat of the moment, protest displaying vulgar gestures to plead their case. When players battle for pucks, territorial advantage, and gaining a psychological edge, officials find themselves caught in the middle. In considering these disadvantages, there is an extremely high level of "psychological fitness" that is required: a general equilibrium of mental factors to deal with the psychological demands of being a referee.

Despite the shortcomings associated with officiating, the profession does have its rewards. Refereeing exercises not only the body but also the mind. Moreover, there is a certain prestige associated with putting on the black and white pin stripes and being involved in making good decisions, using sound judgment, and while doing so, enhancing

the quality of the game. Since there is much importance on the outcome of the competition, there is a satisfaction of being part of and contributing to a smooth unfolding of the game. The mere involvement in the game can provide a great deal of joy and satisfaction.

Officials in the minor leagues aspire to referee one day in the NHL. Minor league referees persist in their hopes of making it to the upper echelon of officials. Physical and psychological barriers are evident. What differentiates elite and non-elite athletes is often not in their physical abilities but rather in their psychological differences that exist.

The sports psychology field has recently turned to qualitative research methods and in-depth interviews as a means of examining the mental links to athletic excellence (Hardy, Jones, & Gould, 1996; Gould, Eklund, & Jackson, 1992b; Jackson, Mayocchi, & Dover, 1998). The collection of data is gathered through direct verbal interactions between the experimenter and the athlete. The greatest advantage from this research method is its adaptability, allowing the researcher to follow leads, probes, provide clarity, and obtain a richer, more in-depth source of data than traditional quantitative methods. Sensitive information and thoughts concerning poor performance would most likely not be revealed by other research methods such as the surveys and questionnaires used in previous studies with athletes. Despite the invaluable role that officiating excellence plays in sport, it seems that no research considered the psychological characteristics associated with peak performance in refereeing.

### **Purpose of the Study**

This study deals with ice-hockey referees and, through the use of interviews, it examined the mental training techniques officials use to 1) create, 2) recreate, and 3) maintain a state of peak performance. The main purpose of this study is to explore and determine if differences exist between the mental training techniques used by NHL and AHL (American Hockey League) referees in achieving optimal performance. In a similar vein, the study may also provide a stepping stone to other researchers to investigate the psychological skills required in officiating at elite levels of competition in other sports.

To identify the various mental skills or psychological characteristics associated with officiating excellence, four main sources were used. First, the research on peak performance associated with performing optimally provided insight into the underlying elements in creating an IPS (Csikszentmihalyi 1979, Csikszentmihalyi & Csikszentmihalyi 1988). Second, the excellent line of research conducted by Jackson (1995, 1996) using in-depth interviews with athletes greatly facilitated the task when several key psychological themes were extracted that were related to peak performance or what Csikszentmihalyi (1990) labeled as “flow” in sport. Third, the work of Orlick and Partington (1988) with Olympic athletes further identified common factors linked in achieving what the authors termed “the mental readiness in achieving success”. Finally, the review of literature presented by Weinberg and Richardson (1990) in their excellent book entitled *Psychology of Officiating* was used as a starting point to delineate a number of themes as being the most important factors influencing referees’ performance.

In developing the research questions for the present study, several studies were used to provide a methodological framework. The line of research conducted by Jackson (1995) that examined the occurrence of peak performance in elite athletes was used as a first study and a basis for investigating the IPS of elite officials. In the current study, however, two noticeable changes occurred. First, instead of interviewing elite athletes from a variety of sports, this study used hockey referees only. Second, based on the aforementioned research studies, pre-chosen areas of in-depth psychological inquiry were used rather than the general peak performance state. However, the referees in the present study were free to discuss other areas that they felt relevant to their performance.

Since McCaffrey and Orlick (1989) studied top professionals and compared them to club professionals, their study was used to develop the present study in which top NHL officials are compared with lower level officials. In comparing psychological characteristics such as commitment, quality practice, goal-setting, mental imagery, and distraction control, the researchers concluded that top professional golfers were not only more proficient but also established more effective and efficient cognitive strategies to achieve peak performance than club professionals. The results of this study not only supported previous findings but also included other psychological characteristics that differentiated elite athletes from non-elite athletes.

### **Research Questions**

Since Olympic medallists and world champion athletes have more elaborate cognitive strategies in order to achieve optimal performance, extending similar research findings with athletes, is it reasonable to assume that higher level referees would do the same compared to less successful officials? More precisely, in aspiring to attain an IPS, would the mental training techniques of the NHL officials be different than the AHL referees? Therefore, the present study will determine if NHL referees report more sources of motivation that are intrinsic, have a more sophisticated routine, set more effective goals, have established an advanced attention control strategy, and master the skills associated with mental imagery more than AHL officials. In addition, in comparing NHL and AHL referees, will NHL officials be better able to cope with stress, have a more positive self-talk, be mentally tougher to deal with setbacks, employ more effective strategies to gain and maintain their confidence, and attribute explanations to their successes and failures in a more optimistic fashion?

### **Pertinence of the Study**

Despite the overwhelming number of referees who quit due to physical or psychological abuse by the players, fans, and coaches, the results of this study may serve to help younger aspiring officials become more aware and work on the mental skills required to perform at top levels. Since this study outlined several mental factors required to reach peak performance in officiating hockey, officials in other sports may benefit from the psychological strategies used by the elite officials in this study.

Despite the realization that sports psychology has its merit in enhancing sporting performance, there is still a paucity of research in the area and more specifically, in the psychological techniques used in refereeing. The results of this study may also inspire younger officials to devote more time and energy to enhancing, optimizing, and making more effective use of mental skills associated with officiating excellence.

Chapter 2  
Review of the Literature

### **The Research Literature as it Applies to the Psychology of Officiating**

It was evident that numerous psychological characteristics helped athletes achieve peak performance, optimal experience, and flow. Some research have been conducted to develop a psychological portrait of university intramural ice-hockey officials (Gilbert, Trudel, & Bloom, 1995) and creating a data base on various dimensions of officiating such as motivation, confidence, and focus. With the use of questionnaires and surveys, characteristics of sport officials and their roles have been documented (Rains, 1984, Smith, 1982) as well as prerequisites for successful officiating (Alker, Straub, & Leary, 1973, Weinberg & Richardson, 1990). Other areas of research interest with officials included the link between stress and performance and the mental factors associated with making their job more difficult (Goldsmith & Williams, 1992; Taylor, Daniel, Leith, & Burke, 1990).

Some sources of research comparing successful and unsuccessful athletes highlighted confidence, concentration, and task-oriented focus as themes that noticeably separated these two groups (Gould, Weiss, & Weinberg, 1981; Highlen & Bennett, 1979). Furthermore, additional empirical evidence indicated that elite athletes were more concentrated, motivated, and experienced less anxiety than non-elite athletes (Gould, Eklund, & Jackson, 1992a; Gould & Weinberg, 1985; Mahoney, Gabriel, & Perkins, 1987). Another more recent study by Shin and Lee (1994) added the dimension of mental toughness as another important dimension that differentiated elite and non-elite female athletes. As expected, elite athletes were mentally tougher than their non-elite counterparts. Peak performance research has also emphasized the use of mental imagery

in high competitive levels (Hall, Rodgers, & Barr, 1990) and the potential positive impact other mental training techniques have on performance was also illustrated in the area of routines (Cohn, 1990), goal-setting (Locke and Latham, 1990), self-talk (Van Raalte, Brewer Rivera and Petitpas, 1994), as well as developing an optimistic explanatory style (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990). From the extant research, ten pre-selected themes were used in the present study.

The ten themes chosen for the purposes of this study were 1) motivation, 2) routine, 3) goal-setting, 4) focus, 5) mental imagery, 6) stress, 7) self-talk, 8) mental toughness, 9) confidence, and 10) learned optimism. In addition to the aforementioned factors, an 11<sup>th</sup> category was called general questions that encompassed a variety of other dimensions. These ten psychological techniques as they apply to officiating at an IPS will be reviewed in the following section.

## **1. Motivation**

How do officials get motivated for a game? How do they lose motivation? What happens when they lose motivation? How do they get it back? In the research area of motivation, Hull (1952) was one of the first theorists who advanced motivation as a drive and suggested that all human behavior is a result of four primary drives: hunger, thirst, sex, and the avoidance of pain. Gradually recognizing that this theory was too simplistic, the willingness to step outside the boundaries of drive theory forced other theories to emerge.

Vallerand, Deci and Ryan (1987) examined two types of motivation: intrinsic motivation and extrinsic motivation. On the one hand, athletes may be intrinsically motivated by such factors as enjoyment, pleasure, and fun. In addition, athletes express an interest in experiential rewards such as feelings of excitement and personal competence that are attributed to reasons of participation along with improving their performance or to conquer challenges. Athletes who are intrinsically motivated are also fully absorbed and committed to the activity (Csikszentmihalyi, 1990). On the other hand, extrinsic motivation occurs when an athlete chooses to engage in sport mostly for the monetary compensation, trophies, or prestige to acquire fame. Another example of extrinsic rewards include when winning is more important than performance.

In conducting in-depth interviews with elite athletes, Orlick (1996) identified several elements of success. The most important factor contributing towards success was identified as commitment. It can be described as the desire to excel and relentlessly pursue one's goals despite obstacles and setbacks. Since commitment involves self-control, trying to be the best, and giving 100 percent, desire, dedication, and passion reside. Although being successful can be characterized as a long and arduous path involving daily contribution, officials who are highly motivated usually discuss their careers as very satisfying and relish the challenge in intensive training and competition.

Social factors present in the sport environment such as being part of a team and contributing to a unified goal also explain why athletes partake in their profession (Ryan, Vallerand & Deci, 1984). The conception of a high level of motivation breeds the notion

of intrinsic motivation whereby an official is driven toward the activity because of the inner states that are rewarding. Work becomes play and a way of life. Officials may be motivated by the prestige of the job but the desire to participate, contribute, and the love of the game exemplifies an intrinsic motivated official.

## **2. Routine**

Preliminary review of the literature on routines (Boutcher and Crews, 1987; Boutcher and Rotella, 1987; Singer, 1988) examined the area of pre-performance routines on performance. Routines are defined by the thoughts, actions, or images that are performed prior to the execution of a skilled behavior (Crews & Boutcher 1986; Gayton, Cielinski, Francis-Keniston, & Hearn, 1989; Lobmeyer & Wasserman, 1986). Developing a systematic, sequential behavioral pattern before, during, or after a performance is considered to be a “safety zone” and a method of improving sporting performance.

Several studies have examined the efficacy of the preshot routines. Predebon and Docker (1992) used basketball athletes and tested whether preshot routines on free throws would be significantly better than athletes in a no-routine group. Their study determined that routines are not only beneficial in improving performance but also that their effectiveness can be relatively long lasting. Lobmeyer and Wasserman (1986) further determined that their shooting accuracy during free-throws were significantly higher when athletes simply performed their own preshot routine.

Developing a specific routine is considered beneficial and important as long as an official does not become dependent upon its existence. Similarly, routines are also helpful as long as the referee has total control over its occurrence. For example, an official customarily ties up his left skate first but for one game does the opposite. After realizing the change in routine, does that mean performance should wane? Obviously, it should not but keeping a routine is comforting rather than creating change that may cause uncertainty. A routine, when properly followed, establishes stability.

Routines are designed to shift attention away from negative task-irrelevant cues towards the execution of the skill. By establishing a preshot routine that is easily learned or acquired, facilitates the execution of the performance even under competitive stressful situations (Gayton, Cielinski, Francis-Keniston, & Hearn, 1989). Officials may develop a consistent pattern of activities that can help create an IPS. For example, when stepping on the ice, referees may see themselves officiating a good game or seeing infractions and calling them successfully.

Steel (1993), in an article designed to help referees' performance, offered some advice on performance routines. For example, eating healthy before a game, getting enough sleep, taking the time to think about the game, and seeing oneself perform through visualization were strongly encouraged. Furthermore, using established routines that work was suggested especially what seem to be meticulous habits such as putting on equipment a certain way or wearing a favorite T-shirt. Some routines to avoid included overeating (two hours or less before a competition), changing routines that work, and

leaving the majority of the mental preparation for the night before. Furthermore, the author discouraged the idea to adopt new styles.

### **3. Goal-setting**

The research on setting goals was clearly identified as crucial in reaching peak performance and maximizing athletic success. Many studies exist consistently showing goals are beneficial towards achievement (Locke & Latham, 1983; Locke, Shaw, Saari & Latham, 1981; Weinberg, Burton, Yukelson, & Weigand, 1993). The acceptance and use of goal-setting to enhance performance has come in response to the overwhelming link between setting goals and increased motivation and productivity. Specifically, several reviews of literature strongly support that “SMART” or a) specific, b) measurable, c) attainable, d) realistic, and e) time-oriented goals create higher levels of task performance or efficiency than do the athletes who set no goals or “do my best goals” (Tubbs, 1986, Wood, Mento, & Lock, 1987).

The more recent work of Defrancesco and Burke (1997) reinforced the usefulness of goal-setting. They discussed how goal-setting was one of the top five strategies used by over 100 pro tennis athletes in attaining an IPS. When time is allocated in setting goals, customized to the athlete, the results were not only positive but also convincing. Empirical work in the field of goal commitment has also been proposed as an important variable in the relationship that exists between goals and performance (Erez & Zidon, 1984; Locke, Shaw, Saari, & Latham, 1981). These researchers argued that goals will only have a desired influence on performance if the athlete was committed to the goal.

In Weinberg, Burton, Yukelson and Weigand's review (2000) of goal-setting with Olympic athletes, they cited three important discoveries in goal-setting. The first was that all of the Olympic athletes interviewed practiced some type of goal-setting. Merely setting goals was in conjunction a highly effective tool in improving performance. Second, the three most important goals that were set were 1) improving overall performance, 2) winning, and 3) having fun. Third, the most preferred type of goal difficulty that athletes set were those goals that were difficult yet realistic. The performance objective of these goals were usually just above the level at which the athletes perform.

One of the most remarkable findings in goal-setting emphasized the importance of setting performance goals rather than outcome goals (Zimmerman and Kitsantas, 1996). Although officials do not necessarily win or lose games, there are nevertheless differences between performance and outcome goals. A follow-up study by Kingston and Hardy (1997) also examined the use of process goals and determined that key-words emphasizing process goals aid an athlete in winning a competition. Examples in officiating may include key-words such as "in the moment" to improve one's focus or "quick" to improve on one's positioning. Performance goals were documented to be greatly superior to outcome goals because officials have more control over their performances (i.e. being consistent, focused etc.) than they do over the outcome of refereeing in the Stanley Cup finals since this goal, for example, depends on the performance of other officials. Despite the support for performance goals, it has also been suggested that outcome goals can lead to successful performances (Filby, Maynard &

Graydon, 1999) suggesting peak performance consultants employ a mixture of outcome *and* performance goals.

#### **4. Focus**

Focus involves effectively selecting the appropriate type of stimulus that is critical to the performance. It can be viewed as a process that can facilitate or inhibit the operations involved in information processing during a sporting performance. Also termed attentional processes, focus has often been interpreted as the ability to distinguish among simultaneous sources of information and allocate as much attention needed to a particular task. Nideffer (1976) posited examples of shifting concentration in attention control training. In an IPS, officials are able to shift focus to attend to the appropriate stimuli depending on the situation.

In an effort to better understand attentional process, Schneider & Shiffrin, (1977) argued that individuals perceive information as either an automatic process (without effort) or a controlled process (requiring effort). When tasks are easy and familiar, automatic processing is used while controlled processing is required in attending to difficult or unfamiliar events. For instance, as soon as the puck crosses the goal line, the referee blows the whistle, points to the net, and signals the goal (automatic process). In contrast, uncommon and unique plays require more mental effort to effectively decipher relevant information in making the right call (controlled process).

When attentional process is under the control of the performer, Poulton (1957) described it as a closed task. Examples include bowling, basketball foul shots, serving in

tennis, and golf. During specific moments in these sports, during an IPS, selective focus is directed on the task at hand while disregarding ancillary sources of influences. Referees are bombarded with multiple sources of information such as forwards, defenders, and goalies battling for possession of the puck. Selectively focusing on relevant information is critical in calling infractions and making other decisions.

An official can direct attention either internally, to one's own thoughts and feelings, or externally, to other sights or sounds. For instance, an internal concentration may be needed to monitor one's level of arousal, anxiety, motivation, or any other internal measure related to one's mental, emotional, and physical state. An external concentration requires focus to be shifted on other players, coaches, and a general awareness of other factors such as time remaining, score of the game etc. Whether focus is placed internally or externally, an official has the ability to attend to many stimuli (broad) or very few (narrow). Common distracters can surface as either internal states or external events (Singer, Cauraugh, Tennant, Milledge, Dapeng, & Lidor, 1991). Too much self-awareness, self-evaluation, or self-doubt, for example, may lead the official into an inappropriate focus. Similarly, irrelevant auditory (crowd) or visual cues (scoreboard) may distract the official leading to a loss of focus.

An example of a referee improving the use of focus can be better explained using a typical game situation. A two-on-one offensive attack develops and a referee is immediately too "puck conscious". In other words, the official is using a narrow-external focus looking mostly at the puck and not at other more relevant cues. The official may

first, control the width of focus with what is called a broad-external focus of attention: scanning the attacking players, defensive player, and the goaltender. Once the referee has gathered this external information, the official may then shift attention to a broad-internal focus to anticipate the play: a pass across the ice, a shot on net, a back pass to the trailer (a player lagging in the play that may eventually take part in the action), etc. The shift in attentional focus is facilitated by remembering past similar situations, using experience as a resource, and recalling what the results have been. If the player usually passes the puck, for example, the official may choose to shift attention to the other player (narrow-external). Once the official anticipates the play, attention may be shifted to a narrow-internal type of concentration to monitor tension levels, assuring muscles are relaxed, and that body demeanor appears calm. The referee may also imagine making the call. Next, the official may shift attention to a narrow-external focus while making the call either pointing to the net, signaling a goal, or blowing the whistle to stop play. Finally, the referee may once again shift attention to a narrow-external focus and look precisely at the puck. Did the puck cross the goal line? Notice how there was no need to pay attention to irrelevant, broader cues which, ultimately, interfere or serve as a distraction in making the right call. Other situations require different attentional shifts but overall, the pattern is the same: Direct one's full attention to appropriate cues at the task at hand rather than be distracted by irrelevant external or internal stimuli. Effectively switching concentration, focusing on the present - this very second - is considered to be critical in order to reach peak performance.

## **5. Mental Imagery**

Imagery can be defined as polysensory i.e. using all the senses (visual, auditory, olfactory, gustatory, tactile, and kinesthetic) to create or relive an experience in the mind. Mental imagery, commonly known as visualization, is the ability to mentally rehearse a skill before actually physically realizing the performance. According to the scientific research and experimental evidence in motor imagery, the research clearly supports the use of mental imagery to facilitate sporting performance especially in conjunction with physical practice Richardson (1967a, 1967b).

Mental imagery has been used as a technique to optimize performance in several areas. Recent research illustrates its effectiveness for improving skill acquisition and performance (Beauchamp, Halliwell, Fournier, & Koestner, 1996), enhancing motivation and self-confidence (Rushall, 1988), coping with injury and pain (Rotella, 1984) and regulating arousal (Harris & Harris, 1984).

In order to enhance its effectiveness, the imagery perspective should be internal. For instance, officials should see the images from behind their own eyes rather than external (as if they were watching themselves from a camera's perspective). Second, the content of the images rehearsed should be as vivid and real as possible while using all the possible senses. Third, a few minutes of quality visual training are much better than longer, low quality imagery training.

Imagery helps to focus on the task at hand. For example, before a game, referees can see themselves making calls (penalties, goals, gloving ahead, etc.) or anticipate

possible scenarios. Rehearsing certain situations does not have to be overly complicated. Rather, the outcome should always be positive. Based on prior findings, the higher level an athlete competes, the more often the athlete would report using imagery in practice and in competition (Hall, Rodgers & Barr, 1990). The most successful officials most likely practice mental imagery regularly. They probably have extremely well developed imagery skills that are controllable since they see themselves succeed and consistently imagine themselves making the right call.

## **6. Stress**

Stress is the physical and mental wear and tear on the body. Taylor, Daniel, Leith and Burke (1990) refined the term stress, broadened its meaning, and made it more sports specific to officials by defining it as an imbalance between the referee's perceived role and their ability, goals, values, and beliefs. When stress reaches a certain threshold, there is a cost-benefit analysis that an official does in determining whether or not to remain on the job. Since stress and performance can be related, the research has been embraced.

Predicting whether or not volleyball officials decide to persist in their profession or quit, VanYperen's (1998) study is one of the most pertinent findings in this area. Minimizing turnover in officials was explained by ensuring procedural fairness, particularly in the promotional system, implementing adequate supervision, and training officials on a regular basis.

Several other factors associated with officiating contribute in making the job very stressful. Rainey (1995) described four main factors that act as a source of stress with baseball umpires: fear of failure, fear of physical harm, time pressure, and interpersonal conflict. These findings have also been supported in other sports such as volleyball and football (Goldsmith & Williams, 1992). Fear of failure is usually accompanied by the anxiety of making the wrong call. Fear of physical harm is prevalent in the officiating field. For example, according to Rainey and Hardy (1997), assaults on rugby referees are not rare. Their research extends and supports the overwhelming number of other studies that show that referees in other sports such as baseball and basketball are assaulted in some way or another (Rainey, 1994, Rainey & Duggan, 1998). Time pressures involve the stress experienced when other people such as players, coaches, fans, etc. compete to receive the official's time or attention. For example, after disallowing a controversial goal, the captain skates over to argue the call with the referee. The stress of time pressure occurs when, at the same time, other players, coaches, and even other officials try and get the referee's attention to discuss the play. There are also internal stressors such as the added pressure officials put on themselves with irrational thoughts such as "I must call a perfect game" or "I can't miss anything" that amplify stress (Zoller, 1985).

Hostile crowds, agitated coaches, and argumentative players multiply the sources of stress that officials experience, in addition to the basic pressure of the game. A lot is at stake for the players, coaches, and GM's: they compete for lucrative contracts, bonuses, and, in essence, their careers. The sources of pressure branch out to the media whom, albeit only do their job, critique the job of the referee. Officials are also supervised,

which consists of an evaluation of their work, rating their positioning, rule interpretation, procedures, and game management among others. Overall, the aforementioned sources of pressure, second-guessing, and playing “arm chair quarterback” - with the luxury of slow motion replay and video review - in conjunction with the general negative attitude towards hockey officials are the main reasons why the business has a high attrition rate.

The constant evaluation of the work of the official, better known as the review process, impedes the official to reach an IPS. Certain factors, however, alleviate stress. The more an individual’s hardiness, a preexisting immunity towards stress, the less the chances a person becomes ill (Roth, Wiebe, Fillingim, & Shay, 1989). Most of the applied research on dealing or coping with stress identifies a number of stress management techniques such as engaging in exercise regularly (Baron & Byrne, 1991), thought stopping (Meyers & Schleser, 1980), and countering (Bell, 1983) which leads to the next topic.

## **7. Self-Talk**

Language directed towards oneself arguably began gaining awareness with the work of Rushall (1976). When athletes think to themselves, they are engaging in self-talk. Athletes may talk to themselves prior, during, and after a performance. Identifying self-talk is critical in understanding that differences exist between best and worst performances which, in part, is related to the thought content of athletes.

Self-talk can be an asset when it enhances self-worth and performance. The influence of positive self-talk on performance during the execution of a skill is considered to aid performance in runners, with the identification of key-words such as “fast” or “quick” (Meichenbaum, 1975) or golfers, with key-words such as “smooth” or “oily” (Owens & Bunker, 1989). Reminders such as “get focused” or “I’m in control” are more precise examples officials may use to reach an IPS. In addition, another very useful key-word before an important game can be “I am ready”. Slightly more elaborate key-words are also useful with officials such as “the pleasure of the competition is always greater than the pressure” (Halliwell, 1997).

Self-talk can equally be an antagonist when athletes make internal or external statements that label themselves as chokers or when they perceive themselves in negative ways that ultimately yield performance results that confirm these thoughts. Many investigations (Ellis, 1988; Ellis & Dryden, 1987; Grieger & Boyd, 1980) suggested that these types of labels decrease performance results. For instance, an official may have the irrational thought of “everyone is depending on me”. Similarly, key-words such as “get back in the game” or “wake up” illustrate negative self-talk since these words imply that you are not in the game or sleeping - even if it is a “figure of speech”.

Other studies have found that no differences exist between successful and less successful skiers in their self-talk in relation to their performance (Rotella, Gansneder, Ojala, & Billing (1980). Similarly, elite Ivory Coast athletes claimed to have used the similar self-talk when comparing best and worst performances (Dagrou, Gauvin, &

Halliwell, 1991). Despite the research differences that exist for the use of positive self-talk, it is arguably accepted that in order to reach peak performance, the predominance of a positive self-talk is required.

### **8. Mental Toughness**

Another aspect of officiating that may lead to an IPS is mental toughness. Conceptually, it is the term often used to describe the resistance to negative affect during adversity in a game or after loss of a game although in officiating, actually losing (or winning) never occurs. Therefore, mental toughness can be described as the ability to sustain pressure, persist, and never quit despite the hardships associated with officiating. Mental toughness is the skill of coming back despite negative feedback, disappointments, and blown calls. For example, the ability to make what is believed to be a correct decision despite its controversial consequences and unpopularity among players, coaches, fans, and the media characterizes mental toughness. Sticking to this decision and handling the pressure with poise and ease ultimately defines mental toughness.

Loehr (1982) claimed that mental toughness is acquired rather than inherited and that one of the most important mental skill in competition can be mental toughness. He proposed dividing mental energy as positive or negative and suggested that athletes need to understand their mental weakness and strengths in order to improve one's mental toughness. When negative energy presides officials may be inclined to quit their positions. Predicting whether officials remain on their jobs has gained considerable

interest among researchers because the estimated turnover among referees has become considerably too high.

Several variables have been examined as they relate to officials potential desire to quit. Commitment has been arguably accepted as the strongest predictor of whether or not officials choose to persist in their career (Rusbult & Buunk, 1993). It may be defined as a multifaceted psychological state representing the desire to continue participation (Scanlan, Carpenter, Schmidt, Simons & Keeler, 1993) that strongly determines whether officials choose to persist in their careers. Attraction, lack of alternatives, and investments enhance the probability of persistence (Rusbult & Buunk, 1993). For example, attraction involves enjoying officiating. Lack of alternatives entail comparing the attractiveness of officiating with other options while investments are time and effort put into officiating usually to improve the long term value of the activity (Farrel & Rusbult, 1981). Scanlan et al.'s (1993) study outline two other important factors associated with officiating commitment: social constraints (social pressure to continue officiating) and involvement opportunities (opportunity that exist through continued participation such as moving up in the ranks).

## **9. Confidence**

The widely acclaimed suggestion that confident athletes think positively and perform successfully led to much research in this area (Dorsel, 1988, Kendall, Hrycaiko, Martin & Kendall, 1990, Rosin & Nelson, 1983). A strong correlation exists in the area of peak performance between confidence and success (Bunker, Williams & Zinsser,

1993). Various definitions of “self-confidence”, “self-efficacy”, “perceived ability”, and “perceived competence” have been employed to describe one’s perceived capability to accomplish a certain level of performance. Confidence can be thought of as the state when athletes think and truly believe in themselves and in their performance. It may be described as the thoughts, feelings, and actions that can act as a catalyst or an antagonist in sporting performance. On the one hand, confidence is the expectation to succeed. Too much confidence (overconfidence), on the other hand, may negatively affect performance. When self-doubt occurs, an attribution that has officials hesitating or questioning their decisions, a lack of confidence exists.

Several studies outline confidence as one of the most important influences affecting athletic performance (Meyers, Cook, Cullen & Liles, 1979; Gould, Weiss & Weinberg, 1981). In order to attain the state of flow, according to Jackson and Roberts (1992), an athlete must be confident. The conceptualization, in part, was developed by Vealey (1986) that suggested that confidence is the degree of certainty individuals possess about their ability to be successful in sport. It may be acquired in trait or developed into a state.

It has been suggested that multiple sources of information are used by adolescent athletes to determine their perceptions of competence which may relate to their ability to gain confidence (Horn, Glenn & Wentzell, 1993; Horn & Hasbrook, 1987). For example, the research has shown that social comparison, goal attainment, improvement, social evaluation and support from parents and coaches as well as pre-game attitude are

important variables in evaluating one's confidence. Confidence has also stemmed from performance accomplishments (Weinberg, Gould, & Jackson, 1979), modeling successful performers (Feltz, 1982), and self-talk (Weinberg, Yukelson, & Jackson 1980).

### **10. Learned Optimism**

Learned optimism most likely emerged in the psychological lexicon as a result of the work in learned helplessness. Theorists have proposed that learned helplessness is a conditioned expectation that no matter what actions are undertaken, they do not control (or are independent) of the outcome (Maier & Seligman, 1976; Overmier & Seligman, 1967). A considerable amount of research has emphasized the way people habitually explain good and bad performances they encounter in their sport and have subsequently termed it their explanatory style (Buchanan & Seligman, 1995; Peterson & Bossio, 1991; Scheier & Carver, 1985, 1992).

Abramson, Seligman, and Teasdale (1978) emphasized the way people attribute or perceive their successes or failures. In this model, four dimensions are emphasized: locus of control, stability, specificity, and importance. The locus of control dimension is the generalized expectation that either internal or external factors control behavior.

The stability dimension refers to the fact that outcomes can be attributed to causes that are either stable or unstable. For instance, on the one hand, a good officiating performance can be attributed to one's own personality (optimistic). On the other hand, a good performance may also be attributed to having slept well or doing all the things that

are needed to perform well (pessimistic). Although this explanation sounds optimistic, it is pessimistic because the attribution to a positive occurrence (a good game) is temporary (making good decisions *at this moment* compared to the game went well because it is in my personality to officiate good games).

The specificity dimension reflects the fact that causal attribution may be specific or general in nature. For instance, a good performance can be attributed to officiating good regular season games or playoff games (pessimistic). An optimistic explanation, however, would be “I referee good games”. Similarly, poor performance can be explained in similar a concept. For example, after a poor performance, an official explains, “I officiated a bad *game*” (optimistic) compared to “I officiated poorly” (pessimistic). While one attribution limits the poor performance to this bad game, the other explanation generalizes. Even more optimistic - and the most optimistic way of thinking of a poor performance - would be pinpointing the poor outcome to a specific reason while being as realistic as possible.

The importance dimension takes into account the relative value a person assigns to an event. When a bad game occurs, the optimistic official thinks of other important things in life (health, family, leisure, etc.) rather than dwelling on the situation. The results of most optimism studies suggest that attributions to causes that are internal, stable, general, and important maximize the severity of the learned helplessness deficits while attributions to causes that are external, unstable, specific, and unimportant minimize the helplessness deficits.

Learned helplessness in sports occurs when athletes produce maladaptive achievement patterns that are attributed in failed situations (Papavessis & Carron, 1988). Although there is a general consensus for developing an optimistic attributional style, Davis and Zaichkowsky (1998) reported the positive use of a pessimistic explanatory style with elite hockey players. Contrary to prediction, the study concluded that positive on-ice behavior in adversity may be mediated by a negative outlook. There seems to exist, however, empirical support that tends to overwhelmingly favor acquiring an optimistic explanatory style (Abramson, Seligman & Teasdale, 1978). A subsequent study was also performed with swimmers reinforcing the advantages of adopting an optimistic explanatory style (Seligman, Nolen-Hoeksema, Thornton & Thornton, 1990).

Athletes may display learned helplessness but from a cognitive, motivational, and emotional perspective. For instance, from a cognitive perspective, maintaining effective strategies or creating new and more efficient tactics under adverse situations characterizes the adaptive achievement patterns. In contrast, a maladaptive achievement pattern is characterized by the breakdown of effective strategies or a failure to develop new schemes under adverse conditions.

From a motivational perspective, challenge seeking and high persistence in the face of obstacles characterize the adaptive achievement patterns. A challenge avoidance and low persistence tolerance characterize the maladaptive achievement pattern.

From an emotional perspective, pride and satisfaction in terms of the degree of effort exerted in both successful and unsuccessful conditions characterize the adaptive achievement pattern. Conversely, pride and satisfaction only from ability exhibited in successful conditions characterize the maladaptive achievement pattern; failed outcomes signify low ability and yield little pride and satisfaction.

Learned optimism can be thought of as the opposite of learned helplessness. Learned optimism is about dealing effectively with setbacks. By conditioning the mental response to adversity, one copes more efficiently - quicker and better - to challenge and failure. For example, when an official makes a poor decision, focus is placed on what can be done to maintain impartiality on subsequent calls rather than “make-up” a previous blown call. Learned optimism is an unconditioned response to view the possibilities rather than the limitations. Traditionally, the analogy is whether the glass is half full rather than half empty.

Chapter 3  
Methodology

## **Introduction**

With the growth in popularity of qualitative research methods in sport psychology, the interview has served as an important research tool. As Orlick and Partington (1988) state:

- (a) Interviews provide an opportunity for the open searching and probing necessary to explore new topics, such as elite athletes' personal mental preparation strategies.
- (b) Interviews enable the investigators to learn and understand the terms athletes use to discuss mental preparation topics.
- (c) Interviews scheduled at the athletes' convenience increase the likelihood they will participate in the study.

In the present study, the interview method was designed to provide more detailed and thought-provoking answers than would be obtained through other traditional quantitative data gathering methods. The qualitative data gained from an in-depth interview can provide a rich source of knowledge (Scanlan, Stein, & Ravizza, 1989).

### **1. Subjects**

The two criteria required for the sample subjects were that the ice-hockey referees 1) had at least five years experience in the AHL or worked at a higher caliber and that 2) officials were currently working at the time the study took was conducted. During the two month period allotted to interview NHL and AHL referees during the hockey season in Montreal, Canada and given the elite nature and time constraints of these officials, two NHL referees agreed to take part in the study. With the consent of both hockey leagues, four male (two NHL and two AHL) referees took part in this experiment. They were asked if they would like to participate in a study of the psychological components of officiating. The mean age of the AHL referees was 30 and they had no experience in the NHL

(although one official refereed one game in the NHL). The NHL referees had a mean age of 45 having accumulated an average of 18.5 years of experience in the NHL including games in the Stanley Cup finals, World Championships, and Olympic Games. Subjects' age ranged from 29-47. Although the interview was conducted in English, the mother tongue of all the referees (except one NHL referee) was French. All officials agreed to conduct the interview in English as they felt familiar and comfortable speaking English.

## **2. Materials**

The Officials Interview Guide developed for the purpose of this study consisted of a series of open-ended questions that can be viewed in Appendix A. It is based on a previous guide used by Jackson (1995) in which the study explored how athletes create, maintain, and recreate peak performance in their sport.

The use of a tape recorder reduced the possible tendency of the interviewer to unconsciously select favorable data. In addition, the tape can be played back, more than once, studied more carefully, and responses may be collected that were missed during note taking (Patton, 1990).

## **3. Procedure**

The Officials Interview Guide was designed and pilot tested on two referees for clarity before the subjects forming the present sample were interviewed. The referees were contacted by phone by the researcher and were informed of the nature of the investigation. It was stressed that participation was voluntary and that all data would be

kept strictly confidential. To standardize the interview process as much as possible, all interviews were conducted by the same investigator. A brief section extracting demographic information of each subject preceded including questions of the referee's age and number of years of experience in the NHL. The interview guide was used as a source of pre-planned questions organized in eleven subsections; 1) motivation, 2) routine, 3) goal-setting, 4) focus, 5) mental imagery, 6) stress, 7) self-talk, 8) mental toughness, 9) confidence, 10) learned optimism, and 11) general questions.

All interviews were conducted face-to-face and the interview was designed to last one hour. Subjects were told a) the study examined psychological aspects of elite officiating and b) to answer each question in an honest and truthful manner. The interview began with the official describing his initial desire to participate as a referee. Other follow-up questions, organized into subsections, ensued. In the category of motivation, for example, questions were asked as to how the official gets motivated, what happens when they lose motivation, and how, once motivation is low, do they get it back. In addition, the differences between being most motivated and least motivated were also explored. As often as possible, similar questions on how the officials create, maintain, and recreate peak performance in other mental factors were discussed. Other themes that did not allow for this type of format such as routine, goal-setting and mental imagery elaborated more specifically in their own respected topics. For example, the official was asked to describe more specifically what mental skills techniques facilitated the state of peak performance in the aforementioned themes. After discussing the ten themes, officials were asked a series of general questions. All interviews took place in a quiet,

distraction-free environment in which subjects' responses were tape-recorded and later transcribed.

#### **4. Data Analysis Procedure**

Qualitative data analysis techniques were used to transcribe, interpret, and code subjects' responses as originally proposed by Patton (1990) and successfully adapted to sport by Scanlan, Ravizza, and Stein (1989). The aim of this inductive analysis process was to synthesize each response or quote of the official (raw-data) into a broader conception (1<sup>st</sup> order concept) and an even broader idea (general dimension). The raw-data was a summary of each response or quote of the official. This raw-data was then classified under one of several broader concepts referred to as 1<sup>st</sup> order concept and then classified again under an even broader idea termed general dimension. This exercise was done to search for patterns, similarities, or differences among their answers that came forth from the interview. Specifically, the following seven-step data analysis procedure was used.

1. All four tape-recorded interviews were transcribed verbatim resulting in 59 pages of single-spaced text.
2. A second researcher, a Ph.D. candidate in kinesiology and experienced in qualitative research methodology, read and reread all four interviews to become very familiar with the responses of each official. This experimenter was blind as to which league the referee worked in. The investigators then carefully listened to each taped interview to gain additional insight that may not be found in the transcripts such as tone of voice, pauses, and the use of sarcasm.

3. After viewing the transcripts, both researchers discussed, defined, and created 1<sup>st</sup> order concepts and general dimension categories related to achieving an IPS. This was performed based on three ways. First, embedded from the existing literature review, a number of general dimensions were contrived. Second, some additional general dimensions and 1<sup>st</sup> order concepts were added based on the interview guide. Third, as a result of the responses of the officials, some 1<sup>st</sup> order concepts and general dimensions were created. For instance, in discussing motivation, the researchers pre-established the general dimensions of intrinsic and extrinsic motivation given the literature review. In addition, two other general dimensions were created based on the interview guide, that is, losing and recreating motivation. On several occasions, one NHL official discussed the importance of helping others and donating time and effort without receiving monetary or other rewards. As a result, a 1<sup>st</sup> order concept of altruistic was created. Consensus had to be reached by both researchers in defining all 1<sup>st</sup> order concepts and general dimensions.
4. Each sentence from the interview was summarized as raw-data and then classified under a 1<sup>st</sup> order concept and a general dimension by each of the researchers independently from one another. For example, the sentence “there is also the personal satisfaction and gratification that goes with the end of the performance knowing that I did everything that I could have that particular night” was classified under raw-data as “satisfaction and gratification”, as “techniques” under the level of 1<sup>st</sup> order concept as “intrinsic motivation” within the level of general dimension. For some of the raw-data, the responses of the officials were not related to the mental

preparation of achieving peak performance. As a result, these quotes were grouped in a miscellaneous category. In some instances, after reviewing all the raw-data placed in the miscellaneous categories, additional 1<sup>st</sup> order concepts and general dimensions were created. This was done because some of the raw-data could not be classified within already existing 1<sup>st</sup> order concepts and/or general dimensions but could be incorporated in a new one. In all other cases, the officials' responses were disregarded because the raw-data was not associated to the techniques used in achieving optimal performance. This step was performed for all four interviews with the referees.

5. In order to obtain an inter-judge reliability measure, a comparison of the classification of each raw-data, 1<sup>st</sup> order concept, and general dimension between the two investigators was performed. The inter-judge reliability was 80%. A follow-up meeting was set-up to clarify and discuss the differences which occurred between the two researchers in the categorization of raw-data, 1<sup>st</sup> order concepts, and general dimensions. Following the meeting, the percentage agreement increased to 95%. After further discussion, a consensus was obtained concerning the quotes in which no agreement was reached.
6. After summarizing all raw-data and classifying all 1<sup>st</sup> order concepts and general dimensions, an inductive analysis was conducted to identify common themes or patterns of greater generality. Similar themes were gathered together that may have been discussed elsewhere. For instance, in the theme of focus, some discussion

related to focus occurred in another theme such as in the general discussion. Similarly, all responses related to a particular 1<sup>st</sup> order concept or a particular general dimension category were regrouped together. It was not possible to categorize some raw-data into 1<sup>st</sup> order concepts and therefore, they were immediately linked into a general dimension. For instance, in the theme of goal-setting, officials discussed some specific goals. Therefore, these goals were summarized as “specific” and immediately linked into the broader general dimension of “SMART goals”. Consensus had to be reached between both researchers.

7. After careful discussion between both researchers, all raw-data, 1<sup>st</sup> order concepts, and general dimension were organized into tables and figures according to a particular theme. While the table compared the officials’ responses on several questions related to, for example, creating, maintaining, and recreating an IPS, the figures summarized, organized, and classified the officials’ responses from specific to more general. This step was performed for all themes discussed (i.e. motivation, routine, goal-setting etc.). After viewing each table and figure, the researchers ensured the patterns made intuitive sense and could be easily understood. These tables and figures constituted a tool for the investigators to identify patterns, similarities, and differences. The figures were reread to check that all raw-data fit coherently into the broader categories. Again, consensus had to be reached between both researchers.

Chapter 4  
Results

**Introduction**

In an effort to compare the mental training techniques used by NHL and AHL referees to achieve peak performance, the officials were asked to discuss their strategies related to the 11 officiating themes. Based on the pre-planned structure of the interview, the sequence in which the tables and figures will be presented are as follows; 1) motivation, 2) rituals, 3) goal-setting, 4) focus, 5) mental imagery, 6) stress, 7) self-talk, 8) mental toughness, 9) confidence, 10) learned optimism, and 11) general questions.

Each theme in the results section is presented in two parts. In the first part, important quotes are presented in tables as suggested by Miles and Huberman (1984). In the tables in this section, words and phrases were emphasized in bold to highlight the most important quotes that support or differ from the research findings concerning factors which lead to peak performance. The second part of each theme consisted of organizing each quote into interpretable and meaningful raw-data themes as figures as previously shown by Gould, Tuffey, Udry, & Loehr (1996). Qualitative analysis of the interview transcripts allows the results to be selected as shown.

### Motivation

Table 1 compared direct quotes between NHL and AHL referees on questions directly related to their motivation. NHL officials described getting motivated by their inherent desire to achieve excellence. AHL referees discussed their motivation as an automatic experience that depended on the game.

A total of 35 different raw-data themes were identified by the referees (28 NHL and 18 AHL). The raw-data themes emerged into a total of nine first-order themes (8 NHL and 4 AHL) and a total of four general dimensions (4 NHL and 3 AHL) as shown in Figure 1. There was 32.1% (9/28 similar raw-data themes) that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Intrinsic motivation was defined as having feelings of excitement, personal competence, enjoyment, pleasure, and fun. Extrinsic motivation was classified as the monetary compensation such as money and also incorporated any discussion of prestige. The higher order themes of 1) spiritual dealt with a super natural being; 2) altruistic as helping behavior that benefits others only; and 3) perks as special advantages of the job.

The following quotes capture the theme of motivation as explained by the NHL referees:

There is also the personal satisfaction and gratification that goes with the end of the performance knowing that I did everything that I could have that particular night. I think it is that very issue; the gratification that knowing that... there is a self-gratification involved.

I love a tough game, I love getting into tough situations, I get energized. I get excited.

What I like really is the challenge, see a good hockey game and sometime it is a challenge because you know maybe something is going to happen because something happened in the past with those two teams or a new player has just been brought by the team or somebody is just coming back from a suspension or a coach or they play for a first place overall or first against last, it does not matter. It is always a challenge and we get motivated by that kind of stuff because it is always new each game we work. So I like that kind of stuff and to be in charge.

The NHL official goes on by saying that he enjoys officiating because of the “emotion of the game” as well as “it gives you a kind of a feeling on the ice, I just enjoy it”.

Spiritual reflection was best described by this NHL official:

I have also become quite prayerful and some wonderful things have happened for me spiritually. There are so many things to describe and so that my aspect of my life with my professional development has been a spiritual development that has just come together and that’s incredible and it has given me added purpose and that’s important... (Those) spiritual periods carry through a game during the National Anthem. I attend morning mass when I can near the hotels. I know where they are in every city. And then during the day there is interludes of helping somebody; that could be a prayer. During the National Anthem it all comes together for me in a prayer. I also do a private prayer for the safety of others, doing and offering our abilities, our performance. During the game I actual have prayerful moments that when I make a good call, when I see something if I say something that I do not want to say. There is just a conscious awareness of where I am all the time and why I am here.

Conversely, AHL referees described motivation in the following way:

Tough question there. Basically depends of what the game means. I do not know that’s my job, I am going there, I like going there. I like doing what I’m doing. I do not need to motivate myself. I just like to referee so I’m basically going to the rink.

(I enjoy) the pressure probably. It is just it gives you an adrenaline rush every game. You never know what’s going to happen. You’re running the game. You would like the guys to decide their own game but I do not know it is basically different. You never know what’s going to happen so that’s what’s fun about it... the pressure, the fans, the coaches, the players. That’s basically it.

Motivation in NHL and AHL referees

Question	NHL Referees	AHL Referees
How do you get motivated?	Motivation for me is always been to be the <b>best</b> that I can. So my desire formotivate myself. I guess <b>excellence</b> always comes from <b>within</b> because I believe that I owe it to a lot of people to be the best that I can be. I enjoy the pressure probably. There is also the <b>personal satisfaction</b> and <b>gratification</b> that goes with the end performance knowing that I did everything that I could. I think it is that very issue. What I like really is the <b>challenge</b> . You get motivated by the element of the arena.	I do not really have to it is <b>by itself</b> . Basically <b>depends on the game</b> . I <b>like</b> doing what I'm doing. It just gives you an adrenaline rush every game.
How do you maintain your motivation?	I like to <b>take things that drag me down and</b> I like to <b>use it as a positive</b> . I like to <b>bubble myself, protect myself of things I cannot change</b> that would be a negative distraction or force on me as a the person or as an official.	If you are not getting back into a game, you are in big trouble. So, sometimes <b>the fans, coaches, and players are keeping you in the game</b> .
Can you describe a time when you didn't feel motivated to referee?	One thing that drags me down is the <b>political end of the business</b> , the politics and the <b>personalities</b> sometimes that come into play. <b>Travel</b> is something you have to do, you have to overcome it. When I know I made a mistake.	Some nights, it happens. Some nights you just do not feel good.
When you lose motivation, how do you get it back?	I <b>talk to myself</b> . I have an <b>inner thermometer</b> that tells me at each moment where I am and I know where I need to be. If I start to feel that I would rather sit in the chair than get up and go out, I'll <b>tax myself</b> . I'll be on the bike tonight and I'll ride it pre-game harder than I normally would. I have to <b>force myself, to energize myself</b> because <b>I know I have to do it</b> .	Well sometimes <b>the game does not give you much of a choice</b> . If you are not getting back into a game, you are in big trouble.
What are the differences when you are the most motivated and when you are the least motivated?	I love a tough game. I love getting into a tough situation. I get energized. I rise to the challenge. When looking back I was least motivated through <b>expansion years</b> .	Probably the importance of the game.

Figure 1

Motivation in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Focused on enjoyment Performance was automatic Learned by themselves Enjoyed the challenge Positive and negative self-talk Liked to be in charge Thrived on tough games Desire to move up & to be the best Achieving excellence Satisfaction & gratification Excitement, readiness, emotions Balanced perspective Self evaluation	Techniques	Intrinsic Motivation	Techniques	Focused on enjoyment Performance was automatic Learned by themselves Enjoyed the challenge Positive and negative self-talk Liked to be in charge Thrived on pressure Enjoyed being pushed to the limit Liked feelings of control Liked the novelty Ability to make sacrifices
Charity work Helping behaviors	Altruistic		Perks	Unlike normal office hour shifts
Becoming prayerful	Spiritual			
Expectations from others	Getting Motivated	Extrinsic Motivation	Getting Motivated	Expectations from others Making money Depended on other factors Lack of choice
Boring games Fans throwing objects on the ice Travel Training camp	Physical	Losing Motivation	Physical	Boring games Fans throwing objects on the ice
Fear of making mistakes Political Supervisors second guessing you	Mental			
Focused on things that were in their control Created an imaginary “bubble” Used positive self-talk	Mental Techniques	Regaining Motivation		
Exercised harder	Physical Techniques			

Routine

Table 2 compared direct quotes between NHL and AHL referees on questions directly related to their routine. NHL and AHL officials described their routines in a systematic fashion thus, sleeping in the afternoon, riding the bike before the game, and discussed the importance of timing in eating the pre-game meal.

A total of 16 different raw-data themes were identified by the referees (16 NHL and 12 AHL). The raw-data themes emerged into a total of four general dimensions (four NHL and four AHL) as shown in Figure 2. There was 75% of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions allowed for the categorization of raw-data themes. Systematic was defined as having an orderly sequence, often being meticulous. Control was classified as within one's own power. Specific was a precise action. Raw-data themes were organized into the superstition dimension when officials discussed a superstitious behavior often without any obvious relation to performance i.e. wearing a favorite T-shirt.

The following quotes illustrated some of the routines of NHL officials:

The only one I have it comes from my mom and I'm still doing it when I leave the house. I used to live at home with my parents and I used to leave fast and then I came back five minutes later so she said you better sit down two minutes or else you'll have a bad trip or a bad game so I sat down two minutes for her and now even when I'm home, (when I feel that) I'm leaving too quick, I come back, sit down by myself for two minutes.

I like to not be too much of a routine person because there are variances that you cannot control. You might have weather problems trying to get to the game. I've seen guys – if they haven't got their clothes laid out a certain way, it just threw them for a loop and they didn't perform well. They were so worried of these little things that really didn't matter.

AHL officials described superstition in the following way:

It is not because it is a superstition but if some day for some reason I would have to I would have to tie my right skate first, I would do it. It wouldn't be a problem. It wouldn't change anything.

As for superstition, I threw them all out of the window so... I had a jersey that I put underneath my referee jersey that I wore for probably 14 years or something like that. I had it on my second or third game I worked in went pretty so I kept it on until the first game this year then I said those buildings are getting pretty warm because there are a lot of people, nicer buildings so I took it off.

That was basically my superstition so I do not have much. I am not much of a superstitious kind of guy.

Table 2

Routine in NHL and AHL referees

Question	NHL Referees	AHL Referees
Briefly describe your daily routine the day of the game	I like to <b>not be too much of a routine person</b> because there are <b>variances</b> that <b>you cannot control</b> . It is <b>always</b> been <b>the same</b> for me. I like to <b>help people</b> whenever I can. I'll <b>sleep</b> in the afternoon and I'll <b>ride the bike</b> in the morning, go a walk in the afternoon and I became quite <b>prayerful</b> .	<b>Get up late</b> in the morning, a couple of <b>coffees</b> and then I'll go back to <b>sleep</b> in the afternoon. What's really important is the <b>pre-game meal</b> , which I'll have between noon and one o'clock.
Do you have a pre-game routine?	I <b>sleep</b> in the afternoon. That's an important part of my day.	<b>I do not like to touch the puck</b> at the start of the game. You see what happened, who are the best players, who are the enforcers. It is <b>always been the same</b> .
Do you have a game routine?	It is important to <b>relax</b> . It is important to be <b>emotionally in control</b> . Always in the <b>same position</b> for the face-off.	As for <b>superstition</b> , I threw them all <b>out of the window</b> .
What do you do during the intermission?	We are talking about the game, we might watch the PGA tournament.	<b>Drink water, sit down, talk with guys</b> . Usually, maybe we'll talk about one play that happened.
Do you have a post-game routine?	It is important for me to go to <b>a place that I would enjoy</b> and unwind a little bit, drinking a bowl of soup or a sandwich or maybe a couple of beers or not a couple of beers, it do not matter. In the NHL <b>after the game, 15 minutes, poof, we're gone</b> in the car right back to the hotel, just <b>relax</b> , go to the <b>bar</b> , just <b>eat</b> something, talk about the game a bit but now again talk about something else.	<b>No routine</b> , sign the sheets, shower, go home.

Figure 2

Routine in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
Raw-Data Theme	1 <sup>st</sup> Order	General Dimension	1 <sup>st</sup> Order	Raw-Data Theme
Pre-game routine Game routine Post game routine Self-appraisal Improving mental skills		Systematic		Pre-game routine Game routine Post game routine
Pre-game routine Game routine Post game routine Perception of control		Control		Pre-game routine Game routine Post game routine Perception of control
Pre-game routine Game routine Post game routine Helping behaviors Spiritual Family oriented		Specific		Pre-game routine Game routine Post game routine
Believing Not Believing		Superstition		Believing Not Believing

Goal Setting

Table 3 compared direct quotes between NHL and AHL referees on questions directly related to goal-setting. NHL and AHL officials described specific, attainable, realistic, and time-oriented goals such as “having fun”, “refereeing Stanley Cup finals” and “working full-time in the NHL”.

A total of 12 different raw-data themes were identified by the referees (11 NHL and ten AHL). The raw-data themes emerged into a total of one first-order theme (one NHL and one AHL) and a total of three general dimensions (three NHL and three AHL) as shown in Figure 3. There was 81.8% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. “SMART” goals was defined as specific, measurable, attainable, realistic, or time-oriented goals. Performance vs. outcome outlined the differences that exist between goals that are under the direct influence of the official and those that are not. Control of goals was categorized under this 1<sup>st</sup> order theme when officials discussed the idea that certain goals were controllable while others were not.

This quote illustrated the theme of control of goals with one NHL official:

Playoff assignments are something that is out of my control. I think it is... what I can control is my performance and if the system is fair, which it isn't but if the system is fair then the cream should rise to the top and I'll be there. There have been times that the system was not fair. There is personality factors and someone will work the finals. I had difficulty with that because of the unfairness. During times when that occurred I got support from other factions of the game... coaches, managers, general managers who have called. That kind of support, like places that didn't have to do it, that you wouldn't expect it from, kind of helped ease the blow. It is disappointing I guess when you fall short of a goal and the goal of every official is to referee the Stanley Cup finals.

AHL officials discussed control of goals in the following way:

There are a lot of things that we do not have control over but I do what I can just to get those assignments... (like) playoff assignments and if by the end of the season I am happy and satisfied with the work I've done and personally I think I may have gotten those playoff assignments or something like that, I would have accomplished my goal.

Table 3

Goal-setting in NHL and AHL referees

Question	NHL Referees	AHL Referees
<p>Do you set goals for yourself each year for</p> <p>a) areas of improvement</p> <p>b) playoff assignments?</p>	<p><b>Have fun, referee Stanley Cup finals, enjoy the game.</b></p> <p>One thing I can control is that I'm going to be <b>in shape</b> for the next training camp. It is <b>knowledge of the rules.</b></p> <p>Doing the little things every game being the best I can be.</p>	<p><b>Something reasonable.</b> I am just aiming for that. I'm not sure that I'm shooting that low but every year it happens. I'm just shooting something that is <b>achievable</b> so a little higher than probably expected but not too much. I'm trying to stay <b>realistic</b> about it. There are a lot of <b>things that we can not control</b> but I do what I can do get those assignments.</p>
<p>Do you set yourself goals every game?</p>	<p>Yes, I do an <b>appraisal of my performance.</b></p> <p>I try to do a good job, try and be <b>most focused from the beginning to the end</b> without having any distractions from the crowd.</p> <p>Continue to <b>work hard</b>, be <b>in shape</b> in training camp and do what they ask me to do.</p>	<p>Goals are short-term goals and those goals are game in game out, period by period, call by call. I want to go out there and do the <b>same thing</b> game in and game out so be <b>consistent</b> out there.</p>
<p>Do you have long-term goals?</p>	<p>Work in <b>management</b> in officiating, <b>referee</b> the <b>Stanley Cup finals.</b></p>	<p><b>Full-time NHL referee,</b> improve and do better games each and every year.</p> <p><b>Work 1000 games</b> but setting myself a <b>long-term goal is the least important.</b></p>

Figure 3

Goal setting in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
<b>Dimension</b>				
Described goals that were: <ul style="list-style-type: none"> <li>• specific</li> <li>• attainable</li> <li>• realistic</li> <li>• time oriented</li> </ul>		SMART  Goals		Described goals that were: <ul style="list-style-type: none"> <li>• specific</li> <li>• attainable</li> <li>• realistic</li> <li>• time oriented</li> </ul>
Referee Stanley Cup Finals Tried to be among the best Tried to be consistent To be focused without distractions Management in officiating		Performance Vs. Outcome		Referee Stanley Cup Finals Tried to be among the best Tried to be consistent To be focused without distractions Work 1000 games
Worked for goals that are in their control Unfairness of the system	Control of Goals	Locus of Control	Control of Goals	Worked for goals that are in their control

Focus

Table 4 compared direct quotes between NHL and AHL referees on questions directly related to focus. NHL described gaining their focus by concentrating in the moment. AHL officials discussed the use of self-talk in gaining their focus. Both sets of officials recalled gaining their focus as an automatic experience requiring little effort.

A total of 33 different raw-data themes were identified by the referees (21 NHL and 17 AHL). The raw-data themes emerged into a total of two first-order themes (two NHL and two AHL) and a total of four general dimensions (four NHL and four AHL) as

shown in Figure 4. There was 25% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Internal focus was defined as having to attend to self thoughts while external focus outlined the external environment (players, fans, coaches etc.). Raw-data themes were grouped as losing focus when officials recalled factors related to their loss of focus and regaining focus when discussing techniques related to recreating their focus.

The following comment illustrated an excellent example of the NHL officials' ability to control thought process and to concentrate on a task:

Focus is the key. Knowing where I am at because I am the one that has to be focused and if I allow distractions to take conscious thought process and hold them... I mean, I hear the noise but I do not let it go through. I can not let it stop in my mind. It is got to go from one ear, through the brain to the other; recognize it but move on.

Minor league officials discussed candid strategies of getting and maintaining focus despite an overwhelming amount of possible distractions:

I think you got to focus and be calm and look at what's happening... the actions and how the players react. I guess with experience you know a lot more where to look and how the players are going to react and who's on the ice. It is always the same players that are going to start things and you got to be aware of that. You got to be aware of the starting lineups. You got to be aware of the standings. You got to be aware of what happened last game between these two teams. When I'm all ready of that kind of stuff I can go out there and try and be ready for whatever can happen. But having an idea before the game can help a little bit.

Table 4

Focus in NHL and AHL referees

Question	NHL Referees	AHL Referees
How do you get focused?	It is almost like <b>muscle memory</b> for me. I see things very quickly and I sort information very quickly so that it <b>becomes automatic</b> or <b>auto-pilot</b> . If I want to keep focus during a game, I guess I have to <b>talk to myself</b> .	<b>I do not</b> really have to <b>think about this</b> . I think it <b>comes with the flow of the game</b> or just the way the game goes. <b>Be calm</b> , look what is happening. <b>Experience helps you</b> determine where to look. You just got to be aware of the little things.
What distracts you?	Put <b>20,000 people</b> in a building that can often be hostile towards the referee and <b>players</b> up and down that are trying to win battles, win psychological edges. My biggest problem is the <b>jumbotron</b> (scoreboard).	<b>Long delays</b> broken glass, broken zamboni, etc.
How do you stay focused?	I see the ice in advance of the play like a chess board steps ahead of what the players are doing. I <b>monitor myself</b> in the minute, in the second, <b>in the moment</b> and if I have to adjust in the course of the game, I like to recognize that.	Sometimes you just <b>talk to yourself</b> “stay focused”. I’m kind of in my <b>own bubble</b> . After a couple of years, you just learn to <b>shut the fans out</b> . I talk a lot with the goalies. I’ll be <b>saying “wake up”</b> to myself. I’ll talk to my linesman to keep me stimulating and keep in the game.
When you lose focus, how do you get it back?	I recognize the need to regroup my emotion and then I focused on my <b>breathing</b> and I <b>relaxed</b> and I breathed through it and talked myself through it. I <b>never see myself fail</b> or beating myself up.	<b>Everyone around are getting your focus back</b> so you do not have much of a choice. You get to talk to yourself on the ice whenever it is a boring game. I’ll just <b>kick myself</b> in the butt.

Figure 4 – Focus in NHL and AHL referees hierarchical analysis results

NHL RefereesAHL Referees

**Raw-Data Theme      1<sup>st</sup> Order      General      1<sup>st</sup> Order      Raw-Data Theme**  
**Dimension**

Used self-talk Experience Oxygenated water General conscious awareness Stayed in the moment Ability to relax Let distractions pass through the brain Focused on breathing Enjoyed the process / fun	Techniques	Internal  Focus	Techniques	Used self-talk Experience Stayed calm Talked to other referees on the ice Kept a balanced focus
Didn't think about it	Automatic		Automatic	Didn't think about it Came naturally Gained focus because of the flow of the game
Tried to be aware of prior history between the two teams Facilitated by the two-referee system		External  Focus		Tried to be aware of prior history between the two teams Focused on the details Anticipated plays early in the game
Fatigue Travel Scoreboard Inability to put a bad call aside		Losing  Focus		Supervisors Himself Long delays
Self-talk Inner thermometer Regrouped thoughts Focused on one thing Concentrated on breathing		Regaining  Focus		Self-talk External pressure (players, coaches, game) Punishment

Mental Imagery

Table 5 compared direct quotes between NHL and AHL referees on questions directly related to their mental imagery. Both NHL officials reported practicing mental imagery while one of two AHL officials used mental imagery. NHL officials described seeing the players and acting out penalties while the AHL official described watching television as an aid in his mental imagery.

A total of nine different raw-data themes were identified by the referees (five NHL and five AHL). The raw-data themes emerged into one first-order theme (one NHL and one AHL) and a total of three general dimensions (three NHL and three AHL) as shown in Figure 5. There was 20% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Raw-data themes were categorized as clear and vivid when officials described mental imagery in a precise fashion. Control was defined as being able to manipulate plays, calls or game situations. Positive outcomes were those situations imagined where success was realized. Senses was defined as the sensory experience of either the sound, sight, smell, taste, or feel.

NHL officials described their imagery as follows:

I did it when it was not fashionable back in... my first conscious awareness of it was in '79... no it was 73-74 and I was having difficulty with penalty selection. I was mentally prepared at the start of the game so I decided that I was going to, after my afternoon sleep, knowing the two teams playing that night... I would see players and act in my mind fouls and I would lay with my eyes closed in the bed after just waking up and I would replay every penalty. I would see a slash and I would see the teams in their uniforms and I would see the faces of the players and I would see a slash and then I would see me raise my arm and call that penalty. I would see myself skate to the penalty box

assess the penalty and move away and start play and I went through every penalty in the book; same thing at the National Anthem that night. I do the same thing: slashing, holding hocking, tripping and I saw them again. I saw me calling them and reacting to them and I saw dives that I didn't call that I reacted in a positive fashion so it prepared me so that when I dropped that puck I had now the sense that I have seen every penalty that I could see and I have called every penalty at least once so when it happened, boom, it was just another reflex as opposed to thinking about calling it.

... during the game... I try and review what happened and I have to make a decision and then maybe the next stoppage of play I'll look towards the net, something happened there so I'll try to visualize the play that something happened to make sure I made the good call... but yes, I visualize a lot on the ice...

One AHL referee, when asked if he does any mental imagery, said that although many professionals support its usage, he does not believe in its effectiveness.

The other AHL official initially claimed not to do any mental imagery but went on to say he did in some form:

If I have a down period, I'll do that. If something really bad happens, then I think this job is really all about confidence and sometimes, something can happen and it'll rattle you for a while and in a periods like that sometimes they are longer, sometimes they are short, it depends but for myself to get back into it and build that confidence back, I'll do a lot of imagery. I'll watch a lot of games on t.v. and when I do a game, I'll focus on infractions even before the game. I'll try and see and watch imagery of infractions. This is an infraction, this is an infraction, this is an infraction and sometimes what I'll do to is... what I've learned from experience is to get quicker back to where I was... my level I was... I'll call a little tighter standard until I feel confidence back and then get back to the standard I had before.

Table 5

Mental Imagery in NHL and AHL referees

Question	NHL Referees	AHL Referees
Do you use mental imagery?	<b>Both said yes.</b>	<b>Yes &amp; no.</b> (One referee said yes, the other one said no) I guess they are probably the thing to do but not that I do not believe in those, I just do not use those.
Describe the pictures	I would <b>see players</b> and act in my mind fouls and I would lay with my eyes closed in bed after just waking up and I would <b>replay every penalty</b> . I would see a slash and I would see the teams in their uniforms and would <b>see the faces</b> of the players and I would raise my arm and call that penalty. I would see myself skate to the penalty box and move away and start play and <b>I went through every penalty in the book</b> . I try and review what happened and I have to make a decision and then maybe the next stoppage of play I'll look towards the net, something happened there so I'll try to visualize the play that something happened to make sure I made the good call.	<b>I'll watch a lot of games on t.v.</b> I'll try and see and watch imagery of infractions.

Figure 5

Mental imagery in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Visual Auditory Kinesthetic	Senses	Clear & Vivid	Senses	Visual
Visualized successful experiences		Positive Outcomes		Practice imagery to increase confidence
Practiced less often with the two referee system		Miscellaneous		Did not believe in its effectiveness Only used during down periods Improved imagery by watching television

Stress

Table 6 compared direct quotes between NHL and AHL referees on questions directly related to stress. Several sources of stress was cited by both NHL and AHL officials such as “the pressure I put on myself”, “boss” or “first game in the NHL”. Both sets of officials described reducing their stress by exercise although one NHL official described using prayer as a method to relax oneself.

A total of 37 different raw-data themes were identified by the referees (23 NHL and 18 AHL). The raw-data themes emerged into a total of five first-order themes (five

NHL and five AHL) and a total of three general dimensions (three NHL and three AHL) as shown in Figure 6. There was 17.4% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Mental stress was categorized when worrisome thoughts occurred in the mind while physical stress occurred when physical causes created stress to the official. Participants included supervisors, players, fans, media, and other league management that may cause stress to the official.

One NHL official explained the stress a supervisor can have on his performance:

Before a game, I know the supervisor is going to be there so I said okay, I know what I have to do but I have to think of what he likes so it does not make my job like it is supposed to be and that's my problem, instead of I do not need that guy let me do my job. I have a bad habit of saying okay, I have to satisfy that guy and it is not doing my job and that's wrong. So I have to prepare myself to be more concentrated to say do your job, I'm supposed to think like that I do not care of what I can not control so do your job the best you can and forget about that guy.

Other stresses not mentioned by minor league officials but revealed by NHL referees also included family issues of being a good father, husband, and balancing time in a very busy schedule. "I'm really in demand", one NHL official said because of the recognition from the fans from going to the airport, getting in a taxi, and arriving at the hotel.

There was also the issue of fairness that which arose with NHL officials only. NHL referees described promotional unfairness as a source of stress during one year in

which the official did not participate in officiating the Stanley Cup finals. The following quotation expresses how, in part, the referee dealt with this stress:

During times when that occurred I got support from other factions of the game... coaches, managers, general managers who have called. That kind of support, like places that didn't have to do it, that you wouldn't expect it from, kind of helped ease the blow. It is disappointing I guess when you fall short of a goal and the goal of every official is to referee the Stanley Cup finals.

Other ways NHL officials dealt and reduced stress was by putting the situation in perspective and exercising. Similar quotes were extracted from minor league officials who discussed a similar approach towards dealing and reducing stress with a positive mind frame and working out. Quotes from AHL officials explain:

What they want is when they see (me), they know what to expect every game and that's what I want to do. I want to go out there and do the same thing game in and game out so be consistent out there.

I believe in myself. I believe in what got me there and there is a lot of stuff that I worry about that I can control and if I make a mistake I'll live with it. I look back at what got me there and the experience I have and believing in the people that put me there in that game believed in me...

Table 6

Stress in NHL and AHL referees

Question	NHL Referees	AHL Referees
<p>What are the sources of pressure?</p> <p>before</p>	<p>It is the constant <b>pressure to be right</b>, your judgement is questioned. Every call is important and every non-call is important. The stakes are high for the players, coaches, and owners. There is <b>pressure away from the game</b>; to be a good father, a good husband. You've got to balance time because I'm really in demand.</p> <p>There is a lot of <b>pressure I put on myself</b> and that <b>I control</b> which is great so if the biggest pressure is something that is reoccurring but <b>within my power</b> to control it becomes more of a the non-issue.</p> <p>My biggest fear is not really what happening on the ice but <b>how is my boss going to interpret what call</b> I made or why I did that so it is more along the game than during the game.</p> <p>I'm going to get some stress when I know <b>I missed something</b>.</p>	<p>Everything around the game: <b>GM's, fans, players, coaches, league management, supervisors</b> at some point. So, everyone involved in hockey.</p> <p>If I have any stress for any game, I'll have the stress in the afternoon of that game for maybe an hour. Once I get to the rink, it is like I'm at home.</p> <p>It is definitely not probably <b>my first game in NHL</b>, I thought there was some stress because it was my first game. I have to <b>start all over again</b> with the NHL level. So that would be a source of stress I have. You got to go out there and <b>try and prove yourself again</b> game in and game out and some guys say that it might take five to eight years</p> <p>you get some acceptance.</p>
<p>How do you deal with the pressure?</p>	<p>I try and keep it in its <b>proper perspective</b>. I can determine that it is a biased perspective. I <b>rate myself</b> each performance.</p>	<p>It is just keeping a <b>good balance</b>. I <b>believe in myself</b>.</p>
<p>What do you do to reduce your stress?</p>	<p>I <b>exercise</b>. Quiet times at mass for me is an important part of my day If you understand yourself, if you feel the thermometer is going to rise for me it could be just a quiet <b>prayer</b>. It gives me strength for reality.</p>	<p>I <b>ride the bike</b>. So, it is a matter of being down to earth, <b>take your time</b> and just try and bring everybody to your level of calmness. Sometimes I lose it but it is just to <b>stay calm</b>. I tell myself the more games I work, the more comfortable I get.</p>

Figure 6

Stress in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Constant review process from the players, media etc. Supervisors League supervisor of officials Lack of direction from league supervisors Political bureaucracy Family demands	Participants	Mental Stress	Participants	Constant review process from the players, media etc. Abuse from the coaches, players, parents Stress from the GM's league management, supervisors Everyone around in hockey
Expectations of being a role model Feared how supervisor is going to interpret call Stress of making a mistake	Misc		Misc	Denial Difficulty in understanding why poor performances occur Having to establish credibility when promoted to the NHL
Objects thrown from fans		Physical Stress		Objects thrown from fans Nervousness before important games
Exercise Breathing techniques Staying relaxed Positive self-talk Balanced perspective	Somatic	Coping With Stress	Somatic	Exercise Talked to other referees Experience helped
Worry about things that are in their control Remained focus Self-appraisal Formed imaginary wall to protect against stress Kept things in perspective Positive thought control Prayer	Cognitive		Cognitive	Believed in their abilities Stayed calm, relaxed, poised Put negative thoughts aside Enjoyed the pressure Kept a balanced perspective
	Misc		Misc	

Support from others				Support from others
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### Self-talk

Table 7a compared direct quotes between NHL and AHL referees on questions directly related to self-talk. NHL referees discussed the use of key-words while AHL referees claimed to use very few key words in achieving optimal performance. A total of 24 key-words were reported by officials (20 NHL / 4 AHL) in preparation of an IPS as shown in table 7b. The key-words were differentiated between positive and negative self-talk.

A total of ten different raw-data themes were identified by the referees (nine NHL and three AHL). The raw-data themes emerged into a total of three first-order themes (three NHL and two AHL) and a total of three general dimensions (three NHL and two AHL) as shown in Figure 7. There was 22.2% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Positive self-talk referred to the internal dialogue that may bring an official closer towards an IPS while negative self-talk were thoughts that can move an officials further away from an IPS. Motivational self-talk were thoughts that facilitated performance by enhancing, for example, confidence, motivation, or by creating a better mood. Examples included “let’s focus” or “let’s go”. Instructional self-talk improved performance by triggering desired actions during the

execution of the game. Examples included “you are always quick” or “my legs feel strong”.

The AHL referees did not precisely discuss their usage of key-words. When asked about worst performances or differences between their best performance and worst performances, no key-words were suggested. Instead, a more elaborate explanation was offered.

Sometimes... right now it is kind of tough. On the ice on the ice, when it happens a kind of denial happens... screw everybody else I'm doing a good job. But some nights you just do not have it. Today with more experience a little bit it is easier to sit back during the game and say oops, I better get my act together here but there is always a part of denial of what's going on. You do not want to admit you are wrong.

I do not know. It is always... it is tough to understand why you are doing a bad job some nights. Some nights you just do not feel good. Those types of nights there is not much you can do. You just do not feel great. Sometimes you step on the ice and you feel you are the king of the world so you can do whatever you... but some nights are just a little tougher. If you do not feel good and the game is tough, those are the bad nights. There are a lot of factors involved in a bad performance so you just put that game aside and the next night you just got to work.

The NHL referees elaborate much more on their usage of self-talk as described in the following quote:

(My self-talk is) always positive. Positive self-talk through key-words. I never see myself fail or beating myself up. If I'm lagging in a play or I'm being lazy, chasing the play or not being quick enough to get to the goal line... I'll recognize it...

NHL referees were also quick to point out key-words in their performance:

I'll say “come on you got to get to the goal line”. Now I say “you are fast”, “you are always quick”, “you are always at the goal line”, “you are always in position to see things”. Not shit I missed it... you were not in position, damn. I try not to go by the negative, always the positive. When I step on the ice tonight and my legs feel heavy... sometimes they feel heavy, three games in three nights... different airplanes, different

cities... so when I first step on the ice and they feel heavy, I tell my legs that they feel good... "man your legs are strong". Always positive.

NHL officials not only tried to enhance their own level of self-talk but also took the initiative to help improve other officials internal dialogue along the way:

I like to be in a calm state before the game. It is not like a hockey team, you hear them in the next room. All the hoorah stuff banging their sticks and screaming and yelling. I mean for me that's a waste of emotion and energy. I like to just be in a calm state and not thinking a lot of other things. There are times when I feel the need to be funny. It might be a guy that I'm working with that I see him pretty tense so I'll try to loosen him up a little bit. I'll try and lighten his load. It might be through humor and it might be through talking about something else to distract him from making the pre-game his thoughts bigger... like playing the game before it happens. Maybe I should not take that power upon myself because he may need that. The game is played on the ice, it is not played in the dressing room. You've got to be ready mentally and physically to meet the challenge. That's different for every different person but for me being in an emotional state; calm is important.

Table 7a

Self-Talk in NHL and AHL referees

Question	NHL Referees	AHL Referees
Are there any key-words that you focus on in your pre-game preparation to achieve an ideal performance state?	<p><b>Always positive self-talk</b> through key-words. If I'm lagging in a play sometimes being lazy, I'll say "<b>c'mon, you got to get to the goal line</b>". Now I say "<b>you are fast</b>", or "<b>you are always quick</b>".</p> <p>I'll say "<b>let's go</b>" or first of all the only thing we said to each other before we get on the ice is "<b>let's go have fun</b>".</p>	<p><b>No</b>, not during the pre-game but sometimes I say "<b>stay on your toes</b>".</p> <p><b>No.</b></p>
What were you saying to yourself right before your best game?	<p>I do not think a lot of other things. There are times when I feel the need to <b>be funny</b>.</p>	<p>Those games before that brought me there so I did a good job so I said I might as well do the same thing.</p>
What were you saying to yourself right before your worst game?	<p>It is because I was <b>too much worried</b> about what happened around the game or something happened to me with a supervisor or something happened a game before, a situation, so I keep carrying that with me on the ice so I <b>do not have fun</b> and I'm not having my best game. I <b>lost concentration, focus</b> and we're <b>watching the clock</b> fifty times during the game.</p>	<p>When it happens a kind of <b>denial happens</b>. <b>Screw everybody else</b>, I'm doing a good job.</p>
What do you think some of the differences are between when you have a positive and negative self-talk?	<p>If I feel like I'm going to be stressed, I really <b>talk to myself</b> and when I really <b>enjoy</b> the game I talk to my partners, the players, the goalies and the coaches. I am <b>more vocal</b> and say special words like "<b>wake up</b>", "<b>get back in the game</b>" and "<b>just focus</b>".</p>	<p>I mostly <b>talk to myself in a bad way</b> because I'm basically always want to get better so that I'm always critiquing myself all the time.</p>

Table 7b

Positive and Negative Self-Talk in NHL and AHL Referees - Raw-dataNHL RefereesAHL RefereesPOSITIVE KEY-WORDS

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <b>Let's go.</b></li> <li>2. Let's focus.</li> <li>3. You are always quick.</li> <li>4. <b>You are always at the goal line.</b></li> <li>5. <b>You are always in position to see things.</b></li> <li>6. <b>I just want to be there right now.</b></li> <li>7. I know I'm going to do it.</li> <li>8. I'm going to be ready anyway.</li> <li>9. Okay, c'mon tonight let's go.</li> <li>10. Stay concentrated from when we start until the end of the game.</li> <li>11. You are fast.</li> <li>12. My legs feel good.</li> <li>13. My legs feel strong.</li> <li>14. Let's go out and have fun.</li> <li>15. You know you can do it.</li> <li>16. You did it in the past so you can do it again.</li> </ol> | <ol style="list-style-type: none"> <li>1. Just stay on your toes here.</li> <li>2. <b>Those games before that game brought me there so I did a good job.</b></li> </ol> |
|---|---|

NEGATIVE KEY-WORDS

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>17. Wake up.</li> <li>18. You are not there.</li> <li>19. <b>You have to call it.</b></li> <li>20. <b>Get back into the game.</b></li> </ol> | <ol style="list-style-type: none"> <li>3. <b>Wake up.</b></li> <li>4. I better get my act together here.</li> </ol> |
|---|---|

**Total:****24 Key-words****NHL referees: 20 key-words (16 positive, 4 negative)****AHL referees: 4 key-words (2 positive, 2 negative)**

Figure 7

Self-talk in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Used self-talk to: <ul style="list-style-type: none"> <li>Wake-up during boring games</li> <li>Improve focus</li> <li>Relax</li> <li>Enjoy the game more</li> </ul>	Motivational	Positive Self-talk	Motivational	Used self-talk to: <ul style="list-style-type: none"> <li>Wake-up during boring games</li> <li>Regain confidence</li> </ul>
Used self-talk to improve <ul style="list-style-type: none"> <li>Skating abilities</li> <li>Improve positioning</li> </ul>	Instructional			
Used negative self-talk to <ul style="list-style-type: none"> <li>Get back into the game</li> </ul>	Motivational	Negative Self-talk	Motivational	Used negative self-talk to <ul style="list-style-type: none"> <li>Get back into the game</li> </ul>
Used self-talk <ul style="list-style-type: none"> <li>For penalty selection</li> <li>Incorporated with humor</li> </ul>		Misc		

Mental Toughness

Table 8 compared direct quotes between NHL and AHL referees on questions directly related to mental toughness. The probes in this section asked participants to describe 1) the characteristics of an official who was mentally tough, 2) the most difficult moments in their career, 3) how the official bounced back from setbacks, and 4) if they

ever thought of quitting. Both sets of officials described thinking of quitting and one NHL referee quit once already.

A total of 23 different raw-data themes were identified by the referees (17 NHL and ten AHL). The raw-data themes emerged into a total of seven first-order themes (seven NHL and six AHL) and a total of two general dimensions (two NHL and two AHL) as shown in Figure 8. There was 23.5% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Commitment incorporated anything to do with exerting time, energy, and dedication in the pursuit of officiating. Pain was defined as the ability to endure discomfort while playing hurt or avoiding injuries. Sport enjoyment was the satisfaction and gratification of officiating. Involvement alternatives involved comparing the attractiveness of officiating versus other options. Social constraints were the social pressure to continue officiating. Involvement opportunities consisted of valued opportunities that existed through continued involvement as an official.

One NHL official captured the theme of mental toughness by saying:

I had a bad experience when I worked minor hockey and it is a good thing I didn't quit because I wouldn't be here now. It could be, you have to be stronger, say to yourself there will be better moments in my career.

Another NHL referee said "I like to take things that drag me down and I like to use it as a positive" and later went on to say "never let them know you are hurt". One

play exemplified his ability to be mentally tough. The official remembered the excruciating pain he felt when another player hit him on the foot with a slap shot. Despite this, he never got off the ice and continued the game. He declared that he was not coming off the ice unless the bone was coming out of his skin!

AHL referees described mental toughness in the following way:

... you just got to put it aside (a bad game) and understand that you do not have much control over this.

When you are not tough mentally, then you would not stay focused. I put my emotions aside when you referee a hockey game. You got to stay calmer than every body on the ice and sometimes you got 40 players and 20,000 fans. Stay in control of yourself.

Table 8

Mental Toughness in NHL and AHL referees

Question	NHL Referees	AHL Referees
What are the characteristics of an official that has mental toughness?	<b>Confidence, high tolerance of pain</b> threshold, <b>tenacious, never giving up</b> <b>never wanting to quit</b> no matter what the odds.	It is the ability to <b>put a bad game</b> or <b>bad call aside</b> and you've got to be <b>calm</b> that's for sure and <b>poised</b> . You got to make feel your presence out there.
What are the most difficult moments in your career?	I remember <b>a player hit me with a slap shot</b> ten minutes into the game and I didn't want to let him know that he hurt me with the shot even though he was not trying to hit me but trying to be the little tough guy and there was not anyone else around to do the job and <b>I was going to be there until the bone was coming out</b> of the skin. <b>I was going to finish that game</b> and there was <b>physical pain</b> that I had to <b>overcome</b> and then I was out seven weeks!	I had a hard time when I was <b>rejected as a linesman</b> in the provincial league.
How do you bounce back from these setbacks?	<b>Do not give them the tools to fire you</b> or say, you see, we were right about you.	You just <b>put it aside</b> and understand that <b>you do not have much control over this</b> .
Have you ever thought of quitting?	Well, <b>I quit once</b> so that was an experience that I've learned from and <b>when I'm ready to quit it will be for the right reasons</b> .	<b>I thought about it</b> . I remember after a few of those bad games I put my sweater on the hook. <b>I was done</b> .

Figure 8

Mental toughness in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>	
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General 1<sup>st</sup> Order Dimension</b>	<b>Raw-Data Theme</b>
Be in shape Officiating was their #1 priority Sacrifices	Commitment	Physical Toughness	Commitment Be in shape Sacrifices Officiating was very important
Playing hurt High tolerance of pain Avoiding injuries	Pain		
Liked their job Enjoyed the challenge	Sport Enjoyment	Mental Toughness	Sport Enjoyment Liked their job
Other potential jobs available	Involvement Alternatives		Involvement Alternatives Perceived difficulty in getting another challenging job
Enjoyed having a drink with the guys	Social Constraints		Social Constraints Peers having “normal” jobs Support from family & friends
Referee Stanley Cup Potential promotion into officiating supervision	Involvement Opportunities		Involvement Opportunities Referee Stanley Cup The potential to make it in the NHL
Putting bad calls aside Balanced perspective Emotional control Building character Willing to make mistakes	Gaining Mental Toughness		Gaining Mental Toughness Putting bad calls aside

## Confidence

Table 9 compared direct quotes between NHL and AHL referees on questions directly related to confidence. NHL and AHL officials responded to questions describing the methods of creating, maintaining, and recreating confidence. Confidence, according to NHL officials, was a knowledge of being successful. There was no question of failure. AHL referees cited acquiring confidence from their personality. In addition, maintaining confidence was achieved by being realistic and by focusing on tasks that are in their direct control.

A total of 23 different raw-data themes were identified by the referees (14 NHL and 13 AHL). The raw-data themes emerged into a total of twelve different first-order themes (eight NHL and eight AHL) and a total of three general dimensions (three NHL and three AHL) as shown in Figure 9. There was 21.4% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Gaining, losing, and regaining confidence dealt with factors leading to the acquisition, loss of, and recreation of confidence. The definition of 1<sup>st</sup> order themes were as follows: self-talk referred to the officials' internal dialogue; modeling included responses associated with using other referees as a prototype; performance accomplishments included working experience; expectations were beliefs that related to confidence; social included family, friends, colleagues, and supervisors; mental and physical dealt with issues concerning the mind

and body; social support was the help from family, friends, colleagues and supervisors; improvements was the progress made in officiating; trait included personality factors.

NHL referees argued “you get confidence by the new experiences year after year. It is talking to yourself, you know you can do it, you did it in the past so you can do it now”. This NHL referee described confidence best by saying:

... I believe that confidence is something I bring to the table every night... It is a faith in myself to be successful so when I come to work, there just isn't any question that there will be a successful outcome.

One AHL official first began by describing some methods of gaining confidence followed by a description of what happened when he lost his confidence:

I guess it is just in my personality. With experience I know the line between confidence and cockiness. I know it is pretty thin. I was probably more cocky when I was younger. I'm more confident now.

Again, you got to be realistic about what's going on. I have a lot of people around me that you talk to... you talk about things that happened on the ice. You have control over a certain amount of things: my conditioning, my rule knowledge, the way I talk to players and coaches on the ice. So, those type of things you got to maintain control over. As for the rest, I have a lot of friends in the business that I talk to all the time they are cheering you on and this and that and you got to be able to... that's the way to maintain your confidence.

It happens once in a while during a season but it is for a short amount of time like a day or two and then you just get back into it. But I wouldn't go as far as losing all my confidence, you're just questioning yourself more and more...

Confidence in NHL and AHL referees

Question	NHL Referees	AHL Referees
<p>What do you do to get confidence?</p>	<p>It is a <b>knowledge</b> that I will be <b>successful</b> so there is <b>no question of failure</b>. You get confidence by the new experiences year after year and by <b>talking to yourself</b> .</p>	<p>I guess it is just <b>in my personality</b>.</p>
<p>What do you do to maintain confidence?</p>	<p>I rely on all the <b>experiences</b> I've had that were successful. Instead of saying "I know I have to go but I'm not sure, I'm going to make it", I say "<b>I just want to be there right now</b>". <b>I repeat successful appearances</b>, approaches, getting to the event, bringing my <b>emotions</b>, my <b>physical being</b>, my <b>mental state and feeling great</b>.</p>	<p>I'll do as best as I can every game. Again, you got to be <b>realistic</b>. You <b>have control</b> over a certain amount of things: my conditioning, my <b>rule knowledge</b>, the way I talk to players and coaches on the ice. As for the rest, I have a lot of <b>friends</b> in the business that I talk to all the time they are <b>cheering you on</b> and that's the way to maintain your confidence.</p>
<p>Can you describe a time when you lost your <b>questioning</b> confidence?</p>	<p>I start losing confidence if I feel <b>other people lose confidence in me</b>.</p>	<p>I wouldn't go as far as losing my confidence, you are just <b>yourself</b> more and more.</p>
<p>What do you do when you lose confidence, how do you get it back?</p>	<p>I <b>regrouped</b> by, once again recalling the first half and all the good games that I did and show them you made a mistake, I should be there in the Stanley Cup Finals.</p>	<p>You got to talk to yourself and say "<b>hey, no big deal here, it can be a lot worse</b>". Sometimes you can say "<b>hey this guy did a lot worse than me so just get back on track</b>". I'm going to <b>start over again</b>.</p>
<p>What are the differences when you are the most and least confident?</p>	<p>It is a <b>faith in myself</b> to be successful so when I come to work, there just isn't any question.</p>	<p>You got to be able to bring the lows to a normal level and you got to be able to <b>stay down to earth</b> whenever a good game happens. When I am confident, <b>I do not miss out on anything</b> and contrary is you are <b>trying to see everything</b>.</p>

Figure 9

Confidence in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>			<u>AHL Referees</u>	
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Positive self-talk	Self-talk	Gaining Confidence	Self-talk	Positive self-talk Do my best
Modeled other successful officials	Modeling		Modeling	Hockey games on t.v.
Experience in NHL, Olympics, other etc.	Performance Accomplishments		Performance Accomplishments	Experience in the minor leagues
Believed in themselves Knowledge of successful outcomes No question of failure	Expectations		Improvements	Physical conditioning Rule knowledge
Supervisor had confidence in me	Social		Trait	In my personality
Self-appraisal	Misc			
Making inconsistent calls	Physical	Losing Confidence	Mental	Self doubt
Positive self-talk Refocused Worked for goals that were in their control Relied on experience		Regaining Confidence	Mental	Positive self-talk Refocused Practiced mental imagery Called a tighter game
Support from friends, family, and supervisors	Social Support		Social Support	Support from friends, family, and supervisors

Learned Optimism

Table 10 compared direct quotes between NHL and AHL referees on questions directly related to learned optimism. NHL and AHL officials responded to questions explaining their best and worst performances. NHL referees described achieving a level of excellence by the respect and the rapport they have with the players. AHL officials attributed their path of success by a hard work ethic and a feeling they got.

A total of 24 different raw-data themes were identified by the referees (15 NHL and ten AHL). The raw-data themes emerged into a total of five first-order themes (four NHL and four AHL) and a total of three general dimensions (three NHL and two AHL) as shown in Figure 10. There was 6.72% agreement of the raw-data that were similar between NHL and AHL referees.

The following definitions of the general dimensions and first order themes allowed for the categorization of raw-data themes. Locus of control was defined as the perceived degree of control officials had on their officiating performance. The importance dimension incorporated quotes that referred to the relative value the official assigned to officiating. First order themes were either classified as internal (belief in controlling good performances and minimizing bad ones) or external (luck, fate, and other uncontrollable factors influenced performance). Stability referred to the performance being explained by either stable (short-term) or unstable (long-term) factors.

NHL officials minimized the importance of bad games. Poorly officiated games were not so important and they later went on to discuss more important events in their

life such as their role as a husband and father. “You try and keep it in its proper perspective”, one NHL official explained and went on to say, “I can determine that it is a biased perspective”. Poor performances were also attributed to temporary, situational factors such as having “a very inconsistent night” or “lacking experience”. Other important quotes included being “out of my element” or explaining a poor performance by having “back-to-back games”. Other important optimistic comments by NHL referees throughout the interview were also found such as when the official “lost focus for a second” or a “situation that I made a mistake” which happened “one time”.

Although NHL officials described themselves as being optimistic, there were nevertheless, some pessimistic comments surfaced. Following a poor performance, a stable explanation was given by one NHL official with the comment “my mind was not there”. In fact, the official went on describing having long lapses rebounding after a bad game and struggling to put bad calls behind:

As soon as I make a mistake, a big one, I live with that for two, three, four games. I think I have a big problem to say okay, this is behind me, start a new game and let's go. So at one point we forget about it but it could be the same in the game. I made a mistake I realized in the first, it is going to take a few minutes before I could realize that this is over now so get back in your game, focus on just keeping to do your job. I've always been like that because I maybe recognize my mistake, I do not try and make up any excuses, say no, no, this is not a mistake. I live with it and that's something I haven't resolved so far since ref I made one and I live with it for a few games or for a few minutes during the game.

NHL officials described responding to distractions and adversity in a positive way as described in the following quote:

Travel is always something you have to do and I hear guys complain a lot of their travel schedule and I'm sure I have done the same. You have to do it and you have to overcome it. I have three games three nights and next week I leave Thursday and fly from Philadelphia to Vancouver for a game Friday and Saturday I'm in Calgary for an eight o'clock start there and Sunday I travel to Anaheim for a five o'clock start. So, I mean, it is a wicked schedule but I know I have to do it and I have to prepare myself physically and emotionally to get to be on Sunday afternoon at five

o'clock in Anaheim. I still have to be as good as I can be regardless of the fact that I have traveled, you know, 5,000 or 8,000 miles to get there in three games in three consecutive nights.

Minor league officials offered several optimistic comments. For example, good games were attributed to a “feeling you get”. Following a poor performance, one AHL referee said “sometimes, you just do not feel good” or “sometimes you are not focused mentally”. Another relevant optimistic comment by an AHL referee, following a poor performance, was because “the game was too tough”. Similarly, when confidence was lost, it happened only “once in a while” and was “only for a short amount of time”.

Minor league officials also made some pessimistic remarks. Good performances were attributed to unstable reasons such as “I did a pretty good job *tonight*”. In the same way, poor performances were explained using unspecific reasons like “I just basically didn't have a clue”. However, this poor performance happened 10-12 years ago, the official went on to say and that today, he would not have a problem dealing with a poor performance.

Table 10

Learned Optimism in NHL and AHL referees

Question	NHL Referees	AHL Referees
When you finish a game and you feel you've done a great job, how can you explain this performance?	I think it is because of the <b>respect</b> that I have. I think it is because of the <b>rapport</b> with the players. There is a <b>recognition</b> factor, there is a respect being it from the fans, people sitting on an airplane that I carry with me wherever I go. I bring all together the ingredients you need to perform on the ice.	I <b>work hard</b> every game and for the <b>experience</b> I have, I think it all ads up. It is a <b>feeling</b> you get.
When you finish a game and you feel you've called a lousy game, how can you explain this performance?	I had a very <b>inconsistent night</b> . I was <b>out of my element</b> and <b>I was not mentally prepared</b> and I had back-to-back games and I was extremely <b>inexperienced</b> . It is when my <b>mind was not there</b> , especially the <b>end of the trip</b> is always my worst game. I'm tired, I've been <b>on the road for 15 days</b> . It is because I was <b>thinking of something else</b> .	Sometimes you just do not feel good. Sometimes <b>the game is too tough</b> out there. Sometimes, you are <b>not focused mentally</b> so you just turn the page.
Do you consider yourself more optimistic or pessimistic?	<b>Both said they were optimistic.</b>	<b>One said optimistic, the other said neither</b> by saying if you are confident you'll be more optimistic a little bit but more realistic than optimistic. It is more realistic than everything else.

Figure 10

Learned optimism in NHL and AHL referees hierarchical analysis results

NHL RefereesAHL Referees

<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Perceived ability to control environment	Internal	Locus of Control	Internal	Perceived ability to control environment
			External	Perceived lack of control over adverse conditions
<p>Good performances were explained because:</p> <ul style="list-style-type: none"> <li>• Respect gained</li> <li>• Rapport with players</li> <li>• Recognition</li> <li>• Has all the necessary ingredients</li> </ul> <p>Poor performances were explained because:</p> <ul style="list-style-type: none"> <li>• Lack of experience</li> <li>• Having back-to-back games</li> <li>• Wasn't myself that night</li> <li>• Fatigue due to travel</li> <li>• Lacked coaching &amp; supervision</li> <li>• Lost focus for a second</li> </ul>	Stable	Stability	Stable	<p>Good performances were explained because:</p> <ul style="list-style-type: none"> <li>• Worked hard</li> <li>• Focused</li> </ul> <p>Poor performances were explained because:</p> <ul style="list-style-type: none"> <li>• Lacked motivation for that night</li> <li>• Didn't feel good that evening</li> <li>• Game was tough</li> <li>• Lacked focus</li> </ul>
<p>Poor performances were explained because:</p> <ul style="list-style-type: none"> <li>• Mind was not in the game</li> </ul>				Unstable
<p>When poor performances occurred, discussed:</p> <ul style="list-style-type: none"> <li>• Family</li> <li>• Friends</li> <li>• Other business opportunities</li> </ul>	Not important	Importance		

General Questions

Table 11 compared a sample list of direct quotes between NHL and AHL referees on the theme of general questions. Probes in this theme varied such as the discussion of

the most important psychological characteristic of a quality official, the influence of the second referee, and advice to aspiring officials.

Considering one of the objectives in this study was to offer advice to potential officials, this theme was categorized into hierarchical analysis as shown in figure 11. The general dimension was termed improving mental skills and both sets of officials listed common techniques to help other aspiring officials remain in the game. Some of the raw-data themes were reflected in the following quotes by this NHL referee:

If they quit I do not blame them because they're not being properly equipped to handle the stress that they're subjected to. They need to be counseled and schooled... They need to be able to put an insulate against themselves against the negativity that's constantly going to come their way... to be equipped with this bafoon (disrespectful coach) behind the bench who has no respect for the stripes and without equipping those individuals, they are going to quit, they are going to fall by the way side because they can get a job at Burger King and make as much money without the abuse. ...from an officiating standpoint, unless they get some help like people like yourself or like me, we are doomed. We are absolutely doomed and that's a pessimistic look. (Despite this,) the business in the most wonderful business that I've ever been involved with. It gives you such joy and pleasure beyond the boos and the negativity of the job. There is a self satisfaction, gratification of being part of a group, a team that has the opportunity to make a positive difference to the game that we all love so when you are subjected to the difficult parts of the game, the abuse, you have to develop your own set of coping skills: talk to people who have had experience, try not to get too high, try not to get too low, try and stay even keel and try and emulate the people that you have respect for that you either work with and they do not have to necessarily be on the ice. You can develop your character by looking at successful people, being around successful people... Within three years I was refereeing the Stanley Cup Finals and it was because of the mental approach, the conscious awareness of what made (me) tick as a person. I just didn't show up and referee the game. ... So it was really in terms of young officials all those things that seemed really deep and they were deep for me at the time until I really started to put them into practice and saw how they changed my approach to the game, my feeling and interaction with all elements of the game and it started me on the path of success.

One minor league referee offered the following advice to aspiring officials:

I recommend the people that work with these kids. At that age it is tough because usually when you start refereeing, you start refereeing in your home town and all the people in the stands are the people that you know and they are the ones yelling at you. You want to be a referee in hockey you got to tell yourself people are not yelling at your personal name, they are yelling at your jersey you are wearing... You got to understand that you would not be the best referee out there right away because you are there as the players to learn the game. Everybody is learning at that level so they got to expect that you are going to make mistakes and you got to accept that for yourself too that you are going to make mistakes and you are going to wind up better.

Table 11

General Questions in NHL and AHL Referees

Question	NHL Referees	AHL Referees
What do you think is the most important psychological characteristic of a quality official?	<p><b>Focus</b> - to be focused on the moment - of what happened. He needs to be honest with himself. There needs to be an ability of <b>self appraisal</b>.  <b>Integrity-not always about me</b>, me centered.</p>	<p>You've got <b>poise, presence, physical abilities, judgment</b> but if you are confidence is down in your heel everything else goes out the window, so stay confident.</p>
Has having another referee changed any of your mental preparation?	<p>Yes, <b>less physical exertion but more vulnerability to injury</b> because your leading the play, your backing up and the play is coming at us and the players blast the puck in. I also now try to <b>prepare not only myself but my partner</b>.</p>	<p><b>It is not your own game</b>. It is a little bit but you've got another partner out there, you've got to work in pairs. You got to keep the same standard. You got a second pair of eyes out there so you <b>do not have to worry</b> about what's going on behind the play. It <b>takes off the pressure</b> but it is a kind of shared pressure.</p>
What extent is officiating mental and to what extent is it physical? (add up to 100%)	<p>70% mental, 30% physical.  <b>100% mental, 100% physical.</b></p>	<p>60% mental, 40% physical.  75% mental, 25% physical.</p>
What advice would you offer to aspiring officials to remain in the game	<p>If they quit I do not blame them because they're not being properly equipped to handle the stress that they're subjected. They need to be able to put an <b>insolate</b> against the negativity that's constantly going to come their way. They have to be <b>equipped mentally</b> to deal with the fallout.  You have to develop your own set of <b>coping skills</b>: talk to people who have had the experience, try <b>not to get too high, try not to get too low</b>.</p>	<p>You want to be a referee in hockey, you got to tell yourself people are not yelling at your personal name, <b>they are yelling at your jersey</b> you are wearing.  You are <b>learning to deal with the abuse</b> but you got to have some <b>help from everyone around hockey</b>.  You got to be <b>well surrounded</b> early in your career to deal with those type of things.</p>

Figure 11

Comparing advice for aspiring officials in NHL and AHL referees hierarchical analysis results

<u>NHL Referees</u>		<u>AHL Referees</u>		
<b>Raw-Data Theme</b>	<b>1<sup>st</sup> Order</b>	<b>General Dimension</b>	<b>1<sup>st</sup> Order</b>	<b>Raw-Data Theme</b>
Create insulation against the negativity Improve mental skills Develop coping skills Keep a balanced perspective Study sports psychology Consult expert in the field of sports psychology Focus on the psychological benefits such as enjoyment, satisfaction, social etc. Gain control of the game Worry about things in your control Develop your own character	Mental	Improve  Mental  Skills	Mental	Don't take the abuse personal
			Misc	Get support from family and Friends

In regrouping all the themes discussed in the figures at the hierarchical analysis and relating them to the mental training techniques in achieving an IPS, table 12 and 13 emerged. In table 12, the number of raw-data themes officials' cited related to optimal performance were counted. For example, in the general dimension theme of internal motivation, NHL officials cited 13 different techniques they used in order to achieve an IPS. Similarly, AHL referees discussed 11 different sources of internal motivation. This analysis facilitated the results in table 13 that provided a summary and comparison of all the themes discussed by NHL and AHL officials.

Table 12

Summation of NHL and AHL raw-data themes related to the techniques in achieving optimal performance

<b>Theme</b>	<b>Techniques in achieving an IPS</b>	<b>Number of raw-data themes cited</b>
Motivation	Sources of intrinsic motivation Sources of extrinsic motivation	NHL 16; AHL 12 NHL 1; AHL 4
Routine	Discussed the importance of control of routines on performance	NHL 4; AHL 4
Goal Setting	Setting SMART goals	NHL 4; AHL 4
Focus	Methods of getting focus Methods of regaining focus	NHL 9; AHL 5 NHL 5; AHL 3
Mental Imagery	Number of senses used	NHL 3; AHL 1
Stress	Coping strategies	NHL 13; AHL 9
Self-talk	Raw-data linked to positive self-talk	NHL 6; AHL 2
Mental toughness	Gaining mental toughness	NHL 5; AHL 1
Confidence	Gaining confidence	NHL 8; AHL 7
Learned optimism	Attributing positive outcomes to stable explanations	NHL 4; AHL 2

Table 13

Psychological Characteristics Between NHL and AHL Referees

NHL Referees	AHL Referees	Comparison
<i><u>Motivation</u></i>		
Excellence in hockey was a top priority in their life. absorbed by the passion and love for the game.	Total commitment to excellence was absent.	NHL referees described more methods of being internally motivated while AHL officials discussed more methods of being extrinsically motivated.
<i><u>Routine</u></i>		
Reported doing their routine the same way every time.	Described having a similar routine every day.	NHL and AHL referees had similar routines.
<i><u>Goal-setting</u></i>		
Described some goals but lack specific performance goals as well as daily goals.	Discussed some goals but lack specific performance goals as well as daily goals.	NHL and AHL referees described similar goals.
<i><u>Focus</u></i>		
Discuss a heightened focus and effective ways to regain focus by using established key-words to stay in the moment.	Generally not as skilled at coping with irrelevant cues. Have not developed, practiced, or refined effective focusing strategies.	NHL referees had a report more elaborate attention control strategy and reported more methods in getting and regaining focus.
<i><u>Mental Imagery</u></i>		
Mental imagery was used on a daily basis for a variety of purposes such as making potential penalty calls, game control, and building confidence.	They recognized the advantages of using imagery but did not practice it.	NHL referees used mental imagery more. They described clearer, more vivid pictures in their mind and reported being able to manipulate situations to see themselves performing successfully.

Table 13 Continued

## Psychological Characteristics Between NHL and AHL Referees

NHL Referees	AHL Referees	Comparison
<i><u>Stress</u></i>		
Described effective ways to cope with and reduce stress by keeping things in perspective, remaining positive, and exercising.	Discussed some strategies to keep stress manageable by believing in themselves and exercising.	NHL referees reported more techniques in coping and managing with stress.
<i><u>Self-talk</u></i>		
Reported mostly positive self-talk by using strategies such as countering and cognitive restructuring to enhance their performance.	Reported using few key-words to improve their performance of which, in part, are negative.	NHL referees had a higher quantity and quality of key-words in reaching an IPS.
<i><u>Mental Toughness</u></i>		
Reported dealing with adversity and bouncing back after setbacks quickly and efficiently.	Discuss putting bad games aside and dealing with pressure but took longer to rebound.	NHL referees dealt with setbacks better and were able to rebound quicker demonstrating a superior ability to be mentally tough.
<i><u>Confidence</u></i>		
They were very confident in their abilities and discussed ways to increase confidence and regain it once it is lost. There was no question of failure.	Also very confident in their abilities but expressed some self-doubt.	NHL referees described more extensive methods of increasing their confidence.
<i><u>Learned Optimism</u></i>		
Attributed their success to internal dimensions and cited temporary, specific reasons why games are poorly officiated.	Attributed their success to internal dimensions but reported unspecific and unstable reasons to poor performances.	NHL referees attributed more optimistic explanations to their successes and failures.

Chapter 5  
Discussion and Conclusion

**Better Understanding Officials**

Interviewing four elite hockey referees provided rich insight into the mental demands required in officiating a sport which is often referred as “the fastest game in the world”. The task demands of officiating hockey are complex. They include: information processing (i.e. decision making), speed (i.e. making decisions quickly), physical (i.e. skating), and psychological (i.e. attentional demands). Overall, the referees were professional and courteous. Furthermore, they were open-minded in sharing their knowledge to help advance and better understand the psychological factors related in achieving an IPS in officiating. What was also apparent is the pride that the officials feel in putting on the striped sweater and being in charge of the game. Officials are a different kind of breed, separate from the players and coaches who display a vested interest in their team. Sports officials are like the justice system - the judges and police of the hockey forum. They play the role of mediators offering an unbiased perspective working to ensure that players abide by the rules.

Despite the pressure associated with officiating, the subjects in this study were all very upbeat, positive, and they enjoyed contributing to the game. Hockey, for them, was a love, a passion, and a way of life.

### **Interpretation of the Results**

Given the exploratory nature of this investigation, it cannot be firmly concluded that differences do exist between NHL and AHL referees in their mental training techniques to achieve optimal performance. The problem is that “we have few agreed-on canons for qualitative data analysis, in the sense of shared ground rules for drawing

conclusions and verifying their sturdiness” (Miles and Huberman, 1984). Moreover, there are no absolute rules to test reliability or validity. Miles and Huberman (1990) later argue that as such, there are no set formulas as in quantitative data analysis for determining significance or even replicating the researcher’s analytical thought process. Therefore, a consensus was established between the experimenter and the rater prior to analyzing the data. Significant differences occurred between NHL and AHL referees when comparing the raw-data in the hierarchical analysis and determining whether or not 70% or more of the raw-data themes were in agreement. A closer examination will further shed light and explain.

The qualitative analysis of the interview transcripts seem to reveal that the NHL and AHL referees differed in the way they achieve optimal performance in the following mental training techniques; motivation, focus, mental imagery, stress, self-talk, mental toughness, confidence, and learned optimism. Thus, it appears the officials had similar approaches in their routines and the types of goals they set in order to achieve peak performance because in these two themes, NHL and AHL reported 75% and 81.8% of the same comments as regrouped in the hierarchical analysis. The following section will provide a discussion and interpretation of the officials’ responses as they relate to the pre-set psychological factors.

NHL officials were more aware of, practiced, and, utilized more sports psychology techniques than AHL referees. Although NHL and AHL referees discussed many different strategies to gain and maintain their motivation, NHL referees reported slightly more intrinsic methods of getting motivated while AHL officials reported more

extrinsic methods of getting motivated. The sources of motivation for NHL officials seemed to be the satisfaction and pleasure of working a good game while an example of an extrinsically motivated comment arose with one AHL official when he responded to getting motivated by saying other participants keep him in the game. The extrinsic methods of getting motivated were mentioned by AHL referees included making money perhaps because of the socio-economic differences that existed between AHL and NHL referees. For instance, AHL referees are not as financially rewarded as NHL officials. The high level of motivation expressed by both sets of officials is similar to Deci & Ryan's (1985) self-determination theory whereby a high level of intrinsic motivation exists in sports contexts in which external elements to the activity are not emphasized (i.e. beating an opponent or winning a prize). It is evident that officials do not win or lose games they officiate. However, by feeling that they have contributed to the game may explain their overall high level of intrinsic motivation.

In terms of their routines and goal setting strategies, both sets of officials discussed their pre-game, game, and post-game routines stating that their routines has not changed much from game to game. Both sets of officials were somewhat meticulous about their routine yet exercised a reasonable amount of control in establishing effective routines. NHL and AHL referees expressed similar goals conceptualizing the idea that in properly planning goals, time should be devoted to setting goals they can control. They provided at times specific and vague answers to their short-term and long-term goals.

NHL referees described more strategies to gain focus than did AHL officials. Another detectable difference was the way NHL officials regain their focus once it was

lost. One NHL referee sums up the theme of focus best by saying “the biggest thing about focus is staying in the moment. If you are in the moment at every second then you are not distracted. You are focused on what it is your supposed to do”. Distractions, both external (i.e., fans, media) and internal (i.e., negative thoughts) are common amongst referees in both leagues. As such, officials needed to develop effective coping strategies to avoid getting off their game. It is possible that NHL official master more the concept of focus by outlining more strategies to create and recreate their focus. The officials in this study understood how they can control their thoughts and paid little attention on things that are out of their control. A startling difference, however, arose in the way the officials’ regain their focus. NHL officials took it upon themselves to regain focus by taking responsibility whether or not they are in the game while minor league referees seemed to rely primarily on other, external, uncontrollable factors to regain their focus by saying that the importance of the game and the fans can keep their focus in the game.

It was interesting to note that both sets of officials did not clearly state that they switched attentional focus as outlined by Nideffer (1967). One can speculate that, for the officials, changing focus is more automatic and, in fact, they did switch concentration but did it unconsciously. Since the officials are working at such a high level, effectively switching focus is not only useful in achieving an IPS, but also necessary. Both sets of officials previously stated that for them focus is something that is “automatic” or like the feeling of being in “auto-pilot”.

One of the most interesting findings dealt with mental imagery. NHL officials’ imagery was vivid, under their control, and described how they would manipulate

situations ensuring successful performances. It was interesting to discover that for one of the NHL officials, his imagery appeared more as a camera angle rather than the traditional “out of one’s eyes” perspective as supported by the literature review on effective imagery training (Martin, Moritz & Hall, 1999). Minor league referees expressed a lack of awareness of the importance of mental imagery. The discrepancy becomes more apparent when one minor league referee described his mental imagery as watching games on television while in comparison one NHL official allotted regular practice times to enhance the quality of his mental imagery.

NHL referees voiced more sources of stress than AHL officials most likely because of the increased visibility, media exposure, and importance of games. More is at stake for the players, coaches, and officials that may create more pressure. One AHL referee mentioned another source of stress which was the frustration of having to prove himself again when a promotion to the NHL eventually takes place. Other stressors not mentioned by AHL officials but revealed by NHL referees also included family issues such as being a good father, husband, and balancing time in a very busy schedule. The differences in age and stage in their life between NHL and AHL officials may explain this finding. On the one hand, NHL referees were at the age of supporting a marriage, raising children etc., whereas AHL officials were still bachelors and had somewhat less responsibility. Both sets of officials discussed the time pressure and fear of making a bad call. These findings are generally consistent with Rainey’s (1995) four correlated factors of stress that lead to stress in officials. Moreover, the link between increased self-

imposed expectations and heightened stress previously discussed by the referees was consistent when examining perfectionistic tendencies in officials (Zoller, 1985).

The theme that seemed to provide the most differences between NHL and AHL referees was that of self-talk. NHL referees not only had a higher quantity but also had a superior quality of key-words in their self-talk. NHL officials were able to immediately identify their use of self-talk while AHL referees initially did not report any use of key-words but then retracted this statement and listed a few. NHL officials identified more positive and negative key words in their performance compared to minor league officials. Although more negative key words were also identified by NHL officials, this may be explained because minor league officials did not report using many key-words in the first place. Furthermore, AHL referees did not report any instructional self-talk that was considered highly effective in enhancing skilled performance (Rushall, Hall, Roux, Sasseville & Rushall, 1988; Rushall & Shewchuk, 1989).

In terms of mental toughness NHL referees described more ways of becoming mentally tough. Again, because of their added experience in national and international levels of competition, NHL referees were more likely to be exposed to the additional pressure. NHL officials offer advice by interpreting failure as a challenge and stepping-stone to inevitable success. The following quote helps explain while offering advice on bouncing back after being disappointed:

... the advice I would give to that guy or another guy that had a bad experience is do not give them the tools to fire you or to say you see we were right about you. So what you have to do, let's say it happened for me, let's say I didn't work the second round this year so what I'm going to say is like you are not going to get me really. I'm going back to the training camp in shape. I'm going to control what I control. I can stay in shape, be motivated in the training camp, get involved in

the clinic, the training camp because at the start of the season, I'm going to show you that I deserve to be there. Let's start a new season so I'm going to be like that.

During the season that the study was undertaken, another situation epitomized the NHL officials' ability to be specifically mentally tough. One NHL official was hit in the face with the puck during a game against the Anaheim Mighty Ducks. When he was taken off the ice, he pleaded with the medical staff to return to the ice which was against their judgment. When the researcher sent him an e-mail to wish him a quick recovery, he responded with some negativity, but was nevertheless persistent and had a sense of humor! The following quote demonstrated his ability to sustain mental resistance to adversity:

Thanks much for your concern and well wishes. It was my own stupid fault. I hesitated while assuming a "safe" position away from traffic in the corner. Aside from the stitches (one inside on the muscle and seven outside), I received a non-displaced fracture of the cheekbone. I had to "convince" the doctors in Atlanta that I must go out and finish the game. My concession was to wear (some protective equipment) on my head and face! I've had a wicked schedule and there is no end in sight. Anyway, I'm getting by with some moderate discomfort and inconvenience. Next time I'll duck!! Quack, quack.

NHL officials described more ways of creating and getting back their confidence. There were, however, some similarities between NHL and AHL officials. For example, some of the similarities were that both sets of officials showed a strong, long-lasting belief in themselves. In addition, all the referees were characterized as never giving up, having many positive self-affirmations, and emitted a very positive self-esteem while being aware of the danger of overconfidence. The gap in confidence, however, between NHL and AHL referees was evident when minor league officials described regaining confidence by comparing themselves to someone else who did even worse and then

justifying that their own performance is therefore better. The NHL referees rebuked this kind of thinking by telling aspiring referees the following:

I want you to elevate your game to the level that has been expected of me. I have a certain standard and expectation as the type of game I should call. If I'm rated in the top grouping of the world then I expect the people that I work for that are not rated that high to bring their game up to my level. It should not be expected that I should lower my level to theirs.

This thought process was precisely what prior research (Gould et al., 1981; Highlen & Bennett, 1979) indicated when signaling confidence was a critical variable in competitive performance with successful athletes being separated from less successful athletes in terms of their belief in themselves and their abilities.

Another interesting finding was that NHL referees cited good performances to be internal, stable, and general dimensions whereas external, unstable, specific, and not important dimensions explained most poor performances. Again, NHL officials were found more often attributing their performances to such causes compared to AHL referees. The optimistic statements were consistent with Seligman's (1998) propositions on using optimism to enhance performance. Just like NHL officials, minor league referees took on the conflict between optimism and pessimism as something fun and therefore, were able to see this dichotomy more as a challenge than a burden. NHL officials had many more positive experiences leading up to their careers while AHL referees are still battling to make it to the top.

During the general questions theme, NHL and AHL referees were asked what advice they would offer to aspiring, younger officials. Again, NHL officials offered more

in-depth insight into this theme most likely because of their extensive experience and tremendous knowledge they have acquired over the years.

### Improving Mental Skills

All of the officials interviewed expressed working on their own mental skills. NHL referees, however, devoted more time and energy in improving mental skills on a daily basis. More alarming, however, is the general lack of resources available and the disproportional budget allocated to improving mental skills. One NHL referee explains:

I think there needs to be people like yourself to sit in one-on-one sessions. There need to be workshops. I think there needs to be with all of us workshops, shared experiences as to what we do so that another official may pick something up that I do. Another official I may pick something up that I do, I may pick something up that I think, hey, I'm going to try that... or I haven't thought of that, maybe it'll work for me.

NHL referees described spending more time enhancing their own mental skills and educating themselves on the value and the role sports psychology has in officiating at an IPS. One NHL official described after being asked what does the league do to develop mental skills:

At this point they haven't and it is sad. We've had (a sports psychologist) but it is too intermittent. It is maybe once every few years. (A sports psychologist) will come in and do a one hour talk in training camp suggest some books for guys to read and there is no follow up be it resources be it from a management standpoint, a lack of belief in this area... for whatever reason, it is not done near enough.

One of the NHL referees provided a rich source of knowledge and information in this study. Being in the top three in the world probably explains why he was able to provide insight in virtually all areas of this investigation. His experience in the Stanley Cups, world championships, and Olympic games seemed to have provided him with the

successful mental skills that allows him to consistently seek high levels of officiating excellence. His abundance in knowledge greatly contributed to the results of this study but may not be representative of most referees in the NHL.

### **Limitations of the Study**

Unfortunately, there exists a lack of empirical research with ice-hockey referees. More specifically, there does not seem to be any studies that examined the link between psychological characteristics and peak performance in elite officiating. Hopefully, this study has created an excellent starting point for other researchers interested in this area.

One limitation of the present study is the possible lack of external validity and generalization of the results due to the small sample size. Only four volunteers were chosen and their responses might not be representative of all referees in the NHL or AHL. Therefore, serious constraints are applicable to making generalizations from these findings to a larger target population and in addition, to other officials in different sports. Similarly, the sample size may be insufficient to conclude that these differences are apparent in all officials since individual differences are apparent especially with the NHL referee that is ranked as one of the top three officials in the NHL. Furthermore, the generalizations stipulated in this study are limited to hockey referees only.

Considering the interview was conducted in English, while the mother-tongue of three out of the four referees was French, may have affected some of the officials responses and thereby, created less elaborate and precise answers. However, given the

predominance of English spoken when working on the ice with players and other officials, a reasonable degree of comprehension and oral dialogue is required and it was evident that the officials were bilingual.

Two other limitations surfaced in respect to the interview process. A disproportional time was spend with NHL (210 minutes) vs. AHL (60 minutes) referees. However, it seems that NHL referees had much more to discuss in these topics. In working and competing at higher competitive levels, more in-depth answers are provided (Diab, 2000). It should be noted that all referees were given the same protocol (i.e. the same questions) but NHL referees simply developed and extended their responses more in most of the themes discussed. The final limitation surrounded the lack of demographic information obtained at the beginning of the interview. Other factors such as education, years of scholarship, or other educational seminars attended by the officials may explain some of the differences found between the NHL and AHL referees that were not taken in consideration.

### **Suggestion for Future Research**

A useful direction for future research may address some of the current limitations of this present study. For example, a study may be replicated using more subjects. In addition, other studies incorporating other athletes in different sports and using both genders may be useful in extending the external validity. To further enhance and quality and credibility of the study, triangulation of qualitative data sources may be employed. This involves comparing observational data with the interview data. Follow up

observations on the ice during a game may further validate and corroborate the information obtained through the interviews.

### **Conclusions**

The study of peak performance is an important topic, particularly as the performance demands placed on such officials continue to increase. As the sports psychology field continues to gain respectability and recognition in the world of competitive athletics, mental skills training is becoming vital in the training regimes of elite athletes. This study has compared the mental training techniques used by NHL and AHL referees to achieve optimal performance. It is hoped that this information can provide a stepping stone to future researchers and practitioners as well as provide informative insight to other officials interested in improving their own mental skills. Results of this study drawn from the interviews appear to indicate the following conclusions:

- Mental preparation is an extremely important factor influencing an ice-hockey official's IPS and must be continually practiced and refined. More time should be devoted to practice and better hone the psychological techniques available in order to reach consistent high levels of performance.
- Overall, NHL referees discussed more established and elaborate cognitive strategies in order to achieve optimal performance than AHL officials.



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**Appendix A**

Official's Interview Guide

## An Interview with an Elite Athlete

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Conducted by: Lior Doron B.A., D.S.A., (M.Sc.)  
Supervisor: Wayne Halliwell Ph.D

**Instructions:** The purpose of this interview is to gain a better understanding of the psychological factors associated with officiating. The interview will last approximately 60 minutes and is divided into subsections. Please feel free to answer the questions in an honest and truthful manner. Since you may have to think back in time, you might not be able to immediately remember some things. Take your time to recall; pauses are fine. If you still can not remember after thinking back, then just let me know. Remember your responses are strictly confidential and if the results of this study are published, your answers will remain anonymous. I am also taping the conversation so that I can have an accurate account of your responses. Are you ready to begin? Do you have any questions?

### General Characteristics of the Official

Name: \_\_\_\_\_

Age: \_\_\_\_\_

Years of experience in the NHL \_\_\_\_\_

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**MOTIVATION**

At what age did you start refereeing and what made you want to start?

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How do you get motivated for a game?

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What do you enjoy most about refereeing?

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Can you describe a time when you didn't feel motivated to referee?

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Why do you think some referees quit?

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When you lose motivation and intensity in a game, how do you get back into it?

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What do you think the differences are between when you are the most motivated and when you are the least motivated?

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### **ROUTINE**

Briefly describe your daily routine the day of the game (i.e. routine, food, superstition, physical and mental warm up)

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Do you have a pre-game routine?

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Do you have a game routine or things that you usually do during the game?

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What do you do during the intermissions (or between periods)?

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Do you have a post-game routine?

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### **GOAL-SETTING**

Do you set goals for yourself each year in terms of a) areas of improvement, b) playoff assignments?

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Do you set yourself goals every game?

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Do you have long-term goals? What are your career goals?

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### **FOCUS**

How do you get focused during a game?

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What are some potential distractions? What distracts you the most?

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Have you had difficulty concentrating during a game? If yes, describe the situation.

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How do you stay focused during a game with all these distractions?

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When you lose focus, what do you do to get it back?

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**MENTAL IMAGERY**

Do you do any mental imagery or visualization during your pre-game preparation?

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Describe the pictures in your imagery (internal or external, senses such as sights, sounds, feel, etc.).

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**STRESS**

What are the sources of pressure or stresses that you experience on the ice?

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What kind of stress or pressure do you get off the ice?

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What is the biggest source of stress that you experience?

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How do you deal with the pressure of constant evaluation from players, coaches, GM's, supervisors, fans and the media?

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What do you do to reduce your stress?

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**SELF-TALK**

Are there any key-words that you focus on in your pre-game preparation or during the game to help you achieve an ideal performance state?

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Think of one of your best games that you officiated... can you remember what you were thinking and saying to yourself right before that game?

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Now, think of one of your worst games that you have officiated... can you remember what you were thinking and saying to yourself right before that game?

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What do you think some of the differences are between when you have positive and negative self-talk?

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### **MENTAL TOUGHNESS**

What are the characteristics of an official that has mental toughness or who is mentally strong?

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What have been the most difficult moments or setbacks in your career?

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How do you bounce back from these setbacks?

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Have you ever thought of quitting? If so, what prevented you from doing it?

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### **CONFIDENCE**

What do you do to get confidence?

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What do you do to maintain your confidence?

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Can you describe a time when you lost your confidence?

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What do you do when you lose confidence, how do you get it back?

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What are the differences between when you are the most and the least confident?

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### **LEARNED OPTIMISM**

When you finish a game and you feel you've done a great job, how can you explain this performance?

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How do you attribute or explain your good performances?

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Now, let's say you finished a game and you feel you've called a lousy game, how do you explain this performance?

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How do you attribute or explain your poor performances?

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Do you consider yourself more optimistic or pessimistic?

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### **GENERAL QUESTIONS**

We've talked about some of the psychological characteristics of officiating (motivation, routine, goal-setting, focus, mental imagery, self talk, confidence, optimism), what do you think is the most important psychological characteristic of a quality official? (there could be other ones).

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Has having another referee changed any of your mental preparation either before or during the game? In what ways has it become easier or harder?

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To what extent is officiating mental and to what extent is it physical? Could you provide a percentage that adds up to 100%?

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What does the league do to develop officials' mental skills? For example, how to stay motivated, set goals, etc.

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What do you do to develop your mental skills?

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What can be done to develop and improve mental skills in officials?

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Can you describe the mental characteristics of the best officials that you have worked with?

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I would like to end our discussion by asking what advice, if any, you would offer aspiring officials to remain in the game despite the overwhelming number of officials quitting because of verbal or physical abuse? (There was an article in the National Post on Oct 19<sup>th</sup> (Run from the game, 1999) that had 10,000 officials quitting every year or 30% of all officials).

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Thank you for your time and information.